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**Development of the Medicaid
Analytic Extract Enrollee Master
(MAXEM) File, 2005 and 2006**

Final Report

September 14, 2010

John L. Czajka
Audra Wenzlow
Julie Sykes



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Policy Research, Inc.

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EXECUTIVE SUMMARY

Beginning in 1999, all states and the District of Columbia have been required to report Medicaid enrollee eligibility and claims data quarterly in a standard format into the Medicaid Statistical Information System (MSIS). The research files derived from these data, the Medicaid Analytic extract (MAX), have since been produced by Mathematica Policy Research for the Centers for Medicare & Medicaid Services (CMS) for each state, by calendar year. As the quality of the data has improved, MAX has become one of the most important research tools for understanding patterns of Medicaid service use and expenditures across states.

Recent policy developments have highlighted the importance of developing a more effective means of linking Medicaid records over time and across states. To address this and related needs, CMS contracted with Mathematica to design and implement a new MAX Enrollee Master file (MAXEM) that will provide researchers Medicaid records that have been unduplicated both within and across years and within and across states and will give them the means to link MAX records over both dimensions as well. This report describes Mathematica's design and development of the first MAXEM files, for 2005 and 2006.

Linkage Variables

To link Medicaid records efficiently and accurately and to evaluate the quality of the linkages afterwards requires variables that can reliably and uniquely identify each Medicaid enrollee. Accordingly, the first task in the design phase of this project was to evaluate the strengths and limitations of state-reported identifiers contained in MAX. Our analysis concluded that five personal identifiers—the MSIS ID, Social Security number (SSN), health insurance claim number (HIC), date of birth (DOB), and sex—could be used to link MAX records within states and that the last four of these could be used to link MAX records across states. The MSIS ID assigned by the state is designed to uniquely identify each enrollee within that jurisdiction, so it is highly effective in linking enrollee records within a state, but it is of no use in linking enrollee records across states. SSNs collected during Medicaid enrollment are available for most enrollees. SSNs are also obtained independently from Medicare Enrollment Database (EDB) records that are linked to the Medicaid files for Medicare enrollees. The EDB is also the most reliable source of the HIC. In the 2005 MAX Person Summary (PS) file, 89 percent of records contained an SSN or HIC along with a DOB and sex. Race/ethnicity, Medicaid eligibility group, and Medicaid service use were found to be useful for quality review but not for linking. Such variables cannot confirm an individual linkage, but they can be useful in the aggregate for assessing the comparative quality of linkages across different subpopulations or linkage methodologies, and we used them in both capacities.

Linkage Algorithm

A second key component of this project was the identification or development of an algorithm suitable for linking MAX records within and across years and within and across states. After reviewing a number of algorithms for linking administrative records we selected three for further evaluation: (1) an approach used by CMS to merge Medicare Modernization Act (MMA) Part D data to the Medicare Master Beneficiary Database (MBD), (2) an approach used to link MAX data with the EDB, and (3) probabilistic record linkage. The MMA-MBD approach uses a

point system to determine the level of agreement on seven variables that is sufficient to classify a record pair as a link—that is, representing the same person. The MAX-EDB approach differs in the combinations of variables that define a record pair as a link and does not use a point system. Probabilistic linkage differs from the first two “deterministic” methods in that it assigns a score based on the likelihood that the agreement observed between variables on two records could occur by chance. This method takes into account that agreement on some variables—for example, sex—provides less information than agreement on other variables, such as date of birth. Probabilistic linking also allows for partial agreement on a variable. This is particularly useful when the linking variables include names or addresses, but it can be useful with identification numbers as well, providing an important advantage over the deterministic methods.

We selected three states—Arizona, California, and Nevada—for a prototype implementation and evaluation of the three algorithms. The prototype design included combining files across years and states, implementing the linking algorithm, and performing a link quality review to assess whether the linked records represented the same person. The three states allowed us to address a wide range of programming, linkage variable quality, and data processing challenges likely to be encountered when implementing the final algorithm on all of the states.

Lacking a means to determine true agreement, we assessed the quality of any two linked record pairs by their agreement on six measures—race/ethnicity, BOE, non-overlapping months of enrollment, use of any services, use of institutional care, and use of prescription drugs. In addition to examining the quality of the linkages, we also compared the algorithms with respect to their processing time and computational efficiency. After preliminary testing we rejected probabilistic linking as an option because it required inordinate amounts of computer time to run, even when we restricted the record pairs to be evaluated to those that would have been defined as links under the other two algorithms. In addition, with this degree of “blocking” to restrict the record pairs that could be linked, probabilistic record linkage lost its chief advantages over the deterministic methods.

Overall, in our more extensive evaluation of the two deterministic approaches, the MMA-MBD and MAX-EDB linkage algorithms produced similar linkage rates, with the MMA-MBD increasing the number of links by less than 0.2 percent for within-state linkages and by 1 percent for cross-state linkages over MAX-EDB. Our analysis also suggested that data entry errors in SSNs, resulting in two transposed digits or disagreement on one digit, cannot be differentiated from records for distinct individuals and should not be included in the MAXEM linking algorithm unless names become available as linking variables, in which case strategies for accounting for data entry errors in SSNs should be reconsidered. Based on these findings, we recommended to CMS that MAXEM implement the MMA-MBD algorithm with a few modifications: allow linkages by MSIS ID within state (without regard to DOB and gender agreement) and do not allow linkages based on HIC when they do not have equatable beneficiary identification codes (BICs).

CMS accepted the proposed modified version of the MMA-MBD algorithm but also requested three additional changes: require agreement on sex, require agreement on at least 2 parts of the date of birth, and eliminate the scoring methodology. The final algorithm, then, allowed a pair of records to be linked if they agreed on any one of the following:

- MSIS ID

- MAX SSN + sex + at least two of (DOB year, DOB month, DOB, day)
- EDB-SSN + sex + at least two of (DOB year, DOB month, DOB, day)
- EDB-HIC (using equatable BIC) + sex + at least two of (DOB year, DOB month, DOB, day)

This algorithm was applied first to link records within states, both within and across years, and then to link records across states.

Linkages Within States

Over the two years we found comparatively few linked pairs within a state and year—only 327,000 out of 121 million records. MSIS IDs are not duplicated on MAX files within a state and year, but some duplicates were created in MAXEM processing when we applied the corrections to temporary IDs supplied by the states. These duplicates accounted for only 5.17 percent of the total linked pairs within state and year. Net additional links by MAX SSN accounted for 93.15 percent of the two-year total, with another 1.37 percent by EDB-SSN and the remaining 0.31 percent by EDB-HIC. In eight states, however, links by EDB-SSN and EDB-HIC accounted for more than half of the within-year total, implying that most of the within-year duplication in these states occurred among beneficiaries dually enrolled in Medicaid and Medicare.

While within-year links were comparatively rare, high rates of enrollee retention were responsible for a substantial number of across-year linkages. We identified 50.2 million linked pairs between the two years, which means that 83 percent of the 60.5 million enrollee records in 2005 linked to records in the same state in 2006. Virtually all of these links—99.38 percent—were based on MSIS ID. The proportion of enrollee records in 2005 that linked to records in 2006 did not vary greatly among the states. All but a handful of states had rates between 79 and 87 percent, but there were outliers, with Louisiana the highest at 90 percent and Nevada the lowest at 68 percent. The narrow distribution of across-year linkage rates implies considerable similarity in caseload turnover across states.

After the within-state record linkage was complete, the process of unduplication within each state involved three steps: (1) assignment of a common MAXEM ID to all records representing the same individual, (2) reconciliation of identifiers and demographic variables across records with the same MAXEM ID, and (3) consolidation of linked records within the same year. Replacement of missing or inconsistent values under step (2) was much less frequent in 2006 than 2005 due to the fact that most of the replacement values for 2005 came from 2006. This implies that the addition of 2007 data to MAXEM will yield corrections to the 2006 data.

Linkages Across States

Records were linked across states in order to produce an unduplicated count of enrollees in each year for the entire United States. These linkages could not use the MSIS ID, as it is assigned at the state level. For the nation as a whole and in virtually every state, 99.9 percent of the across-state linkages were due to the MAX SSN.

On average, 4.2 percent of enrollee records in the two years linked to a record in another state in the same year, which means that about half that fraction of individual enrollees were

enrolled in two or more states in the same year. An additional 0.4 percent of records in 2005 linked to a record in another state in 2006. For the across-year linkages we can identify an origin (2005) and a destination (2006) state. California and New York have pronounced net out-migration among enrollees while Nevada, Oklahoma, Tennessee, and Wyoming have pronounced net in-migration.

Quality of Linkages within States

Ultimately, the effectiveness of any record-linkage endeavor depends upon the quality of the underlying data. Because of missing, incomplete, or incorrect identifiers, records belonging to different individuals may be linked, and records belonging to the same individual may go unlinked. To fully evaluate the quality of any record linkages, we would need independent information that would enable us to verify at least a random sample of the linkages. Lacking that, we examined how often linked pairs agreed on characteristics that were not used in linking them but which ought to be identical all or most of the time when a linked pair represents the same individual.

Nationally, 99.5 percent of the within-state pairs linked by MSIS ID have full agreement on DOB and sex. Another 0.17 percent differ on just one part of the DOB. In three states, however, more than one percent of the linked pairs differ on sex or at least two parts of the DOB or have missing data on one or both fields: Nebraska (4.4 percent), Wyoming (2.4 percent), and New York (1.5 percent). Missing DOBs account for most of these differences, which means that the differences do not contradict the linkages but simply fail to confirm them.

Over all states, 89.1 percent of the linked pairs agree on both race and basis of eligibility (BOE)—that is, aged, disabled, child, or adult. Among states this varies from a high of 98.1 percent in Wyoming down to a low of 58.9 percent in Vermont. Most of the low levels of agreement are due to missing race in one or both years. Different values of race are found on only 0.7 percent of all linked pairs nationally while 3.8 percent of linked pairs differ on BOE while agreeing on race. Among the states with comparatively high rates of disagreement on either variable, only two states have high rates of disagreement on both, suggesting that measurement issues rather than linkage errors may account for most of the observed disagreement.

While records that were linked despite disagreement on one part of the DOB were inconsequential numerically, we found evidence of more false positive linkages among these pairs than among records linked with full agreement on the DOB. Nevertheless, it appears that eliminating these linkages would remove substantially more good links than bad links, so we do not recommend altering this element of the linkage algorithm in future linkages.

Quality of Linkages across States

Linkages of records across states are potentially more problematic than linkages within states because no across-state linkages have been validated by the states through the assignment of a common Medicaid identifier. Because the linkages across states depend almost entirely on SSNs, missing or incorrect SSNs will depress linkage rates. After reconciliation, when missing SSNs were replaced with nonmissing SSNs from records linked within states, 9.2 percent of SSNs were still missing in 2005 and 9.8 percent were missing in 2006. About two-thirds of the

missing SSNs were due to California, where SSNs are frequently not obtained for enrollees who qualify for limited benefits available only in that state. The missing SSNs from California are likely to have little impact on linkage rates across states, therefore. Based on this, we estimate that 3 to 4 percent of the true pairs across states could not be identified because of missing SSNs. A separate analysis of within-state linkages that would have been missed if the MSIS ID were not available leads to the same conclusion.

While the overriding concern about linkage errors across states involves the impact of missing SSNs in lowering the linkage rate, another potential problem involves individuals sharing the same SSN, which could have the opposite effect. In 2005, 1.419 million MAX SSNs appeared in two or more states, with one SSN being reported in 10 states. When we applied our linkage algorithm with its requirement that linked pairs agree not only on SSN or HIC but sex and at least two parts of DOB, some of the records with duplicate SSNs did not link. The vast majority did, however. Specifically, 1.368 million MAXEM IDs appeared in two or more states, with one showing up in 10 states as well. While it is difficult to imagine that an individual could enroll in Medicaid in more than three states in a single year, even when the year included the hurricane-related displacement of people across several states, the fraction of individuals who appear to have done so is exceedingly small. Thus, our cross-state linkage rates have been boosted only marginally by enrollees with implausible numbers of appearances in different states.

Impact of Unduplication

Our principal findings can be expressed in terms of the impact of unduplication on the estimated number of unique individuals enrolled in Medicaid in 2005 and 2006. Eliminating duplicate records within each state and year had a very small impact on the total number of records. We removed 181,000 records or 0.30 percent of the initial total records in 2005 and 137,705 or 0.23 percent of the initial total records in 2006. Unduplication across state did not entail removing any records but, rather, counting each unique individual only once in a national total for a given year. To obtain an unduplicated count of Medicaid enrollment nationally in 2005 we excluded an additional 1,417,953 records or 2.34 percent of the initial total Medicaid enrollment. To obtain an unduplicated count of Medicaid enrollment nationally in 2006 we excluded 1,368,740 records or 2.25 percent of the initial total Medicaid enrollment. The net impact of unduplication was to reduce the 2005 Medicaid enrollment by 2.64 percentage points and the 2006 Medicaid enrollment by 2.48 percentage points.

Output Files

The files produced for this project include a MAXEM research file and a cross-reference file for each of the two years, 2005 and 2006. Each MAXEM file contains one record for each unique person enrolled in Medicaid or S-CHIP (for states that submit S-CHIP data to MSIS) in each state in the indicated calendar year. The file includes a MAXEM person identifier, the number of states in which that identifier was found, and a subset of variables from the MAX PS files. The cross-reference file contains a record for every record in the MAX PS file for the corresponding year. It includes the MSIS ID, state, and year (needed to link to the MAX PS file) plus the MAXEM person identifier needed to link all records belonging to the same unique person within and across both state and year.

Recommendations

Our experience in developing the first two years of MAXEM leads us to offer a number of observations and recommendations regarding future MAXEM development. These fall into (1) priorities for MSIS/MAX enhancements and (2) process improvements.

MSIS/MAX Enhancements. The single greatest obstacle to full unduplication of MAX records is the absence of SSNs for a significant percentage of records in many states. Improved capture of SSNs would do more to improve the unduplication of MAX records than any other enhancement to the data or the unduplication process. When SSNs are present, the evidence suggests that their quality is high but not perfect. A validation check by the Census Bureau found that 1.2 percent of the Medicaid SSNs that passed range tests failed validation. Invalid SSNs are not likely to link to other SSNs, so improving their accuracy would increase the cross-state linkage rate. Duplicate records for enrollees within a state and year are a very minor problem, largely confined to a handful of states, whereas varied data anomalies, such as temporary and permanent MSIS IDs being used for the same person, continue to appear in several states. Lastly, while the identifiers used to establish links among records are clearly effective, what is lacking is information with which to confirm that these linkages are correct. This makes it difficult to assess the impact of small refinements to our linkage methods.

Process Improvements. The linkage algorithm performed very well, and we see little value in exploring small refinements that will provide too few additional linkages to offset the risk of increased numbers of false positives. Our pair-wise approach to unduplicating records proved effective, but there may be a better way to deal with sets of three or more records that have inconsistencies among their linkage variables. A major issue that must be addressed when MAXEM is expanded to additional years is how to incorporate potential updates to previously released files without making the earlier data obsolete; we suggest a strategy for the MAXEM ID, but this is only one element. Finally, the public-use tables created by this project are at present the only vehicle for dissemination of findings. Other vehicles such as issue briefs or journal articles should be considered.

I. INTRODUCTION

A. Background

Beginning in 1999, all states and the District of Columbia have been required to report Medicaid enrollee eligibility and claims data quarterly in a standard format into the Medicaid Statistical Information System (MSIS). The research files derived from these data, the Medicaid Analytic eXtract (MAX), have since been produced by Mathematica Policy Research for the Centers for Medicare & Medicaid Services (CMS) for each state, by calendar year. MAX is a cleaned and enhanced version of MSIS in which claims are combined into final action events, errors are corrected, and enrollee information is summarized at the person level. The consistent format and state-by-year nature of MAX have facilitated a wide range of studies of Medicaid enrollment, service use, and expenditures each calendar year. As the quality of the data has improved, MAX has become one of the most important research tools for understanding patterns of Medicaid service use and expenditures across states.

Although the format of the files has facilitated yearly cross-state comparisons, the structure of MAX has been less conducive to use in national and cross-year studies. Three limitations of MAX make it particularly challenging to identify unique Medicaid enrollees nationally and across years. First, the MSIS Identification Number (MSIS ID)—a unique Medicaid enrollee identifier—is assigned within each state. Any enrollee who moves from one state to another will be assigned a different MSIS ID in each state. Although Social Security numbers (SSNs) or other identifiers can be used to link individuals across states, such identifiers are sometimes not available, and those that are available are not error-free. Second, due to re-enrollment or other administrative changes, an individual's MSIS ID sometimes changes within a year or between years. Efforts are made by states to ensure that no two records are for the same person within a year, but this is not always possible. Third, while corrections to an enrollee's MSIS ID or SSN

are usually included in an audit trail in the year in which the changes take place, these corrections are not applied retrospectively. As a result of these limitations, it may be difficult for users of MAX to merge records for the same person across years, and even more difficult to merge records for the same person across states. For these reasons, aggregate counts of Medicaid enrollees based on MAX overrepresent the number of people enrolled in Medicaid and underestimate the number of people enrolled for longer than a year. Prior to the current project, the extent of these problems had not been evaluated.

Recent policy developments have highlighted the importance of developing a more effective means of linking Medicaid records across states and over time. With the passage of health care reform, Medicaid's role in covering the uninsured will be expanded over time, further increasing the need for an accurate, unduplicated count of people covered by the program. Better methods of linking Medicaid records will also aid research on methods to control costs and improve the quality of care for Medicaid enrollees in general, and long-term care recipients in particular. Finally, there has been increased interest in understanding whether any savings could be gained by coordinating care across multiple public programs, such as Medicare and Medicaid. Studying service use across programs will require merging MAX data with other data sources using existing identifiers. Before undertaking such work, researchers need to understand how well these identifiers perform in this context and how to use them most effectively.

To address these needs, CMS contracted with Mathematica to design and implement a new MAX Enrollee Master file (MAXEM) that enables researchers to unduplicate records within and across states. MAXEM and its associated cross-reference file will enable improved estimates of the number of Medicaid enrollees. These files will also enable researchers to easily link data within MAX, and between MAX and other data sources, to facilitate research efforts. This report describes Mathematica's design and development of the first MAXEM files.

This effort used the most current MAX files—data for calendar years 2005 and 2006—to develop yearly MAXEM research files containing one record per individual enrolled in Medicaid in each state during a calendar year.¹ The records for an individual within each research file have been unduplicated within a state and year. A new MAXEM ID, unique to each person, is included in each file to enable researchers to unduplicate individuals who were enrolled in more than one state in the same calendar year or across the two years. A cross-reference file that associates MAX records with the new MAXEM ID will enable researchers to link eligibility and claim records in MAX within year, across years, and across states.

B. Overview of the Design and Implementation of MAXEM

Mathematica's development of MAXEM and its cross-reference file proceeded in four stages. In the first stage, we identified and assessed the quality of variables that could be used to link records across MAX files. In the second stage we developed a prototype record-linking algorithm using data from three states. This involved selecting the three states for prototype analysis, implementing state-provided cross-reference files to correct records for people with more than one MSIS ID, and applying and reviewing the results of several linking algorithms. We used the lessons learned in the second stage to select a final matching algorithm for MAXEM. The third stage—the final design implementation—entailed creating final MAXEM research and cross-reference files covering all 50 states and the District of Columbia. In the fourth and final stage, we produced this report, which includes extensive tables for internal

¹ As agreed in discussions with CMS, we used 2005 and 2006 MAX instead of 2004 and 2005, as listed in the Statement of Work, because linkage variable data improved substantially between 2004 and 2005 as states made improvements to their data systems in preparation for Part D, and methods used to link Medicare to MAX were refined.

documentation and quality review of the linkage process and public-use tables to disseminate the study findings. The entire design and development process is illustrated in Figure I.1.

The four stages of the MAXEM file development are briefly described below. Table I.1 summarizes critical design questions and our design approach.

1. Linkage Variables and Data Quality

To improve upon previous efforts to merge Medicaid files, we began the development of MAXEM with an evaluation of the strengths and limitations of state-reported identifiers in MAX before choosing linking variables and variables to use for link quality review. Chapter II describes the quality and completeness of MSIS IDs, SSNs, health insurance claim numbers (HIC), dates of birth (DOB), sex, race/ethnicity, eligibility group, and service use. The analysis suggests that five identifiers (MSIS ID, various recorded SSNs, the HIC obtained from the Medicare Enrollment Database (EDB-HIC), DOB, and sex) can be used to link MAX records within states, and four identifiers (various recorded SSNs, the HIC obtained from the EDB, DOB, and sex) can be used to link MAX records across states. Race/ethnicity, eligibility group, and service use were found to be useful for quality review but not for linking.

2. Design of the Linking Algorithm

Chapter III describes how the linking algorithm for MAXEM was selected. Our goal was to efficiently identify the maximum number of linkages between records for the same individual within a state and year, and across states and years, while minimizing any chance of misidentifying records as being for the same person when in fact they are for two different people. Three key features of the linking design ensure that MAXEM will maximize the number of linked records for unique individuals while minimizing records linked in error: testing of a prototype design, comparison of probabilistic linking method with two commonly used deterministic linking approaches, and review of the quality of linked records.

Figure I.1. Process Model for the Design and Development of MAXEM

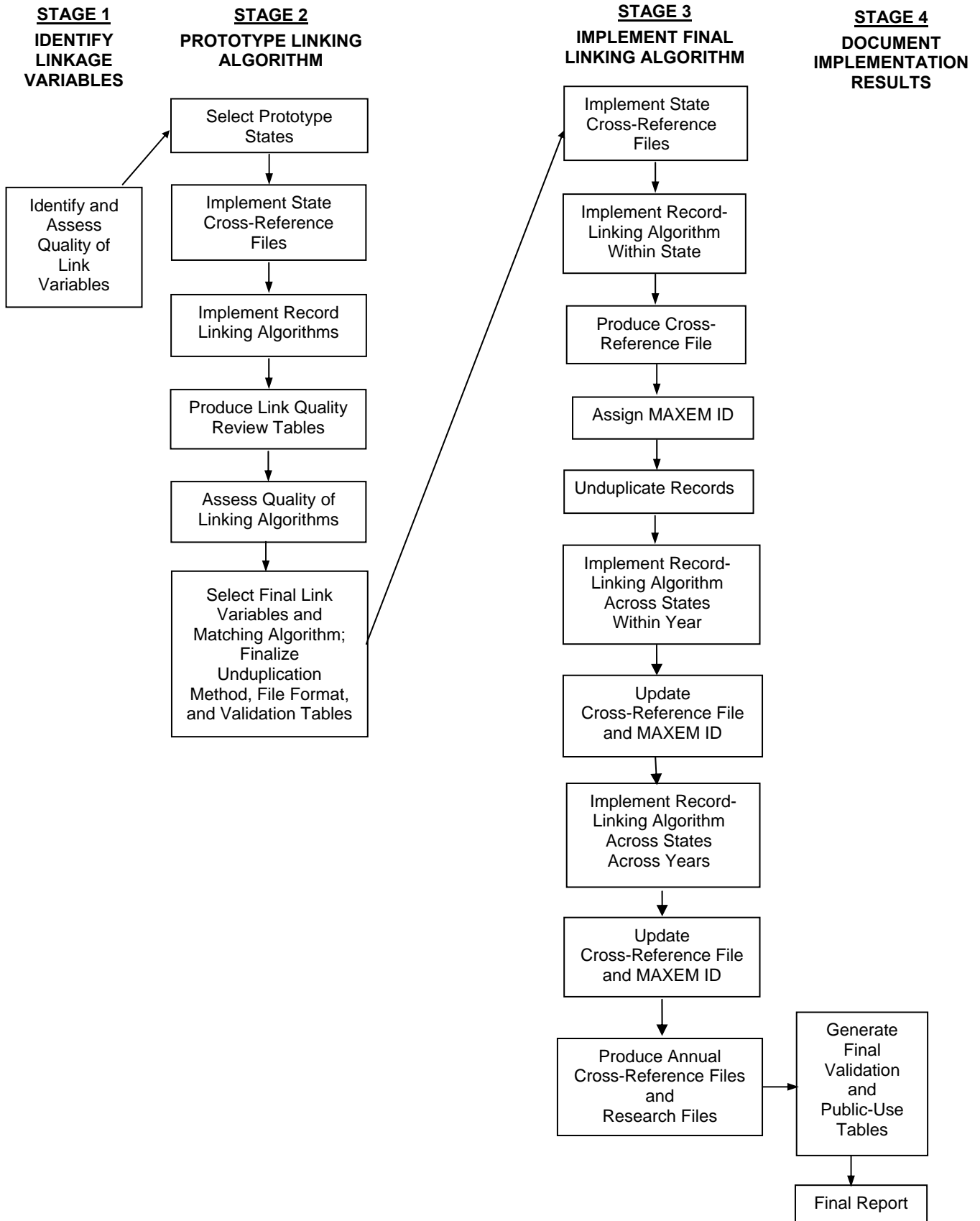


Table I.1 Key Elements of the MAXEM Design Approach

Design Question	Design Approach
Linkage Variables and Data Quality	
What linkage variables will be used to identify two records for the same individual?	MSIS ID, SSNs from MAX and the Medicare Enrollment Database (EDB), health insurance claim numbers from the EDB, date of birth, sex
What variables will be used to review linkage quality?	Race/ethnicity, eligibility group, type of service use
Design of the Linking Algorithm	
Which states will be analyzed in the prototype design?	Arizona, California, Nevada
What linking algorithms will be tested and reviewed in the prototype?	Two deterministic approaches (one used by Medicare and another developed for linking MAX with EDB) and probabilistic linking were tested and reviewed for linkage quality and efficiency before selecting a final algorithm
How will link quality be assessed?	Linked and nonlinked record pairs were compared in terms of their agreement on race/ethnicity, eligibility group (aged, disabled, child/adult), months of enrollment, any service use, and patterns of prescription drug and institutional long-term care use
How will the MAXEM link algorithm be chosen?	Linkage quality of the algorithms was compared
Design of MAXEM Cross-Reference and Research Files	
What variables will be included in the MAXEM cross-reference file?	MAXEM ID, MSIS ID, state, and year
Will the MAXEM cross-reference file contain unduplicated records?	The MAXEM cross-reference file contains one record for each record in the 2005 and 2006 MAX Person Summary files but includes a unique MAXEM ID that enables researchers to unduplicate records
What variables will be included in the MAXEM research files?	MAXEM ID, total number of states where the person is enrolled (total records for this MAXEM ID), MSIS ID, state, year, SSN, DOB, sex, race/ethnicity, CHIP enrollment, annual and monthly uniform eligibility code, restricted benefit status, dual status, recipient indicator by type of service, and premium payment indicator by type of managed care
Will the MAXEM research files contain unduplicated records?	The yearly MAXEM research files contain unduplicated records within states but may contain more than one record for an individual with the same MAXEM ID across states
How will two records for the same person be unduplicated?	Linked records with different identifiers or demographic information were made consistent by assigning the first applicable value: <ul style="list-style-type: none"> • Nonmissing value if value on one record was missing • EDB dual record value if other record is not for an EDB dual (when applicable) • Value on record with most recent enrollment
Validation and Public-Use Tables	
What validation tables will be produced?	Tables showing linkage quality statistics <ul style="list-style-type: none"> • Within a year • Across years • Across states
What public-use tables will be produced?	Tables showing number of persons enrolled in two, three, four or more states Table showing enrollment statistics before and after unduplication and the number of duplicated records by eligibility group, managed care premium payment, and service use Tables showing the number of records before and after unduplication and the number of duplicates by state and nationally, by <ul style="list-style-type: none"> • CHIP enrollment • Eligibility group (with and without restricted benefit enrollees) • Managed care premium payments, by managed care type • Use of fee-for-service (FFS) care, by service type Table showing the Medicaid turnover rate between 2005 and 2006

Prototype Design. A principal feature of the development of MAXEM was the testing and analysis of various designs using three prototype states—Arizona, California, and Nevada. As described in Chapter III, these states were carefully selected to reflect national variation in the quality of MAX identifier data, migration flows, and a range of analytic file sizes. The design of MAXEM incorporated lessons learned from the three states analyzed in the prototype design. The initial testing of the prototype design and the assessment of various linking algorithms were particularly important because a comparison of the effectiveness of existing algorithms had never before been assessed on MAX data.

Three Linkage Approaches. In the past, linkages of MAX data have typically utilized deterministic linking methods that rely on common identifiers—usually MSIS ID, SSN, DOB, and sex—to determine when two records are for the same individual. Due to data entry errors and missing data, such methods may fail to identify many cases in which duplicate records exist. Also, the choice of identifiers is sometimes arbitrary. To identify the optimal linkage strategy for MAXEM, we compared the effectiveness of three linkage methods on the data from the three states. The three methods included a probabilistic approach and two deterministic methods—one used by Medicare for linking Medicare Part D with the Medicare Master Beneficiary Database (MBD) and another developed for linking MAX with the EDB. Probabilistic linking is an evidence-based approach that links record pairs based on the likelihood that the characteristics reported on two records are for the same person. Although probabilistic linking is considered to be the gold standard for linking records, it requires substantial data processing, and its benefits for MAX data linking were unknown.

Link Quality Review. To help assess the quality of record pairs within and between states for any two records identified as potential links via MSIS ID, SSN, date of birth, sex, or EDB-HIC, we estimated agreement and disagreement on six additional variables—race/ethnicity,

eligibility group, months of enrollment, any service use, use of prescription drugs, and use of institutional care.

3. Design of MAXEM Cross-Reference and Research Files

When two or more records matched by SSN or other variables are identified as being for the same person, we refer to them as “linked records” and assign them a unique MAXEM ID. The cross-reference file contains a Medicaid enrollee’s unique MAXEM ID as well as three variables from MAX files—MSIS ID, state, and year—that can be used to link any MAX records that are for the same person. This cross-reference file contains one record for each record in the MAX 2005 and 2006 files and therefore may contain multiple records per MAXEM ID.

The 2005 and 2006 MAXEM research files were designed for national and cross-state research requiring unduplicated counts of enrollment by various characteristics. Each yearly file contains a subset of the demographic, eligibility, and service use variables included in MAX. Unlike the cross-reference file, which contains as many records as are included in the MAX Person Summary files, MAX records that have been identified as being for the same person within a state and year have been combined, or “unduplicated”, into one record in MAXEM. Our general approach to unduplicating records included first replacing missing data with data available in other records, then resolving inconsistencies by replacing invalid data with verified data using information from the most recent month of enrollment for which the items in question are not missing. This approach is based on the assumption that information is corrected over time.

Records were not combined across states; nor were missing or inconsistent data replaced across states. Unduplication to produce a national count of Medicaid enrollees was limited to the assignment of a common MAXEM ID to records that were linked across states.

4. Evaluation of Linkages

This project has produced the best estimates available to date on the number of unique Medicaid enrollees nationwide. To ensure that the statistics produced were of the highest quality, we generated an extensive series of tables to support a rigorous review of the linkage results within states and years, and across states and years. The tables and our evaluation are presented in Chapter IV.

5. Findings and Public-Use Tables

Selected findings from our unduplication of Medicaid records are presented in Chapter V. To provide additional empirical results for CMS and for dissemination to prospective users of the MAXEM research files and cross-reference files, we produced extensive public-use tables showing the estimated number of Medicaid enrollees nationally and in each state before and after the unduplication process, overall and by enrollee demographic, eligibility, and service-use characteristics. Because of their size, the public-use tables are presented in the appendix.

C. Organization of This Report

This report describes in detail Mathematica's design and development of MAXEM and its associated cross-reference file. The chapters are organized into four key stages of the design development process. Chapter II describes the variables that we used to link MAX data across files, and assesses their quality. Chapter III details the selection of the linking algorithm based on analysis of prototype states. Most of the content of the first three chapters was drawn from the earlier design report and a memorandum (Wenzlow and Sykes 2009, 2010). Chapter IV describes the implementation of the linking and unduplication algorithms on the 50 states and the District of Columbia, including our assessment of the quality of the record linkages. The chapter also lists the contents of the cross-reference and MAXEM files. Chapter V summarizes key results and findings from the unduplication of two years of MAX data. Chapter VI looks ahead

to future MAXEM development and presents a number of recommendations based on our experience in creating MAXEM 2005 and 2006. The appendix contains the public-use tables with an overview of their content and organization.

II. LINKAGE VARIABLES AND DATA QUALITY

Data from various sources are often linked via national identifiers such as SSNs. The MAX data, however, are based on Medicaid data reported by each state to MSIS with unique identifiers—MSIS IDs—specified within states. Also, the quality of linkage data in MSIS can vary from one state to the next and from one year to the next. In this chapter, we review the potential linkage variables that we considered for the development of MAXEM and assess their quality, which influenced the design of the linking and unduplication algorithms.

A. Linkage Variables

The MAX Person Summary (PS) file contains a small set of identifiers that we could use in the linkage and unduplication algorithms. They are:

- MSIS ID: Unique 20-character ID assigned by a state but unique only within that state
- STATE: Two-character state abbreviation
- SSN: Nine-digit number that by law should be unique to each person in the nation
- HIC: 11-character Medicare health insurance claim number; the first nine characters are the claim account number (CAN), which is equal to the primary claimant's SSN, and the last two characters are the beneficiary's identification code (BIC), which identifies, for example, whether the beneficiary is the primary claimant, aged wife, or divorced wife
- EDB-SSN: a nine-digit SSN, which is extracted from the EDB
- EDB-HIC: an 11-character Medicare health insurance claim number, which is extracted from the EDB

The MAX system is structured so that there is one and only one record in each state's annual PS file per MSIS ID. However, more than one record per SSN, HIC, EDB-SSN, or EDB-HIC is possible within and across states.

There are three limitations to the MSIS ID as a potential linkage variable. First, because each state is responsible for assigning its own MSIS ID values, an individual who is enrolled in Medicaid in more than one state is likely to have a different MSIS ID in each state; therefore the

MSIS ID cannot be used to link people across states. Second, in theory, the MSIS ID should be unique to a person within a state and never change. In practice, however, it does change, albeit rarely. States are supposed to provide cross-reference files in such instances and 12 states did so in 2005.² When a cross-reference file is provided, it is usually applied during that particular MAX year and all subsequent years until a replacement is provided or until the file is no longer able to identify linked records. It is not applied to the previous years of MAX data. Consequently, there can be more than one MSIS ID for a given person over time within a state. Also, due to limitations in their data systems, some states are unable to submit cross-reference files; therefore more than one MSIS ID can be present in MAX for the same person within the same year. The third limitation of the MSIS ID is that states may opt to report SSNs as MSIS IDs. For example, eight states—California, Kentucky, Louisiana, Minnesota, Nevada, New Jersey, New Mexico, and Vermont—opted to be “SSN states” in 2005. In these states, the MSIS ID provides no additional linkage information than what is already available in other identifiers.

The SSN assigned by the Social Security Administration (SSA) is unique to each person. However, CMS encourages but does not require states to submit records that contain an SSN for each Medicaid enrollee, and states are not mandated to validate the SSNs reported in MSIS. Consequently, some records in the PS file will have missing or incorrect SSNs. Sometimes the SSN reported for a person will change over time, perhaps due to a clerical error, which can produce incorrect or transposed digits. In addition, some states have admitted to assigning a pseudo (or temporary) value to the SSN and later updating it with the true (or permanent) SSN. Other errors may originate with the enrollees themselves. For example, the use of a single SSN

² The 12 states are Arizona, California, Kentucky, Louisiana, Minnesota, Nevada, New Jersey, New Mexico, North Dakota, Tennessee, Vermont, and Wyoming.

by multiple enrollees could be the result of fraud, in which friends and family or even strangers are knowingly sharing the same SSN; or it could derive from an honest mistake, as when one family member unintentionally reports another family member's SSN as his or her own. Because of these and other potential inaccuracies, the SSN by itself cannot be used to uniquely identify a Medicaid enrollee.

As an identifier, the HIC or MAX HIC, which comes from MSIS, has four drawbacks. First, it is collected only for persons who are dually enrolled in Medicare and Medicaid. In most states, this "dual" population is a small proportion of the state's entire Medicaid population. Second, like the SSN, there is no mandate for the state to verify the accuracy of the HIC reported in MSIS. Third, HICs can change over time. Fourth, most states do not have the means to update HICs in a timely fashion. Consequently, a HIC in the state's MSIS data can be out of sync with the one listed in the EDB. For example, the BIC portion of a woman's HIC might equal "married wife" in the state's MSIS but "divorced wife" in the more up-to-date EDB system. Consequently, the HIC is not as reliable as other variables available in MAX and will not play a significant role in the development of MAXEM.

The EDB-SSN and EDB-HIC were merged onto the MAX PS file via the MAX processing system. Specifically, we merged MAX person records to the EDB using a three-pass match-merge process.³ When there was a match, the SSN, the HIC, and other variables were copied from the EDB record onto the PS file. The EDB-SSN and EDB-HIC on the PS file are reliable,

³ During the first pass, records with MAX SSN = EDB-SSN, MAX SEX = EDB SEX, and two or more parts of the MAX DOB = two or more parts of the EDB DOB, were assumed to belong to the same person and classified as a link. Records that did not match were compared again. During the second pass, records with MAX SSN = EDB CAN, MAX SEX = EDB SEX, and two or more parts of the MAX DOB = two or more parts of the EDB DOB were assumed to belong to the same person and classified as a link. Records that did not match during the first and second pass were also compared again. During the third pass, records with MAX HIC = EDB-HIC, MAX SEX = EDB SEX, and two or more parts of the MAX DOB = two or more parts of the EDB DOB, were assumed to belong to the same person and classified as a match.

as the EDB system verifies the SSN and HIC regularly with the SSA. However, like the HIC, the EDB-SSN and the EDB-HIC are only collected for people who are dually enrolled in Medicare and Medicaid.

The PS file also contains demographic, enrollment, and service-use variables that could be helpful in identifying a person.

- **DOB:** Eight-digit DOB in YYYYMMDD format
- **Sex:** One character indicating gender
- **Race/Ethnicity:** One character indicating race/ethnicity
- **Uniform Eligibility Group (UEG):** Two-character monthly uniform eligibility group created by the MAX system by concatenating the maintenance assistance status (MAS) with the basis of eligibility (BOE)
- **Type of Service (TOS):** Annual TOS recipient indicator for each of the 31 MAX TOS values created by the MAX system by determining whether expenditures by TOS (for example, inpatient hospital services, physician services, and home health services) for an individual were greater than zero

These demographic, enrollment, and service use variables cannot be used as the sole means to uniquely identify a person. For example, more than one person could have the same DOB, sex, race/ethnicity, UEG, and TOS. Moreover, these variables can and do contain missing values. Even so, these variables could be used in conjunction with one or more of the identifying variables to further identify or confirm that two records belong to the same person. Because the statuses they describe can change over time, the UEG and TOS codes are likely to be more useful in this regard for records paired within the same year rather than across years.

In summary, other than the MSIS ID, there is no other variable in the PS file that can be used on its own to uniquely identify a person within a state and year. However, MSIS IDs cannot be used to link records across states and MSIS IDs can change over time. Consequently, our matching algorithm, detailed in Chapter III, will use a combination of these variables to identify whether a person has more than one PS record in a year, across years, and across states.

B. Linkage Variable Quality Assessment

Beyond the limitations described above, the quality and completeness of the MAX linkage variables will also affect their utility in the linking and unduplication algorithms. For example, if a key linkage variable is often missing or unreliable, we may refrain from using that variable in the linkage process. The percentage of records with missing or invalid linkage variables also indicates the potential number of records that cannot be linked. Tables II.1 through II.5 present statistics on variable quality in MAX 2005, by state. Tabulations from MAX 2006 differ little; therefore we have not presented them here.

1. Quality of SSN

The SSN in the PS file comes from the MSIS eligibility record. If a person has Medicaid claims but no eligibility record, the SSN in the PS file will be missing. Here we examine the quality of SSNs only for those people who have an eligibility record in MSIS.⁴

Table II.1 shows the total number of records in the 2005 base PS file and the percent with more than one MSIS ID per SSN, with a missing SSN, with a nonmissing SSN that failed the SSA's high-group test, and with MSIS ID equal to the SSN. The table suggests that four data quality issues will limit our ability to merge data using SSNs.

First, in four states—Illinois, New York, North Dakota, and South Dakota—over three percent of records had SSNs that were linked to more than one MSIS ID. Duplicate SSNs suggest that a review of whether any records can be unduplicated is warranted.

⁴ The source of these estimates is the base PS file, which consists of records from the MSIS eligibility file before they are merged with summary claims information to produce the MAX PS file. Eligibility records with no Medicaid or S-CHIP enrollment and no claims are excluded from the MAX PS file. At the same time, claims records for which there are no corresponding eligibility records in the base PS file are added to the MAX PS file.

Table II.1 Quality of SSNs Among Persons in the Base Person Summary File in MAX 2005

State	Total Number of Records	Percent with More than One MSIS ID per SSN	Percent with Missing SSN	Percent of Nonmissing SSNs Failing the HGT ^a	Percent with MSIS ID = SSN ^b
Alabama	955,603	0.3	0.8	1.6	0.0
Alaska	132,850	0.1	2.8	0.2	0.0
Arizona	1,476,861	0.3	2.2	8.9	8.6
Arkansas	746,543	0.1	7.2	4.4	0.0
California (SSN)	10,593,532	0.0	35.7	0.3	64.3
Colorado	604,012	0.2	6.2	0.4	0.0
Connecticut	529,295	0.5	3.8	0.2	0.0
Delaware	179,935	0.0	8.9	0.3	0.0
District of Columbia	166,514	0.1	2.7	0.1	0.0
Florida	3,020,105	0.0	2.2	0.4	1.5
Georgia	2,102,131	0.3	6.6	2.1	0.0
Hawaii	231,826	0.2	0.0	1.5	0.0
Idaho	233,352	0.0	2.8	0.1	0.0
Illinois	2,611,141	3.6	2.7	0.5	0.0
Indiana	1,045,174	0.0	2.8	0.1	0.0
Iowa	428,814	0.3	1.2	0.1	0.0
Kansas	356,738	0.0	1.5	0.0	0.0
Kentucky (SSN)	886,961	0.0	2.5	1.2	97.5
Louisiana (SSN)	1,166,422	0.0	2.5	0.8	97.5
Maine	326,502	0.1	0.5	0.1	0.0
Maryland	869,900	0.0	2.9	0.2	0.0
Massachusetts	1,247,300	0.1	10.0	0.2	0.0
Michigan	1,857,775	0.0	6.5	0.1	0.0
Minnesota (SSN)	790,767	0.0	2.4	0.2	97.6
Mississippi	780,300	0.5	5.0	0.1	0.0
Missouri	1,222,651	0.1	1.4	0.1	0.0
Montana	128,004	0.0	0.8	8.0	62.8
Nebraska	261,952	0.0	3.4	0.6	29.1
Nevada (SSN)	267,880	0.0	11.3	0.3	88.7
New Hampshire	145,737	0.0	0.8	0.1	0.0
New Jersey (SSN)	1,131,152	0.0	5.6	0.6	94.4
New Mexico (SSN)	527,703	0.0	1.6	0.3	98.4
New York	5,087,834	3.3	6.1	0.6	0.0
North Carolina	1,728,608	0.1	2.0	0.2	7.5
North Dakota	78,969	4.7	0.5	0.1	17.3
Ohio	2,126,626	1.3	1.4	0.2	0.0
Oklahoma	729,569	0.8	2.6	0.3	0.0
Oregon	563,447	0.3	6.6	0.1	0.0
Pennsylvania	2,029,894	0.0	0.7	0.3	0.0
Rhode Island	219,784	0.0	1.0	0.0	0.0
South Carolina	1,012,781	0.0	4.5	0.2	0.0
South Dakota	131,027	3.2	2.7	0.1	0.0
Tennessee	1,594,336	0.0	0.8	0.2	18.9
Texas	4,104,526	0.4	4.8	0.2	0.0
Utah	345,451	0.0	3.5	0.2	4.1
Vermont (SSN)	163,470	0.0	0.3	0.1	99.7
Virginia	927,685	0.2	4.5	0.3	0.0
Washington	1,199,572	0.0	4.8	0.1	0.0
West Virginia	383,114	0.1	0.1	0.0	99.9
Wisconsin	1,022,203	1.3	2.5	0.1	95.8
Wyoming	81,199	0.2	3.4	0.3	0.0
United States	60,555,527	0.6	9.3	0.7	22.7

^a If the SSN fails the SSA high-group test (HGT), the SSN is invalid.^b Only the first 9 digits of the MSIS ID must equal the SSN; the overall length of the MSIS ID can be greater than 9.

Second, over five percent of records were missing SSNs in 12 states in 2005: Arkansas, California, Colorado, Delaware, Georgia, Massachusetts, Michigan, Mississippi, Nevada, New Jersey, New York, and Oregon. The majority of people without an SSN are children, persons who only qualified for family planning benefits, and aliens who only qualified for emergency coverage. In New York, we believe that some records with missing SSNs are for services provided to pregnant mothers but reported separately in records for the “unborn children.” The state creates eligibility records to ensure these children can receive Medicaid services immediately at birth. It is no surprise that SSNs are not available for this special subpopulation. However, the unduplication algorithm will need to accommodate missing SSNs.

Third, even when an SSN is assigned, it is not necessarily valid. One way to test the validity is to evaluate whether the SSN was issued. If the SSN was not issued, it is clearly not valid. To confirm that an SSN was issued, we perform SSA’s high-group test. The high-group test compares the SSN’s group number to the highest group number that was assigned for that SSN’s area as of that calendar month.⁵ If the SSN’s group number is higher than the highest group issued, the SSN fails the high-group test. In 2005, over five percent of records with SSNs failed the high-group test in two states, Arizona and Montana. Often the reason for the high failure rate is not known, because states are not mandated to verify the SSN. However, in our discussions with Louisiana and Nevada, we learned that their MSIS systems were assigning a temporary (pseudo) value to their SSN. For MAX 2005, we asked both states to stop assigning pseudo SSNs and instead assign a missing value to the SSN, resulting in a considerably reduced high-

⁵ The SSN is comprised of AAA-GG-SSSS, where AAA is the area, GG is the group, and SSSS is the serial number. Group numbers of 00 are never assigned by SSA and are flagged by the high-group test as well. Similarly, area codes that have never been assigned—including 000—will also cause an SSN to be identified as invalid.

group test failure rate in 2005. The unduplication algorithm can also use the high-group test to gauge the validity of each SSN.⁶

Fourth, we expect SSN states to have a large number of records in which the MSIS ID equals the SSN, but Table II.1 shows that even among the non-SSN states, the first nine characters of the MSIS ID can equal the SSN. This was true for over 25 percent of records in four non-SSN states: Montana, Nebraska, West Virginia, and Wisconsin.⁷ Consequently, the unduplication algorithm must take into account the strong correlation between the MSIS ID and the SSN in SSN states as well as in some non-SSN states.

2. Quality of HIC, EDB-SSN, EDB-HIC

As mentioned previously, we cannot use the HIC, EDB-SSN, and EDB-HIC as primary identification variables because they are only available for persons who are dually enrolled in both Medicare and Medicaid.

Table II.2 shows that on almost all records with valid EDB-SSNs and valid MAX SSNs, the former is equal to the latter in 2005 MAX PS file. This result is not surprising, because the primary method of linking the PS file to the EDB file is via the SSN. The records with valid MAX SSNs not equal to their valid EDB-SSNs are often people who are using the Medicare claimant's SSN as their own SSN. For example, a woman receiving Medicare benefits may have mistakenly told the Medicaid office that her Medicare CAN was her SSN when it was actually her husband's SSN.

⁶ Confirming that an SSN was issued does not necessarily mean that it was issued to the person who is using it. Full validation requires comparing a person's name, sex, and date of birth to the information maintained in SSA files for each SSN. This project did not have access to the SSA records needed to perform such validation. In describing an SSN as valid, we mean to imply only that the SSN was confirmed as having been issued.

⁷ Montana changed its classification from an SSN state to a non-SSN state in 2005, potentially explaining the high rate of records with the first nine characters of the MSIS ID = SSN in the state in 2005.

Table II.2 Comparison of MAX SSN with EDB-SSN in MAX 2005

State	Records with Valid MAX SSN ^a			Records with Valid MAX SSN and Valid EDB-SSN ^b		Records with Invalid MAX SSN ^a			
	Total Number of Records	Number with Valid EDB-SSN ^b	Percent with Valid EDB-SSN ^b	Number with MAX SSN=EDB-SSN ^a	Percent with MAX EDB-SSN ^a	Total Number of Records	Number with Valid MAX HIC ^b	Number with Valid EDB-HIC ^b	Number with MAX HIC=EDB-HIC ^b
Alabama	932,935	210,991	22.6	210,602	99.8	30,591	7	5	5
Alaska	128,880	14,753	11.4	14,736	99.9	4,819	2	2	2
Arizona	1,315,437	164,959	12.5	163,864	99.3	176,132	1,901	1,868	1,868
Arkansas	662,468	111,253	16.8	110,790	99.6	99,725	7,093	4,866	4,866
California (SSN)	6,791,498	1,246,456	18.4	1,245,171	99.9	4,133,270	83	95	69
Colorado	563,786	85,636	15.2	85,300	99.6	82,179	8	8	8
Connecticut	508,448	105,391	20.7	104,982	99.6	23,067	21	20	20
Delaware	163,551	26,272	16.1	26,124	99.4	17,502	8	7	7
District of Columbia	161,922	23,851	14.7	23,756	99.6	5,923	12	2	2
Florida	2,940,373	610,201	20.8	609,617	99.9	119,151	15	10	6
Georgia	1,917,944	286,691	14.9	285,716	99.7	189,882	566	531	529
Hawaii	228,323	35,902	15.7	35,854	99.9	9,413	0	0	0
Idaho	226,605	32,508	14.3	32,498	100.0	7,160	0	0	0
Illinois	2,528,660	538,341	21.3	537,782	99.9	84,049	9	3	2
Indiana	1,014,953	167,415	16.5	167,275	99.9	45,439	170	159	159
Iowa	423,195	83,296	19.7	83,120	99.8	7,790	10	9	9
Kansas	351,208	66,430	18.9	66,365	99.9	10,117	6	5	5
Kentucky (SSN)	854,293	184,579	21.6	184,412	99.9	39,989	130	31	31
Louisiana (SSN)	1,127,364	194,530	17.3	194,339	99.9	117,522	7	5	5
Maine	324,451	72,795	22.4	72,674	99.8	3,040	8	5	5
Maryland	839,449	135,938	16.2	135,629	99.8	29,237	118	50	49
Massachusetts	1,120,039	270,924	24.2	268,331	99.0	135,274	7	7	5
Michigan	1,736,660	288,983	16.6	288,467	99.8	142,152	22	13	13
Minnesota (SSN)	770,311	154,999	20.1	154,419	99.6	22,055	39	31	31
Mississippi	740,252	173,198	23.4	172,879	99.8	47,285	10	9	9
Missouri	1,200,499	214,499	17.9	214,038	99.8	19,257	61	41	41
Montana	116,768	21,527	18.4	21,493	99.8	12,284	96	96	96
Nebraska	251,113	44,197	17.6	44,170	99.9	10,728	1	1	1
Nevada (SSN)	236,962	41,483	17.5	41,439	99.9	35,777	0	0	0

Table II.2 (continued)

State	Records with Valid MAX SSN ^a			Records with Valid MAX SSN and Valid EDB-SSN ^b		Records with Invalid MAX SSN ^a			
	Total Number of Records	Number with Valid EDB-SSN ^b	Percent with Valid EDB-SSN ^b	Number with MAX SSN=EDB-SSN ^a	Percent with MAX SSN=EDB-SSN ^a	Total Number of Records	Number with Valid MAX HIC ^b	Number with Valid EDB-HIC ^b	Number with MAX HIC=EDB-HIC ^b
New Hampshire	144,386	29,887	20.7	29,841	99.8	1,448	6	6	6
New Jersey (SSN)	1,056,724	220,800	20.9	218,649	99.0	78,037	1,200	1,010	1,009
New Mexico (SSN)	517,694	58,851	11.4	58,745	99.8	13,039	0	0	0
New York	4,745,294	812,233	17.1	809,953	99.7	373,401	167	149	145
North Carolina	1,689,582	340,538	20.2	340,144	99.9	39,993	13	12	12
North Dakota	78,235	16,758	21.4	16,747	99.9	1,726	0	0	0
Ohio	2,092,731	329,982	15.8	329,382	99.8	34,445	120	113	113
Oklahoma	707,462	116,460	16.5	116,275	99.8	23,411	2	1	1
Oregon	525,522	93,990	17.9	93,865	99.9	39,839	1,851	2	1
Pennsylvania	2,008,024	419,658	20.9	418,766	99.8	30,152	93	75	75
Rhode Island	217,583	43,911	20.2	43,875	99.9	7,301	0	0	0
South Carolina	964,946	211,336	21.9	210,698	99.7	47,817	26	16	16
South Dakota	127,249	21,045	16.5	20,994	99.8	3,739	5	4	4
Tennessee	1,578,167	357,051	22.6	356,856	99.9	29,448	2	2	2
Texas	3,897,025	637,787	16.4	635,579	99.7	267,066	147	137	134
Utah	332,669	35,454	10.7	35,438	100.0	26,837	4	3	3
Vermont (SSN)	162,524	35,830	22.0	35,808	99.9	3,336	0	0	0
Virginia	882,873	178,332	20.2	177,820	99.7	45,769	22	16	15
Washington	1,140,350	161,904	14.2	161,497	99.7	144,740	16	9	9
West Virginia	382,710	74,905	19.6	74,765	99.8	10,906	25	24	24
Wisconsin	995,372	230,492	23.2	229,280	99.5	39,211	70	69	69
Wyoming	78,233	10,607	13.6	10,581	99.8	3,366	8	4	4
United States	54,503,702	10,045,809	18.4	10,021,400	99.8	6,925,836	14,187	9,531	9,485

^a MAX SSN is valid if it is not 8- or 9-filled and passes SSA's HGT.

^b EDB-SSN is valid if it is not eight- or nine-filled (SSA HGT is not necessary for EDB data).

Table II.3 Quality of Date of Birth, Sex and Race/Ethnicity Data Among Persons in the Base Person Summary File in MAX 2005

State	Total Number of Records	Number with Missing Date of Birth	Number with Missing Sex	Number with Missing Date of Birth or Sex	Percent with Missing Date of Birth or Sex	Number with Missing Race/Ethnicity	Percent with Missing Race/Ethnicity
Alabama	955,603	0	6,353	6,353	0.7	25,251	2.6
Alaska	132,850	0	3	3	0.0	3,994	3.0
Arizona	1,476,861	44	44	46	0.0	45,133	3.1
Arkansas	746,543	0	2,057	2,057	0.3	20,597	2.8
California (SSN)	10,593,532	17	11	28	0.0	666,097	6.3
Colorado	604,012	48	3	51	0.0	127,899	21.2
Connecticut	529,295	0	0	0	0.0	229	0.0
Delaware	179,935	0	0	0	0.0	22	0.0
District of Columbia	166,514	25	1	26	0.0	3,895	2.3
Florida	3,020,105	136	1,890	2,023	0.1	259,113	8.6
Georgia	2,102,131	2	77	79	0.0	136,614	6.5
Hawaii	231,826	0	0	0	0.0	599	0.3
Idaho	233,352	1	0	1	0.0	0	0.0
Illinois	2,611,141	57	1	58	0.0	31,141	1.2
Indiana	1,045,174	0	0	0	0.0	12,531	1.2
Iowa	428,814	1	0	1	0.0	101,503	23.7
Kansas	356,738	0	18	18	0.0	10,905	3.1
Kentucky (SSN)	886,961	0	2	2	0.0	39,561	4.5
Louisiana (SSN)	1,166,422	3	146	149	0.0	66,348	5.7
Maine	326,502	7	50	57	0.0	27,471	8.4
Maryland	869,900	20	0	20	0.0	33,264	3.8
Massachusetts	1,247,300	0	0	0	0.0	396,336	31.8
Michigan	1,857,775	134	0	134	0.0	27,572	1.5
Minnesota (SSN)	790,767	4	0	4	0.0	41,560	5.3
Mississippi	780,300	0	18,502	18,502	2.4	76,164	9.8
Missouri	1,222,651	29	18	31	0.0	28,468	2.3
Montana	128,004	0	0	0	0.0	1,613	1.3
Nebraska	261,952	11,436	4,437	11,914	4.5	7,693	2.9
Nevada (SSN)	267,880	142	1,792	1,895	0.7	0	0.0
New Hampshire	145,737	27	0	27	0.0	2,553	1.8
New Jersey (SSN)	1,131,152	2	0	2	0.0	123,177	10.9
New Mexico (SSN)	527,703	2	12	14	0.0	13,593	2.6
New York	5,087,834	90,174	51,577	90,176	1.8	360,863	7.1
North Carolina	1,728,608	11	0	11	0.0	108,507	6.3
North Dakota	78,969	0	2	2	0.0	4	0.0

Table II.3 (continued)

State	Total Number of Records	Number with Missing Date of Birth	Number with Missing Sex	Number with Missing Date of Birth or Sex	Percent with Missing Date of Birth or Sex	Number with Missing Race/Ethnicity	Percent with Missing Race/Ethnicity
Ohio	2,126,626	74	0	74	0.0	578	0.0
Oklahoma	729,569	8	0	8	0.0	0	0.0
Oregon	563,447	4	0	4	0.0	77,301	13.7
Pennsylvania	2,029,894	43	0	43	0.0	49,064	2.4
Rhode Island	219,784	1	0	1	0.0	70,692	32.2
South Carolina	1,012,781	8	72	80	0.0	69,805	6.9
South Dakota	131,027	0	0	0	0.0	0	0.0
Tennessee	1,594,336	0	2	2	0.0	58,794	3.7
Texas	4,104,526	3	80	82	0.0	65,269	1.6
Utah	345,451	1	461	461	0.1	2,178	0.6
Vermont (SSN)	163,470	0	0	0	0.0	64,750	39.6
Virginia	927,685	3	38	41	0.0	3,919	0.4
Washington	1,199,572	0	55	55	0.0	166,416	13.9
West Virginia	383,114	2	0	2	0.0	0	0.0
Wisconsin	1,022,203	68	0	68	0.0	167,795	16.4
Wyoming	81,199	1,278	1,802	1,806	2.2	515	0.6
United States	60,555,527	103,815	89,506	136,411	0.2	3,597,346	5.9

In the 2005 MAX, there were 6.9 million records with invalid MAX SSNs. Of these, fewer than 9,500, or 0.14 percent, were candidates for substituting an apparently valid SSN obtained from the MAX or EDB-HIC. Rather than doing so, however, we opted to use the HIC as an element in our linkage algorithm, as explained in the next chapter.

3. Quality of DOB, Sex, and Race/Ethnicity

Although demographic variables do not guarantee uniqueness, they can be used in conjunction with one or more of the identifying variables to provide additional evidence that two records belong to the same person. The demographic data in the PS file come from the MSIS eligibility record. If a person has Medicaid claims but no eligibility record, the DOB, sex, and race/ethnicity in the PS file will be missing. Consequently, as in the case of SSNs, we examine the quality of these variables among people with records in the base PS file.

Table II.3 shows the number and percent of records in the 2005 base PS file that do not have a DOB or sex and the number and percent with missing race/ethnicity. Although DOB and sex are available for 99.8 percent of enrollees overall, one percent or more of records have missing information for at least one of these two variables in four states: Mississippi, Nebraska, New York, and Wyoming. In New York, records with missing demographic information are for unborn children; the cause of missing data in other states is unknown. Nonetheless, for a vast majority of records, DOB and sex are available, making them good candidates for confirming that identifier variables are linking two records that belong to the same person.

Table II.3 also shows that race/ethnicity is missing for a much larger number of enrollees (5.9 percent). The problem is considerable (over 20 percent with missing race/ethnicity) in five states: Colorado, Iowa, Massachusetts, Rhode Island, and Vermont. The problem is moderately

large (between 10 and 20 percent missing) in four states: New Jersey, Oregon, Washington, and Wisconsin.⁸ The problem is somewhat large (between 5 and 10 percent of records are missing race/ethnicity) in 10 additional states. In addition, separate reporting of race and Hispanic ethnicity began in MAX 2005 and some inconsistencies between the old and new measures have been identified in several states. Due to missing data and potential reporting inconsistencies, race/ethnicity will be used as a quality assessment tool rather than a link variable. We will use the old, combined measure of race/ethnicity to assess link quality because states continued to improve their reporting of the new race/ethnicity measure, resulting in reporting differences between 2005 and 2006.

4. Quality of UEG and TOS Indicators

UEG and TOS indicators do not guarantee uniqueness of a person and can change over time. We might, however, be able to use them in conjunction with the identifier and demographic variables to confirm that two records belong to the same person. For example, we would expect the BOE grouping (aged, disabled, child, or adult) in UEG to be relatively constant over time if a person is not near ages 18-21 (the transition from the child to the adult group) or 65 (the transition from disabled or adult to aged). An aged person should rarely change to a different BOE group. Likewise, we expect the TOS to be relatively constant over time for certain subpopulations (those not enrolled in managed care plans). For example, we would expect to see aged and disabled persons receiving long-term care services but we would not expect it of children. Agreement between record pairs on service use can be used to assess the quality of a match.

⁸ For all but one of these states and the nation as a whole, race/ethnicity was even more likely to be missing in 2006.

5. Persons with Claims but No Eligibility Information

The previous data quality sections focused on issues among people who have an eligibility record. There are some records, however, that contain claims but no eligibility information. These records have no SSN, HIC, EDB-SSN, EDB-HIC, or any of the demographic or enrollment variables discussed above. The number of records with claims but no eligibility information fluctuates from year to year. In 2005, over five percent of records were missing eligibility information in Colorado, Louisiana, and Washington (Table II.4).

There are many reasons for nonlinking claims. Nonlinkage could be caused by the state retroactively removing people from the eligibility system while not removing their corresponding claims. The state could be retroactively enrolling people in the eligibility system in the state's administrative data system but not submitting retro-enrollment records to the MSIS/MAX system. Also, the state could be changing the MSIS ID in the eligibility system but not in the claims processing system, or vice versa.⁹

Our recent discussions with MSIS liaisons in states have suggested that in many cases claims with no eligibility information are caused by retroactive disenrollment more often than other factors. Therefore, we elected to exclude records with no Medicaid eligibility information from our linking and unduplication process and the final MAXEM research files, but these records are retained in the cross-reference files so that there is a record for every corresponding record in the MAX PS files.

⁹ When this happens, the state is supposed to provide an external cross-reference file that links the old MSIS ID to the new MSIS ID, but sometimes a state is unable to do so.

Table II.4 Persons with Claims but No Eligibility Information in the MAX 2005 Person Summary File

	Total Number of Records	Number with Claims but No Eligibility Record	Percent with Claims but No Eligibility Record
Alabama	963,526	7,936	0.8
Alaska	133,699	849	0.6
Arizona	1,491,569	14,727	1.0
Arkansas	762,193	15,687	2.1
California	10,924,768	331,245	3.0
Colorado	645,965	42,016	6.5
Connecticut	531,515	2,396	0.5
Delaware	181,053	1,118	0.6
District of Columbia	167,845	1,331	0.8
Florida	3,059,524	39,422	1.3
Georgia	2,107,826	24,602	1.2
Hawaii	237,736	5,949	2.5
Idaho	233,765	413	0.2
Illinois	2,612,709	2,238	0.1
Indiana	1,060,392	15,503	1.5
Iowa	430,985	2,171	0.5
Kansas	361,325	4,587	1.3
Kentucky	894,282	7,322	0.8
Louisiana	1,244,886	78,733	6.3
Maine	327,491	991	0.3
Maryland	868,686	1,765	0.2
Massachusetts	1,255,313	9,418	0.8
Michigan	1,878,812	21,037	1.1
Minnesota	792,366	1,654	0.2
Mississippi	787,537	7,291	0.9
Missouri	1,219,756	1,827	0.1
Montana	129,052	1,048	0.8
Nebraska	261,841	469	0.2
Nevada	272,739	4,859	1.8
New Hampshire	145,834	97	0.1
New Jersey	1,134,761	8,991	0.8
New Mexico	530,733	3,031	0.6
New York	5,118,695	30,861	0.6
North Carolina	1,729,575	967	0.1
North Dakota	79,961	1,336	1.7
Ohio	2,127,176	550	0.0
Oklahoma	730,873	2,264	0.3
Oregon	565,361	1,916	0.3
Pennsylvania	2,038,176	8,282	0.4
Rhode Island	224,884	5,100	2.3
South Carolina	1,012,763	476	0.0
South Dakota	130,988	94	0.1
Tennessee	1,607,615	13,370	0.8
Texas	4,164,091	60,821	1.5
Utah	359,506	14,055	3.9
Vermont	165,860	3,098	1.9
Virginia	928,642	957	0.1

Table II.4 (continued)

	Total Number of Records	Number with Claims but No Eligibility Record	Percent with Claims but No Eligibility Record
Washington	1,285,090	85,518	6.7
West Virginia	393,616	10,505	2.7
Wisconsin	1,034,583	12,380	1.2
Wyoming	81,599	400	0.5
United States	61,429,538	913,673	1.5

Note: Persons with claims but no eligibility record have no information recorded in their SSN, EDB-HIC, EDB-SSN, EDB-HIC, date of birth, sex, and race/ethnicity fields.

C. Conclusion

The MSIS ID, in conjunction with state, can be used to link records across years within states. For linking duplicated records within states and linking any records across states, additional linkage variables must be used. Among the other identifying variables, the SSN is the most informative, whereas the EDB-SSN and the EDB-HIC pertain only to the small segment of the Medicaid population dually enrolled in Medicare and Medicaid; except in rare cases, they simply duplicate the SSN. The HIC reported in MSIS is less reliable than the EDB-HIC. Among the demographic variables, DOB and sex are the most promising for confirming that two records belong to the same person, because they are relatively complete. Race/ethnicity is missing for a substantial portion of the Medicaid population and will be used instead to assess the quality of linkages. Similarly, UEG and TOS will be used in a secondary role to determine whether enrollment and usage information are radically inconsistent across records that are identified as potentially being for the same person.

The quality of the assessed linkage variables varies by state and sometimes by year. Across all states, 89 percent of the records in the 2005 MAX PS files have a nonmissing identifier (an SSN, EDB-SSN, or HIC), DOB, and sex (Table II.5), but individual states vary widely. Over 37 percent of records in California have missing key identifiers. Colorado, Massachusetts, Nevada, and Washington are also worrisome, as identifiers are missing for more than 10 percent of records in these states. We expect that the match rate and our ability to unduplicate records in these states will be more limited than in states with more complete data. Finally, records with missing eligibility data will not be unduplicated or included in MAXEM, as we believe many of them result from retroactive disenrollment.

Table II.5 Records with Valid Identifiers and Demographics in the 2005 MAX Person Summary File

State	Total Number of Records	Percent with Nonmissing Identifier, ^a Date of Birth, and Sex	Percent with Nonmissing Identifier ^a and Date of Birth, Missing Sex	Percent with Nonmissing Identifier ^a Missing Date of Birth	Percent with Missing Identifier ^b
Alabama	963,526	97.8	0.7	0.0	1.6
Alaska	133,699	96.5	0.0	0.0	3.5
Arizona	1,491,569	97.0	0.0	0.0	3.0
Arkansas	762,193	91.7	0.2	0.0	8.1
California (SSN)	10,924,768	62.4	0.0	0.0	37.6
Colorado	645,965	87.7	0.0	0.0	12.3
Connecticut	531,515	95.8	0.0	0.0	4.2
Delaware	181,053	90.6	0.0	0.0	9.4
District of Columbia	167,845	96.6	0.0	0.0	3.4
Florida	3,059,524	96.5	0.0	0.0	3.5
Georgia	2,107,826	93.0	0.0	0.0	7.0
Hawaii	237,736	97.5	0.0	0.0	2.5
Idaho	233,765	97.0	0.0	0.0	3.0
Illinois	2,612,709	97.3	0.0	0.0	2.7
Indiana	1,060,392	95.8	0.0	0.0	4.2
Iowa	430,985	98.3	0.0	0.0	1.7
Kansas	361,325	97.2	0.0	0.0	2.8
Kentucky (SSN)	894,282	96.7	0.0	0.0	3.3
Louisiana (SSN)	1,244,886	91.3	0.0	0.0	8.7
Maine	327,491	99.2	0.0	0.0	0.8
Maryland	868,686	96.9	0.0	0.0	3.1
Massachusetts	1,255,313	89.4	0.0	0.0	10.6
Michigan	1,878,812	92.5	0.0	0.0	7.5
Minnesota (SSN)	792,366	97.4	0.0	0.0	2.6
Mississippi	787,537	94.1	0.0	0.0	5.9
Missouri	1,219,756	98.5	0.0	0.0	1.5
Montana	129,052	98.5	0.0	0.0	1.5
Nebraska	261,841	94.2	0.0	2.3	3.5
Nevada (SSN)	272,739	87.0	0.1	0.0	12.9
New Hampshire	145,834	99.1	0.0	0.0	0.9
New Jersey (SSN)	1,134,761	93.8	0.0	0.0	6.2
New Mexico (SSN)	530,733	97.8	0.0	0.0	2.2
New York	5,118,695	92.9	0.0	0.4	6.7
North Carolina	1,729,575	97.9	0.0	0.0	2.1
North Dakota	79,961	97.9	0.0	0.0	2.1
Ohio	2,127,176	98.6	0.0	0.0	1.4
Oklahoma	730,873	97.1	0.0	0.0	2.9
Oregon	565,361	93.4	0.0	0.0	6.6
Pennsylvania	2,038,176	98.9	0.0	0.0	1.1
Rhode Island	224,884	96.8	0.0	0.0	3.2
South Carolina	1,012,763	95.4	0.0	0.0	4.6
South Dakota	130,988	97.2	0.0	0.0	2.8
Tennessee	1,607,615	98.3	0.0	0.0	1.7
Texas	4,164,091	93.8	0.0	0.0	6.2
Utah	359,506	92.7	0.0	0.0	7.3
Vermont (SSN)	165,860	98.0	0.0	0.0	2.0
Virginia	928,642	95.4	0.0	0.0	4.6
Washington	1,285,090	88.8	0.0	0.0	11.2
West Virginia	393,616	97.3	0.0	0.0	2.7
Wisconsin	1,034,583	96.3	0.0	0.0	3.7
Wyoming	81,599	95.0	0.2	1.0	3.9
United States	61,429,538	89.3	0.0	0.0	10.6

^a The identifier is nonmissing if the SSN, EDB-SSN, or HIC is nonmissing.

^b The identifier is missing if the SSN, EDB-SSN, and HIC are missing.

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III. EVALUATION OF LINKAGE ALGORITHMS

A key component of this project was the identification or development of an algorithm suitable for linking records from the MAX both within and across years and within and across states. The selection of a linking algorithm—a methodology for determining whether any two records in the MAX file belong to the same individual—was one of the most important design elements of MAXEM. The algorithm will determine which MAX records belong to the same person and therefore should be unduplicated in the database. Chapter II identified six variables—the MSIS ID, the Social Security Number (MAX SSN) reported in MSIS, the SSN obtained from the Medicare Enrollment Database (EDB-SSN), the Health Insurance Claim (HIC) number obtained from the EDB (EDB-HIC), date of birth, and sex—as being of the highest quality for linking MAX data. However, linking algorithms can vary substantially with respect to the level of disagreement permissible on the linking variables across records. For example, one algorithm may require sex to be the same on two linked records while another may allow some disagreement on sex if other variables agree.

Because the effectiveness of various linking algorithms had not previously been tested on MAX data, the review and testing of commonly used algorithms was a critical step in selecting the optimal design for MAXEM. This chapter documents our evaluation of three linkage algorithms and the selection of a final approach to linking records in MAX. We describe the linkage algorithms that we chose to evaluate; explain how we selected three prototype analysis states; and present the results of our evaluation of the three algorithms and, based on this evaluation, our recommended approach.

A. Existing Linking Algorithms

Following a review of common approaches to linking records between data sets, three extant algorithms were selected for further evaluation: (1) an approach used by CMS to merge

Medicare Modernization Act (MMA) Part D data to the Medicare Master Beneficiary Database (MBD) (Northrop Grumman Corporation 2008), (2) an approach used to link MAX data with the EDB, and (3) probabilistic linking (Fellegi and Sunter 1969; Jaro 1995; Whalen et al. 2001; Blakely and Salmond 2002). Key characteristics of these methods are summarized in Table III.1 and described in more detail below. In the discussion that follows, we define two records that are brought together as potentially representing the same person as a “record pair” or “matched record pair.” Record pairs that are judged to actually represent the same person are labeled “linked records” or “links.”

Table III.1 Design Matching Algorithms and Their Characteristics

Algorithm	Description	Challenges	Limitations
MMA–MBD	<p>Deterministic method based on point system that identifies agreement on the following variables as links:</p> <ul style="list-style-type: none"> • SSN + three of (DOB YR, DOB, MO, DOB DD, sex) • HIC + three of (DOB YR, DOB MO, DOB DD, sex) • CAN + DOB YR + DOB MO + sex^a 	None	Does not allow that the relative importance of agreement on specific variables may vary in different populations; does not take into account the amount of agreement or disagreement within a variable or allow for reporting or recording error in a variable
MAX–EDB	<p>Deterministic method that identifies agreement on the following variables as links:</p> <ul style="list-style-type: none"> • SSN + sex + two of (DOB YR, DOB, MO, DOB DD) • HIC + sex + two of (DOB YR, DOB MO, DOB DD) • SSN is equal to CAN plus agreement on sex + two of (DOB YR, DOB MO, DOB DD) 	None	Same as MMA-MBD
Probabilistic linking	Score potential matches according to their likelihood of occurring, choose cutoff rate to identify links	Complex, resource intensive	Difficult to select linkage cutoff value; relatively difficult to explain to lay audiences

^a Northrop Grumman Corporation (2008) documentation is ambiguous with respect to whether this link is allowable.

1. Medicare Modernization Act–Master Beneficiary Database (MMA–MBD) Approach

The MMA–MBD point system was developed to identify three types of matches as linked pairs when merging Medicare Part D and Medicare beneficiary data: (1) records agreeing on SSNs and three of the four link variables defined by year of birth, month of birth, day of birth, and sex; (2) records agreeing on HIC and three of four link variables defined by year of birth, month of birth, day of birth, and sex; and (3) records agreeing on CAN, year and month of birth, and sex.

The MMA–MBD approach would be simple to implement for MAXEM because its point system, illustrated in Table III.2, was designed explicitly to identify linked pairs and can easily be adapted to MAX data.

Table III.2 MMA–MBD Point System

Matching Variables	Points
(EITHER	
SSN	5.00
OR	
CAN	3.50
BIC	1.20
AND	
Year of birth	3.25
Month of birth	3.00
Day of birth	2.25
Sex	2.50

Total scores equal to or exceeding 12.25 identify primary links using the MMA–MBD primary match criteria (Northrop Grumman Corporation 2008). It is important to note that the point system is only an implementation tool and is designed to identify the three specific combinations of matches (see Table III.1, note a). However, the types of links identified by the MMA–MBD approach may not be as effective with Medicaid records as they are with Medicare

Part D and the Medicare beneficiary records. Prior to this evaluation the effectiveness of this approach for linking records across Medicaid MAX data was unknown.

We adapted the MMA–MBD linking approach in three ways for our test implementation. First, we allowed records to be linked by MSIS ID plus three of the four link variables defined by year of birth, month of birth, day of birth, and sex. Second, we allowed records to be linked by SSN using either the MAX SSN or the EDB-SSN. Third, we used the EDB-HIC (not the MAX HIC) as the source for CAN and BIC information, when available. Table III.3 summarizes the allowable linkages in the adapted MMA–MBD approach as well as in the two other linking algorithms that we evaluated.

Table III.3 Implemented Linking Algorithms and Their Characteristics

Algorithm	Description
MMA–MBD (adapted)	<p>Deterministic method based on point system that identifies agreement on the following variables as links:</p> <ul style="list-style-type: none"> • MSIS ID + three of (DOB YR, DOB MO, DOB DD, sex) • MAX SSN + three of (DOB YR, DOB MO, DOB DD, sex) • EDB-SSN + three of (DOB YR, DOB MO, DOB DD, sex) • EDB-HIC + three of (DOB YR, DOB MO, DOB DD, sex) • EDB-CAN + DOB YR + DOB MO + sex^a
MAX–EDB (adapted)	<p>Deterministic method that identifies agreement on the following variables as links:</p> <ul style="list-style-type: none"> • MSIS ID + sex + two of (DOB YR, DOB MO, DOB DD) • MAX SSN + sex + two of (DOB YR, DOB MO, DOB DD) • EDB-SSN + sex + two of (DOB YR, DOB MO, DOB DD) • EDB-HIC + sex + two of (DOB YR, DOB MO, DOB DD) • MAX SSN or EDB-SSN is equal to EDB-CAN plus agreement on sex + two of (DOB YR, DOB MO, DOB DD)
Probabilistic linking	Score potential matches according to their likelihood of occurring; choose cutoff rate to identify links

^a The CAN is the first nine digits of the HIC. Northrop Grumman Corporation (2008) documentation is ambiguous with respect to whether this link is allowable under the MMA–MBD algorithm. We include the CAN link in the algorithm but separately evaluate the linkages produced by this combination of variables.

2. Medicaid Analytic Extract–Medicare Enrollment Database (MAX–EDB) Approach

The second linking algorithm that we evaluated is used currently by CMS to link MAX records to the Medicare EDB to identify dual enrollment in Medicare and Medicaid. The algorithm links record pairs agreeing on (1) SSN, sex, and at least two of three link variables defined by year of birth, month of birth, and day of birth; (2) HIC, sex, and two of the variables year of birth, month of birth, and day of birth; and those with (3) the SSN on one record equal to the CAN on the other record and agreeing on sex and two of the variables year of birth, month of birth, and day of birth.

The MAX–EDB approach differs from the MMA–MBD approach in three ways. First, it includes record pairs in which the SSN on one record agrees with the CAN on another record. Second, it has more stringent variable agreement requirements, in that the sex of any linked records must agree. Only the date of birth variable is allowed to differ somewhat in record pairs. Third, the MAX–EDB approach does not use a point system. If a point system were deemed helpful, however, one could be developed for the algorithm.

For the MAXEM application we adapted the MAX–EDB approach just as we did the MMA–MBD approach. First, we allowed records to be linked by MSIS ID in addition to SSN. Such record pairs also had to agree on sex and two of the variables defined by year of birth, month of birth, and day of birth. Second, we allowed agreement on SSN to occur with either the MAX SSN or EDB-SSN. Third, we substituted the EDB-HIC for the MAX HIC as the source of CAN and BIC information.

3. Probabilistic Linking

Both the MMA–MBD and the MAX–EDB approaches fall into a class of linking algorithms called “deterministic linking” because they define the full set of criteria that determine whether a record pair is to be linked or not. For this reason, deterministic approaches are very easy to

implement. But they also have two primary limitations. First, the linkage criteria do not allow that the relative importance of agreement on specific variables may vary in different populations. For example, sex usually provides less information with which to identify an individual than year of birth, but this might not be the case in a database with substantial missing data on year of birth. Second, deterministic methods typically do not take into account the amount of agreement or disagreement within a variable, or allow for error in the reporting or recording of a variable. For example, two SSNs that differ only by two transposed digits are treated the same as two SSNs that have no digits in common. While such differential agreement could potentially be incorporated into a deterministic linking algorithm, probabilistic linking is designed to accommodate such cases easily, based on a formal statistical model.

Unlike deterministic methods, probabilistic linking provides a single meaningful metric for ranking record pairs—a score based on the probability that the agreement between variables on the two records would occur by chance. The approach takes into account that agreement on some variables—for example, sex—provides less information with which to identify an individual than other variables, such as date of birth. Specifically, the score assigned to each record pair is a function of the probability of finding such agreement (or disagreement) on each of the link variables among true pairs, and the probability of finding such agreement (or disagreement) on each of the link variables among records that represent two different individuals.

For each link variable, we define:

- *Agreement Weight* = $\log_2(\text{probability of variable agreement in true pairs} / \text{probability of variable agreement in nonpairs})$
- *Disagreement Weight* = $\log_2(\text{probability of variable disagreement in true pairs} / \text{probability of variable disagreement in nonpairs})$

Reflecting an assumption that the linking variables are independent, the total score for a record pair is equal to the sum of the agreement and disagreement weights over all applicable link

variables. For example, if our linkage variables are SSN and sex, and a specific record pair agrees on SSN but disagrees on sex, we sum the agreement weight for SSN and the disagreement weight for sex to obtain the score for this record pair. If another pair agrees on both SSN and sex, then the score for this record pair will equal the sum of the two variable agreement weights, and so on.¹⁰ Higher scores are given to record pairs that agree on linking variables that are rarely the same on records for two distinct individuals.

Further refinements can be made to scale agreement and disagreement weights to allow for the possibility that some variable values provide more information than others. For example, disagreement on date of birth when one value is missing provides less information than when two distinct, complete dates are reported. Similarly, two SSNs with a single pair of transposed digits are in closer agreement than two completely distinct SSNs, and two dates of birth with a transposed day and month are in closer agreement than two distinct dates of birth.

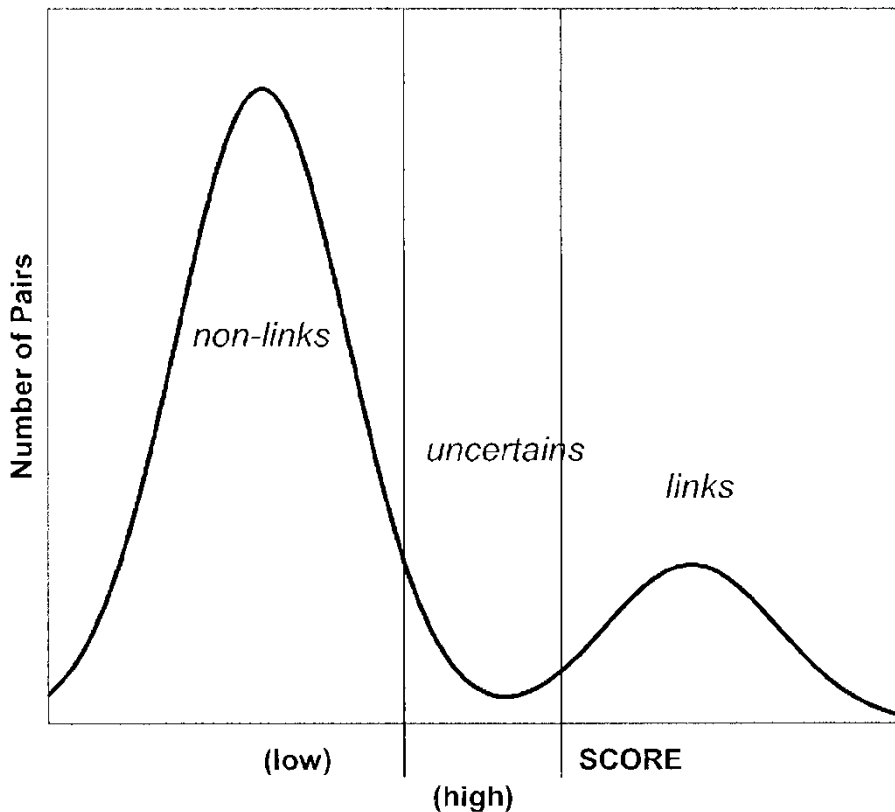
Ordinarily, the probabilities that are used to calculate the agreement and disagreement weights must be estimated anew for each application.¹¹ Typically, this is a two-stage process, which is often iterative. In the first stage, a subset of all possible record pairs within the data set is divided into true pairs and nonpairs based on a prespecified set of criteria; initial probabilities of agreement and disagreement are then estimated for all of the linkage variables for these two subpopulations. In the second stage, these probabilities are used to compute scores for a larger set of record pairs.

¹⁰ The probability that a variable agrees in true pairs is sometimes referred to as the m probability. The probability that a variable agrees in true nonpairs is sometimes referred to as the u probability. Thus, the agreement weight for each variable is equal to $\log_2(m/u)$ and the disagreement weight is equal to $\log_2(1-m/1-u)$. The total score for a record pair is simply the sum of applicable disagreement and agreement weights over all link variables.

¹¹ With repeated applications to similar problems, it may be possible to develop a consensus set of probabilities that can be applied to later, related applications.

Ideally, the distribution of scores is bimodal, with obvious links having high scores and obvious nonlinks having low scores (Figure III.1). Record pairs with scores falling above a cutoff are selected to be linked. Pairs with scores falling below a second, lower cutoff are defined as nonlinks. Matched pairs falling between the two cutoffs are defined as uncertain links. Ultimately, these need to be grouped with either the linked records or the nonlinked records. Often this requires a manual review—which may not be practical if the number of uncertain pairs is large. Simply moving the higher cutoff down is likely to increase the number of false positives (records for two different people that are identified as linked) by more than it reduces the number of false negatives (records for the same person that are not linked). Conversely, raising the lower cutoff is likely to increase the number of false negatives by more than it reduces the false positives.

Figure III.1 Expected Distribution of Probability Scores for Linked, Nonlinked, and Uncertain Records



Source: Whalen et al. (2001).

One solution, as we noted, is to iterate—that is, to use the linked pairs and nonlinked pairs identified in the second stage (those pairs above the higher cutoff or below the lower cutoff) to re-estimate the probabilities of agreement and disagreement on the link variables, repeating stage one. With the new probabilities, the scores for the record pairs in the full data set are then re-estimated and a new distribution is generated, ideally having a sharper bimodal distribution with fewer pairs in the uncertain middle. With a few iterations, it may be possible to reduce the uncertain records pairs to a number that can be manually reviewed or simply converted to links and nonlinks with an intermediate cutoff that will yield few false positives and false negatives.

Ideally, the second stage analysis will compare all record pairs in a file (a match merge). However, probabilistic record linkage is heavily computer-intensive, and the computing time required to assess all record pairs in a large file may be prohibitive. For this reason, in probabilistic linking, blocking is often used to limit the types of pairs that are assessed. Blocking means restricting the record pairs to those that agree on one or more of the link variables. For example, in their algorithm to merge Medicaid and other data file records, Whalen et al. (2001) limited the reviewed records to those that agreed on SSN, date of birth, and name, or sex and name. When blocking is used, it must be applied in stage one as well as stage two so that the estimated agreement and disagreement probabilities are conditional on the blocking. Blocking reduces processing time, however when it is too restrictive it severely limits the pool of records from which the disagreement probabilities can be estimated, which can make the agreement and disagreement probabilities too similar, thereby reducing the effectiveness of the linking algorithm in differentiating between true pairs and nonpairs.

B. Prototype Sample States

A prototype design of MAXEM—including combining files across years and states, implementing linking algorithms, and performing a link quality review to assess whether the

linked records were correctly identified as being for the same person—was first implemented on a set of three sample states. These states enabled us to address the wide range of programming, linkage variable quality, and data processing challenges to be encountered when we implement the algorithm on all states' data. The states of Arizona, California, and Nevada¹² were carefully selected to (1) reflect national variation in the quality of MAX identifier data, (2) include states with migration flows among them, and (3) reflect a range of analytic file sizes.

We chose these states because they included two SSN states (California and Nevada), which would ensure that the prototype algorithm functions for states that use SSNs as their MSIS IDs and thus have fewer identifiers. The sample group also included states with linkage variable data quality issues. Both California and Nevada have over 10 percent of records with missing or invalid SSNs. Including states with such problems would ensure that the programs developed to implement the linking and unduplication strategy can adequately address these limitations. The states also had substantial migration flows (Perry 2003), allowing us to adequately test cross-state linking. Finally, the combination of two relatively small states and one very large state enabled us to develop the algorithm on the two smaller states and then apply it to California in order to identify challenges associated with processing large quantities of data.

We were well aware that the results from the linking implementation would not be representative of the nation as a whole. Because the prototype included states with a great deal of migration, we expected to identify proportionately more links across our sample states than we would later find across other states. At the same time, however, we expected to identify a smaller percentage of true pairs within our sample states than across other states because of the relatively

¹² We also considered the following groups of states: (1) Alabama, Florida, and Georgia, (2) Arizona, California, and Washington, (3) District of Columbia, Maryland, and Virginia, and (4) New Jersey, New York, and Pennsylvania.

lower quality of the linkage variables in the sample states. Nevertheless, we expected that testing the algorithms on Arizona, California, and Nevada would allow us to assess the benefits and limitations of the alternative linking strategies. It would also allow us to develop a prototype that could address most of the challenges we would face in implementing MAXEM on all 50 states and DC.

C. Evaluation of the Three Algorithms

In evaluating the linkages produced by the three algorithms, we would have liked to have a way to determine whether each linked pair was indeed a true pair and whether each nonlinked pair was indeed a nonpair—even if only for a sample of record pairs. Such was not the case, however. Lacking a means to determine true agreement, we assessed the quality of any two linked record pairs by their agreement on six measures—race/ethnicity, basis of eligibility (BOE), non-overlapping months of enrollment (within a year and state only), use of any services, use of institutional care, and use of prescription drugs. We excluded people ages 18-22 and 64-66 from the assessment of agreement on BOE because these are transition years between different BOE statuses. In addition to examining the quality of the linkages, we also compared the algorithms with respect to their processing time and computational efficiency. We present our findings for processing time first, because the results had a major impact on how we structured the rest of the evaluation.

1. Algorithm Processing Time and Efficiency

Run time is an important consideration in selecting a linking algorithm because linking data for all states for the 2005 and 2006 MAX files (about 120 million records) could require days, weeks, or even months to process. CPU processing time—the time required by the processor to implement the program—remains relatively stable across runs. However, total perceived

processing time—referred to as “wall clock time”—varies substantially from run to run, depending on the demands of the CMS mainframe, and reflects the actual time resources needed to implement an algorithm.

Table III.4 summarizes the CPU and wall clock time for the three tested algorithms, by state. Generally, file size was linearly associated with run time such that Arizona, which has about six times as many enrollees as Nevada, required five to six times as long to process. California required 25 to 40 times as long to process as Nevada. Nationally, we estimate that processing an algorithm on all states will take about 200 times as long as processing the same algorithm on Nevada.

The MMA–MBD and MAX–EDB linking algorithms required only a minute or two of wall clock time for Nevada and were successfully run on California in under an hour. The cross-state runs that implemented both deterministic algorithms ran in under four hours. These processing times suggest that either algorithm could be implemented in a relatively short time frame and, assuming some reruns will be necessary, would require no more than a week to process all 50 states and the District of Columbia.

Probabilistic linking, however, required substantially more processing time. We made several attempts to implement the algorithm on Nevada without blocking (for the full Cartesian product of 273 billion record pairs). However, even aborted runs suggested that implementing such an algorithm would be challenging and time-consuming. Processing of records for Nevada, which is in the lowest 25th percentile of states with respect to the size of its Medicaid population, was aborted after more than eight hours. This run time suggests that, without blocking, processing California records alone would require several weeks, and several months of processing would be required to implement the approach nationally. Because the algorithm also

Table III.4 Processing Times (in Minutes) for the MMA–MBD, MAX–EDB, and Probabilistic Linking Algorithms, MAX 2005–2006

Procedure	Nevada N=522,627		Arizona N=2,988,696		California N=21,205,442		Cross-State	
	CPU	Wall	CPU	Wall	CPU	Wall	CPU	Wall
Deterministic Linking								
MMA–MBD ^a	0.21	0.88	1.17	5.83	6.62	31.92	NA	NA
MAX–EDB ^a	0.29	1.58	1.52	8.74	8.48	48.51	NA	NA
Cross-state linkages for MMA- MBD and MAX-EDB algorithms	NA	NA	NA	NA	NA	NA	26.3	222.69
Probabilistic Linking								
No blocking	120.00 (aborted)	504.00 (aborted)	NA	NA	NA	NA	NA	NA
Blocking level 1 ^b	21.63	45.08	545.51	761.29	NA	NA	NA	NA
Blocking level 2 ^b	6.22	176.88	NA	NA	NA	NA	NA	NA

Note: CPU and wall clock times vary substantially depending on the demands on the CMS mainframe. Programs were typically run on multiple occasions with different specifications.

^a MMA–MBD and MAX–EDB linking algorithms were implemented using traditional match merging as well as SQL views. Processing times for SQL views were three to five times longer than traditional match merging. For example, an SQL view processing both algorithms for California took 25.49 minutes of CPU time and 150.13 minutes of wall time. Traditional match-merging processing times for MMA–MBD and MAX–EDB are reported in the table.

^b Blocking level 1 requires agreement on one of the following: MSIS ID, MAX SSN or EDB-SSN, HIC, CAN, or year of birth and month of birth. Blocking level 2 requires agreement on one of the following: MSIS ID, MAX SSN or EDB-SSN, HIC, CAN, date of birth and last four digits of the SSN, or date of birth and first five digits of SSN.

requires substantial data reviews, annual implementation of probabilistic linking without blocking would be impractical unless there were notable benefits associated with the approach in terms of its ability to link MAX records.

Probabilistic linking with blocking on MSIS ID, MAX SSN or EDB-SSN, HIC, CAN, and year of birth and month of birth ran within an hour on Nevada but required 13 hours for Arizona. This blocking approach would also be quite resource-intensive, potentially requiring up to a week to process California and a month of processing time alone to implement the approach nationally. Nevertheless, we viewed implementation of this blocking approach to be feasible if it resulted in a substantial decrease in false positive or false negative matches.

The final probabilistic linking blocking approach that we tested (on Nevada alone) restricted the blocking on date of birth to records that also agreed on parts of the SSN. Specifically, we blocked on MSIS ID, MAX SSN or EDB-SSN, HIC, CAN, date of birth and first four digits of the SSN, and date of birth and first five digits of the SSN. This blocking approach required three hours to run on Nevada.

2. Quality of Linkages

We reviewed the quality of record pairs in two stages. In the first stage, we reviewed the summary quality measures for record pairs in the two smaller states—Arizona (a non-SSN state) and Nevada (an SSN state)—to estimate the expected level of agreement on each quality indicator, determine whether agreement on these variables is generally consistent across states, and make a general assessment of the quality of specific linkage types. This review was also used to determine whether quality measure thresholds could be used to distinguish good links from bad ones. In the second stage of our evaluation we implemented the three linking algorithms on Nevada, the smallest state, to ensure that each was feasible and well specified. We reviewed the percentage of record pairs matching on our quality indicators, overall and for each

combination of variable and agreement. We also examined whether the algorithms linked record pair types that we identified as potentially good matches during the first stage of our quality review. We then applied optimal specifications to all three prototype states for within- and across-year record pairs and for records that linked across states, and similarly reviewed the results of each run.

a. Assessment of the Quality Indicators

To gauge the sensitivity of the quality indicators, we first examined their distribution across record pairs in Arizona and Nevada for MAX 2005 and 2006. (The quality indicator reflecting non-overlapping months of enrollment was excluded because it is not applicable for across-calendar year matches.) Overall, about half of record pairs in Arizona and Nevada with the same MSIS IDs and the same MAX SSNs (good matches) agreed on all five quality indicators (Table III.5). Some disagreement was common even among good matches because service use often changes across years and some changes in BOE are also expected. In comparison, among record pairs with different MSIS IDs and different MAX SSNs (nonmatches) in our blocked sample, only 13 percent agreed on all the quality indicators. Good matches and nonmatches also were differentiated by agreement on both race and BOE. About 80 percent of good matches but only 30 percent of bad matches had the same race and BOE. Therefore, we generally focused our review on identifying variable combinations that either agreed on all quality indicators or agreed on both race and BOE, only reviewing all five quality indicators when classification of a record pair type was unclear.

A further review of subsets of record pairs indicated that among types of record pairs that we viewed a priori as good matches (for example, records with same SSN, same HIC, same sex, and same two parts of date of birth; or those with same HIC, same date of birth, and same sex, but one digit difference in SSN), over 25 percent agreed on all six quality indicators, and over 50

percent agreed on both race and BOE. Furthermore, the vast majority of nonmatches (for example, records with only date of birth and sex in common) did not meet this requirement. We adopted a 25 percent threshold for agreement on all six quality indicators and a 50 percent threshold for agreement on race and BOE as an indicator of the likelihood that a record pair was for the same person and therefore should be linked in MAXEM. We identified as uncertain and to be investigated further any variable combinations that agreed on MSIS ID but did not meet our quality thresholds, as well as those that disagreed on MSIS ID but did meet the thresholds. We also reviewed variable combinations that were inconsistently categorized in Arizona and Nevada.

Table III.5. Average Quality Indicator Values for Well-Matched and Poorly Matched Blocked-Record Pairs in Arizona and Nevada, MAX 2005–2006

Measure	Arizona		Nevada (SSN)	
	Same MSIS ID, Same MAX SSN	Different MSIS ID, Different MAX SSN	Same MSIS ID, Same MAX SSN	Different MSIS ID, Different MAX SSN
Number of Record Pairs	1,057,060	116,349,996	174,644	4,618,698
Percentage Agreeing on:				
All quality review variables	51.7	13.4	44.6	13.1
Same race	96.1	36.9	87.3	31.1
Same BOE (excluding 18-22 & 64-66 year olds)	86.7	78.9	89.8	94.0
Agreement on any service use	78.3	62.0	74.9	64.9
Same prescription drug use	71.2	52.3	74.8	65.7
Same institutional care use	99.2	99.6	99.2	99.9
Same race, same BOE	83.3	29.9	78.1	29.1
Same race, different BOE	1.0	2.3	0.7	1.8
Different race, same BOE	3.3	48.1	11.7	64.8
Different race, different BOE	0.2	6.4	0.1	4.0

Most variable agreement combinations that included agreement on MSIS ID met the 25 percent threshold set for all quality-assessment variables and the 50 percent threshold for race and BOE indicators. Overall, 7.8 percent (98,812) of record pairs with the same MSIS IDs disagreed on MAX SSN in Arizona. Almost all (99.7 percent) of these record pairs agreed on date of birth and sex. There were no such cases in Nevada, an SSN state.

The top panel of Table III.6 provides a breakdown of record pair combinations that agreed on MSIS ID but did not meet the quality thresholds. Note that some outliers are expected and therefore some combinations may have low quality scores but still include record pairs that mostly represent the same person. We view only the last four entries in the top panel of the table (items 12-15) as questionable linkages by MSIS ID, reflecting 28 record pairs in Arizona. These record pairs had different SSNs, disagreed on other identifiers, and did not agree on date of birth. In general, however, our quality review suggests that all record pairs agreeing on MSIS ID should be linked.

A somewhat more restrictive threshold, requiring 35 percent of cases to agree on all quality-assessment variables and 75 percent to agree on race and BOE, would reject about 1,757 record pairs as nonlinks. About 60 percent of these agreed on only two parts of the date of birth, and the remainder disagreed on sex. However, these cases had the same SSN and MSIS ID, suggesting that they likely reflect the same individual.

The second panel of Table III.6 lists the most common variable combinations for record pairs that did not agree on MSIS IDs but had quality indicator scores above our thresholds. Such cases indicate records that are potentially linkable by variables other than MSIS ID across years and across states. However, the list includes almost a million record pairs with missing SSNs that matched only by date of birth and sex (32 percent agreed on all quality assessment variables and 55 percent agreed on race and BOE), suggesting that the threshold levels may be insensitive to some false positives.

Nevertheless, in Arizona, 96.6 percent of record pairs in combinations disagreeing on MSIS ID but agreeing on MAX SSN had quality indicators above our threshold. (There were no such cases in Nevada because the MSIS ID is equal to the MAX SSN in that state.) Cases that did not

agree on the quality indicators typically disagreed on date of birth and sex, although this was not always true. We investigate date of birth and sex combinations in more detail below.

Table III.6 Uncertain Record-Pair Types Among Potential Matches in Arizona and Nevada, MAX 2005–2006

Item #	Agrees on MSIS ID	Agrees on MAX SSN	Agrees on EDB-SSN	Agrees on HIC	Agrees on DOB	Agrees on Sex	Number of Record Pairs	
							Arizona	Nevada
Record Pairs Combinations with Same MSIS ID but Below Quality Indicator Threshold								
1	X	X	X	X	≠	X	0	1
2	X	X	X	≠	≠	X	0	1
3	X	X		≠	X	X	0	1
4	X	X		X	≠	X	35	0
5	X	✓			≠	≠	1	0
6	X	≠		≠	✓	X	1	0
7	X	≠			✓	X	1	0
8	X	≠	X	X	✓	X	9	0
9	X	≠		X	✓	X	3	0
10	X			X	✓	X	1	0
11	X					X	1	0
12	X	≠	≠	≠	≠	X	5	0
13	X	≠				X	16	0
14	X	≠			≠	X	1	0
15	X	≠	≠	≠	≠	≠	6	0
Record Pair Combinations Disagreeing on MSIS ID but Above Quality Indicator Threshold								
16	≠				X	X	897,676	0
17	≠	X	X	X	X	X	4,189	0
18	≠	X	X	X	Two parts	X	73	
19	≠	X			X	X	1,053	0
20	≠				X	X	109	0

Note: Empty cells reflect missing values on the variable on one for both record pairs. Combinations above the quality indicator thresholds are cases in which 25 percent of the record pairs agree on all quality indicators and 50 percent agree on race and BOE.

To examine the quality of linkages for close but not complete agreement—for example, inconsistencies due to typos—we examined the quality of record pairs with these characteristics that agreed on MSIS ID (verified linkable records) and those disagreeing on MSIS ID. Specifically, we examined whether record pairs with a one-digit difference in SSN, two transposed digits in the SSN, or a transposed month and day of birth have quality scores that

exceeded the 25 percent agreement thresholds for all quality indicators and 50 percent agreement thresholds for race and BOE (Table III.7). The 61 record pairs in Arizona with the same MSIS IDs and a one-digit difference in SSN exceeded the quality threshold; this was not the case among similar records whose MSIS IDs did not agree. Transposed SSN values, whether or not they agreed on MSIS IDs, did not meet our quality thresholds. As a result of this review, we recommend that close but imperfect agreement on SSNs not be pursued further for linking MAX records.

Table III.7 Quality of Record Pairs for Select Record Pair Types in Arizona and Nevada, MAX 2005–2006

Agreement combination	Arizona			Nevada (SSN)			Linkage Recommendation
	Number of Records	Agreement on All Quality Indicators	Agreement on Race, BOE	Number of Records	Agreement on All Quality Indicators	Agreement on Race, BOE	
Same MSIS ID, Same MAX SSN	1,057,060	51.7	83.3	174,644	44.6	78.1	Potential link
One digit difference in SSN							
Same MSIS ID	61	59.0	60.7	0	N/A	N/A	Potential link
Different MSIS ID	546,362	24.0	46.4	40,564	13.1	29.1	Nonlink
Transposed SSN values							
Same MSIS ID	10	20.0	20.0	0	N/A	N/A	Nonlink
Different MSIS ID	17,010	20.4	38.6	794	13.0	32.9	Nonlink
Transposed day and month of birth							
Same MSIS ID	63	49.2	74.6	20	30.0	50.0	Potential link
Different MSIS ID	12	25.0	100.0	0	N/A	N/A	Potential link
Two of three date of birth, sex							
Same MSIS ID	1,204	41.6	67.1	599	33.2	68.4	Potential link
Different MSIS ID	387	31.5	62.0	5	0.0	0.0	Potential link
Same date of birth, different sex							
Same MSIS ID	340	30.9	55.9	175	36.0	65.7	Potential link
Different MSIS ID	111	26.1	56.8	0	N/A	N/A	Potential link

Table III.7 also shows the percentage of record pairs with transposed day and month of birth that met the two quality thresholds. We also compared outcomes for these record pairs with those of others with incomplete agreement on demographic variables—record pairs agreeing on sex and two of three parts of the date of birth (allowable in both the MMA–MBD and MAX–EDB

algorithms), and record pairs agreeing on date of birth but not sex (allowable in the MMA–MBD algorithm only). In Arizona, the quality outcomes for the 75 pairs with transposed month and day of birth were comparable to those for the nearly 1,600 pairs that agreed on sex and two of three common elements in the date of birth. Quality scores for record pairs with the same date of birth but different sex were lowest. In both states, however, all three types of incomplete agreement consistently passed both of our thresholds regardless of agreement on MSIS ID, with the exception of five record pairs in Nevada with agreement on sex but only two of three date elements. We recommended that record pairs with these combinations of agreement on sex and date of birth be further reviewed for potential linkage in MAXEM and associated summary statistics included in state validation tables.

In summary, our review of link quality indicators on a large number of linking variable combinations in Arizona and Nevada suggested that:

1. With the exception of a small subset of records that disagree on multiple indicator variables, records agreeing on MSIS IDs should be linked, regardless of whether date of birth and month of birth agree.
2. Records disagreeing on MSIS ID and with close but not complete agreement on SSN (or other identifier variables) should not be linked in MAXEM.
3. Records disagreeing on MSIS ID and with transposed month and day of birth should be considered for potential linkage in MAXEM. Quality indicators for these cases were similar to those of record pairs with allowable date of birth and sex combinations in the MMA–MBD and MAX–EDB algorithms.

b. Assessment of the Three Linking Algorithms

Probabilistic Linking. The record pair quality review and the implementation of three blocking strategies in Nevada identified two major limitations to implementing probabilistic linking on MAX data. First, running probabilistic linking without blocking would require a minimum of four months of processing time. The specification was not pursued further pending our assessment of the utility of the approach more generally. Second, due to the limited number

of linking variables (SSN, date of birth, and sex) available for linking records across states, as well as within states for SSN states, the tested blocking strategies substantially biased our disagreement probability estimates. Disagreement probabilities measure the likelihood that two records agree on a variable by chance among record pairs that do not belong to the same person (for example, two distinct people who were born on the same day). Because most “nonpairs” identified during the first stage of analysis were blocked (merged) by year of birth and date of birth, disagreement probabilities for these variables were overestimated, which resulted in a large number of false positive and false negative links. For example, thousands of records agreeing only on date of birth and sex were linked across years in our initial implementation.

Because other useful blocking variables are not available for linking MAX data, we were left with two options for implementing probabilistic linking: (1) a nonblocked strategy that would require substantial processing resources, or (2) specifying (hard coding) the disagreement weights for date of birth and sex nationally. The second option restricts the benefit of using probabilistic linking primarily to linkages made by MSIS ID and SSN. However, our assessment of link quality suggested that there would be no benefit from such an approach. As discussed above, record pairs that differed by one digit or by two transposed digits in the SSN scored poorly on our quality indicators. To avoid false positives, we recommend that such cases not be linked, even though some of the discrepant SSNs may indeed be due to typos and represent the same individual.

Our quality review of other types of close matches indicated that, given the small number of matching variables, a comprehensive review of all variable combinations was possible and would indicate the relative merits of allowing close matches—for example, including slightly varying SSNs and transposed month and day of birth in linked records. Similarly, a detailed review of alternative options for date of birth and gender agreement could identify the relative

merits of using the MMA-MBD, MAX-EDB, or an alternative date of birth and gender requirement in each state. Furthermore, such review could be conducted on a state-by-state basis with much greater efficiency than probabilistic linking, which includes a manual review as well as lengthy processing.

In summary, our evaluation of several specifications of probabilistic linking suggested that using this linking algorithm was not advisable for MAXEM, primarily due to the high costs and low benefit of its implementation relative to an evidence-based deterministic approach. In the event that additional linking variables (for example, enrollee names) become available, we would recommend a re-evaluation of probabilistic linking for MAXEM.

MMA-MBD and MAX-EDB Algorithms. Table III.8 summarizes the linkage statistics and link quality measures for within-year and cross-year linking for the MMA-MBD and MAX-EDB linkage algorithms in Arizona, California, and Nevada. It also presents the same information for records that were linked by the MMA-MBD algorithm but not by MAX-EDB. We did not include a column for record pairs linked by the MAX-EDB but not MMA-MBD. There were only 47 such cases in California and two in Nevada, where the SSN on one record agreed with the CAN on the other record. These record pairs had quality scores below our threshold; therefore we do not recommend such linkages for MAXEM.

The MMA-MBD algorithm linked three types of records not linked by the MAX-EDB algorithm, those agreeing on (1) MAX SSN and date of birth but not sex, (2) MAX SSN and date of birth but missing sex on one or both records, and (3) CAN, date of birth, and sex but disagreeing on other identifying variables. The third group of individuals could potentially be

Table III.8 Comparison of the MMA–MBD and MAX–EDB Linkage Algorithms in Arizona, California, and Nevada, MAX 2005–2006

Measure	Arizona			California (SSN)			Nevada (SSN)		
	MMA– MBD	MAX– EDB	Links Identified in MMA–MBD but not MAX–EBD	MMA– MBD	MAX– EDB	Links Identified in MMA–MBD but not MAX–EBD	MMA– MBD	MAX– EDB	Links Identified in MMA–MBD but not MAX–EBD
All Linked Record Pairs									
Number of links identified	1,178,392	1,177,898	494	8,379,237	8,365,929	13,364	182,314	181,598	717
Percent of links within year	0.3	0.2	14.4	0.0	0.0	2.5	0.0	0.0	1.4
Percent of links across years	99.7	99.8	85.6	100.0	100.0	97.5	100.0	100.0	98.6
Agreement on all quality review variables	53.2	53.2	27.1	53.2	53.2	27.1	53.2	53.2	27.1
Same race	96.2	96.2	78.1	96.2	96.2	78.1	96.2	96.2	78.1
Same BOE (excluding those age 18-22 & 64-66)	88.4	88.4	73.1	88.4	88.4	73.1	88.4	88.4	73.1
Agreement on any service use	77.7	77.7	66.4	77.7	77.7	66.4	77.7	77.7	66.4
Same prescription drug use	73.0	73.0	65.0	73.0	73.0	65.0	73.0	73.0	65.0
Same institutional care use	99.2	99.2	99.0	99.2	99.2	99.0	99.2	99.2	99.0
Same race, same BOE	85.1	85.1	57.7	85.1	85.1	57.7	85.1	85.1	57.7
Same race, different BOE	2.5	2.5	15.2	2.5	2.5	15.2	2.5	2.5	15.2
Different race, same BOE	3.3	3.3	15.4	3.3	3.3	15.4	3.3	3.3	15.4
Different race, different BOE	0.3	0.3	4.3	0.3	0.3	4.3	0.3	0.3	4.3
Linked Record Pairs Within State and Year									
Total number of record pairs	2,948	2,877	71	728	415	340	61	51	10
Agreement on all quality review variables	60.14	61.49	5.63	60.14	61.49	5.63	60.14	61.49	5.63
Same race	87.75	87.94	80.28	87.75	87.94	80.28	87.75	87.94	80.28
Same BOE (excluding those age 18-22 & 64-66)	90.26	90.79	69.01	90.26	90.79	69.01	90.26	90.79	69.01
Non-overlapping months of enrollment	80.26	81.37	35.21	80.26	81.37	35.21	80.26	81.37	35.21
Agreement on any service use	80.39	80.71	67.61	80.39	80.71	67.61	80.39	80.71	67.61
Same prescription drug use	83.72	84.01	71.83	83.72	84.01	71.83	83.72	84.01	71.83
Same institutional care use	97.86	97.81	100.00	97.86	97.81	100.00	97.86	97.81	100.00
Same race, same BOE	80.29	80.81	59.15	80.29	80.81	59.15	80.29	80.81	59.15
Same race, different BOE	3.43	3.27	9.86	3.43	3.27	9.86	3.43	3.27	9.86
Different race, same BOE	9.97	9.98	9.86	9.97	9.98	9.86	9.97	9.98	9.86
Different race, different BOE	1.56	1.46	5.63	1.56	1.46	5.63	1.56	1.46	5.63
Linked Record Pairs Across Year									
Total number of record pairs	1,175,444	1,175,021	423	8,378,509	8,365,514	13,024	182,253	181,547	707
Agreement on all quality review variables	53.17	53.18	30.73	53.17	53.18	30.73	53.17	53.18	30.73

Measure	Arizona			California (SSN)			Nevada (SSN)		
	MMA-MBD	MAX-EDB	Links Identified in MMA-MBD but not MAX-EBD	MMA-MBD	MAX-EDB	Links Identified in MMA-MBD but not MAX-EBD	MMA-MBD	MAX-EDB	Links Identified in MMA-MBD but not MAX-EBD
Same race	96.22	96.23	77.78	96.22	96.23	77.78	96.22	96.23	77.78
Same BOE (excluding those age 18-22 & 64-66)	88.37	88.37	73.76	88.37	88.37	73.76	88.37	88.37	73.76
Agreement on any service use	77.70	77.70	66.19	77.70	77.70	66.19	77.70	77.70	66.19
Same prescription drug use	72.93	72.93	63.83	72.93	72.93	63.83	72.93	72.93	63.83
Same institutional care use	99.25	99.25	98.82	99.25	99.25	98.82	99.25	99.25	98.82
Same race, same BOE	85.11	85.12	57.45	85.11	85.12	57.45	85.11	85.12	57.45
Same race, different BOE	2.52	2.52	16.08	2.52	2.52	16.08	2.52	2.52	16.08
Different race, same BOE	3.25	3.25	16.31	3.25	3.25	16.31	3.25	3.25	16.31
Different race, different BOE	0.28	0.28	4.02	0.28	0.28	4.02	0.28	0.28	4.02

twins; therefore we recommend not linking these records in MAXEM. There were only 494 record pairs linked by MMA–MBD but not MAX–EDB in Arizona, 13,364 in California, and 717 in Nevada. A vast majority of these were for linkages across years. Overall, all three types of linkages passed our link quality test using the 50 percent race and BOE agreement threshold.

Overall, the difference between the MMA–MBD and MAX–EDB linkages was negligible. Linkage rates between MMA–MBD and MAX–EDB differed by only 0.04 percent in Arizona, 0.16 percent in California, and 0.4 percent in Nevada. The slightly higher match rate for the two SSN states suggests that the MMA-MBD approach might result in higher linkage rates across states. Table III.9 presents linkage statistics for cross-state linkages confirming this hypothesis. The MMA–MBD resulted in a one percent higher match rate over MAX–EDB. Furthermore, the quality of the additional links produced by MMA–MBD compared well to those of both algorithms.

Table III.9 Comparison of the MMA–MBD and MAX–EDB Linkage Algorithms for Linking Across States, MAX 2005–2006

Measure	MMA–MBD	MAX–EDB	Links Identified in MMA– MBD but Not in MAX– EDB
All Linked Record Pairs			
Total number of record pairs	166,370	164,632	1,740
Agreement on all quality review variables	49.1	49.1	49.4
Same race	50.9	50.9	50.6
Same BOE (excluding 18-22 & 64-66 year olds)	17.3	17.3	16.6
Agreement on any service use	76.2	76.2	73.1
Same prescription drug use	88.2	88.1	93.2
Same institutional care use	53.1	53.1	51.3
Same race, same BOE	56.1	56.1	56.2
Same race, different BOE	99.2	99.2	99.3
Different race, same BOE	67.1	67.1	67.9
Different race, different BOE	2.3	2.3	2.5

3. Recommended Approach

Based on the findings presented in this chapter, which were communicated to CMS in a design report (Wenzlow and Sykes 2009) and a subsequent memorandum (Wenzlow and Sykes 2010), we recommended that MAXEM implement a deterministic approach with relaxed assumptions to allow for some close but imperfect agreement between the MAX linkage variables—MSIS ID, MAX SSN, EDB-SSN, EDB-HIC, date of birth, and sex. Specifically, we recommended implementing the MMA–MBD algorithm described in this chapter, with three alterations: (1) Linkages within states and years by MSIS ID would be allowable, although several states would be selected to investigate records that disagree on multiple identifiers (for example, MAX SSN and EDB-SSN); (2) record pairs agreeing only on the EDB-CAN identifier would not be allowable; and (3) the quality of record pairs with matching identifiers and transposed day and month of birth, or agreement on three of four link variables defined by year of birth, month of birth, day of birth, and sex, would undergo additional link quality review for potential inclusion in MAXEM.

The approach would link record pairs agreeing on the following linking variables:

- MSIS ID
- MAX SSN + combination of (DOB YR, DOB, MO, DOB DD, sex) to be determined
- EDB-SSN + combination of (DOB YR, DOB, MO, DOB DD, sex) to be determined
- EDB-HIC + combination of (DOB YR, DOB MO, DOB DD, sex) to be determined

We recommended further investigation into the quality of linkages produced by date of birth and gender agreement combinations across all states before selecting a final link algorithm. Our findings suggest that there is some ambiguity with respect to which elements of date of birth and sex (including transpositions of month and day of birth) should be allowable to minimize false positive and false negative rates.

Due to the resource requirements and limited benefit of probabilistic linking with few linking variables, we did not recommend implementing this approach for MAXEM unless additional identifiers such as names became available. Our analysis also suggested that data entry errors in SSNs, resulting in two transposed digits or disagreement on one digit, cannot be differentiated from records for distinct individuals, and should not be included in the MAXEM linking algorithm.¹³

Overall, the MMA-MBD and MAX-EDB linkage algorithms produced similar linkage rates, with the MMA-MBD increasing the number of links by less than 0.2 percent for within-state linkages and by 1 percent for cross-state linkages over MAX-EDB. We anticipate that the choice between these two algorithms will have relatively small implications for the overall count of Medicaid enrollees estimated nationwide. Nevertheless, high-quality linkages can have a substantial impact on studies of smaller populations—for example, of Medicaid enrollees who move from one state to another. The analyses summarized in this chapter describe several strategies for ensuring an evidence-based linking approach is used for MAXEM.

In a follow-up meeting with CMS after the delivery of our recommendations, CMS accepted the proposed adaptation of the MMA-MBD algorithm but recommended resolution of the outstanding issue regarding agreement on sex and date of birth. After further discussion it was decided that sex must agree on pairs linked by SSN or HIC but agreement on at least two of the three parts of the date of birth would be sufficient for these cases. This is consistent with CMS convention.

¹³ Again, if names become available, then strategies for accounting for data entry errors in SSNs should be reconsidered.

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IV. IMPLEMENTATION OF LINKAGE AND UNDUPLICATION ALGORITHMS

In the development of MAXEM, the ultimate purpose of record linkage and unduplication is twofold: (1) to enable the creation of annual MAXEM research files in which no individual has more than one record in the same calendar year and the same state and (2) to make certain that any records representing the same individual in two or more states in the same year or in different years are associated through a common MAXEM ID. If the first objective is achieved, then the records contained in the MAXEM research file for a given year will provide an unduplicated count of Medicaid beneficiaries in each state during that year. In other words, within each state, every record in MAXEM will correspond to a unique individual. If the second objective is achieved as well, then researchers working with the MAXEM data will be able to generate an unduplicated count of Medicaid beneficiaries for the nation as a whole in a given calendar year by counting the number of unique MAXEM IDs on the research file for that year. Furthermore, using the separate cross-reference file, which provides the MAXEM ID for every record on the MAX PS file for that year, researchers will be able to assign these same MAXEM IDs to previously released MAX data.

The record-linkage algorithm that was selected following the evaluation reported in the last chapter provides the technical means to achieve these ends. In addition, however, we also need a plan for applying this algorithm that tells us, among other things, which records to link and in what sequence, and which records to combine (and which to leave as separate records). This chapter documents our use of record linkage and unduplication strategies in the development of MAXEM. The documentation includes diagnostic tabulations that were used to assess the record linkage and unduplication as they were being implemented. Section A of this chapter provides an overview of the production of MAXEM, including empirical outcomes from the major components of the work. Section B presents an assessment of the quality of the record linkage

that underlies the unduplication. Section C discusses the MAXEM outputs—specifically, the annual research files and the cross-reference files.

A. OVERVIEW OF MAXEM PRODUCTION

The approach to unduplication that we developed first used the linkage algorithm to determine which records in each state over the two years refer to the same individual. For each individual with multiple records (most individuals), we then filled in any missing identifiers and demographic information on the separate records and assigned each record a common MAXEM ID. For any individual with more than one record within a state and year, we combined the records into a single one—which means that the records on the research file for a given year now constitute an unduplicated count of Medicaid beneficiaries for each state. Lastly, we applied our linkage algorithm to the unduplicated files of 2005 and 2006 records in order to identify links across states—first within each year and then between years. All records that appeared to represent the same individual were assigned the same MAXEM ID. More detailed descriptions of selected steps are presented below, along with empirical results. These include our use of state cross-reference files, the creation of linked pairs within states, the unduplication of records within state and year, and the creation of linkages across states.

1. State Cross-reference Files

In the eight states that use the SSN as an MSIS ID, an SSN may not be available when an individual is first enrolled in Medicaid. This is most commonly true of infants. In this case, the state will assign a temporary MSIS ID and replace it with the individual's SSN when the SSN is issued. These states typically submit a cross-reference file with their MSIS submission that maps the permanent MSIS IDs (SSNs) into the temporary IDs that were assigned the previous year. For example, seven of the eight states submitted updates to their 2005 MSIS records along with

their 2006 MSIS files. When the updates are applied, the new MSIS IDs may duplicate the IDs found on other records within the same calendar year.¹⁴

Table IV.1 summarizes the updates to MSIS IDs in the eight SSN states in 2005, based on cross-reference files supplied with the 2006 MSIS files. The table also includes North Dakota, which is not an SSN state but which submitted a cross-reference file to address some problems that emerged in 2005 (which apparently have not been fully resolved, as North Dakota has continued to submit cross-reference files). The table reports the number of updates received from these nine states for 2005 in comparison to their total PS records for the year and reports the number of new MSIS IDs that duplicated the MSIS IDs on other records. New Mexico had no updates for the year, but three states had updates approaching or exceeding one percent of their records, with New Jersey close to two percent. In most states only a small fraction of the updates created duplicate MSIS ID values that produced linked pairs, but in Kentucky this was true for nearly all of the 13,294 updates. When we updated the MSIS IDs in states that use the SSN as an identifier, we also updated the MAX SSNs, which were missing or filled with temporary values. As a result, all but five of the linked pairs in the states where this was done had matching SSNs.

2. Creation of Linked Pairs Within States

In applying the linkage algorithm to identify linked pairs within each state, we combined the two years of data for each state and made four passes through the pooled data. Each pass used different criteria for identifying linked pairs and assessed every possible pair of records—within and across years—to determine if the two should be linked or not. The linkage criteria for each pass were based on agreement on the following sets of variables in succession:

¹⁴ Prior to the application of these updates, no two records within the same state and calendar year share the same MSIS ID. This is true not just of the eight SSN states and North Dakota, but of all other states and DC.

- MSIS ID
- MAX SSN + sex + at least two of (DOB year, DOB month, DOB, day)
- EDB-SSN + sex + at least two of (DOB year, DOB month, DOB, day)
- EDB-HIC + sex + at least two of (DOB year, DOB month, DOB, day)

When we linked a pair of records, we created a third record that captured key information about the pair, including their identifying variables, MAXEM IDs, and the pass in which they were linked.

Table IV.1 Updates to MSIS ID from State Cross-Reference Files and Impact on Within-Year Links, 2005

State	Number of PS Records for 2005	Number of Records Updated	Percent of Records Updated	Number of Duplicate MSIS IDs Created
California	10,593,523	31,639	0.30	223
Kentucky	886,960	13,294	1.50	12,966
Louisiana	1,166,153	1,108	0.10	18
Minnesota	790,712	2,429	0.31	2
Nevada	267,880	2,219	0.83	47
New Jersey	1,125,770	19,970	1.77	3,374
New Mexico	527,702	0	0.00	0
North Dakota	78,625	424	0.54	260
Vermont	162,762	17	0.01	15

a. Links Within the Same Year

For within-state linkages, most of the pairs that link on MSIS ID also link on MAX SSN, so there is substantial duplication in the identification of linked pairs between the first two passes. In addition, while the number of linked pairs identified by EDB-SSN is only a fraction of those identified by MSIS ID or MAX SSN, most of these additional links are duplicates as well. The same is true of the links generated with the EDB-HIC. Therefore, after the final pass we eliminated duplicate linked pairs, retaining only the records generated from the earliest pass. In so doing, we could determine the net number of additional linked pairs added by linking on MAX SSN, EDB-SSN, and EDB-HIC.

While MSIS IDs are not duplicated within any state and year except through application of the cross-reference files in the SSN states and North Dakota, duplicate MAX SSNs occur in nearly every state, and they account for most of the duplication among enrollee records within state and year. Nationally, there were 326,829 record pairs that were linked within state and year in 2005 and 2006 (Table IV.2). Links by MSIS ID accounted for only 5.17 percent of the total—all of these among eight of the nine states listed in Table IV.1. Links by MAX SSN (net of MSIS ID) accounted for 93.15 percent of the two-year total, with links by EDB-SSN accounting for another 1.37 percent and links by EDB-HIC producing the final 0.31 percent. While links by MAX SSN accounted for 97 to 100 percent of the within-year links outside of the eight states, there are several states in which the linkages by EDB-SSN represented more than a third of the total. These included three states in which all or nearly all of the within-year links were attributable to this source, which means that within-year duplication was largely limited to dual eligibles. In one of these states, Arkansas, links by EDB-SSN accounted for 38 percent of the total, and net additional links by EDB-HIC accounted for 37 percent, which suggests that SSNs may have been missing from EDB records as often as they were present. In no other state did linkages by EDB-HIC account for as much as 10 percent of the within-year record pairs, and in 30 states the EDB-HIC does not appear to have produced any additional within-year links.

For the most part, each linked pair within a state and year corresponds to one duplicate record—that is, a second record for the same individual enrollee.¹⁵ To obtain a sense of the

¹⁵ The number of pairs is equal to the number of combinations of records for the same individual. With two records there is just one combination, but with three records there are three possible combinations (A with B, A with C, and B with C), and with four records there are six possible combinations. Records in excess of two for an enrollee in the same state and year were rare, however.

Table IV.2. Within-Year Linkages by State and Source of Linkage, 2005 and 2006

State	Within-Year Linked Pairs	Distribution by Source of Linkage				Two-Year Total Records	Within- Year Links as % of Total Records
		MSIS-ID	MAX SSN	EDB- SSN	EDB-HIC		
Alabama	2,147	0.00	98.42	1.58	0.00	1,923,367	0.112
Alaska	56	0.00	100.00	0.00	0.00	263,590	0.021
Arizona	2,794	0.00	92.95	6.94	0.11	2,988,696	0.093
Arkansas	1,581	0.00	24.60	38.08	37.32	1,505,412	0.105
California (SSN)	541	41.22	0.00	54.34	4.44	21,205,442	0.003
Colorado	443	0.00	97.97	2.03	0.00	1,230,717	0.036
Connecticut	1,250	0.00	99.44	0.56	0.00	1,062,687	0.118
Delaware	33	0.00	96.97	3.03	0.00	364,477	0.009
District of Columbia	166	0.00	84.94	13.25	1.81	333,688	0.050
Florida	817	0.00	85.43	14.20	0.37	6,017,903	0.014
Georgia	2,921	0.00	98.39	1.51	0.10	4,126,873	0.071
Hawaii	300	0.00	99.67	0.33	0.00	463,429	0.065
Idaho	40	0.00	97.50	2.50	0.00	463,264	0.009
Illinois	68,354	0.00	99.81	0.17	0.01	5,211,118	1.312
Indiana	260	0.00	98.08	1.92	0.00	2,111,352	0.012
Iowa	976	0.00	99.69	0.31	0.00	896,161	0.109
Kansas	53	0.00	98.11	1.89	0.00	715,489	0.007
Kentucky (SSN)	13,033	99.49	0.00	0.46	0.05	1,777,052	0.733
Louisiana (SSN)	53	33.96	0.00	56.60	9.43	2,379,230	0.002
Maine	94	0.00	85.11	14.89	0.00	662,637	0.014
Maryland	30	0.00	86.67	10.00	3.33	1,732,898	0.002
Massachusetts	158	0.00	99.37	0.63	0.00	2,553,569	0.006
Michigan	125	0.00	60.00	37.60	2.40	3,796,174	0.003
Minnesota (SSN)	158	1.27	0.00	96.20	2.53	1,592,894	0.010
Mississippi	4,243	0.00	99.29	0.71	0.00	1,556,245	0.273
Missouri	449	0.00	95.10	4.90	0.00	2,329,327	0.019
Montana	0	na	na	na	na	254,938	0.000
Nebraska	14	0.00	100.00	0.00	0.00	523,386	0.003
Nevada (SSN)	55	85.45	0.00	14.55	0.00	522,627	0.011
New Hampshire	16	0.00	100.00	0.00	0.00	294,408	0.005
New Jersey (SSN)	4,983	67.71	0.04	27.05	5.20	2,306,447	0.216
New Mexico (SSN)	16	0.00	0.00	100.00	0.00	1,044,564	0.002
New York	147,841	0.00	99.54	0.44	0.02	10,180,771	1.452
North Carolina	716	0.00	99.86	0.14	0.00	3,509,561	0.020
North Dakota	4,069	6.39	93.61	0.00	0.00	158,435	2.568
Ohio	26,000	0.00	99.62	0.37	0.01	4,283,674	0.607
Oklahoma	5,185	0.00	99.94	0.06	0.00	1,489,677	0.348
Oregon	1,561	0.00	99.68	0.13	0.19	1,116,260	0.140
Pennsylvania	295	0.00	44.07	53.90	2.03	4,123,941	0.007
Rhode Island	2	0.00	0.00	100.00	0.00	440,834	0.000
South Carolina	151	0.00	53.64	46.36	0.00	1,961,848	0.008
South Dakota	4,171	0.00	99.88	0.12	0.00	263,428	1.583
Tennessee	720	0.00	99.03	0.97	0.00	3,073,611	0.023

Table IV.2 (continued)

State	Within- Year Linked Pairs	Distribution by Source of Linkage				Two-Year Total Records	Within- Year Links as % of Total Records
		MSIS-ID	MAX SSN	EDB- SSN	EDB-HIC		
Texas	15,531	0.00	98.92	0.73	0.35	8,254,934	0.188
Utah	64	0.00	95.31	4.69	0.00	684,894	0.009
Vermont (SSN)	22	68.18	0.00	31.82	0.00	324,298	0.007
Virginia	1,362	0.00	99.63	0.37	0.00	1,882,170	0.072
Washington	209	0.00	97.61	2.39	0.00	2,391,043	0.009
West Virginia	281	0.00	45.91	51.96	2.14	775,856	0.036
Wisconsin	12,393	0.00	99.97	0.02	0.01	2,061,007	0.601
Wyoming	97	0.00	97.94	0.00	2.06	161,596	0.060
United States	326,829	5.17	93.15	1.37	0.31	121,347,899	0.269

n.a. = not applicable

relative frequency of duplication among enrollee records in each state, we can compare the two-year total within-year links to the total number of enrollee records over the two years. Dividing the former by the latter and multiplying by 100 tells us roughly what fraction of enrollee records in each state were duplicates.¹⁶ Nationally, within-year record pairs were a little over one-quarter of one percent (0.269) of the two-year total enrollment of 121.3 million. This fraction varied from a low of zero in Montana to a high of nearly 2.6 percent in neighboring North Dakota. Interestingly, South Dakota was the next highest at 1.6 percent, followed by two of the largest states, New York (1.5 percent) and Illinois (1.3 percent). At the opposite end, 35 states had within-year duplication rates below one-tenth of one percent.

Arguably, state record systems should be able to prevent or at least identify and correct multiple enrollment records for the same individual, which means that, ideally, there should be no duplication of individuals within the same year. Indeed, as Table IV.2 attests, the experience of most states is fairly consistent with this. However, in the states that fall into the upper tail of the distribution there is room for improvement. The rates of within-year duplication in these states is so far removed from the experience of most other states that there appears to be potential for these states to enhance their Medicaid record systems to prevent or correct duplication of enrollee records.

b. Links Across Year

While within-year linkages are expected to be minimal, enrollee retention should result in a substantial number of across-year linkages. Nationally, there were 50.2 million linked pairs, within state, across the two years (Table IV.3). Virtually all of these links—99.38 percent—were

¹⁶ Duplicates beyond one for an enrollee will contribute to a slight upward bias in this statistic. Eliminating the duplicate records, which we do in creating the MAXEM research file for each year, will allow a direct calculation of the duplication rate in each state for each of the two years.

Table IV.3 Across-year Linkages by State and Source of Linkage, 2005 and 2006

State	Across-year Linked Pairs	Distribution by Source of Linkage				2005 Total Records	Across-Year Links As % of 2005 Records
		MSIS-ID	MAX SSN	EDB-SSN	EDB-HIC		
Alabama	839,281	99.76	0.23	0.00	0.00	955,590	87.83
Alaska	107,243	99.95	0.05	0.00	0.00	132,850	80.72
Arizona	1,175,626	99.73	0.26	0.01	0.00	1,476,842	79.60
Arkansas	644,774	99.76	0.07	0.11	0.07	746,506	86.37
California (SSN)	8,386,373	100.00	0.00	0.00	0.00	10,593,523	79.17
Colorado	494,513	99.90	0.10	0.00	0.00	603,949	81.88
Connecticut	450,510	99.70	0.30	0.00	0.00	529,119	85.14
Delaware	151,419	99.97	0.03	0.00	0.00	179,935	84.15
District of Columbia	146,384	99.89	0.10	0.01	0.00	166,514	87.91
Florida	2,388,676	99.97	0.03	0.00	0.00	3,020,102	79.09
Georgia	1,702,883	99.82	0.18	0.00	0.00	2,083,224	81.74
Hawaii	197,651	99.85	0.15	0.00	0.00	231,787	85.27
Idaho	187,007	99.97	0.03	0.00	0.00	233,352	80.14
Illinois	2,212,035	96.88	3.11	0.01	0.00	2,610,471	84.74
Indiana	876,518	99.97	0.03	0.00	0.00	1,044,889	83.89
Iowa	355,048	99.71	0.29	0.00	0.00	428,814	82.80
Kansas	283,989	99.98	0.02	0.00	0.00	356,738	79.61
Kentucky (SSN)	757,494	99.99	0.00	0.01	0.01	886,960	85.40
Louisiana (SSN)	1,048,082	100.00	0.00	0.00	0.00	1,166,153	89.88
Maine	283,989	99.96	0.04	0.00	0.00	326,500	86.98
Maryland	731,720	99.99	0.00	0.00	0.00	866,921	84.40
Massachusetts	1,090,116	99.94	0.06	0.00	0.00	1,245,895	87.50
Michigan	1,587,163	99.98	0.02	0.00	0.00	1,857,775	85.43
Minnesota (SSN)	643,193	99.98	0.00	0.02	0.00	790,712	81.34
Mississippi	666,671	99.40	0.60	0.00	0.00	780,246	85.44
Missouri	962,395	99.92	0.08	0.00	0.00	1,217,929	79.02
Montana	101,400	100.00	0.00	0.00	0.00	128,004	79.22
Nebraska	212,996	99.96	0.04	0.00	0.00	261,372	81.49
Nevada (SSN)	182,631	100.00	0.00	0.00	0.00	267,880	68.18
New Hampshire	121,378	99.99	0.01	0.00	0.00	145,737	83.29
New Jersey (SSN)	970,618	99.84	0.00	0.15	0.01	1,125,770	86.22
New Mexico (SSN)	437,448	100.00	0.00	0.00	0.00	527,702	82.90
New York	4,447,054	96.57	3.41	0.01	0.00	5,087,834	87.41
North Carolina	1,467,946	99.95	0.05	0.00	0.00	1,728,608	84.92
North Dakota	65,185	93.62	6.38	0.00	0.00	78,625	82.91
Ohio	1,844,864	98.62	1.38	0.01	0.00	2,126,626	86.75
Oklahoma	612,873	99.24	0.76	0.00	0.00	728,609	84.12
Oregon	445,998	99.69	0.31	0.00	0.00	563,445	79.16
Pennsylvania	1,760,920	99.98	0.01	0.01	0.00	2,029,894	86.75
Rhode Island	190,750	100.00	0.00	0.00	0.00	219,784	86.79
South Carolina	822,100	99.97	0.02	0.01	0.00	1,012,287	81.21
South Dakota	112,333	96.40	3.60	0.00	0.00	130,894	85.82
Tennessee	1,303,268	99.95	0.05	0.00	0.00	1,594,245	81.75
Texas	3,292,420	99.55	0.45	0.00	0.00	4,103,270	80.24

Table IV.3 (continued)

State	Across- year Linked Pairs	Distribution by Source of Linkage				2005 Total Records	Across- Year Links As % of 2005 Records
		MSIS-ID	MAX SSN	EDB- SSN	EDB- HIC		
Utah	258,625	99.97	0.03	0.00	0.00	345,451	74.87
Vermont (SSN)	137,694	99.99	0.00	0.01	0.00	162,762	84.60
Virginia	795,268	99.83	0.17	0.00	0.00	927,685	85.73
Washington	987,859	99.97	0.03	0.00	0.00	1,199,572	82.35
West Virginia	323,442	99.92	0.05	0.02	0.00	383,111	84.43
Wisconsin	870,670	98.86	1.14	0.00	0.00	1,022,203	85.18
Wyoming	63,146	99.84	0.15	0.00	0.00	81,199	77.77
United States	50,199,639	99.38	0.61	0.01	0.00	60,515,865	82.95

based on MSIS ID. In four states, however, 3 to 6 percent of the across-year links were based on MAX SSN. North Dakota led all states with 6.4 percent of across-year links based on MAX SSN, followed by South Dakota with 3.6 percent, New York with 3.4 percent, and Illinois with 3.1 percent. We note that these four states—in the same order—had the highest within-year duplication rates reported in Table IV.2 and that most of these linkages were based on MAX SSN. This suggests that, in these states, one member of a duplicate within-year pair may be linking to a record in the next year based on MSIS ID while the other member is linking based on MAX SSN.

Net additional links by EDB-SSN or EDB-HIC were rare. In only two states, Arkansas and New Jersey, did the fraction of across-year links due to EDB-SSN reach as high as 0.1 percent, and in only 11 other states did the fraction rise as high as 0.01 percent. In only one state, Arkansas, did the fraction due to EDB-HIC even approach 0.1 percent, and in only two other states did this fraction reach 0.01 percent.

To estimate an enrollee retention rate, we can express the number of linked pairs across years as a fraction of the number of 2005 enrollee records. As a measure of enrollee retention, this estimate is upwardly biased by a slight amount because some 2005 enrollees link to multiple records in 2006 and therefore are counted multiple times, and some enrollees, as we have seen, have multiple records in 2005. Nevertheless, this provides a useful way to compare states with respect to their retention of enrollees. Nationally, this rate was just under 83 percent, but it was close to 90 percent in Louisiana and between 87 and 88 percent in four other states (Alabama, the District of Columbia, Massachusetts, and New York). Nevada was the lowest by far at 68.2 percent. Utah was next lowest at 74.9 percent followed by Wyoming at 77.8 percent. All of the remaining states fell between 79 percent and 87 percent. The fairly tight distribution of across-year linkage rates across states implies considerable similarity in caseload turnover across states.

An overall decline in enrollment would affect a state's linkage rate across years; this might reflect improving economic conditions or, quite the opposite, state cutbacks due to budgetary pressures. Nationally, Medicaid enrollment (including S-CHIP only enrollment in states that report S-CHIP enrollment into MSIS), based on counts of enrollment records in the MAX PS files, grew by half a percentage point between 2005 and 2006, but enrollment changes at the state level ranged from a reduction of 8.75 percentage points in Missouri to an increase of 8.99 percentage points in neighboring Iowa (Table IV.4). Enrollment declined in 19 states and rose in 32 others. A correlation of .511 between the change in Medicaid enrollment and the retention rate (not shown) indicates that there is a moderately strong positive association between the two. Nevertheless, while Medicaid enrollment in Nevada declined by 4.9 percentage points, this is hardly enough to explain why our estimate of Medicaid retention there was 15 percentage points below the national average. Furthermore, while Nevada's reduction in Medicaid enrollment was among the largest, the three states with more substantial declines (Missouri, Tennessee, and South Carolina) had retention rates 11 to 14 percentage points higher than Nevada. Nevada's low retention rate must be due to other factors.

In part, the state's low retention rate may arise from an apparent problem with the assignment of MSIS IDs to new enrollees in 2005. As an SSN state, Nevada assigns each new enrollee's SSN as the MSIS ID. If an SSN is not yet available, Nevada assigns a temporary MSIS ID. These temporary MSIS IDs are intended to be replaced as soon as the SSNs become available, but we speculate that in 2005 this replacement did not occur for about 15,000 enrollees. Instead, new records were created with permanent MSIS IDs while the old records with temporary IDs remained. When we measure retention in Nevada, thousands of 2005 records cannot be linked to records in 2006, even though most of the individuals in question were very

Table IV.4 Change in Medicaid Enrollment by State, 2005 to 2006

State	Medicaid Enrollment 2005	Medicaid Enrollment 2006	Percent Change
Alabama	955,590	967,777	1.28
Alaska	132,850	130,740	-1.59
Arizona	1,476,842	1,511,854	2.37
Arkansas	746,506	758,906	1.66
California (SSN)	10,593,523	10,611,919	0.17
Colorado	603,949	626,768	3.78
Connecticut	529,119	533,568	0.84
Delaware	179,935	184,542	2.56
District of Columbia	166,514	167,174	0.40
Florida	3,020,102	2,997,801	-0.74
Georgia	2,083,224	2,043,649	-1.90
Hawaii	231,787	231,642	-0.06
Idaho	233,352	229,912	-1.47
Illinois	2,610,471	2,600,647	-0.38
Indiana	1,044,889	1,066,463	2.06
Iowa	428,814	467,347	8.99
Kansas	356,738	358,751	0.56
Kentucky (SSN)	886,960	890,092	0.35
Louisiana (SSN)	1,166,153	1,213,077	4.02
Maine	326,500	336,137	2.95
Maryland	866,921	865,977	-0.11
Massachusetts	1,245,895	1,307,674	4.96
Michigan	1,857,775	1,938,399	4.34
Minnesota (SSN)	790,712	802,182	1.45
Mississippi	780,246	775,999	-0.54
Missouri	1,217,929	1,111,398	-8.75
Montana	128,004	126,934	-0.84
Nebraska	261,372	262,014	0.25
Nevada (SSN)	267,880	254,747	-4.90
New Hampshire	145,737	148,671	2.01
New Jersey (SSN)	1,125,770	1,180,677	4.88
New Mexico (SSN)	527,702	516,862	-2.05
New York	5,087,834	5,092,937	0.10
North Carolina	1,728,608	1,780,953	3.03
North Dakota	78,625	79,810	1.51
Ohio	2,126,626	2,157,048	1.43
Oklahoma	728,609	761,068	4.45
Oregon	563,445	552,815	-1.89
Pennsylvania	2,029,894	2,094,047	3.16
Rhode Island	219,784	221,050	0.58
South Carolina	1,012,287	949,561	-6.20
South Dakota	130,894	132,534	1.25
Tennessee	1,594,245	1,479,366	-7.21
Texas	4,103,270	4,151,664	1.18
Utah	345,451	339,443	-1.74
Vermont (SSN)	162,762	161,536	-0.75

Table IV.4 (continued)

State	Medicaid Enrollment 2005	Medicaid Enrollment 2006	Percent Change
Virginia	927,685	954,485	2.89
Washington	1,199,572	1,191,471	-0.68
West Virginia	383,111	392,745	2.51
Wisconsin	1,022,203	1,038,804	1.62
Wyoming	81,199	80,397	-0.99
United States	60,515,865	60,832,034	0.52

Note: Enrollment is defined here by the number of MAX PS records with enrollment data. These counts, which are prior to unduplication, include M-CHIP and, for states that report S-CHIP enrollment in MSIS, may include spells of enrollment with only S-CHIP.

likely enrolled in both years. Even so, the number of such records was not sufficient to depress Nevada's estimated retention rate nearly 15 percentage points below the national average. It would require 40,000 additional matches, not just 15,000, to raise Nevada's retention rate to the national average. Thus the exceedingly low retention rate in Nevada remains to be fully explained.

3. Unduplication Within State

After the within-state record linkage was complete, the process of unduplication within each state involved three steps: (1) assignment of a common MAXEM ID to all records representing the same individual, (2) reconciliation of identifiers and demographic variables across records with the same MAXEM ID, and (3) consolidation of linked records within the same year. We describe these three steps below.

a. Assignment of a Common MAXEM ID

The assignment of a common MAXEM ID to records representing the same individual was done through operations performed on the linked record pairs. For example, if there were three records representing the same individual—records A, B, and C—these three records would have produced three linked pairs (the result of three items taken two at a time without regard to order): A linked with B, A linked with C, and B linked with C. Each of the three records initially would have been assigned a different MAXEM ID.¹⁷ To assign a common MAXEM ID, we would first assign each record in a pair the lower of the two MAXEM IDs. For example, let us say that record A had the lowest MAXEM ID, followed by record B and then record C. Thus, in their

¹⁷ The initial MAXEM ID assigned to each record included three components: (1) a two-digit scrambled state identifier, (2) a two-digit year code (the year minus 2000), and (3) the observation number from the MAX PS file (up to nine digits). For two records linked within state and year, the record with the lower observation number will have the lower MAXEM ID. For two records linked within state but across year, the record from the first year will have the lower MAXEM ID. For two records linked across state, regardless of year, the record with the lower scrambled state identifier will have the lower MAXEM ID.

pairings with record A, records B and C would receive record A's MAXEM ID, but in their pairing with each other, records B and C would receive record B's MAXEM ID. Since we have two assignments of MAXEM IDs to records B and C, however, in a final step we would select the lower MAXEM ID in each case, resulting in both records ending up with record A's MAXEM ID.

It is possible to have a situation where records link differently depending upon the fields that are compared, and this can affect the final MAXEM ID assignment. One such example involved two records, A and B, in 2005 and two records, C and D, in 2006. Records A and D shared MSIS IDs and, because this was in an SSN state, shared SSNs as well. Records B and C shared a different MSIS ID and SSN than A and D, but all of the other match fields agreed on records A, B, and C, suggesting that the MSIS ID and SSN on record A were incorrect. Our algorithm ultimately assigned the same MAXEM ID to A, B, and C, which appears correct. Another example involved four records where A (from 2005) and C (from 2005) shared the same MSIS ID, and B (from 2005) and D (from 2006) shared a different MSIS ID. Records B, C, and D had the same MAX SSN, however, while the MAX SSN on record A was missing. All four records shared the same DOB and sex. In our application of the linking algorithm, we ultimately assigned the same MAXEM ID to records A and C (following their MSIS IDs) and a different MAXEM ID to B and D.

Such cases were rare. In our view we handled the first case correctly. The second case is more ambiguous, and our pair-wise algorithm yielded a result that was consistent with the MSIS IDs but not with the SSNs, DOB, and sex, but we would have achieved a different outcome with a different algorithm. For instance, the missing SSN on record A was later replaced by the MAX SSN from record C during the reconciliation step discussed in the next section. If the record linkage were then repeated, records A and C would have ended up with the same MAXEM ID as

records B and D. An alternative approach that viewed all four records together could have also resolved the four as belonging to the same person if the algorithm could override differences on MSIS ID—the primary linkage variable in our linkage algorithm.

Our hesitancy in forcing a common MAXEM ID in all cases of asymmetric linkages was based on two considerations. First, and more importantly, the asymmetry itself suggests that the records may not all belong to the same individual. The state that issued the MSIS IDs did not assign a common ID to all four records in either example. In the one case, our algorithm overrode this discrepancy for one of the records, based on other information, but in the second case it did not. Ultimately, the algorithm has to be based on rules regarding what types of agreement override other types of agreement or disagreement, and our base of information is too limited to address all of the situations that may arise. The second consideration is that the incidence of asymmetric linkages is exceedingly low, representing just a small fraction of a percent of all linked pairs.¹⁸ How we chose to handle them would have no material impact on analyses using the research files or the cross-reference file. We will revisit this decision, however, when we add a third year of records (2007) to MAXEM (see Chapter VI).

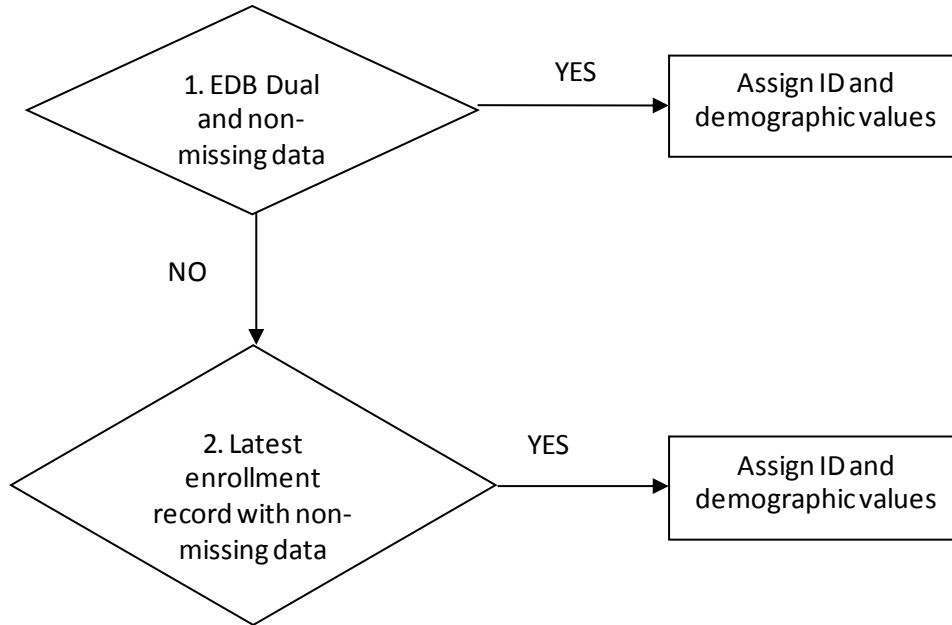
b. Reconciliation of Identifiers and Demographic Variables

Records assigned a common MAXEM ID may nevertheless differ with respect to SSNs, HICs, or demographic variables when these were not used as linking variables. For example, an SSN, sex, DOB, or race/ethnicity may be missing on one or more records, or the values may be inconsistent across records. For the vast majority of linked records, missing or inconsistent identifiers or demographic variables presented no problem. When missing or inconsistent values occurred, Figure IV.1 shows the algorithm that was used to assign a consistent SSN, DOB, sex,

¹⁸ Estimates are presented below in Section B.

and race/ethnicity for all records associated with the same MAXEM ID within a state. For each variable, we assigned the latest nonmissing value, where “latest” is defined as coming from the record with the latest month of enrollment. In doing so, we assumed that errors are corrected over time. If, however, one of the records with nonmissing information for a given variable was an EDB dual record, we assigned the value from that record (or the latest such record), even if there was a later enrollment record. This is because data in the EDB are verified with data collected by SSA.

Figure IV.1 Decision Flow Chart for Unduplicating Identifiers and Demographic Variables



The MSIS ID was not subject to replacement under any circumstances. While MSIS IDs are never missing, two records with the same final MAXEM ID could have different MSIS IDs. This is exceedingly rare, however.¹⁹

Table IV.5 reports the number and percent of records that were subject to reconciliation in 2005 and 2006. Nationally, 82.7 percent of the MAX PS records with enrollment data in 2005 and 82.2 percent of those with enrollment data in 2006 (see Table IV.4) were subject to reconciliation, meaning that they had MAXEM IDs that occurred at least twice within the state during the two-year period. With few exceptions, the state fractions of records subject to reconciliation fell within a range of 79 to 87 percent, and in most states the fraction subject to reconciliation for 2005 and 2006 fell within two percentage points of each other. The percentage of records subject to reconciliation in each year is largely a function of the within-state match rate between the two years (see Table IV.3). Not surprisingly, then, we find that Nevada had the lowest fraction of records subject to reconciliation, at 68.2 and 71.7 percent, respectively, for the two years. Utah was next lowest at 74.8 and 76.2 percent. Louisiana was highest at 89.9 and 86.4 percent, followed by DC (87.8 and 87.5) and Alabama (87.8 and 86.6). These three states had the highest cross-year match rates in Table IV.3. Lastly, while most states had very similar fractions subject to reconciliation between the two years, three states were notable for large differences: Iowa, where the fraction declined from 82.7 to 75.9 percent; Missouri, where the fraction rose from 79.0 to 86.6 percent; and Tennessee, where the fraction rose from 81.7 to 88.1 percent. These differences are explained by unusually large enrollment changes in these states—a large increase in Iowa and large reductions in Missouri and Tennessee (see Table IV.4).

¹⁹ The MSIS ID is not included on the research files. This further reduced the need to resolve any discrepancies.

Table IV.5 Records Subject to Reconciliation of Identifiers and Demographic Variables, 2005 and 2006

State	Number of Records Subject to Reconciliation		Percent of Records Subject to Reconciliation	
	2005	2006	2005	2006
Alabama	838,551	838,181	87.8	86.6
Alaska	107,243	107,195	80.7	82.0
Arizona	1,176,465	1,173,620	79.7	77.6
Arkansas	643,952	643,874	86.3	84.8
California (SSN)	8,386,273	8,385,986	79.2	79.0
Colorado	494,121	494,165	81.8	78.8
Connecticut	449,807	449,765	85.0	84.3
Delaware	151,401	151,395	84.1	82.0
District of Columbia	146,278	146,304	87.8	87.5
Florida	2,388,377	2,388,316	79.1	79.7
Georgia	1,702,869	1,699,967	81.7	83.2
Hawaii	197,539	197,525	85.2	85.3
Idaho	186,981	186,982	80.1	81.3
Illinois	2,192,261	2,179,623	84.0	83.8
Indiana	876,332	876,358	83.9	82.2
Iowa	354,594	354,495	82.7	75.9
Kansas	283,972	283,965	79.6	79.2
Kentucky (SSN)	757,462	744,438	85.4	83.6
Louisiana (SSN)	1,048,051	1,048,037	89.9	86.4
Maine	283,997	283,905	87.0	84.5
Maryland	731,700	731,689	84.4	84.5
Massachusetts	1,089,795	1,089,851	87.5	83.3
Michigan	1,586,844	1,586,919	85.4	81.9
Minnesota (SSN)	643,180	643,152	81.3	80.2
Mississippi	663,144	664,154	85.0	85.6
Missouri	962,451	962,010	79.0	86.6
Montana	101,400	101,400	79.2	79.9
Nebraska	212,919	212,992	81.5	81.3
Nevada (SSN)	182,628	182,590	68.2	71.7
New Hampshire	121,372	121,370	83.3	81.6
New Jersey (SSN)	970,178	966,902	86.2	81.9
New Mexico (SSN)	437,440	437,441	82.9	84.6
New York	4,349,492	4,346,086	85.5	85.3
North Carolina	1,468,009	1,467,298	84.9	82.4
North Dakota	62,745	63,940	79.8	80.1
Ohio	1,826,340	1,826,017	85.9	84.7
Oklahoma	611,169	611,109	83.9	80.3
Oregon	445,375	445,204	79.0	80.5
Pennsylvania	1,760,742	1,760,734	86.7	84.1
Rhode Island	190,748	190,748	86.8	86.3
South Carolina	821,946	821,901	81.2	86.6
South Dakota	109,758	109,800	83.9	82.8
Tennessee	1,302,882	1,302,836	81.7	88.1

State	Number of Records Subject to Reconciliation		Percent of Records Subject to Reconciliation	
	2005	2006	2005	2006
Texas	3,284,869	3,286,552	80.1	79.2
Utah	258,556	258,598	74.8	76.2
Vermont (SSN)	137,693	137,675	84.6	85.2
Virginia	794,580	794,340	85.7	83.2
Washington	987,708	987,670	82.3	82.9
West Virginia	323,351	323,474	84.4	82.4
Wisconsin	871,225	868,608	85.2	83.6
Wyoming	63,123	63,082	77.7	78.5
United States	50,039,888	50,000,238	82.7	82.2

Note: To be subject to reconciliation, a record had to have a MAXEM ID that occurred at least twice in the state from 2005 to 2006. The denominators used to determine the percent of records subject to reconciliation are the enrollment counts reported in Table IV.4.

Tables IV.6 and IV.7 report the frequency of edits to SSNs and HICs in 2005 and 2006, respectively. Frequencies are expressed as percentages of the records that were subject to reconciliation, as reported in Table IV.5. Most of the edits involved the replacement of missing SSNs and HICs; much less often we replaced a nonmissing value with an alternative value.

In 2005, missing MAX SSNs were replaced on 0.379 percent of the records nationally, while missing EDB-SSNs were replaced on 0.464 percent of the records, and missing EDB-HICs were replaced on 0.879 percent of the records. The frequency with which missing values were replaced varied widely across the states. In most of the SSN states there were no missing MAX SSNs to be replaced (Kentucky and New Jersey had small rates of missing values), but all of the SSN states had rates of missing EDB-SSN and EDB-HIC replacement that compared to many of the other states. Kentucky, in fact, had the highest rate of missing EDB-HIC replacement among all states, at more than eight percent. Among the non-SSN states, missing MAX SSNs were replaced in more than two percent of the records in Arkansas, South Carolina, and Washington

Table IV.6 Edits to Assign Consistent SSNs and HICs as a Percentage of Records Subject to Reconciliation, 2005

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
Alabama	0.113	0.409	0.396	0.879	0.002	0.044
Alaska	0.668	0.294	0.290	0.139	0.000	0.017
Arizona	0.868	0.506	0.490	0.014	0.001	0.023
Arkansas	2.123	0.393	0.456	0.123	0.001	0.100
California (SSN)	0.000	0.361	0.346	0.003	0.000	0.025
Colorado	1.269	0.344	0.345	0.543	0.001	0.034
Connecticut	0.878	0.404	0.398	0.098	0.002	0.042
Delaware	1.364	0.577	0.567	0.070	0.000	0.034
District of Columbia	0.049	0.565	0.425	0.022	0.002	0.058
Florida	0.025	0.413	0.412	0.009	0.002	0.035
Georgia	0.064	0.272	0.271	0.024	0.001	0.027
Hawaii	0.000	0.503	0.506	0.001	0.001	0.028
Idaho	0.364	0.311	0.310	0.021	0.000	0.027
Illinois	0.236	0.554	0.541	0.124	0.001	0.031
Indiana	0.030	0.450	0.451	0.005	0.000	0.028
Iowa	0.501	0.513	0.508	0.143	0.001	0.051
Kansas	0.061	0.382	0.380	0.012	0.000	0.033
Kentucky (SSN)	0.035	0.502	8.094	0.007	0.000	0.049
Louisiana (SSN)	0.000	0.331	0.331	0.002	0.000	0.048
Maine	0.046	0.761	0.762	0.018	0.001	0.049
Maryland	0.115	0.524	0.715	0.028	0.001	0.059
Massachusetts	1.829	0.737	0.781	0.089	0.001	0.042
Michigan	1.936	0.646	0.637	0.071	0.001	0.033
Minnesota (SSN)	0.000	0.458	0.448	0.025	0.001	0.034
Mississippi	0.101	0.393	0.392	0.026	0.001	0.045
Missouri	0.001	0.517	0.517	0.002	0.000	0.031
Montana	0.005	0.390	0.388	1.114	0.003	0.038
Nebraska	1.678	0.311	0.302	0.045	0.000	0.030
Nevada (SSN)	0.000	0.376	0.372	0.002	0.001	0.041
New Hampshire	0.001	0.492	0.491	0.005	0.000	0.029
New Jersey (SSN)	0.032	0.426	0.404	0.068	0.003	0.052
New Mexico (SSN)	0.000	0.325	0.319	0.003	0.001	0.016
New York	0.015	0.709	0.707	0.012	0.001	0.035
North Carolina	0.016	0.457	0.456	0.004	0.001	0.042
North Dakota	0.030	0.359	0.357	0.019	0.002	0.040
Ohio	0.054	0.510	0.500	0.053	0.001	0.029
Oklahoma	0.019	0.323	0.323	0.008	0.000	0.033
Oregon	0.046	0.510	0.515	0.013	0.000	0.031
Pennsylvania	0.027	0.600	0.598	0.030	0.001	0.040
Rhode Island	0.033	0.477	0.474	0.010	0.001	0.035
South Carolina	2.366	0.463	0.372	0.191	0.004	0.034

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
South Dakota	1.599	0.324	0.316	0.138	0.000	0.037
Tennessee	0.024	0.510	0.507	0.016	0.000	0.035
Texas	0.793	0.329	4.957	0.160	0.001	0.037
Utah	0.309	0.489	0.549	0.073	0.002	0.032
Vermont (SSN)	0.000	0.734	0.732	0.004	0.001	0.044
Virginia	0.928	0.387	0.376	0.152	0.001	0.038
Washington	2.187	0.409	0.374	0.243	0.000	0.038
West Virginia	0.004	0.619	0.616	0.010	0.003	0.038
Wisconsin	0.584	0.378	0.373	0.015	0.001	0.038
Wyoming	0.382	0.312	0.209	0.314	0.000	0.090
United States	0.379	0.464	0.879	0.068	0.001	0.035

Table IV.7 Edits to Assign Consistent SSNs and HICs as a Percentage of Records Subject to Reconciliation, 2006

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
Alabama	0.021	0.010	0.007	0.006	0.001	0.001
Alaska	0.010	0.003	0.007	0.001	0.000	0.000
Arizona	0.010	0.027	0.027	0.001	0.000	0.000
Arkansas	0.083	0.042	0.011	0.012	0.000	0.001
California (SSN)	0.000	0.015	0.007	0.001	0.000	0.000
Colorado	0.119	0.022	0.013	0.008	0.000	0.002
Connecticut	0.001	0.011	0.028	0.003	0.000	0.000
Delaware	0.001	0.007	0.011	0.002	0.000	0.000
District of Columbia	0.001	0.005	0.055	0.009	0.000	0.000
Florida	0.001	0.003	0.001	0.002	0.000	0.000
Georgia	0.018	0.002	0.001	0.001	0.000	0.000
Hawaii	0.000	0.003	0.020	0.000	0.000	0.000
Idaho	0.001	0.000	0.000	0.000	0.000	0.000
Illinois	0.005	0.088	0.037	0.006	0.000	0.001
Indiana	0.012	0.003	0.003	0.000	0.000	0.000
Iowa	0.001	0.002	0.007	0.001	0.000	0.000
Kansas	0.003	0.014	0.014	0.000	0.000	0.000
Kentucky (SSN)	0.001	0.008	0.017	0.000	0.000	0.000
Louisiana (SSN)	0.000	0.002	0.000	0.002	0.000	0.000
Maine	0.001	0.002	0.003	0.001	0.000	0.000
Maryland	0.010	0.002	0.152	0.000	0.000	0.000
Massachusetts	0.717	0.023	0.007	0.004	0.000	0.002
Michigan	0.025	0.007	0.017	0.002	0.000	0.000
Minnesota (SSN)	0.000	0.003	0.007	0.009	0.000	0.000
Mississippi	0.000	0.034	0.032	0.003	0.000	0.000
Missouri	0.003	0.003	0.003	0.000	0.000	0.000
Montana	0.000	0.002	0.003	0.001	0.000	0.000
Nebraska	0.167	0.005	0.003	0.002	0.000	0.000
Nevada (SSN)	0.000	0.006	0.009	0.005	0.001	0.001
New Hampshire	0.001	0.000	0.000	0.000	0.000	0.000
New Jersey (SSN)	0.070	0.031	0.005	0.046	0.002	0.003
New Mexico (SSN)	0.000	0.011	0.002	0.002	0.000	0.000
New York	0.000	0.051	0.040	0.008	0.000	0.003
North Carolina	0.001	0.001	0.001	0.000	0.000	0.000
North Dakota	0.014	0.022	0.017	0.000	0.000	0.002
Ohio	0.080	0.070	0.070	0.004	0.000	0.001
Oklahoma	0.003	0.009	0.009	0.001	0.000	0.000
Oregon	0.001	0.002	0.007	0.000	0.000	0.000
Pennsylvania	0.023	0.005	0.020	0.003	0.000	0.000
Rhode Island	0.059	0.001	0.001	0.001	0.000	0.000
South Carolina	0.022	0.009	0.003	0.004	0.000	0.000
South Dakota	0.002	0.015	0.019	0.004	0.000	0.000
Tennessee	0.000	0.007	0.011	0.001	0.000	0.000
Texas	0.354	0.016	0.013	0.005	0.000	0.002

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
Utah	0.165	0.001	0.003	0.000	0.000	0.000
Vermont (SSN)	0.000	0.004	0.002	0.002	0.000	0.000
Virginia	0.011	0.004	0.002	0.002	0.000	0.000
Washington	0.055	0.003	0.018	0.002	0.000	0.000
West Virginia	0.000	0.004	0.004	0.038	0.000	0.000
Wisconsin	0.042	0.009	0.002	0.000	0.000	0.000
Wyoming	0.016	0.000	0.000	0.003	0.000	0.000
United States	0.053	0.020	0.017	0.004	0.000	0.001

and between one and two percent in six other states. While the rate of replacement of missing EDB-SSNs was somewhat higher overall than that of missing MAX SSNs, there was much less variability among the states, with the highest replacement rate being only 0.761 percent (in Maine) and the lowest being 0.272 percent (in Georgia). The situation was similar for missing EDB-HICs except for two outliers—Kentucky, as mentioned previously, and Texas, with nearly five percent of the records having missing values replaced. Among the remaining states, however, the replacement rate varied between 0.209 percent (Wyoming) and 0.781 percent (Massachusetts).

Nonmissing values were replaced only a fraction as often as missing values: 0.068 percent, nationally, for the MAX SSN, 0.001 percent for the EDB-SSN, and 0.035 percent for the EDB-HIC. In only one state, Montana, did the rate of replacement of nonmissing MAX SSNs exceed one percent (at 1.114 percent), and in a substantial majority of states the replacement rate was below 0.1 percent. Rates of replacement of nonmissing EDB-SSNs ranged from 0.000 percent to 0.004 percent while rates of replacement of nonmissing EDB-HICs ranged from 0.016 percent to 0.100 percent.

All of the rates of replacement were substantially lower in 2006 than in 2005, reflecting the fact that most of the replacement values for missing or inconsistent 2005 values came from 2006. This implies that the addition of 2007 data to MAXEM will yield corrections to the 2006 data; we need to allow for this in plans for future development of MAXEM. Missing MAX SSNs were replaced on only 0.053 percent of the 2006 records nationally, while missing EDB-SSNs were replaced on only 0.02 percent of all 2006 records and missing EDB-HICs were replaced on only 0.017 percent of all records. The highest rate of replacement of missing MAX SSNs in any state was 0.717 percent in Massachusetts; the next highest rate (in Texas) was less than half that level. No state had a replacement rate as high as 0.1 percent for either the EDB-SSN or the EDB-HIC.

Replacement rates for nonmissing values, which can be replaced only with later values, were much lower, with only two states (New Jersey and West Virginia) having rates in excess of 0.01 percent for the MAX SSN, and no state exceeding 0.002 percent for the EDB-SSN or 0.003 percent for the EDB-HIC.

Edits to demographic variables in 2005 more often involved the replacement of a nonmissing value than a missing value, but there were a few states in which the replacement of missing values was more common than the replacement of nonmissing values. Nebraska at 3.242 percent, Wyoming at 1.909 percent, and New York at 0.884 percent were outliers with respect to the frequency of replacement of missing dates of birth; the next highest replacement rate was 0.062 percent in Nevada, which was followed by 0.008 percent in two states (Table IV.8).

Race/ethnicity had higher rates of replacement of missing values than either date of birth or sex. Nationally, such edits were found on 0.446 percent of all records in 2005 compared to 0.095 percent for date of birth and 0.014 percent for sex. Massachusetts led all states with replacement of missing race/ethnicity on 3.403 percent of records, followed by Vermont (1.797 percent), Colorado (1.737), and Iowa (1.472). No other state exceeded one percent, but six states fell between 0.5 and 1.0 percent, and 13 more fell between 0.1 and 0.5 percent.

As we noted, replacement of nonmissing values of date of birth, sex, and race/ethnicity was more common than replacement of missing values in 2005. Most notable were the high replacement rates for nonmissing race/ethnicity in two states: Connecticut, at 25.529 percent, and Nevada, at 12.777 percent. Changes in race/ethnicity coding between the two years explain the high replacement rate in Connecticut; certain subpopulations were assigned different codes in 2006 than 2005. For a fuller discussion of changes in race/ethnicity coding, see Section B.

Table IV.8 Edits to Assign Consistent Demographic Information as a Percentage of Records Subject to Reconciliation, 2005

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	Date of Birth	Sex	Race/ Ethnicity	Date of Birth	Sex	Race/ Ethnicity
Alabama	0.000	0.310	0.131	0.509	0.055	0.068
Alaska	0.000	0.000	0.275	0.176	0.031	0.386
Arizona	0.002	0.002	0.165	0.139	0.029	0.331
Arkansas	0.000	0.156	0.198	0.238	0.091	0.290
California (SSN)	0.000	0.000	0.972	0.438	0.146	1.431
Colorado	0.006	0.000	1.737	0.925	0.225	0.619
Connecticut	0.000	0.000	0.031	0.154	0.030	25.549
Delaware	0.000	0.000	0.003	0.157	0.013	0.264
District of Columbia	0.010	0.000	0.018	0.033	0.003	0.010
Florida	0.006	0.000	0.095	0.036	0.004	0.062
Georgia	0.000	0.000	0.063	0.045	0.009	0.086
Hawaii	0.000	0.000	0.001	0.009	0.000	0.035
Idaho	0.001	0.000	0.000	0.075	0.005	0.272
Illinois	0.003	0.000	0.421	0.493	0.327	5.874
Indiana	0.000	0.000	0.013	0.024	0.005	0.030
Iowa	0.000	0.000	1.472	0.162	0.041	0.892
Kansas	0.000	0.000	0.050	0.034	0.005	0.145
Kentucky (SSN)	0.000	0.000	0.119	0.210	0.117	0.286
Louisiana (SSN)	0.000	0.000	0.025	0.053	0.031	0.037
Maine	0.001	0.001	0.048	0.059	0.006	0.026
Maryland	0.002	0.000	0.077	0.055	0.013	0.036
Massachusetts	0.000	0.000	3.403	0.507	0.167	0.940
Michigan	0.008	0.000	0.269	0.194	0.033	0.376
Minnesota (SSN)	0.000	0.000	0.633	0.254	0.058	0.329
Mississippi	0.000	0.001	0.279	0.099	0.011	0.027
Missouri	0.001	0.000	0.026	0.010	0.001	0.027
Montana	0.000	0.000	0.015	0.036	0.002	0.036
Nebraska	3.242	0.876	0.037	0.178	0.051	0.118
Nevada (SSN)	0.062	0.195	0.000	0.473	0.104	12.777
New Hampshire	0.022	0.000	0.007	0.006	0.001	0.001
New Jersey (SSN)	0.000	0.000	0.683	0.750	0.354	2.462
New Mexico (SSN)	0.000	0.000	0.306	0.161	0.031	0.434
New York	0.884	0.000	0.478	0.313	0.004	0.664
North Carolina	0.001	0.000	0.040	0.007	0.001	0.006
North Dakota	0.000	0.000	0.000	0.091	0.062	0.540
Ohio	0.004	0.000	0.011	0.094	0.007	0.278
Oklahoma	0.000	0.000	0.000	0.108	0.006	0.209
Oregon	0.001	0.000	0.065	0.029	0.004	0.059
Pennsylvania	0.002	0.000	0.014	0.079	0.007	0.097
Rhode Island	0.001	0.000	0.580	0.053	0.022	0.083

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	Date of Birth	Sex	Race/Ethnicity	Date of Birth	Sex	Race/Ethnicity
South Carolina	0.001	0.004	0.316	0.826	0.068	0.091
South Dakota	0.000	0.000	0.000	0.248	0.062	2.434
Tennessee	0.000	0.000	0.092	0.096	0.005	0.029
Texas	0.000	0.001	0.251	0.327	0.103	0.745
Utah	0.000	0.000	0.058	0.299	0.069	1.757
Vermont (SSN)	0.000	0.000	1.797	0.088	0.068	0.054
Virginia	0.000	0.003	0.012	0.177	0.040	0.122
Washington	0.000	0.001	0.698	0.233	0.068	1.545
West Virginia	0.000	0.000	0.000	0.095	0.009	0.116
Wisconsin	0.008	0.000	0.897	0.163	0.022	0.189
Wyoming	1.909	1.941	0.168	0.597	0.068	0.325
United States	0.095	0.014	0.446	0.260	0.073	1.082

As with SSNs and HICs, there were far fewer edits to records in 2006 than in 2005 because most of the edits involve the replacement of earlier values with later values. Race/ethnicity provided the lone exception, where the replacement of missing values was nearly twice as common in 2006 as in 2005. Missing value replacement does not require that the replacement values come from later records, although missing values for most fields tend to be more common on earlier records for the same individual. The highest rate occurred in Washington state, where missing values of race/ethnicity were replaced on 9.685 percent of the 2006 records. The replacement of nonmissing values for race/ethnicity was substantially lower than the replacement of missing values, as we would expect (Table IV.9).

c. Consolidation of Linked Records Within the Same Year

Following the reconciliation process, all records bearing the same MAXEM ID within the same state and year were combined into a single record. Because of reconciliation, the identifiers and demographic variables were identical across the records being combined, but each of the records had its own set of enrollment and service utilization data. This information had to be consolidated. We did this in a manner that would limit the loss of information, as explained below.

Table IV.10 documents the reduction in the total record count, by state, due to the consolidation of records in 2005 within state. Table IV.11 provides comparable documentation for 2006. In the first column of each table we report the count of MAX PS records with enrollment data, from Table IV.4. The second column reports the number of records remaining after consolidation, and the third column reports the reduction in the record count due to consolidation (the difference between the first two columns). The fourth column reports the number of consolidated or combined records. If every instance of duplication involved only two

Table IV.9 Edits to Assign Consistent Demographic Information as a Percentage of Records Subject to Reconciliation, 2006

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	Date of Birth	Sex	Race/Ethnicity	Date of Birth	Sex	Race/Ethnicity
Alabama	0.000	0.001	0.029	0.010	0.003	0.002
Alaska	0.000	0.000	0.077	0.002	0.000	0.001
Arizona	0.000	0.000	0.225	0.007	0.003	0.002
Arkansas	0.000	0.001	0.271	0.008	0.002	0.003
California (SSN)	0.000	0.000	1.301	0.002	0.012	0.002
Colorado	0.000	0.000	3.014	0.017	0.008	0.008
Connecticut	0.000	0.000	0.000	0.023	0.000	0.044
Delaware	0.000	0.000	0.000	0.003	0.000	0.003
District of Columbia	0.000	0.000	0.025	0.004	0.000	0.000
Florida	0.000	0.000	0.060	0.001	0.000	0.001
Georgia	0.000	0.000	0.047	0.001	0.000	0.001
Hawaii	0.000	0.000	0.000	0.004	0.000	0.018
Idaho	0.000	0.000	0.000	0.001	0.000	0.002
Illinois	0.001	0.000	3.239	0.115	0.021	0.164
Indiana	0.000	0.000	0.011	0.000	0.000	0.001
Iowa	0.000	0.000	1.336	0.002	0.001	0.005
Kansas	0.000	0.000	0.005	0.001	0.000	0.001
Kentucky (SSN)	0.000	0.000	0.125	0.002	0.004	0.000
Louisiana (SSN)	0.000	0.000	0.009	0.001	0.000	0.000
Maine	0.000	0.000	0.125	0.000	0.000	0.000
Maryland	0.000	0.000	0.033	0.003	0.000	0.000
Massachusetts	0.000	0.000	3.881	0.008	0.011	0.003
Michigan	0.000	0.000	0.006	0.005	0.000	0.001
Minnesota (SSN)	0.000	0.000	0.247	0.002	0.000	0.000
Mississippi	0.000	0.000	0.223	0.036	0.000	0.013
Missouri	0.000	0.000	0.016	0.000	0.000	0.000
Montana	0.000	0.000	0.000	0.001	0.001	0.000
Nebraska	0.003	0.001	0.024	0.001	0.001	0.001
Nevada (SSN)	0.000	0.000	0.000	0.004	0.001	0.003
New Hampshire	0.000	0.000	0.002	0.000	0.000	0.000
New Jersey (SSN)	0.000	0.000	0.269	0.016	0.008	0.006
New Mexico (SSN)	0.000	0.000	0.090	0.006	0.004	0.002
New York	0.000	0.000	0.490	0.170	0.000	0.326
North Carolina	0.000	0.000	0.000	0.001	0.000	0.000
North Dakota	0.000	0.000	0.002	0.011	0.000	0.277
Ohio	0.000	0.000	0.012	0.015	0.000	0.065
Oklahoma	0.000	0.000	0.000	0.037	0.000	0.043
Oregon	0.000	0.000	1.103	0.005	0.000	0.008
Pennsylvania	0.000	0.000	0.011	0.002	0.000	0.001
Rhode Island	0.001	0.000	0.250	0.001	0.001	0.001
South Carolina	0.000	0.000	0.220	0.008	0.002	0.002
South Dakota	0.000	0.000	0.000	0.027	0.000	0.324
Tennessee	0.000	0.000	0.103	0.002	0.001	0.001

State	Percent of Records with Missing Value Replaced			Percent of Records with Nonmissing Value Replaced		
	Date of Birth	Sex	Race/Ethnicity	Date of Birth	Sex	Race/Ethnicity
Texas	0.000	0.000	0.482	0.073	0.004	0.019
Utah	0.000	0.000	0.018	0.001	0.000	0.006
Vermont (SSN)	0.000	0.000	0.089	0.001	0.003	0.000
Virginia	0.000	0.000	0.004	0.008	0.000	0.006
Washington	0.000	0.000	9.685	0.004	0.001	0.001
West Virginia	0.000	0.000	0.021	0.015	0.000	0.000
Wisconsin	0.000	0.000	0.581	0.008	0.001	0.001
Wyoming	0.003	0.000	0.128	0.005	0.000	0.003
United States	0.000	0.000	0.808	0.029	0.004	0.043

Table IV.10 Reduction in Record Count Due to Consolidation of Records Within State and Year, 2005

State	MAX PS Records with Enrollment Data	Records Remaining After Consolidation	Reduction in Record Count	Duplicates		Reduction as Percent of Initial Records
				Number of Combined Records	In Excess of Two per MAXEM ID	
Alabama	955,590	954,389	1,201	1,201	0	0.126
Alaska	132,850	132,802	48	48	0	0.036
Arizona	1,476,842	1,474,288	2,554	2,538	16	0.173
Arkansas	746,506	745,700	806	793	13	0.108
California (SSN)	10,593,523	10,593,119	404	402	2	0.004
Colorado	603,949	603,707	242	241	1	0.040
Connecticut	529,119	528,469	650	647	3	0.123
Delaware	179,935	179,913	22	22	0	0.012
District of Columbia	166,514	166,440	74	74	0	0.044
Florida	3,020,102	3,019,634	468	468	0	0.015
Georgia	2,083,224	2,080,322	2,902	2,902	0	0.139
Hawaii	231,787	231,620	167	167	0	0.072
Idaho	233,352	233,333	19	19	0	0.008
Illinois	2,610,471	2,570,481	39,990	39,313	677	1.532
Indiana	1,044,889	1,044,764	125	125	0	0.012
Iowa	428,814	428,279	535	535	0	0.125
Kansas	356,738	356,706	32	32	0	0.009
Kentucky (SSN)	886,960	873,932	13,028	13,026	2	1.469
Louisiana (SSN)	1,166,153	1,166,119	34	34	0	0.003
Maine	326,500	326,409	91	91	0	0.028
Maryland	866,921	866,900	21	21	0	0.002
Massachusetts	1,245,895	1,245,843	52	52	0	0.004
Michigan	1,857,775	1,857,701	74	74	0	0.004
Minnesota (SSN)	790,712	790,615	97	95	2	0.012
Mississippi	780,246	778,522	1,724	1,700	24	0.221
Missouri	1,217,929	1,217,500	429	428	1	0.035
Montana	128,004	128,004	0	0	0	0.000
Nebraska	261,372	261,371	1	1	0	0.000
Nevada (SSN)	267,880	267,833	47	47	0	0.018
New Hampshire	145,737	145,728	9	9	0	0.006
New Jersey (SSN)	1,125,770	1,121,762	4,008	3,981	27	0.356
New Mexico (SSN)	527,702	527,694	8	8	0	0.002
New York	5,087,834	5,013,122	74,712	73,552	1,160	1.468
North Carolina	1,728,608	1,727,918	690	690	0	0.040
North Dakota	78,625	77,112	1,513	1,513	0	1.924
Ohio	2,126,626	2,113,448	13,178	13,069	109	0.620
Oklahoma	728,609	725,837	2,772	2,750	22	0.380
Oregon	563,445	562,565	880	879	1	0.156
Pennsylvania	2,029,894	2,029,732	162	160	2	0.008
Rhode Island	219,784	219,783	1	1	0	0.000
South Carolina	1,012,287	1,012,171	116	115	1	0.011
South Dakota	130,894	128,838	2,056	2,049	7	1.571
Tennessee	1,594,245	1,593,869	376	370	6	0.024
Texas	4,103,270	4,096,175	7,095	7,023	72	0.173

State	MAX PS Records with Enrollment Data	Records Remaining After Consolidation	Reduction in Record Count	Duplicates		Reduction as Percent of Initial Records
				Number of Combined Records	In Excess of Two per MAXEM ID	
Utah	345,451	345,438	13	13	0	0.004
Vermont (SSN)	162,762	162,743	19	19	0	0.012
Virginia	927,685	926,884	801	800	1	0.086
Washington	1,199,572	1,199,441	131	131	0	0.011
West Virginia	383,111	382,999	112	112	0	0.029
Wisconsin	1,022,203	1,015,762	6,441	6,441	0	0.630
Wyoming	81,199	81,129	70	70	0	0.086
United States	60,515,865	60,334,865	181,000	178,851	2,149	0.299

Table IV.11 Reduction in Record Count Due to Consolidation of Records Within State and Year, 2006

State	MAX PS Records with Enrollment Data	Records Remaining After Consolidation	Reduction in Record Count	Duplicates		Reduction as Percent of Initial Records
				Number of Combined Records	In Excess of Two per MAXEM ID	
Alabama	967,777	966,987	790	790	0	0.082
Alaska	130,740	130,735	5	5	0	0.004
Arizona	1,511,854	1,511,638	216	216	0	0.014
Arkansas	758,906	758,188	718	703	15	0.095
California (SSN)	10,611,919	10,611,796	123	121	2	0.001
Colorado	626,768	626,484	284	284	0	0.045
Connecticut	533,568	532,975	593	592	1	0.111
Delaware	184,542	184,528	14	14	0	0.008
District of Columbia	167,174	167,082	92	92	0	0.055
Florida	2,997,801	2,997,454	347	347	0	0.012
Georgia	2,043,649	2,043,588	61	61	0	0.003
Hawaii	231,642	231,509	133	133	0	0.057
Idaho	229,912	229,893	19	19	0	0.008
Illinois	2,600,647	2,573,624	27,023	26,324	699	1.039
Indiana	1,066,463	1,066,328	135	135	0	0.013
Iowa	467,347	466,910	437	436	1	0.094
Kansas	358,751	358,731	20	19	1	0.006
Kentucky (SSN)	890,092	890,088	4	4	0	0.000
Louisiana (SSN)	1,213,077	1,213,058	19	19	0	0.002
Maine	336,137	336,134	3	3	0	0.001
Maryland	865,977	865,965	12	12	0	0.001
Massachusetts	1,307,674	1,307,569	105	105	0	0.008
Michigan	1,938,399	1,938,251	148	148	0	0.008
Minnesota (SSN)	802,182	802,125	57	57	0	0.007
Mississippi	775,999	773,546	2,453	2,420	33	0.316
Missouri	1,111,398	1,111,379	19	19	0	0.002
Montana	126,934	126,934	0	0	0	0.000
Nebraska	262,014	261,942	72	71	1	0.027
Nevada (SSN)	254,747	254,738	9	9	0	0.004
New Hampshire	148,671	148,664	7	7	0	0.005
New Jersey (SSN)	1,180,677	1,179,737	940	929	11	0.080
New Mexico (SSN)	516,862	516,854	8	8	0	0.002
New York	5,092,937	5,022,223	70,714	69,810	904	1.388
North Carolina	1,780,953	1,780,928	25	25	0	0.001
North Dakota	79,810	77,256	2,554	2,554	0	3.200
Ohio	2,157,048	2,144,188	12,860	12,728	132	0.596
Oklahoma	761,068	758,700	2,368	2,346	22	0.311
Oregon	552,815	552,140	675	675	0	0.122
Pennsylvania	2,094,047	2,093,899	148	147	1	0.007
Rhode Island	221,050	221,049	1	1	0	0.000
South Carolina	949,561	949,470	91	91	0	0.010
South Dakota	132,534	130,477	2,057	2,047	10	1.552

State	MAX PS Records with Enrollment Data	Records Remaining After Consolidation	Reduction in Record Count	Duplicates		Reduction as Percent of Initial Records
				Number of Combined Records	In Excess of Two per MAXEM ID	
Tennessee	1,479,366	1,479,054	312	308	4	0.021
Texas	4,151,664	4,143,622	8,042	7,922	120	0.194
Utah	339,443	339,394	49	49	0	0.014
Vermont (SSN)	161,536	161,533	3	3	0	0.002
Virginia	954,485	953,950	535	534	1	0.056
Washington	1,191,471	1,191,393	78	78	0	0.007
West Virginia	392,745	392,578	167	167	0	0.043
Wisconsin	1,038,804	1,036,667	2,137	2,137	0	0.206
Wyoming	80,397	80,374	23	23	0	0.029
United States	60,832,034	60,694,329	137,705	135,747	1,958	0.226

records, the numbers in the third and fourth columns would be identical—that is, there would be a reduction of one record for each combined record created. When there are three duplicate records, however, there is a reduction of two duplicates for each combined record created. Differences between the reduction in the record count and the number of combined records created are reported in the fifth column, and we see that in both years in most states the differences are zero—that is, there were no instances of duplicates in excess of two for any MAXEM ID. The final column expresses the reduction in each state’s record count as a percentage of the total records prior to unduplication (that is, the third column as a percentage of the first column).

The incidence of within-state, within-year duplication varied widely across the states and declined between 2005 and 2006. In five states in 2005 (Illinois, Kentucky, New York, North Dakota, and South Dakota), unduplication removed between 1.4 and 2.0 percent of the records. In 2006, Kentucky had virtually no duplicates, and Illinois had about one-third fewer, but the incidence of duplication in North Dakota rose from 1.9 percent to 3.2 percent while holding steady at 1.6 percent in South Dakota and declining only slightly in New York, from 1.5 percent to 1.4 percent. In most of the remaining states, unduplication produced reductions of less than 0.1 percent in both years.

For each of the combined records we created the following consolidated codes:

- 34 type-of-service (TOS) indicators
- 12 monthly uniform eligibility group (UEG) codes
- One annual UEG code
- 12 monthly CHIP codes
- One annual S-CHIP-only code
- One annual RBF code
- One annual dual-eligibility code

Creation of the consolidated codes is described below.

TOS Indicators. The 34 TOS indicators on each MAX record indicate whether or not a particular type of service was used during the calendar year. To create the consolidated codes, we summed each of the 34 codes across the records being combined; any values in excess of 1 were then recoded to 1. The interpretation of the new codes is unchanged, but they reflect the service utilization reported on two or more records.

UEG Codes. The monthly UEG code on the MAX records indicates both eligibility basis and maintenance assistance status in a single, two-digit code. To consolidate codes across records, we established a precedence order.²⁰ If two or more distinct code values were reported for a given month on the records being combined, we selected the code with the highest precedence order and assigned that code to the combined record in that month. We also created an annual UEG code by assigning the latest nonzero value, working backwards from month 12.

CHIP Codes. The monthly CHIP code indicates whether an individual was enrolled in Medicaid, M-CHIP, S-CHIP, or not enrolled in a given month (a value indicating unknown enrollment is also reported). In consolidating the codes across records we created four new code values to indicate enrollment in the possible combinations of two or all three programs. Codes are 4, Medicaid and M-CHIP; 5, Medicaid and S-CHIP; 6, M-CHIP and S-CHIP; and 7, all three. We also created an annual S-CHIP-only code to indicate whether or not the individual was only enrolled in S-CHIP during the year. This code will allow analysts to easily exclude individuals with no Medicaid enrollment during the year.

²⁰ The precedence order, from highest to lowest, was 11, 21, 31, 41, 51, 12, 22, 32, 3A, 42, 52, 15, 17, 25, 35, 45, 55, 14, 16, 24, 34, 44, 48, and 54.

RBF Code. The MAX records contain monthly codes that indicate the type of benefits for which an individual was eligible. We created a simplified, annual RBF code for each of the records before we combined them. This code had three values, indicating (1) restricted benefits in all months of eligibility, (2) restricted benefits in some months of eligibility, and (3) eligibility for a broader set of benefits in all months of eligibility. In consolidating these codes across records, we assigned a code of 2 if the component records had codes of 1 and 2, 1 and 3, or 2 and 3, as each of these combinations implied eligibility for restricted benefits in some months and broader benefits in other months.

Dual Code. The MAX records also contain monthly codes that indicate dual versus nondual eligibility in each month of eligibility. For each individual record we combined the monthly codes to create an annual code indicating dual eligibility in all months, some months, or no months of eligibility. When we combined records, we assigned the value of the annual code if the same code was present on all records. If one record indicated dual eligibility in all months and another record indicated dual eligibility in just some months, we assigned a combined code indicating dual eligibility in some months. If one record showed no dual eligibility during the year while the other record indicated dual eligibility in some or all months, we assigned the code value indicating dual eligibility in some months.

Loss of Information. Our method of consolidating the monthly TOS indicators and CHIP codes and the annual RBF and dual codes entails no loss of information; all statuses reported on the records that were consolidated are preserved in these codes. This is not true of the consolidated monthly UEG codes. To assess the loss of information, we tabulated how often each basis of eligibility or maintenance assistance status was ever reported on a component record over the 12 months but never reported on the combined record. We compiled these results at the national level because most states had few combined records.

Because of the way the precedence order was defined, the consolidated monthly UEG codes lost no information identifying aged beneficiaries in any month in either year, but information identifying child beneficiaries was lost from 2.295 percent of combined records in 2005 and 2.985 percent in 2006 (Tables IV.12 and IV.13). Loss of information identifying disabled and adult beneficiaries was less common, with 0.612 percent of combined records failing to identify a disabled basis of eligibility in 2005 and 0.764 percent in 2006, and 0.934 percent of combined record failing to identify an adult basis of eligibility in 2005 and 1.154 percent in 2006.

Again, because of the precedence order in assigning the consolidated monthly UEG codes, only 0.100 percent of combined records in 2005 and 0.083 percent in 2006 failed to identify a cash beneficiary. For other maintenance assistance statuses, however, the loss of information ranged from 0.987 percent to 6.027 percent of combined records in 2005 and from 0.908 to 8.224 percent of combined records in 2006. Foster child status was the most likely to be unidentified in both years. Unidentification of Section 1115 status was comparable to that of foster child status in 2005 but it was much less likely to be unidentified in 2006.

While the level of information loss may seem high for some statuses, combined records are a very small fraction of the total. If we express the lost information as a percentage of all records after unduplication within state and year, the rates fall dramatically. The highest rate of information loss for any status is less than 0.02 percent (foster child status in both years).

4. Linkages Across States

As we have seen, unduplication within each state and year yields a single MAXEM record for each unique individual ever enrolled in Medicaid (and, in some states, S-CHIP) in a given state during a given year. To produce an unduplicated count of Medicaid eligibles for the nation as a whole, however, it is necessary to link Medicaid records *across* states. This is more

Table IV.12 Information Loss for UEG Status Due to Unduplication Within State and Year, 2005

Measure of Information Loss	Number of Combined Records with Information Loss	Percent of All Combined Records	Percent of All Records After Unduplication
Basis of Eligibility Reported on a Component Record But Not the Combined Record			
Aged	0	0.000	0.000
Disabled	1,095	0.612	0.002
Child	4,104	2.295	0.007
Adult	1,670	0.934	0.003
Maintenance Assistance Status Reported on a Component Record But Not the Combined Record			
Cash	178	0.100	0.000
Section 1931	1,765	0.987	0.003
Means tested	4,799	2.683	0.008
Poverty	4,504	2.518	0.007
Other	3,157	1.765	0.005
Foster child	10,780	6.027	0.018
Section 1115	10,543	5.895	0.017

Table IV.13 Information Loss for UEG Status Due to Unduplication within State and Year, 2006

Measure of Information Loss	Number of Combined Records with Information Loss	Percent of All Combined Records	Percent of All Records After Unduplication
Basis of Eligibility Reported on a Component Record But Not the Combined Record			
Aged	0	0.000	0.000
Disabled	1,037	0.764	0.002
Child	4,052	2.985	0.007
Adult	1,566	1.154	0.003
Maintenance Assistance Status Reported on a Component Record But Not the Combined Record			
Cash	112	0.083	0.000
Section 1931	1,561	1.150	0.003
Means Tested	4,317	3.180	0.007
Poverty	4,045	2.980	0.007
Other	1,233	0.908	0.002
Foster Child	11,164	8.224	0.018
Section 1115	4,236	3.121	0.007

challenging, methodologically, than linking records within states, because there is no national equivalent of the MSIS ID, which each state has assigned to serve as a unique identifier among its Medicaid enrollees. In reviewing our linkages across states, we first discuss the linkage methodology. We then present estimates across-state linkages and linkage rates by state. We conclude by describing how we used the across-state linkages to produce an unduplicated count of Medicaid eligibles in the nation in each year. Estimates of national enrollment before and after unduplication are presented in Chapter V.

a. Linkage Methodology

We have seen that linkages by MSIS ID account for 99.4 percent of the within-state, across-year linkages, leaving only 0.6 percent for the three additional linkage paths. When we link records across states, however, we cannot make use of the MSIS ID at all and must rely instead on the MAX SSN (combined with agreement on sex and at least two parts of the DOB), with minimal additional help from the EDB-SSN and EDB-HIC.

The across-state linkages were carried out separately within each of the two years and then across years. For the nation as a whole and in virtually every state, 99.9 percent of the within year linkages were due to the MAX SSN, with most of the rest due to the EDB-SSN (Table IV.14). The across-year linkages were similar.

Another aspect of our linkage methodology involved how we defined and counted linkages across year. Most individuals who were enrolled in two different states between one year and the next were enrolled in both states during one of the years, and a fair number were enrolled in both states in both years. To avoid double-counting linkages across states, we restricted the across-year linkages for an individual to pairs that were not already recorded as linkages within one of the two years. Thus if an individual were enrolled in Arizona and California in 2005 and in

Table IV.14 Source of Across-State Links Within Year

State	Source of Link, 2005			Source of Link, 2006		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
Alabama	99.964	0.036	0.000	99.963	0.037	0.000
Alaska	99.961	0.039	0.000	99.958	0.042	0.000
Arizona	99.819	0.181	0.000	99.725	0.272	0.003
Arkansas	99.634	0.355	0.011	99.603	0.373	0.024
California (SSN)	99.948	0.051	0.001	99.927	0.071	0.002
Colorado	99.933	0.067	0.000	99.929	0.069	0.002
Connecticut	99.928	0.072	0.000	99.831	0.164	0.004
Delaware	99.958	0.042	0.000	99.947	0.053	0.000
District of Columbia	99.947	0.053	0.000	99.938	0.062	0.000
Florida	99.957	0.042	0.001	99.943	0.056	0.001
Georgia	99.948	0.050	0.001	99.933	0.066	0.001
Hawaii	99.967	0.033	0.000	99.921	0.068	0.011
Idaho	99.972	0.028	0.000	99.957	0.043	0.000
Illinois	99.957	0.042	0.001	99.965	0.035	0.000
Indiana	99.975	0.025	0.000	99.972	0.028	0.000
Iowa	99.965	0.035	0.000	99.958	0.042	0.000
Kansas	99.944	0.053	0.003	99.939	0.058	0.003
Kentucky (SSN)	99.966	0.032	0.002	99.974	0.022	0.004
Louisiana (SSN)	99.944	0.056	0.000	99.954	0.046	0.000
Maine	99.878	0.122	0.000	99.842	0.158	0.000
Maryland	99.959	0.041	0.000	99.972	0.028	0.000
Massachusetts	99.696	0.302	0.002	99.674	0.320	0.006
Michigan	99.963	0.037	0.000	99.958	0.042	0.000
Minnesota (SSN)	99.965	0.035	0.000	99.938	0.062	0.000
Mississippi	99.941	0.059	0.000	99.936	0.062	0.002
Missouri	99.910	0.090	0.000	99.924	0.076	0.000
Montana	99.872	0.120	0.009	99.790	0.210	0.000
Nebraska	99.985	0.015	0.000	99.968	0.032	0.000
Nevada (SSN)	99.966	0.032	0.003	99.950	0.050	0.000
New Hampshire	99.792	0.208	0.000	99.827	0.173	0.000
New Jersey (SSN)	99.846	0.149	0.006	99.863	0.135	0.002
New Mexico (SSN)	99.975	0.025	0.000	99.945	0.055	0.000
New York	99.918	0.082	0.001	99.865	0.134	0.001
North Carolina	99.975	0.025	0.000	99.975	0.025	0.000
North Dakota	99.985	0.015	0.000	100.000	0.000	0.000
Ohio	99.960	0.039	0.001	99.940	0.058	0.001
Oklahoma	99.942	0.056	0.002	99.927	0.073	0.000
Oregon	99.942	0.058	0.000	99.936	0.064	0.000
Pennsylvania	99.943	0.055	0.001	99.940	0.059	0.001
Rhode Island	99.873	0.127	0.000	99.857	0.134	0.008
South Carolina	99.959	0.041	0.000	99.966	0.034	0.000
South Dakota	99.991	0.009	0.000	99.981	0.019	0.000
Tennessee	99.954	0.046	0.000	99.949	0.050	0.001
Texas	99.937	0.061	0.003	99.789	0.206	0.005
Utah	99.991	0.009	0.000	99.956	0.044	0.000
Vermont (SSN)	99.909	0.091	0.000	99.924	0.076	0.000

State	Source of Link, 2005			Source of Link, 2006		
	MAX SSN	EDB SSN	EDB HIC	MAX SSN	EDB SSN	EDB HIC
Virginia	99.936	0.064	0.000	99.966	0.034	0.000
Washington	99.963	0.035	0.002	99.953	0.047	0.000
West Virginia	99.964	0.036	0.000	99.970	0.030	0.000
Wisconsin	99.910	0.087	0.002	99.910	0.090	0.000
Wyoming	99.950	0.050	0.000	99.957	0.043	0.000
United States	99.933	0.066	0.001	99.911	0.087	0.002

California again in 2006, we counted the Arizona-California pair as a link within 2005 but not as a link between 2005 and 2006. And if an individual were enrolled in Arizona and California in both years, we counted the two Arizona-California record pairs as within-year links in 2005 and 2006 but did not count an across-year link. If, instead, an individual were enrolled in Arizona and California in 2005 and in Nevada in 2006, we counted the Arizona-California pair as a within-year link in 2005, and we counted both the Arizona-Nevada pair and the California-Nevada pair as links between 2005 and 2006. As it turned out, 73 percent of the across-state, across-year links that we identified involved individuals enrolled in just one state in 2005 and one state in 2006.

b. Linkages and Linkage Rates by State

Table IV.15 provides counts of across-state linkages and linkage rates, by state, within each of the two years. The counts of linkages reflect the number of times that a record from one state was linked to a record from another state. If a record in Alabama was linked to records in five other states, this will count as five links for Alabama and one link for each of the five other states.²¹

With respect to aggregate numbers, we identified 2.941 million records with linkages across states in 2005 and 2.835 million records with linkages across states in 2006. California, Florida, and Texas each had around 200,000 records that linked to records in other states in 2005 and 2006, and around 150,000 that linked between the two years. Georgia, Illinois, Louisiana, and New York also had more than 100,000 linkages to other states in each of the two years, while

²¹ We could have avoided this double counting by assigning a weight of one-half to each link. Alternatively, we could divide the total links in each state by two. We did not see a clear advantage to doing so, as the number of times that a record in one state links to a record in another state has an intuitive interpretation.

Table IV.15 Number of Linkages and Linkage Rates Across States, Within Years

State	Records Linking to Another State in the Same Year		Percent Linking to Another State in the Same Year 2005
	2005	2006	
Alabama	50,549	48,718	5.30
Alaska	7,723	7,138	5.82
Arizona	83,020	75,636	5.63
Arkansas	55,242	54,464	7.41
California (SSN)	201,279	189,157	1.90
Colorado	46,420	43,623	7.69
Connecticut	24,993	23,720	4.73
Delaware	11,883	11,271	6.60
District of Columbia	13,225	12,919	7.95
Florida	209,284	191,073	6.93
Georgia	143,370	133,582	6.89
Hawaii	9,220	8,887	3.98
Idaho	21,104	18,782	9.04
Illinois	126,385	123,724	4.92
Indiana	68,768	67,279	6.58
Iowa	31,026	30,663	7.24
Kansas	32,243	29,412	9.04
Kentucky (SSN)	50,073	49,074	5.73
Louisiana (SSN)	128,647	139,592	11.03
Maine	13,116	12,680	4.02
Maryland	48,830	47,089	5.63
Massachusetts	46,380	47,514	3.72
Michigan	73,455	71,488	3.95
Minnesota (SSN)	42,558	40,559	5.38
Mississippi	50,597	51,399	6.50
Missouri	73,549	65,602	6.04
Montana	11,688	10,497	9.13
Nebraska	20,372	19,015	7.79
Nevada (SSN)	37,848	33,837	14.13
New Hampshire	10,091	9,854	6.92
New Jersey (SSN)	52,517	54,084	4.68
New Mexico (SSN)	32,576	29,214	6.17
New York	137,250	130,564	2.74
North Carolina	98,739	96,776	5.71
North Dakota	6,595	6,543	8.55
Ohio	87,426	83,836	4.14
Oklahoma	50,038	47,636	6.89
Oregon	41,090	37,255	7.30
Pennsylvania	79,612	79,854	3.92
Rhode Island	11,845	11,915	5.39
South Carolina	56,037	50,518	5.54
South Dakota	11,015	10,616	8.55
Tennessee	98,651	101,286	6.19
Texas	199,050	200,799	4.86
Utah	22,502	20,554	6.51

State	Records Linking to Another State in the Same Year		Percent Linking to Another State in the Same Year 2005
	2005	2006	
Vermont (SSN)	6,609	6,562	4.06
Virginia	59,374	58,033	6.41
Washington	62,692	59,891	5.23
West Virginia	28,113	26,283	7.34
Wisconsin	46,858	45,721	4.61
Wyoming	9,969	9,308	12.29
United States	2,941,496	2,835,496	4.88

Note: The denominators are the record counts after consolidation from Tables IV.10 and IV.11.

Tennessee had just under 100,000 in 2005 and just over 100,000 in 2006. At the low end, Alaska, Hawaii, North Dakota, Vermont, and Wyoming had fewer than 10,000 linkages in each of the two years while New Hampshire fell just above that number in 2005 and just below it in 2006.

The within-year linkage rate for a state is the number of links between records in that state and any other state within the same year, divided by the number of records in that state and year after the within-state, within-year unduplication (see Tables IV.10 and IV.11). Over all states, we linked 4.88 percent of the 2005 records and 4.67 percent of the 2006 records to records in another state in the same year.

Linkage rates vary substantially across the states. Three states have double-digit linkage rates in 2005 and 2006, ranging from 11.03 percent to 14.13 percent: Louisiana, Nevada, and Wyoming. With 2005 being the year of Hurricane Katrina, the high across-state linkage rate for Louisiana is certainly no surprise, but we are puzzled that the across-year linkage rate is not much more than half the within-year rate, whereas both Nevada and Wyoming have double-digit linkage rates across as well as within year. The lowest across-state match rate is found in California, at less than two percent. We know that 30 percent of the California records are missing SSNs and therefore cannot be linked across state, but even if we removed these cases from the California denominator the state's linkage rate would rise no higher than second lowest after New York. The low linkage rates for the two states with the largest Medicaid enrollment suggest that size may work against a high migration rate (either in or out), but there may be other factors as well. Among the remaining states, Idaho, Montana, Kansas, North Dakota, and South Dakota have similarly high linkage rates at 8 to 9 percent while several of the New England states join Pennsylvania, Ohio, and Michigan with comparatively low linkage rates.

Table IV.16 reports counts of across-state linkages and linkage rates, by state, across 2005 and 2006. Unlike the within-year links, where we counted both records in each linked pair as

linking to a record in another state, the across-year links count one state as an origin (in the 2005 column) and the other state as a destination (in the 2006 column). The counts in the two columns must be summed for each state to produce the equivalent of the separate 2005 and 2006 counts in Table IV.15. The across-year linkage rate is the number of links between that state's 2005 records and any other state's 2006 records, divided by the number of 2005 records in that first state after unduplication. Again, the two linkage rates for each state must be summed to produce a number that compares conceptually to the linkage rates reported separately for each year in Table IV.15.

The combined linkage rate of 0.76 percent is substantially smaller than the average within-year linkage rate of 4.17 percent, reflecting the fact that most beneficiaries who move from one state to another and re-enroll in Medicaid do so within the same year. As with the within-year links, Nevada and Wyoming have the highest across-year linkage rates, but Louisiana, which also had very high within-year linkage rates, has among the lowest linkage rates across years. California and New York remain the lowest, however.

Most states are about equally likely to serve as an origin or a destination for migration across years—that is, the rates in the final two columns are roughly the same. In several states, however, out-migration or in-migration dominates. California and New York have pronounced net out-migration while Nevada, Oklahoma, Tennessee, and Wyoming have pronounced net in-migration. Other states favor one or the other but less sharply.

c. Unduplication Across States

When we linked two records across states, we replaced the higher MAXEM ID with the lower MAXEM ID. By repeating this process for all linked pairs, both within and across years, and then assigning each record the lowest of its alternative MAXEM IDs, we ended up with a

Table IV.16 Number of Linkages and Linkage Rates Across States and Years, After Unduplication Within States

State	2005 Records Linking to Another State in 2006	2006 Records Linking to Another State in 2005	Percent of 2005 Records Linking to Another State in 2006	Percent of 2006 Records Linking to Another State in 2005
Alabama	2,831	4,311	0.30	0.45
Alaska	1,037	896	0.78	0.69
Arizona	8,248	9,868	0.56	0.65
Arkansas	3,070	4,646	0.41	0.61
California (SSN)	21,497	12,835	0.20	0.12
Colorado	3,922	4,680	0.65	0.75
Connecticut	2,236	2,198	0.42	0.41
Delaware	926	995	0.51	0.54
District of Columbia	968	803	0.58	0.48
Florida	17,474	16,233	0.58	0.54
Georgia	10,466	10,305	0.50	0.50
Hawaii	1,091	829	0.47	0.36
Idaho	1,889	2,181	0.81	0.95
Illinois	7,033	7,146	0.27	0.28
Indiana	5,465	5,421	0.52	0.51
Iowa	2,753	3,237	0.64	0.69
Kansas	2,993	2,943	0.84	0.82
Kentucky (SSN)	3,574	4,262	0.41	0.48
Louisiana (SSN)	4,200	3,597	0.36	0.30
Maine	1,072	1,182	0.33	0.35
Maryland	3,738	3,396	0.43	0.39
Massachusetts	2,826	2,788	0.23	0.21
Michigan	6,138	5,197	0.33	0.27
Minnesota (SSN)	3,832	3,846	0.48	0.48
Mississippi	2,811	3,037	0.36	0.39
Missouri	6,439	5,273	0.53	0.47
Montana	1,183	1,164	0.92	0.92
Nebraska	2,081	1,855	0.80	0.71
Nevada (SSN)	3,970	4,420	1.48	1.74
New Hampshire	986	985	0.68	0.66
New Jersey (SSN)	4,241	4,281	0.38	0.36
New Mexico (SSN)	3,370	3,249	0.64	0.63
New York	13,251	8,212	0.26	0.16
North Carolina	6,841	9,460	0.40	0.53
North Dakota	809	849	1.05	1.10
Ohio	7,018	6,621	0.33	0.31
Oklahoma	3,949	5,371	0.54	0.71
Oregon	4,018	4,206	0.71	0.76
Pennsylvania	6,052	7,484	0.30	0.36
Rhode Island	1,010	744	0.46	0.34
South Carolina	3,712	4,130	0.37	0.43
South Dakota	941	1,011	0.73	0.77
Tennessee	4,360	7,313	0.27	0.49
Texas	14,467	15,459	0.35	0.37

State	2005 Records Linking to Another State in 2006	2006 Records Linking to Another State in 2005	Percent of 2005 Records Linking to Another State in 2006	Percent of 2006 Records Linking to Another State in 2005
Utah	2,649	2,701	0.77	0.80
Vermont (SSN)	739	634	0.45	0.39
Virginia	4,380	4,654	0.47	0.49
Washington	5,698	6,762	0.48	0.57
West Virginia	2,091	2,237	0.55	0.57
Wisconsin	3,380	3,568	0.33	0.34
Wyoming	886	1,136	1.09	1.41
United States	230,611	230,611	0.38	0.38

Note: The denominators are the record counts after consolidation from Tables IV.10 and IV.11.

single, common MAXEM ID for all records that linked to each other over the two-year period. By tabulating unique MAXEM IDs, then, we (and researchers who use the MAXEM files) can produce unduplicated counts of Medicaid enrollees nationwide in each of 2005 and 2006. By combining the two annual files we can also generate an unduplicated count of Medicaid enrollees across the two years, although such a number holds less interest than the separate calendar year numbers. Unduplicated counts of enrollees in the two years are reported in Chapter V along with other results of the unduplication.

B. LINKAGE QUALITY

Ultimately, the effectiveness of any record-linkage endeavor depends upon the quality of the underlying data. Because of missing, incomplete, or even outright incorrect identifiers, records belonging to different individuals may be linked, and records belonging to the same individual may go unlinked. Section 1 examines a variety of evidence regarding the quality of within-state linkages, while Section 2 assesses the across-state linkages.

1. Quality of Linkages Within States

To fully evaluate the quality of any record linkages, we would need independent information suitable for verifying at least a random sample of the linkages. Lacking such information, we were left to conduct a more limited evaluation, asking how often our linked records agreed on characteristics that were not used in linking them but which ought to be identical whenever a linked pair of records represents the same individual. For linkages within states, we looked at agreement on sex and DOB for the subset of records that were linked without these variables, and we examined agreement on a small number of additional characteristics for records that agree on sex and DOB. We also compared agreement on these additional characteristics between linked pairs with full versus partial agreement on DOB to determine if relaxing the required level of agreement on DOB has a discernible impact on the quality of the linkages. After presenting

our findings we close this section with some conclusions about the overall quality of linkages within states.

a. Agreement on Sex and DOB

In accordance with our linkage algorithm, when we link records by MSIS ID, we do not require agreement on sex or any portion of the DOB. Therefore, as a measure of the quality of the linkages—or the linkage variables—it is of interest to see how often the records that were linked by MSIS ID also agree on sex and at least two parts of the DOB, as would be required if we linked by either of the SSN fields or the HIC. In addition, given that we will rely on SSNs for cross-state linkages, it is of interest to see how often SSNs are present on both records in each linked pair and, when present, how often those SSNs agree. Records that we can link within state by MSIS ID but not by SSN imply potential cross-state links that will be missed.

Nationally, 99.5 percent of the within-state pairs linked by MSIS ID have full agreement on DOB and sex, which means that neither of these fields is missing and the linked records agree on all three parts of the DOB in addition to sex (Table IV.17). Another 0.17 percent differ on just one part of the DOB, leaving just 0.29 percent of all MSIS links with discrepancies in sex or at least two parts of the DOB, or with missing values for either variable in one or both years. Most states have even higher levels of agreement on DOB and sex in their linked pairs based on MSIS ID, but in three states the fraction of linked pairs with disagreement or missing data on sex or DOB exceeds one percent. These are Nebraska, at 4.35 percent, followed by Wyoming, at 2.43 percent, and New York, at 1.46 percent. In four other states—Alabama, Mississippi, Nevada, and New Jersey—between one-half and one percent of the linked pairs have discrepant or missing sex or DOB, while in Arkansas, Colorado, and Illinois such cases account for just under one-half of one percent of the total pairs linked by MSIS ID. Most of the remaining states have discrepant

Table IV.17 Agreement on DOB and Sex in Records Linked by MSIS ID Within State, 2005 and 2006

State	Pairs Linked by MSIS ID	Full Agreement on DOB and Sex	One Part of DOB Disagrees	Sex and/or DOB Disagree or Missing
Alabama	837,306	99.035	0.266	0.699
Alaska	107,190	99.791	0.148	0.061
Arizona	1,172,414	99.842	0.103	0.056
Arkansas	643,198	99.414	0.187	0.399
California (SSN)	8,386,261	99.406	0.343	0.251
Colorado	493,996	98.846	0.800	0.354
Connecticut	449,167	99.840	0.106	0.054
Delaware	151,379	99.836	0.126	0.039
District of Columbia	146,220	99.953	0.021	0.026
Florida	2,387,938	99.917	0.027	0.056
Georgia	1,699,741	99.949	0.035	0.016
Hawaii	197,352	100.000	0.000	0.000
Idaho	186,959	99.921	0.067	0.012
Illinois	2,143,121	99.272	0.268	0.460
Indiana	876,276	99.971	0.020	0.008
Iowa	354,026	99.797	0.144	0.059
Kansas	283,940	99.962	0.028	0.011
Kentucky (SSN)	770,359	99.624	0.201	0.175
Louisiana (SSN)	1,048,066	99.906	0.042	0.052
Maine	283,866	99.933	0.054	0.013
Maryland	731,683	99.929	0.048	0.023
Massachusetts	1,089,438	99.321	0.440	0.239
Michigan	1,586,831	99.763	0.162	0.075
Minnesota (SSN)	643,042	99.698	0.194	0.108
Mississippi	662,648	99.352	0.052	0.596
Missouri	961,618	99.989	0.007	0.004
Montana	101,400	99.961	0.036	0.004
Nebraska	212,911	95.499	0.149	4.352
Nevada (SSN)	182,670	99.076	0.328	0.596
New Hampshire	121,363	99.973	0.003	0.024
New Jersey (SSN)	972,415	98.856	0.529	0.614
New Mexico (SSN)	437,434	99.800	0.140	0.060
New York	4,294,716	98.525	0.012	1.462
North Carolina	1,467,252	99.993	0.004	0.003
North Dakota	61,288	99.845	0.080	0.075
Ohio	1,819,354	99.914	0.063	0.023
Oklahoma	608,197	99.959	0.032	0.009
Oregon	444,624	99.975	0.017	0.008
Pennsylvania	1,760,620	99.911	0.069	0.019
Rhode Island	190,748	99.923	0.044	0.033
South Carolina	821,868	99.101	0.706	0.192
South Dakota	108,285	99.723	0.186	0.091
Tennessee	1,302,569	99.898	0.088	0.015
Texas	3,277,610	99.667	0.194	0.138
Utah	258,540	99.619	0.261	0.119
Vermont (SSN)	137,702	99.842	0.081	0.078

State	Pairs Linked by MSIS ID	Full Agreement on DOB and Sex	One Part of DOB Disagrees	Sex and/or DOB Disagree or Missing
Virginia	793,936	99.788	0.143	0.070
Washington	987,555	99.692	0.203	0.105
West Virginia	323,196	99.946	0.046	0.009
Wisconsin	860,721	99.806	0.144	0.050
Wyoming	63,047	97.335	0.233	2.432
United States	49,904,056	99.535	0.174	0.292

or missing values of sex or DOB in fewer than 0.1 percent of the cases, but only Hawaii has no such cases, while Montana has just four.

The exact nature of disagreement in DOB and sex varies across the states. Nationally, 50.65 percent of the cases in the final column of Table IV.17 have a missing DOB in one or both years, while nearly as many differ on at least two parts of the DOB with or without differing on sex (Table IV.18). Only 1.60 percent agree on at least two parts of the DOB but have discrepant or missing values on sex.

What accounts for the discrepancies among the states with the highest rates of disagreement or missingness on DOB and/or sex (final column of Table IV.17)? In the top three states, missing DOBs are the principal factor. This is true of 98.1 percent of the discrepancies in Nebraska, 99.1 percent in New York, and 78.8 percent in Wyoming. Missing DOBs are somewhat reassuring in that they do not imply discrepant information on linked records. But in Wyoming 14.1 percent of the problematic pairs have discrepant DOBs, and the percentage is much worse in Alabama, Mississippi, Nevada, and New Jersey. In all, 78 percent of the problematic pairs in Alabama, 87 percent in Nevada, 96 percent in New Jersey, and nearly 100 percent in Mississippi have discrepant DOBs. Likewise, at least 95 percent of the discrepant cases in Arkansas, Colorado, and Illinois differ on DOB. In these seven states, in other words, roughly half a percent of the record pairs that linked on MSIS ID disagree on DOB.

While discrepant DOBs do not account for nearly as large a share of *all* linked record pairs in the remaining states, it is noteworthy that the vast majority of record pairs that differ on DOB or sex in these states have discrepant rather than missing DOBs. For example, in Texas, which leads the remaining states with 4,500 record pairs that differ on DOB or sex, 98.7 percent of these pairs disagree on two or more parts of the DOB (three-quarters of these disagree on sex as

Table IV.18 Source of Disagreement on DOB and Sex on Records Linked by MSIS ID Within State, 2005 and 2006

State	Linked Pairs with Sex and/or DOB Different or Missing	Two+ Parts of DOB Differ	DOB Missing One or Both Years	DOB Agrees; Sex Different or Missing
Alabama	5,855	78.12	0.00	21.88
Alaska	65	98.46	0.00	1.54
Arizona	653	94.03	3.68	2.30
Arkansas	2,565	99.14	0.00	0.86
California (SSN)	20,891	99.10	0.08	0.82
Colorado	1,751	96.23	1.88	1.88
Connecticut	241	100.00	0.00	0.00
Delaware	59	98.31	0.00	1.69
District of Columbia	38	34.21	65.79	0.00
Florida	1,328	89.53	10.32	0.15
Georgia	272	97.06	1.47	1.47
Hawaii	0	na	na	na
Idaho	22	95.45	4.55	0.00
Illinois	9,855	97.47	0.85	1.67
Indiana	74	100.00	0.00	0.00
Iowa	210	99.05	0.48	0.48
Kansas	30	100.00	0.00	0.00
Kentucky (SSN)	1,104	97.26	0.00	2.74
Louisiana (SSN)	534	96.69	0.55	2.76
Maine	37	78.38	18.92	2.70
Maryland	171	87.13	12.28	0.58
Massachusetts	2,605	98.62	0.00	1.38
Michigan	1,190	87.39	11.26	1.34
Minnesota (SSN)	693	96.83	0.58	2.59
Mississippi	3,952	99.95	0.00	0.05
Missouri	39	69.23	30.77	0.00
Montana	4	100.00	0.00	0.00
Nebraska	9,265	1.89	98.10	0.01
Nevada (SSN)	1,085	84.39	10.38	5.23
New Hampshire	29	6.90	93.10	0.00
New Jersey (SSN)	4,829	96.40	0.03	3.56
New Mexico (SSN)	261	98.08	0.77	1.15
New York	62,805	0.45	99.54	0.01
North Carolina	50	76.00	24.00	0.00
North Dakota	44	100.00	0.00	0.00
Ohio	424	81.84	17.69	0.47
Oklahoma	54	100.00	0.00	0.00
Oregon	36	83.33	16.67	0.00
Pennsylvania	342	86.84	12.57	0.58
Rhode Island	62	96.77	3.23	0.00
South Carolina	1,582	98.29	0.51	1.20
South Dakota	99	98.99	0.00	1.01
Tennessee	189	99.47	0.00	0.53
Texas	4,532	98.70	0.07	1.24

State	Linked Pairs with Sex and/or DOB Different or Missing	Two+ Parts of DOB Differ	DOB Missing One or Both Years	DOB Agrees; Sex Different or Missing
Utah	308	98.38	0.32	1.30
Vermont (SSN)	107	99.07	0.00	0.93
Virginia	553	97.11	0.54	2.35
Washington	1,038	99.42	0.00	0.58
West Virginia	28	96.43	0.00	3.57
Wisconsin	432	82.64	15.74	1.62
Wyoming	1,533	14.16	78.80	7.05
United States	143,925	47.76	50.65	1.60

n.a. = not applicable.

well, which is not reported). In 45 states altogether, at least 69 percent of the record pairs that differ on DOB or sex have discrepant DOBs. In only 16 states does the fraction of discrepant cases with a missing DOB exceed 10 percent.

While they are not especially frequent, the cases that linked on MSIS ID but differ on DOB or sex would merit further study if names or other definitive proof of identity were available for the linked pairs. Lacking such proof, we can only speculate as to whether the discrepancies we observe are more indicative of errors in the DOB or sex fields or errors in the MSIS ID.

b. Agreement on Other Characteristics

In our assessment of three linkage algorithms, described in Chapter III, we evaluated the quality of linkages based on the level of agreement on selected characteristics that were not used as linkage variables in any of the algorithms. Given the small number of potential linkage variables provided by the MSIS data, there were very few additional variables that could be tapped to evaluate the linkages. Only five variables were selected for this purpose: (1) race/ethnicity, (2) basis of eligibility (BOE), (3) service use, (4) prescription drug use, and (5) institutional care use. Of these five, only one—race/ethnicity—represents a characteristic that is theoretically fixed over time. Not surprisingly, race/ethnicity provided the sharpest differentiation between good and bad matches. Nonetheless, race/ethnicity has important limitations as a characteristic for evaluating linked pairs of Medicaid records. First, there was a change in the measurement of race/ethnicity in Medicaid programs over the period of interest. Specifically, a combined race/ethnicity measure was split into separate race and ethnicity (Hispanic origin) measures between 2005 and 2006. While the two measures in 2006 could be combined into a single measure analogous to what existed in 2005 and earlier, the new categories did not map unambiguously into the old categories. Second, we found evidence of a lack of uniformity in the measurement of race/ethnicity across states; while this is not necessarily

relevant to evaluating linkages within states, it does raise the possibility that measurement is not entirely consistent even within a state. Third, race/ethnicity has high rates of missing data in a number of states.

The other four variables used in the evaluation reported in Chapter III involved aspects of Medicaid beneficiary status that were not even theoretically constant for an individual over time and, therefore, could vary with serial enrollment across states or even within the same state in the same year. One of these, institutional care use, showed the same level of agreement (near 100 percent) among bad matched pairs as among good matched pairs in our assessment with data from Arizona and Nevada (see Table III.3). BOE was decidedly less effective in discriminating between good and bad matched pairs than either service use or prescription drug use, yet was intuitively more appealing and appeared to function well when combined with race/ethnicity. In evaluating the linked pairs both within and across states, therefore, we used race/ethnicity (henceforth described as “race”) and BOE exclusively.

Table IV.19 presents estimates of agreement on race and BOE among linked pairs that agreed on sex and two or more parts of DOB. (This tabulation was produced before reconciliation, which would have eliminated any discrepancies in race by assigning the latest nonmissing value of race to all records with the same MAXEM ID.)

Over all states, 89.1 percent of the linked pairs agreed on both race and BOE. The highest level of agreement in any state was 98.1 percent in Wyoming. The lowest was 58.9 percent in Vermont, which was followed by neighboring Massachusetts at 60.8 percent. Between these extremes the state distribution was skewed sharply toward the high end, with 31 states in the 90s, 11 in the 80s, 5 in the 70s, and 4 in the 60s or lower. The lowest scores and some of those in the 70s were entirely due to missing race. In Vermont, for example, 38.0 percent of the pairs were

Table IV.19 Agreement on Race and BOE Among Record Pairs Linked Within State: Pairs with Same Sex and Two or More Parts of DOB

State	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race	Percent of Same Race Records with Different BOE	Percent of Discrepant BOEs Not in Transition Ages
Alabama	95.8	1.4	0.1	2.7	1.5	44.8
Alaska	93.5	3.4	0.4	2.7	3.5	64.6
Arizona	92.5	3.7	0.3	3.5	3.8	68.4
Arkansas	94.3	2.0	0.3	3.4	2.1	32.4
California (SSN)	90.9	2.0	1.0	6.2	2.1	60.2
Colorado	65.4	9.5	0.6	24.5	12.7	91.4
Connecticut	97.6	1.8	0.5	0.0	1.8	24.7
Delaware	96.6	3.1	0.3	0.0	3.1	42.1
District of Columbia	95.0	2.6	0.0	2.5	2.6	63.7
Florida	89.9	1.5	0.1	8.5	1.7	28.6
Georgia	78.5	15.1	0.1	6.3	16.2	93.9
Hawaii	96.5	3.2	0.1	0.2	3.2	44.4
Idaho	96.9	2.8	0.3	0.0	2.8	72.7
Illinois	83.1	8.5	4.0	4.4	9.3	82.1
Indiana	94.6	4.2	0.0	1.2	4.3	75.0
Iowa	73.9	1.8	0.1	24.2	2.3	50.2
Kansas	95.0	2.1	0.1	2.8	2.2	61.4
Kentucky (SSN)	90.9	4.0	0.1	5.0	4.2	83.8
Louisiana (SSN)	92.9	1.5	0.0	5.6	1.6	47.8
Maine	87.2	4.7	0.0	8.1	5.1	56.5
Maryland	92.2	4.1	0.0	3.7	4.3	67.6
Massachusetts	60.8	3.8	0.9	34.5	5.9	71.2
Michigan	95.8	2.5	0.4	1.4	2.5	56.6
Minnesota (SSN)	89.3	5.8	0.2	4.8	6.1	79.1
Mississippi	89.9	1.7	0.1	8.3	1.9	54.6
Missouri	96.0	1.8	0.0	2.1	1.8	52.2
Montana	85.8	13.0	0.0	1.2	13.1	87.6
Nebraska	95.7	1.4	0.1	2.8	1.4	50.3
Nevada (SSN)	96.0	1.8	2.3	0.0	1.8	41.1
New Hampshire	91.6	6.9	0.0	1.5	7.0	84.1
New Jersey (SSN)	76.5	9.8	2.4	11.3	11.3	90.2
New Mexico (SSN)	95.4	1.4	0.4	2.8	1.4	36.2
New York	88.3	2.9	1.2	7.7	3.2	41.7
North Carolina	83.3	10.5	0.0	6.2	11.2	83.0
North Dakota	85.0	14.1	1.0	0.0	14.2	89.5
Ohio	96.1	3.4	0.4	0.1	3.4	39.5
Oklahoma	97.1	2.6	0.3	0.0	2.6	45.9
Oregon	75.5	6.9	0.1	17.5	8.4	79.1
Pennsylvania	94.2	3.5	0.0	2.3	3.6	51.1
Rhode Island	67.2	1.1	0.1	31.7	1.6	65.6
South Carolina	93.1	1.8	0.1	5.0	1.9	56.2
South Dakota	94.4	3.8	1.9	0.0	3.8	78.0
Tennessee	92.8	3.0	0.0	4.2	3.1	39.9

State	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race	Percent of Same Race Records with Different BOE	Percent of Discrepant BOEs Not in Transition Ages
Texas	95.4	1.6	0.8	2.2	1.6	62.2
Utah	82.9	16.0	0.5	0.7	16.2	95.2
Vermont (SSN)	58.9	3.0	0.1	38.0	4.9	58.6
Virginia	92.4	7.1	0.1	0.4	7.1	87.4
Washington	75.6	1.9	0.3	22.2	2.4	45.2
West Virginia	97.9	1.9	0.1	0.0	1.9	45.6
Wisconsin	80.7	1.4	0.1	17.7	1.8	56.3
Wyoming	98.1	0.8	0.3	0.8	0.8	48.1
United States	89.1	3.8	0.7	6.4	4.1	70.4

missing race from one or both records, while only 0.1 percent had a different race and 3.0 percent had a different BOE (with the same race).²² In six states the fraction of linked pairs with missing race exceeded 20 percent, and in three more states the fraction exceeded 10 percent.

In contrast to missing race, different values of race were rare, averaging only 0.7 percent of all linked pairs nationally. The highest incidence of discrepant race occurred in Illinois, at 4.0 percent of all linked pairs, while discrepancies in Nevada and New Jersey affected 2.3 and 2.4 percent of linked pairs, respectively.

Discrepant values of BOE were much more common than discrepant values of race. Nationally, 3.8 percent of linked pairs differed on BOE while agreeing on race, and discrepant pairs exceeded 10 percent of all linked pairs in five states (Georgia, Montana, North Carolina, North Dakota, and Utah). The fraction of pairs with the same race but a different BOE exceeded the fraction with a different race in every state.

Because we did not tabulate agreement on BOE when race was missing or different, we calculated the frequency of pairs with discrepant BOE as a percentage of those with the same race. This provided an adjustment for the differential incidence of missing race. This adjustment has the biggest impact on the rate of discrepant BOE in states with a high incidence of missing race (see, for example, Colorado, where the frequency of discrepant BOEs increases from 9.5 percent to 12.7 percent). Nationally, 4.1 percent of linked pairs with the same race have discrepant BOEs. Only one state (Wyoming) is below 1 percent while seven states are above 10 percent, and another seven states are between 5 and 10 percent on this measure.

²² For this tabulation, we did not determine whether the BOE differed when race was different or missing. In our assessment of agreement among record pairs linked across states, presented below, we looked more broadly at combinations of agreement on BOE and race.

Some degree of inconsistency between the BOEs on linked records can be expected because of individuals transitioning between different eligibility groups. Most such transitions are age-related, so we estimated only the percentage of discrepant BOEs occurring outside the ages of 18 to 22 and 64 to 66. In only one state, Connecticut, was this value less than 25 percent. In general, the higher the incidence of discrepant BOEs, the higher the fraction occurring outside the transition ages. The correlation between the two was 0.79. This high correlation is consistent with our expectation that excess discrepancies are problematic. In four states more than 90 percent of the discrepant BOEs were outside the transition ages, and all four of these states had discrepant BOEs in more than 10 percent of the linked pairs that agreed on race. We return to these findings in our conclusions about linkage quality within states.

c. Agreement on BOE and Race by Level of Agreement on DOB

Our linkage algorithm allows records to be linked by MSIS ID without any additional requirements for agreement on sex and DOB, and it allows for additional records to be linked by SSN or HIC as long as sex and at least two parts of the DOB agree. Virtually all linked records within states (99.43 percent) agreed on sex and all parts of DOB while very small fractions differed on one part of DOB (0.28 percent) or else differed on sex or on at least two parts of DOB or had missing data for one or both fields (0.29 percent). While disagreement on just a single part of the DOB was inconsequential numerically, we still wondered if linked pairs with differences on one component of the DOB showed any evidence of being less correct than linked records with full agreement on DOB. Table IV.20 addresses this question and suggests that, indeed, record pairs linked with disagreement on one component of the DOB appear to contain more false positive linkages than record pairs with full agreement on DOB. Nationally, 89.1 percent of the pairs with full agreement on DOB have the same race and BOE. This compares to

Table IV.20 Agreement on Race and BOE Among Record Pairs Linked Within State by Level of Agreement on DOB

State	Same Sex and DOB				Same Sex and Two Parts of DOB			
	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race
Alabama	95.8	1.4	0.1	2.7	88.3	7.3	1.0	3.4
Alaska	93.5	3.4	0.4	2.7	88.2	6.8	1.9	3.1
Arizona	92.6	3.7	0.3	3.5	73.2	14.0	6.0	6.8
Arkansas	94.3	2.0	0.3	3.4	87.5	6.6	3.0	2.9
California (SSN)	90.9	2.0	1.0	6.1	86.9	3.8	2.0	7.2
Colorado	65.4	9.5	0.6	24.5	57.2	10.6	2.8	29.4
Connecticut	97.7	1.8	0.5	0.0	75.6	3.1	21.2	0.1
Delaware	96.6	3.1	0.3	0.0	89.4	7.2	3.4	0.0
District of Columbia	95.0	2.6	0.0	2.4	66.1	8.9	7.1	17.9
Florida	89.9	1.5	0.1	8.5	72.9	9.2	4.4	13.5
Georgia	78.5	15.1	0.1	6.3	53.4	31.9	4.3	10.5
Hawaii	96.5	3.2	0.1	0.2	70.3	2.7	27.0	0.0
Idaho	96.9	2.8	0.3	0.0	86.3	10.7	3.1	0.0
Illinois	83.2	8.5	4.0	4.4	71.0	10.6	12.9	5.5
Indiana	94.6	4.2	0.0	1.2	91.2	7.8	0.0	1.0
Iowa	74.0	1.8	0.1	24.2	60.8	3.4	0.4	35.4
Kansas	95.0	2.1	0.1	2.8	82.2	2.2	7.8	7.8
Kentucky (SSN)	90.9	4.0	0.1	5.0	87.6	6.3	2.0	4.1
Louisiana (SSN)	92.9	1.5	0.0	5.6	90.0	2.4	1.6	6.0
Maine	87.2	4.6	0.0	8.1	61.3	20.0	0.0	18.8
Maryland	92.2	4.1	0.0	3.7	85.5	7.3	1.8	5.5
Massachusetts	60.8	3.8	0.9	34.4	43.3	3.3	3.6	49.8
Michigan	95.8	2.4	0.4	1.4	87.0	8.9	1.7	2.4
Minnesota (SSN)	89.3	5.8	0.2	4.7	79.7	9.9	0.6	9.8
Mississippi	90.0	1.7	0.1	8.2	45.2	12.4	5.2	37.2
Missouri	96.0	1.8	0.0	2.1	95.0	0.0	0.0	5.0
Montana	85.8	13.0	0.0	1.2	66.7	30.6	0.0	2.8
Nebraska	95.8	1.4	0.1	2.8	92.2	2.8	0.0	5.0
Nevada (SSN)	96.0	1.8	2.2	0.0	92.2	3.5	4.3	0.0
New Hampshire	91.6	6.9	0.0	1.5	85.7	14.3	0.0	0.0
New Jersey (SSN)	76.6	9.8	2.4	11.3	60.3	10.5	12.1	17.1
New Mexico (SSN)	95.4	1.3	0.4	2.8	74.9	2.6	10.7	11.8
New York	88.5	2.9	1.0	7.6	57.4	5.9	22.2	14.5
North Carolina	83.3	10.5	0.0	6.2	84.3	9.8	0.0	5.9
North Dakota	85.0	14.0	1.0	0.0	14.6	84.1	1.2	0.0
Ohio	96.1	3.4	0.4	0.1	83.1	12.4	3.8	0.8
Oklahoma	97.2	2.6	0.3	0.0	75.3	9.6	15.1	0.0
Oregon	75.5	6.9	0.1	17.5	47.0	9.9	11.0	32.0
Pennsylvania	94.2	3.5	0.0	2.3	85.5	9.7	0.4	4.5

State	Same Sex and DOB				Same Sex and Two Parts of DOB			
	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race	Same Race; Same BOE	Same Race; Different BOE	Different Race	Missing Race
Rhode Island	67.2	1.1	0.1	31.7	65.9	2.3	4.5	27.3
South Carolina	93.2	1.7	0.1	5.0	89.3	4.7	0.6	5.4
South Dakota	94.4	3.7	1.9	0.0	85.2	8.1	6.6	0.0
Tennessee	92.8	3.0	0.0	4.2	82.1	9.0	0.6	8.3
Texas	95.5	1.6	0.8	2.2	86.8	4.0	6.8	2.4
Utah	82.9	16.0	0.4	0.7	82.1	14.9	1.7	1.3
Vermont (SSN)	58.9	3.0	0.1	38.0	52.3	1.8	0.0	45.9
Virginia	92.4	7.1	0.1	0.4	82.4	11.4	5.7	0.4
Washington	75.6	1.9	0.3	22.2	63.5	3.8	1.0	31.7
West Virginia	97.9	1.9	0.1	0.0	90.2	5.5	2.0	2.4
Wisconsin	80.7	1.4	0.1	17.7	64.5	3.3	2.1	30.1
Wyoming	98.2	0.8	0.3	0.8	87.1	3.5	7.6	1.8
United States	89.1	3.8	0.7	6.4	73.2	6.6	9.1	11.1

73.2 percent among pairs with agreement on just two parts of the DOB. Pairs with the same race but different BOE represent 3.8 percent of the pairs with full agreement on DOB, versus 6.6 percent of the pairs with only partial agreement on DOB. Most strikingly, pairs with different race are only 0.7 percent of the pairs with full agreement on DOB but 9.1 percent of the pairs with partial agreement on DOB. Pairs with missing race are 6.4 percent of the pairs with full agreement on DOB but 11.1 percent of the pairs with partial agreement.

Our interpretation of these findings is that the lower level of agreement on race and BOE among pairs with only partial agreement on DOB is indicative of a greater incidence of false positive links, which may suggest we should exercise caution in allowing linked pairs to be formed without full agreement on DOB. On the other hand, we still find that nearly three quarters of the linked pairs with partial agreement on DOB have the same race and BOE. This suggests that if we eliminated linked pairs that differed on one component of the DOB, we would remove substantially more good links than bad links. In light of this, we do not recommend altering this element of the linkage algorithm in future linkages.

d. Conclusions About Linked Records Within States

What can we infer about the linked pairs from the observed discrepancies on BOE and race? Knowing that discrepancies can exist even when two linked records represent the same individual leads us to focus on those states with exceptionally high rates of discrepant values. With a substantial majority of states having discrepant BOEs in fewer than five percent of cases when race agrees, we have to wonder about the seven states with discrepant BOEs in 11 to 16 percent of these cases. Likewise, when a substantial majority of states have discrepant race values in no more than 0.3 percent of their linked pairs, we wonder about the seven states in which discrepant race codes occur on 1.0 percent or more of linked pairs. In all likelihood, these excess discrepancies are the result of state-specific problems with the race and BOE indicators

rather than a problem with the linkages. Supporting this conjecture, we find that the seven states with discrepant BOEs on more than 10 percent of their linked records and the seven states with discrepant race on at least 1.0 percent of their records have only two common members: New Jersey and North Dakota. Comparing these states to the seven with the highest frequency of disagreement on DOB or sex, we find New Jersey on the latter list as well. Colorado is the only other state with comparatively high rates of discrepancy on DOB or sex, and either race or BOE. In sum, then, we have the most reason to question some of the linked pairs in New Jersey, North Dakota, and Colorado. For the other states with high levels of discrepant values in BOE, race, DOB, or age, we have as much reason to question these particular variables as we do the linked pairs. In the remaining states, even if some of the discrepancies on these variables reflect linkages of records that represent different individuals, the frequencies of problematic linkages within states would have to be quite low.

2. Quality of Linkages Across States

As we have explained, linkages of records across states are potentially more problematic than linkages within states because no across-state linkages have been validated by the states through the assignment of a common Medicaid identifier. Because the across-state linkages depend almost entirely on SSNs, with DOB and sex providing some degree of confirmation once a potential link has been established, missing or incorrect SSNs will influence the linkage rates. In assessing the quality of the across-state linkages, we begin by documenting the frequency of missing SSNs. Then, we compare our linkage rates by state with independent estimates of migration by Medicaid enrollees, investigate multiple linkages, and, finally, examine agreement on race and BOE among linked pairs.

a. Missing SSNs

After reconciliation, when missing SSNs were replaced by nonmissing SSNs on records with the same MAXEM ID, most of the initially missing SSNs remained missing. In 2005, 9.18 percent of the MAX SSNs on the research file and in 2006 an even larger share, 9.82 percent, were still missing (Tables IV.21 and IV.22). While we did not replace a missing MAX SSN with an EDB-SSN, we did use the EDB-SSNs for linkage. In both 2005 and 2006, however, the additional SSNs that were present in the EDB but not in MAX amounted to only 0.01 percent of the total MAXEM records in each year.

A record lacking an SSN could not be linked to a record in another state, so the 9.17 percent of records in 2005 and 9.81 percent in 2006 with no usable SSN imply that as many as 9 to almost 10 percent of the actual across-state pairs in those years were missed. Two-thirds of the missing SSNs in 2005 (3.7 out of 5.5 million) and 64 percent in 2006 are from California, however, and we know that many of the missing SSNs in California are associated with enrollees who only qualify for limited benefits that are unique to that state. It is unlikely that many of these enrollees would qualify for Medicaid in other states, so their missing SSNs may have little impact on the across-state linkages. This would reduce the potential missed linkages to 3 to 4 percent of the actual across-state pairs. While some of the remaining states have substantially higher rates of missing SSNs than other states, no state approaches California's 35 percent missing rate, and no state to our knowledge can attribute its missing SSNs to circumstances that would limit their impact on lost linkages across states. If our assumptions about these states as

Table IV.21 Frequency of Missing SSNs Prior to Across-State Linkage, 2005

State	MAXEM Records After Consolidation	MAX SSN Missing	Percent Missing	MAX SSN Missing but EDB SSN Present	Percent with No SSN
Alabama	954,389	6,288	0.66	1	0.66
Alaska	132,802	3,053	2.30	1	2.30
Arizona	1,474,288	149,507	10.14	524	10.11
Arkansas	745,700	69,278	9.29	4,742	8.65
California (SSN)	10,593,119	3,748,215	35.38	18	35.38
Colorado	603,707	31,418	5.20	2	5.20
Connecticut	528,469	15,940	3.02	10	3.01
Delaware	179,913	13,872	7.71	0	7.71
District of Columbia	166,440	4,366	2.62	1	2.62
Florida	3,019,634	66,961	2.22	1	2.22
Georgia	2,080,322	129,695	6.23	505	6.21
Hawaii	231,620	3,261	1.41	0	1.41
Idaho	233,333	5,840	2.50	0	2.50
Illinois	2,570,481	64,463	2.51	1	2.51
Indiana	1,044,764	29,352	2.81	148	2.80
Iowa	428,279	3,549	0.83	0	0.83
Kansas	356,706	5,203	1.46	0	1.46
Kentucky (SSN)	873,932	9,720	1.11	3	1.11
Louisiana (SSN)	1,166,119	28,295	2.43	1	2.43
Maine	326,409	1,604	0.49	0	0.49
Maryland	866,900	24,628	2.84	29	2.84
Massachusetts	1,245,843	104,369	8.38	0	8.38
Michigan	1,857,701	89,416	4.81	3	4.81
Minnesota (SSN)	790,615	16,781	2.12	22	2.12
Mississippi	778,522	38,668	4.97	3	4.97
Missouri	1,217,500	16,674	1.37	32	1.37
Montana	128,004	1,017	0.79	93	0.72
Nebraska	261,371	5,391	2.06	0	2.06
Nevada (SSN)	267,833	28,382	10.60	0	10.60
New Hampshire	145,728	1,179	0.81	1	0.81
New Jersey (SSN)	1,121,762	48,941	4.36	241	4.34
New Mexico (SSN)	527,694	8,380	1.59	0	1.59
New York	5,013,122	311,373	6.21	59	6.21
North Carolina	1,727,918	34,648	2.01	10	2.00
North Dakota	77,112	400	0.52	0	0.52
Ohio	2,113,448	28,298	1.34	42	1.34
Oklahoma	725,837	18,866	2.60	0	2.60
Oregon	562,565	37,156	6.60	1	6.60
Pennsylvania	2,029,732	14,436	0.71	10	0.71
Rhode Island	219,783	2,073	0.94	0	0.94
South Carolina	1,012,171	26,607	2.63	2	2.63
South Dakota	128,838	1,775	1.38	1	1.38
Tennessee	1,593,869	13,022	0.82	0	0.82
Texas	4,096,175	171,644	4.19	110	4.19
Utah	345,438	11,273	3.26	0	3.26

State	MAXEM Records After Consolidation	MAX SSN Missing	Percent Missing	MAX SSN Missing but EDB SSN Present	Percent with No SSN
Vermont (SSN)	162,743	443	0.27	0	0.27
Virginia	926,884	34,441	3.72	3	3.72
Washington	1,199,441	36,452	3.04	5	3.04
West Virginia	382,999	235	0.06	5	0.06
Wisconsin	1,015,762	20,923	2.06	27	2.06
Wyoming	81,129	2,524	3.11	0	3.11
United States	60,334,865	5,540,295	9.18	6,657	9.17

Table IV.22 Frequency of Missing SSNs Prior to Across-State Linkage, 2006

State	MAXEM Records After Consolidation	MAX SSN Missing	Percent Missing	MAX SSN Missing but EDB SSN Present	Percent with No SSN
Alabama	966,987	7,882	0.82	0	0.82
Alaska	130,735	4,536	3.47	1	3.47
Arizona	1,511,638	158,019	10.45	892	10.39
Arkansas	758,188	79,827	10.53	4,764	9.90
California (SSN)	10,611,796	3,839,824	36.18	17	36.18
Colorado	626,484	44,209	7.06	2	7.06
Connecticut	532,975	21,006	3.94	8	3.94
Delaware	184,528	18,167	9.85	0	9.85
District of Columbia	167,082	5,570	3.33	1	3.33
Florida	2,997,454	85,422	2.85	1	2.85
Georgia	2,043,588	120,874	5.91	539	5.89
Hawaii	231,509	5,520	2.38	1	2.38
Idaho	229,893	7,300	3.18	0	3.18
Illinois	2,573,624	73,586	2.86	2	2.86
Indiana	1,066,328	31,911	2.99	107	2.98
Iowa	466,910	6,180	1.32	0	1.32
Kansas	358,731	5,455	1.52	0	1.52
Kentucky (SSN)	890,088	8,553	0.96	3	0.96
Louisiana (SSN)	1,213,058	53,432	4.40	1	4.40
Maine	336,134	1,609	0.48	0	0.48
Maryland	865,965	28,591	3.30	20	3.30
Massachusetts	1,307,569	113,201	8.66	0	8.66
Michigan	1,938,251	120,832	6.23	2	6.23
Minnesota (SSN)	802,125	22,073	2.75	26	2.75
Mississippi	773,546	42,977	5.56	3	5.56
Missouri	1,111,379	21,141	1.90	25	1.90
Montana	126,934	1,077	0.85	82	0.78
Nebraska	261,942	7,270	2.78	0	2.78
Nevada (SSN)	254,738	22,692	8.91	0	8.91
New Hampshire	148,664	1,611	1.08	1	1.08
New Jersey (SSN)	1,179,737	62,887	5.33	361	5.30
New Mexico (SSN)	516,854	10,902	2.11	0	2.11
New York	5,022,223	358,954	7.15	52	7.15
North Carolina	1,780,928	42,140	2.37	8	2.37
North Dakota	77,256	447	0.58	0	0.58
Ohio	2,144,188	29,178	1.36	46	1.36
Oklahoma	758,700	24,423	3.22	0	3.22
Oregon	552,140	42,766	7.75	1	7.75
Pennsylvania	2,093,899	15,963	0.76	16	0.76
Rhode Island	221,049	2,422	1.10	0	1.10
South Carolina	949,470	47,308	4.98	0	4.98
South Dakota	130,477	3,393	2.60	1	2.60
Tennessee	1,479,054	16,069	1.09	1	1.09
Texas	4,143,622	201,653	4.87	1,186	4.84
Utah	339,394	11,316	3.33	0	3.33

State	MAXEM Records After Consolidation	MAX SSN Missing	Percent Missing	MAX SSN Missing but EDB SSN Present	Percent with No SSN
Vermont (SSN)	161,533	468	0.29	0	0.29
Virginia	953,950	53,230	5.58	1	5.58
Washington	1,191,393	43,539	3.65	0	3.65
West Virginia	392,578	0	0.00	0	0.00
Wisconsin	1,036,667	29,526	2.85	27	2.85
Wyoming	80,374	2,668	3.32	0	3.32
United States	60,694,329	5,959,599	9.82	8,198	9.81

well as California are correct, the missing SSNs are likely to result in lost linkages representing three to four percent of the true pairs that could be identified if no SSNs were missing.²³

Another way to assess the magnitude of the problem posed by missing SSNs is to estimate the fraction of records linked by MSIS ID that could also be linked by SSN. While these linkages are all within state rather than across state and, therefore, do not shed much light on how California's missing SSNs will affect across-state matches, these linkages do speak to the issue of what we may lose by not having the equivalent of an MSIS ID for across-state matches. Furthermore, they provide a way to look at potential lost linkages across rather than within year, and they give us insight into the quality of the SSNs for across-year linkages.

Nationally, 92.4 percent of the within-state pairs linked across years by MSIS ID have the same MAX SSNs as well (Table IV.23). In 35 states, this fraction exceeds 97 percent; in only eight states—including California at 69.8 percent—is the fraction below 95 percent. Arkansas is next lowest at 89.6 percent, followed by Arizona and Massachusetts at 90 percent, Delaware at 91 percent, and then Michigan, Colorado, and Oregon at between 93 and 95 percent.

Very rarely does a linked pair have nonmissing SSNs that differ. This occurs among only 0.07 percent of the linked pairs. States differ, but in only three states does this fraction exceed half a percent: Montana (1.12 percent), Alabama (0.90 percent), and Colorado (0.55 percent). The low incidence of discrepant SSNs outside of these three states speaks to some degree to the overall quality of the reported SSNs and their potential utility for linkages across year, although

²³ If states differ in the fraction of their enrollees who are enrolled in other states in the same year or adjacent years, then the potential cross-state linkages that are lost due to missing or incorrect SSNs will depend on the completeness of SSNs by state. If SSNs tend to be more complete in states with disproportionately more cross-state enrollment, then we will miss fewer cross-state linkages than if SSNs tend to be less complete in those states.

Table IV.23 Agreement on MAX SSN Among Pairs Linked Across Years by MSIS ID

State	MAX SSNs Agree	MAX SSNs Differ; Both Present	One MAX SSN Missing; One Present	Both MAX SSNs Missing		
				EDB SSNs Agree	EDB SSNs Differ	Missing EDB SSN(s)
Alabama	98.55	0.90	0.14	0.00	0.00	0.40
Alaska	97.44	0.14	0.68	0.00	0.00	1.74
Arizona	90.16	0.01	0.87	0.02	0.00	8.93
Arkansas	89.60	0.11	2.07	0.63	0.00	7.59
California (SSN)	69.83	0.00	0.00	0.00	0.00	30.17
Colorado	94.16	0.55	1.39	0.00	0.00	3.91
Connecticut	96.71	0.10	0.88	0.00	0.00	2.30
Delaware	91.35	0.07	1.37	0.00	0.00	7.21
District of Columbia	98.31	0.01	0.05	0.00	0.00	1.63
Florida	98.85	0.01	0.03	0.00	0.00	1.12
Georgia	96.05	0.02	0.08	0.03	0.00	3.81
Hawaii	98.86	0.00	0.00	0.00	0.00	1.14
Idaho	98.14	0.02	0.37	0.00	0.00	1.47
Illinois	98.32	0.13	0.25	0.00	0.00	1.31
Indiana	97.71	0.00	0.04	0.01	0.00	2.24
Iowa	99.03	0.15	0.51	0.00	0.00	0.30
Kansas	99.38	0.01	0.06	0.00	0.00	0.54
Kentucky (SSN)	99.97	0.00	0.03	0.00	0.00	0.00
Louisiana (SSN)	97.73	0.00	0.00	0.00	0.00	2.27
Maine	99.67	0.01	0.05	0.00	0.00	0.27
Maryland	97.93	0.03	0.12	0.00	0.00	1.92
Massachusetts	90.10	0.09	2.55	0.00	0.00	7.27
Michigan	93.65	0.07	1.96	0.00	0.00	4.31
Minnesota (SSN)	98.60	0.00	0.00	0.00	0.00	1.40
Mississippi	97.03	0.02	0.10	0.00	0.00	2.84
Missouri	99.13	0.00	0.00	0.00	0.00	0.87
Montana	98.35	1.12	0.00	0.07	0.00	0.46
Nebraska	97.11	0.05	1.84	0.00	0.00	1.00
Nevada (SSN)	95.61	0.00	0.00	0.00	0.00	4.39
New Hampshire	99.63	0.00	0.00	0.00	0.00	0.37
New Jersey (SSN)	97.18	0.00	0.05	0.03	0.00	2.74
New Mexico (SSN)	99.19	0.00	0.00	0.00	0.00	0.81
New York	95.55	0.00	0.01	0.00	0.00	4.43
North Carolina	98.93	0.00	0.02	0.00	0.00	1.05
North Dakota	99.71	0.02	0.05	0.00	0.00	0.22
Ohio	98.97	0.05	0.13	0.00	0.00	0.84
Oklahoma	98.29	0.01	0.02	0.00	0.00	1.68
Oregon	94.75	0.01	0.05	0.00	0.00	5.19
Pennsylvania	99.58	0.03	0.05	0.00	0.00	0.34
Rhode Island	99.28	0.01	0.09	0.00	0.00	0.62
South Carolina	95.53	0.19	2.39	0.00	0.00	1.89
South Dakota	97.42	0.14	1.64	0.00	0.00	0.80
Tennessee	99.62	0.02	0.03	0.00	0.00	0.34
Texas	96.79	0.16	1.16	0.00	0.00	1.89

State	MAX SSNs Agree	MAX SSNs Differ; Both Present	One MAX SSN Missing; One Present	Both MAX SSNs Missing		
				EDB SSNs Agree	EDB SSNs Differ	Missing EDB SSN(s)
Utah	97.93	0.07	0.48	0.00	0.00	1.51
Vermont (SSN)	99.81	0.00	0.00	0.00	0.00	0.19
Virginia	96.31	0.15	0.94	0.00	0.00	2.60
Washington	95.75	0.25	2.25	0.00	0.00	1.76
West Virginia	100.00	0.00	0.00	0.00	0.00	0.00
Wisconsin	97.72	0.02	0.64	0.00	0.00	1.63
Wyoming	97.33	0.32	0.40	0.00	0.00	1.95
United States	92.39	0.07	0.43	0.01	0.00	7.10

we should be mindful that SSNs could very well be used consistently within a state without being accurate. Overall, the most common reason that a record pair linked by MSIS ID could not be linked by SSN is that all four SSNs—both MAX SSNs and both EDB-SSNs—were missing. This was true of 7.10 percent of the linked pairs nationally. Only 0.43 percent of all linked pairs had one of the two MAX SSNs present, which would at least potentially allow linkages to other states. All four SSNs were missing from 30.17 percent of the linked pairs in California and between 5 and 10 percent of the linked pairs in Arizona (8.93 percent), Arkansas (7.59 percent), Delaware (7.21 percent), Massachusetts (7.27 percent), and Oregon (5.19 percent). In nearly all of the remaining states, missing MAX and EDB SSNs accounted for most of the pairs that were linked by MSIS ID but could not be linked by SSN.

If California were excluded, 96.9 percent of the within-state linkages by MSIS ID could be replicated with the MAX SSN (calculation not shown). This suggests that a minimum of 3 percent of potential linkages across states were missed because of the lack of a national identifier comparable to the MSIS ID. Table IV.23 suggests that in many states the impact may be as low as one to two percent, with impacts above 3 percent in selected other states.

b. Comparison with Independent Estimates

Another way to assess the across-state linkages is to compare their relative frequency, by state, with independent estimates. The American Community Survey (ACS), an annual survey of two million households, collects data on where each sample member lived one year earlier,²⁴ and as of 2008 the ACS also collects data on Medicaid and other health insurance coverage. From the responses recorded on the ACS public use file, we can determine whether a respondent who was

²⁴ The ACS asks of each person, “Did this person live in this house or apartment one year ago?” If the answer is no, the ACS asks “Where did this person live one year ago?” and requests the full address (or, if another country, the name of the country).

reported to be covered by Medicaid at the time of the survey had moved during the past year and, if so, whether the respondent was living in the same state or in a specific other state—or outside the United States—one year earlier. To estimate in-migration rates, we cross-tabulated Medicaid enrollees who had moved in the past year by their current state of residence and their residence one year earlier. To obtain a denominator for estimating migration rates, we tabulated those who had not moved or were under 1 year of age by their current state of residence. We also used the results of this same cross-tabulation to calculate rates of out-migration by state. That is, we classified Medicaid enrollees at the time of the survey by the state in which they lived one year earlier (when they may or may not have been enrolled in Medicaid) and determined how many had moved between states or within the same state during the interval. It is important to look at migration flows in both directions, even though the measurement of outflows is more limited than the measurement of inflows, because they are not necessarily the same in magnitude. Some states have net in-migration among the Medicaid population while other states have net out-migration.

The ACS estimate of persons with Medicaid (and other public) coverage at a point in time in 2008 is 41.7 million. While we do not have a point-in-time count of Medicaid enrollment for that year, the MAX estimate of persons ever enrolled in Medicaid during the year, prior to across-state unduplication, was 60.3 million. A point-in-time estimate would show lower enrollment; nevertheless, there is ample evidence that Medicaid participation is underreported in household surveys, and the ACS estimate of Medicaid coverage falls in line with other major surveys (Turner, Boudreaux, and Lynch 2009). Nevertheless, despite the undercount and whatever its magnitude, there is no reason to believe that the tables presented below seriously misrepresent the migration patterns of Medicaid enrollees.

Overall, 20.09 percent of reported Medicaid enrollees moved during the year preceding the survey (Table IV.24). Breaking this down, 17.87 percent moved within the same state, 1.82 percent moved from another state, and 0.41 percent moved from outside the U.S. Not surprisingly, these migration rates vary by state, ranging from an overall low of 14.08 (New York) to an overall high of 31.22 (Alaska). We find even more variation by source of migration. In three states, more than one percent of Medicaid enrollees had moved from another country, led by Hawaii at 1.85 percent, followed by Colorado at 1.25 percent and Massachusetts at 1.17 percent. At the low end, Delaware had no reported in-migration from outside the U.S., while six other states had in-migration rates below 0.1 percent. Rates of in-migration from other states, which interest us most, ranged from a low of 0.59 percent (California) to a high of 6.96 percent (North Dakota). New York was next lowest after California with an in-migration rate of 0.94 percent while Alaska was just below North Dakota at 6.65 percent. Within-state moves were highest in Iowa and Alaska (26.46 percent and 24.50 percent, respectively) and lowest in Delaware (10.90 percent), New Jersey (12.48 percent), and New York (12.54 percent).

Out-migration to other states, measured from the prior year, shows even wider variation than in-migration.²⁵ Alaska leads all states by far, with 13.13 percent out-migration. Other states with high out-migration rates include Wyoming (6.96 percent), Nevada (6.00 percent), Idaho (4.91 percent), New Hampshire (4.77 percent), Delaware (4.56 percent), and the District of Columbia (4.54 percent). California, with the lowest in-migration rate, also has the lowest out-migration rate at 0.92 percent, followed by Massachusetts (1.07 percent) and Kentucky (1.12 percent). Rates of movement within the state are virtually the same whether we look backwards or forwards because the raw numbers of moves are identical—only the denominators change.

²⁵ Medicaid enrollees who moved from outside the U.S. are excluded from these estimates.

Table IV.24 Percent of Medicaid Enrollees Who Moved to Their Current Home in the Past Year, by State of Residence in Current or Prior Year: 2008 ACS

State of Residence	Percent of Current-Year Residents Who:				Percent of Prior Year Residents Who:		
	Moved from Outside the U.S.	Moved from Another State	Moved Within the State	Moved in Past Year	Moved to Another State	Moved Within the State	Moved in Past Year
Alabama	0.03	2.22	18.07	20.32	1.90	18.13	20.03
Alaska	0.06	6.65	24.50	31.22	13.13	22.82	35.95
Arizona	0.29	2.91	20.81	24.01	1.86	21.09	22.95
Arkansas	0.18	2.75	20.27	23.21	2.29	20.41	22.70
California	0.59	0.59	16.15	17.34	0.92	16.20	17.12
Colorado	1.25	3.89	19.47	24.60	3.46	19.81	23.27
Connecticut	0.24	2.43	16.28	18.94	1.42	16.48	17.90
Delaware	0.00	3.54	10.90	14.44	4.56	10.79	15.35
District of Columbia	0.30	2.47	15.47	18.24	4.54	15.19	19.73
Florida	0.66	2.28	18.52	21.46	3.36	18.45	21.80
Georgia	0.17	2.73	19.62	22.53	2.47	19.71	22.18
Hawaii	1.85	1.76	14.72	18.33	3.04	14.81	17.85
Idaho	0.85	3.66	21.89	26.40	4.91	21.80	26.71
Illinois	0.20	1.35	17.81	19.36	1.88	17.75	19.63
Indiana	0.20	2.79	20.45	23.45	2.07	20.65	22.72
Iowa	0.26	2.12	26.46	28.84	2.05	26.55	28.60
Kansas	0.33	2.81	22.73	25.88	3.25	22.71	25.96
Kentucky	0.31	2.01	19.22	21.54	1.12	19.46	20.58
Louisiana	0.17	1.62	16.77	18.56	2.12	16.71	18.83
Maine	0.04	1.11	21.55	22.71	1.53	21.47	22.99
Maryland	0.48	2.53	15.73	18.73	2.57	15.80	18.37
Massachusetts	1.17	1.80	16.60	19.56	1.07	16.92	17.99
Michigan	0.50	1.12	22.37	23.99	1.42	22.42	23.84
Minnesota	0.70	1.60	18.68	20.97	1.40	18.85	20.25
Mississippi	0.27	1.84	17.45	19.56	1.51	17.55	19.07
Missouri	0.15	2.42	24.48	27.06	1.53	24.75	26.28
Montana	0.04	3.30	15.36	18.69	3.92	15.26	19.18
Nebraska	0.01	4.46	20.06	24.52	2.87	20.39	23.26
Nevada	0.24	3.82	21.15	25.21	6.00	20.72	26.73
New Hampshire	0.24	4.45	15.69	20.38	4.77	15.68	20.45
New Jersey	0.44	1.81	12.48	14.74	2.12	12.50	14.62
New Mexico	0.22	3.29	15.54	19.05	1.83	15.81	17.64
New York	0.60	0.94	12.54	14.08	1.21	12.58	13.79
North Carolina	0.21	2.42	18.16	20.79	1.70	18.33	20.03
North Dakota	0.64	6.96	12.94	20.54	3.53	13.51	17.04
Ohio	0.18	1.30	22.28	23.76	1.23	22.34	23.57
Oklahoma	0.08	2.75	21.42	24.25	1.69	21.67	23.36
Oregon	0.61	1.84	19.97	22.42	2.67	19.92	22.59
Pennsylvania	0.33	1.36	16.36	18.05	1.38	16.41	17.79
Rhode Island	0.96	1.96	17.08	19.99	3.34	17.00	20.35
South Carolina	0.19	2.02	15.70	17.92	2.15	15.71	17.87

State of Residence	Percent of Current-Year Residents Who:				Percent of Prior Year Residents Who:		
	Moved from Outside the U.S.	Moved from Another State	Moved Within the State	Moved in Past Year	Moved to Another State	Moved Within the State	Moved in Past Year
South Dakota	0.30	2.48	20.27	23.05	2.69	20.29	22.98
Tennessee	0.34	2.62	18.19	21.15	1.98	18.38	20.36
Texas	0.24	1.64	18.03	19.91	1.44	18.11	19.55
Utah	0.15	4.32	15.88	20.35	2.75	16.17	18.92
Vermont	0.13	2.72	14.63	17.48	3.11	14.59	17.70
Virginia	0.13	2.62	17.82	20.56	2.57	17.85	20.42
Washington	0.83	2.68	18.45	21.95	1.63	18.81	20.44
West Virginia	0.06	2.96	14.12	17.14	3.44	14.06	17.50
Wisconsin	0.26	1.43	22.00	23.69	1.89	21.95	23.85
Wyoming	0.23	2.47	23.29	25.99	6.96	22.27	29.23
U.S. Total	0.41	1.82	17.87	20.09	1.83	17.94	19.77

Source: Mathematica from the 2008 American Community Survey.

We cannot replicate the ACS operational measure of migration with MAXEM data because our linked records are limited to persons who were enrolled at both points in time. Furthermore, the estimates that we can construct from linked pairs in MAXEM do not mirror the 12-month ACS reference period for prior residence. Nevertheless, it is instructive to compare the ACS estimates with our own estimates of Medicaid cross-state migration based on the MAXEM data. For this purpose, we choose the across-year estimates from Table IV.16 as conceptually most similar to the ACS estimates of migration from the prior year to the current year among current year Medicaid enrollees. While the overall levels of migration are very different, given the way that we restricted the across-year links (Section A.4.a), we ought to observe similar patterns in the relative magnitudes of migration by state.

Indeed, there are distinct similarities in the two sets of estimates. The states with the two highest linkage rates, Nevada and Wyoming, have two of the three highest out-migration rates in the ACS as well (Table IV.25). The very high ACS estimate for Alaska has a wide confidence interval, so it may be overstated by a substantial margin.²⁶ Even so, Alaska does have one of the higher across-state linkage rates, so these results are not completely inconsistent. Continuing with other states, California has both the lowest linkage rate and the lowest ACS out-migration rate, and New York has the second lowest linkage rate and the third lowest ACS out-migration rate. Other state-specific results are mixed. For example, the cluster of states Montana, Idaho, North Dakota, and South Dakota has among the highest across-state linkage rates but a mix of

²⁶ The public-use sample for the ACS is on a one percent sample of U.S. households and residents of group quarters. Approximate sample sizes for estimates of totals can be derived by dividing the estimates by 100. The ACS estimate of the outmigration rate of Medicaid enrollees in Alaska is based on 800 to 850 respondents and has a standard error of 2.3 percentage points.

Table IV.25 Comparison of Across-State Linkage Rates to Independent Estimates of Across-State Migration of Medicaid Enrollees

State	Percent of Medicaid Records Linking to Another State Across Years	Percent of Prior-Year Residents Who Moved to Another State (ACS)
Alabama	0.30	1.90
Alaska	0.78	13.13
Arizona	0.56	1.86
Arkansas	0.41	2.29
California (SSN)	0.20	0.92
Colorado	0.65	3.46
Connecticut	0.42	1.42
Delaware	0.51	4.56
District of Columbia	0.58	4.54
Florida	0.58	3.36
Georgia	0.50	2.47
Hawaii	0.47	3.04
Idaho	0.81	4.91
Illinois	0.27	1.88
Indiana	0.52	2.07
Iowa	0.64	2.05
Kansas	0.84	3.25
Kentucky (SSN)	0.41	1.12
Louisiana (SSN)	0.36	2.12
Maine	0.33	1.53
Maryland	0.43	2.57
Massachusetts	0.23	1.07
Michigan	0.33	1.42
Minnesota (SSN)	0.48	1.40
Mississippi	0.36	1.51
Missouri	0.53	1.53
Montana	0.92	3.92
Nebraska	0.80	2.87
Nevada (SSN)	1.48	6.00
New Hampshire	0.68	4.77
New Jersey (SSN)	0.38	2.12
New Mexico (SSN)	0.64	1.83
New York	0.26	1.21
North Carolina	0.40	1.70
North Dakota	1.05	3.53
Ohio	0.33	1.23
Oklahoma	0.54	1.69
Oregon	0.71	2.67
Pennsylvania	0.30	1.38
Rhode Island	0.46	3.34
South Carolina	0.37	2.15
South Dakota	0.73	2.69
Tennessee	0.27	1.98
Texas	0.35	1.44
Utah	0.77	2.75

State	Percent of Medicaid Records Linking to Another State Across Years	Percent of Prior-Year Residents Who Moved to Another State (ACS)
Vermont (SSN)	0.45	3.11
Virginia	0.47	2.57
Washington	0.48	1.63
West Virginia	0.55	3.44
Wisconsin	0.33	1.89
Wyoming	1.09	6.96
United States	0.38	1.83

high and moderate ACS out-migration rates. Overall, however, the correlation between the two sets of rates is moderately strong at 0.608. In sum, the independent estimates from the ACS provide a degree of support for the observed state patterns of across-state, across-year linkages.

c. Multiple Linkages

While the overriding concern about the across-state linkages centers on the impact of missing SSNs, we also recognize that another area of concern about SSN quality involves possible SSN sharing and its potential role in creating false linkages across states. To explore this potential problem, we estimated the number of states in which each unique SSN was reported by a Medicaid enrollee in each of 2005 and 2006, and we did the same for MAXEM IDs after we completed the across-state unduplication. To unduplicate the MAXEM IDs, we required that records linked across states agree not only on their SSNs but on sex and at least two of the three parts of the DOB. If SSNs are being shared across states, we ought to find a reduction in the numbers of states in which individual SSNs appear when we base the count on MAXEM IDs—that is, unless the DOBs are being shared as well.

In 2005, 1.419 million MAX SSNs appeared in two or more states, with one SSN being reported in 10 states (Table IV.26). There was only a modest drop off with MAXEM IDs, as 1.368 million appeared in two or more states, with one showing up in 10 states as well. For both the SSNs and MAXEM IDs, 96.5 percent of those that occurred multiple times occurred exactly twice, and another 3.3 percent occurred exactly three times, leaving only 0.2 percent with appearances beyond three (calculated from the distributions in the table). While it is difficult to imagine that an individual could enroll in Medicaid in more than three states in a single year, the fraction of individuals who appear to have done so is exceedingly small. Clearly, the across-state linkage rates are not being influenced to any significant degree by SSNs that are reported in more than three states.

Table IV.26 MAX SSNs and MAXEM IDs Appearing in Multiple States, 2005 and 2006

Number of States	2005		2006	
	MAX SSNs	MAXEM IDs	MAX SSNs	MAXEM IDs
2	1,369,413	1,320,671	1,330,039	1,277,914
3	47,125	45,007	44,221	42,166
4	2,185	2,115	1,888	1,812
5	179	168	162	157
6	27	23	39	40
7	12	10	5	3
8	1	2	3	3
9	0	0	0	0
10	1	1	0	0
Total	1,418,943	1,367,997	1,376,357	1,322,095

We also examined the joint occurrences in 2005 and 2006 among MAX SSNs that appeared in two or more states in either year. A majority of the SSNs that appeared in two states in 2005 appeared in only one state in 2006, and most of the SSNs that appeared in three states in 2005 appeared in fewer states in 2006 (Table IV.27). Even the SSNs that appeared in 8 or 10 states in 2005 appeared in only two in 2006. A similar table based on MAXEM IDs tells the same story (Table IV.28). While there may be good reason to be suspicious of SSNs that appear in more than two or three states in a given year, such SSNs are too rare to have much impact on our estimates.

d. Agreement on Race and BOE

Compared to the within-state linked pairs, the across-state linked pairs show markedly less agreement on race and BOE. For pairs linked across state but within the same year, 74.0 percent had the same race and BOE while 9.0 percent had a different race but the same BOE, 10.1 percent had a missing race but the same BOE, 5.1 percent had the same race but a different BOE, and 1.8 percent had a different or missing race and a different BOE (Table IV.29). For within-state linkages, the fraction with the same race and BOE was 89.1 percent. In all, 17 states had

discrepant race codes in 10 to 20 percent of their linked records. States varied less in the fraction with discrepant BOE codes. In only one state did this fraction exceed 10 percent (Colorado, based on summing 5.8 percent and 4.8 percent in the final two columns of the table), and the lowest incidence was 4.1 percent (Nebraska). Results for across-state linkages across years were similar (Table IV.30).

Table IV.27 MAX SSNs Appearing in Two or More States in 2005 or 2006: Occurrences in Both Years

Occurrences in 2005	Occurrences in 2006									Total
	0	1	2	3	4	5	6	7	8	
0	0	0	70,574	1,034	24	2	0	0	0	71,634
1	0	0	735,558	14,688	402	29	3	0	1	750,681
2	61,620	784,068	502,826	20,095	747	46	11	0	0	1,369,413
3	910	17,761	20,197	7,702	507	41	6	1	0	47,125
4	26	494	832	628	167	31	6	1	0	2,185
5	1	20	47	62	32	7	9	1	0	179
6	0	1	3	10	6	4	3	0	0	27
7	0	0	0	2	3	2	1	2	2	12
8	0	0	1	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0
10	0	0	1	0	0	0	0	0	0	1
Total	62,557	802,344	1,330,039	44,221	1,888	162	39	5	3	2,241,258

Table IV.28 MAXEM IDs Appearing in Two or More States in 2005 or 2006: Occurrences in Both Years

Occurrences in 2005	Occurrences in 2006									Total
	0	1	2	3	4	5	6	7	8	
0	0	0	64,978	925	23	2	0	0	0	65,928
1	0	0	715,183	14,133	389	29	3	0	1	729,738
2	58,296	764,711	477,678	19,213	718	44	11	0	0	1,320,671
3	840	17,190	19,219	7,230	481	40	6	1	0	45,007
4	23	488	809	594	163	30	7	1	0	2,115
5	1	18	42	60	31	7	9	0	0	168
6	0	1	3	9	4	3	3	0	0	23
7	0	0	0	2	3	2	1	0	2	10
8	0	0	1	0	0	0	0	1	0	2
9	0	0	0	0	0	0	0	0	0	0
10	0	0	1	0	0	0	0	0	0	1
Total	59,160	782,408	1,277,914	42,166	1,812	157	40	3	3	2,163,663

Table IV.29 Agreement on Race and BOE Among Record Pairs Linked Across State and Within Year

State	Same Race; Same BOE	Different Race; Same BOE	Missing Race; Same BOE	Same Race; Different BOE	Different or Missing Race; Different BOE
Alabama	83.5	3.7	7.4	4.6	0.9
Alaska	70.6	12.5	10.1	5.1	1.7
Arizona	75.5	9.9	7.5	5.5	1.6
Arkansas	82.2	6.2	5.6	4.8	1.2
California (SSN)	72.5	11.1	10.4	4.4	1.6
Colorado	49.0	9.5	31.0	5.8	4.8
Connecticut	68.0	12.2	10.0	6.7	3.1
Delaware	78.8	8.9	4.2	6.9	1.3
District of Columbia	81.0	3.0	6.6	7.7	1.7
Florida	72.3	9.2	13.0	3.8	1.8
Georgia	73.5	10.6	7.4	6.3	2.1
Hawaii	67.3	18.7	7.8	4.4	1.8
Idaho	68.3	19.3	5.5	5.2	1.7
Illinois	74.6	8.8	7.2	7.4	2.0
Indiana	81.8	6.7	4.9	5.4	1.3
Iowa	55.0	6.7	32.7	3.2	2.5
Kansas	77.2	10.4	7.5	3.8	1.0
Kentucky (SSN)	81.9	5.5	6.3	5.1	1.3
Louisiana (SSN)	80.9	4.3	9.1	4.6	1.1
Maine	62.3	6.0	23.3	5.2	3.1
Maryland	77.7	5.8	8.5	6.6	1.5
Massachusetts	50.0	10.0	30.8	4.4	4.8
Michigan	79.9	8.2	6.1	4.7	1.1
Minnesota (SSN)	77.5	6.7	9.6	4.8	1.4
Mississippi	81.3	3.8	8.8	4.8	1.4
Missouri	76.2	9.9	6.8	5.6	1.5
Montana	77.3	9.0	5.2	6.7	1.7
Nebraska	72.2	9.7	14.0	3.0	1.1
Nevada (SSN)	78.3	12.6	4.8	3.3	0.9
New Hampshire	67.5	6.8	15.1	7.5	3.1
New Jersey (SSN)	54.7	20.0	15.5	5.5	4.3
New Mexico (SSN)	75.1	12.3	7.8	3.2	1.6
New York	63.1	15.0	13.6	5.3	3.1
North Carolina	75.1	6.9	9.7	6.5	1.7
North Dakota	81.4	8.7	4.2	4.4	1.2
Ohio	82.4	7.6	4.2	4.9	0.9
Oklahoma	79.8	11.0	3.9	4.3	1.0
Oregon	69.9	8.5	13.7	5.8	2.0
Pennsylvania	72.5	10.8	9.3	5.5	1.8
Rhode Island	41.4	6.3	45.1	3.4	3.8
South Carolina	78.4	5.2	9.4	5.6	1.4
South Dakota	78.1	11.1	5.9	4.0	0.9
Tennessee	79.9	4.8	7.3	6.4	1.6
Texas	79.3	9.1	6.5	4.0	1.1
Utah	74.0	11.2	5.9	7.3	1.7

State	Same Race; Same BOE	Different Race; Same BOE	Missing Race; Same BOE	Same Race; Different BOE	Different or Missing Race; Different BOE
Vermont (SSN)	53.1	3.1	34.9	5.1	3.8
Virginia	77.1	9.2	5.5	6.6	1.6
Washington	65.6	13.4	15.1	3.8	2.1
West Virginia	85.5	5.2	3.6	5.0	0.6
Wisconsin	63.6	5.8	23.7	4.0	3.0
Wyoming	78.2	8.8	7.0	4.8	1.2
United States	74.0	9.0	10.1	5.1	1.8

Table IV.30 Agreement on Race and BOE among Record Pairs Linked Across State and Across Year

State	Same Race; Same BOE	Different Race; Same BOE	Missing Race; Same BOE	Same Race; Different BOE	Different or Missing Race; Different BOE
Alabama	82.4	4.0	7.0	5.7	1.0
Alaska	69.8	11.9	10.8	5.4	2.1
Arizona	73.6	9.6	7.5	7.2	2.0
Arkansas	81.9	6.0	5.6	5.3	1.3
California (SSN)	71.6	10.9	10.5	5.2	1.9
Colorado	49.3	8.9	30.6	6.3	5.0
Connecticut	68.6	12.1	9.1	7.1	3.2
Delaware	77.2	8.7	4.4	8.2	1.5
District of Columbia	81.3	3.2	5.6	8.6	1.3
Florida	72.0	9.0	12.4	4.5	2.1
Georgia	71.6	11.1	6.9	8.0	2.4
Hawaii	65.5	17.5	8.7	5.9	2.5
Idaho	68.7	17.4	6.1	5.9	1.8
Illinois	73.5	8.5	7.4	8.3	2.3
Indiana	81.0	6.4	5.0	6.2	1.3
Iowa	51.6	5.9	35.7	3.4	3.3
Kansas	76.8	10.2	7.2	4.7	1.2
Kentucky (SSN)	81.4	5.7	5.5	6.0	1.4
Louisiana (SSN)	81.2	4.5	8.3	4.8	1.1
Maine	60.5	5.9	23.5	6.3	3.9
Maryland	76.4	5.8	8.4	7.7	1.7
Massachusetts	49.8	9.0	30.5	5.4	5.3
Michigan	78.9	8.1	6.0	5.8	1.3
Minnesota (SSN)	76.7	6.5	9.4	5.8	1.6
Mississippi	81.4	3.4	8.4	5.3	1.5
Missouri	75.6	9.5	7.0	6.3	1.6
Montana	76.0	8.8	5.4	7.8	2.0
Nebraska	70.8	9.2	14.7	4.0	1.3
Nevada (SSN)	77.5	12.7	4.9	3.9	1.0
New Hampshire	66.1	5.8	16.3	8.2	3.7
New Jersey (SSN)	53.7	20.4	14.0	6.8	5.2
New Mexico (SSN)	75.4	11.5	7.2	4.5	1.5
New York	64.0	14.6	11.9	6.2	3.2
North Carolina	74.1	6.9	9.5	7.7	1.9
North Dakota	79.9	8.6	4.4	5.9	1.2
Ohio	81.9	7.0	4.3	5.8	0.9
Oklahoma	79.2	10.4	3.9	5.3	1.1
Oregon	68.1	7.7	14.9	7.0	2.3
Pennsylvania	72.5	10.8	8.3	6.4	2.0
Rhode Island	41.9	6.1	43.6	4.2	4.2
South Carolina	77.3	5.3	9.4	6.5	1.5
South Dakota	77.6	11.0	5.9	4.5	1.0
Tennessee	81.6	5.3	5.1	6.7	1.3
Texas	78.7	9.6	6.1	4.4	1.2
Utah	72.3	10.6	6.1	9.1	2.0

State	Same Race; Same BOE	Different Race; Same BOE	Missing Race; Same BOE	Same Race; Different BOE	Different or Missing Race; Different BOE
Vermont (SSN)	50.8	3.1	36.6	5.3	4.1
Virginia	76.3	9.7	4.9	7.5	1.6
Washington	64.0	11.7	17.2	4.5	2.6
West Virginia	84.7	5.2	3.3	6.2	0.6
Wisconsin	65.2	6.2	20.7	4.8	3.1
Wyoming	78.6	8.4	6.7	5.1	1.2
United States	73.1	9.1	9.9	5.9	2.0

While linkage errors could very well play a role, another possible explanation for the much greater differences by race compared to the within-state linkages is that states differ in how they apply the race codes. Certainly this bears scrutiny in future MAXEM work. The more modest increase in discrepant BOE codes is consistent with this interpretation. If linkage error were the principal cause of the increase incidence of discrepant race codes, then we ought to have seen a similar increase in discrepant BOE codes.

C. OUTPUT FILES

The files that were produced for this project include two MAXEM research files for national and cross-state analyses—one for 2005 and another for 2006—as well as two cross-reference files—one for each year—for cross-year and more in-depth national and cross-state studies. Each MAXEM file contains one record for each unique person enrolled in Medicaid or S-CHIP (for states that submit S-CHIP data to MSIS) in each state. It includes a MAXEM person identifier and a subset of variables from MAX PS files that can be used to produce basic counts of Medicaid enrollment by enrollee characteristic and service use. The associated cross-reference file contains only linkage variables designed to be used with MAX files for unduplicating records within a state and year and across years and states. This section describes the contents and layout of the MAXEM and cross-reference files. Because the cross-reference files were produced first and then used to create the MAXEM files, we describe their contents before detailing the MAXEM file structure.

1. MAXEM Cross-Reference File

The construction of the MAXEM file required us to map each record in state PS files to a unique MAXEM ID. To do so, we created a cross-reference file for each of 2005 and 2006 that contains one record for each record found in the PS file for the corresponding year. For example, if a person had two records in MAX 2005 in Arizona, another record in MAX 2006 in Arizona,

and a fourth record in MAX 2006 in California, we included two records in the MAXEM cross-reference file for 2005 and two records in the cross-reference file for 2006. Each of the four records has the same MAXEM ID. Table IV.31 lists the fields included in the cross-reference file for each year.

Table IV.31 Variable List for CMS Cross-Reference File

Variable	Label
FNL_MAXEM_ID	MAXEM ID
STATE	STATE
YEAR	YEAR
MSIS ID	Original MSIS ID
FLAG_CLMNOELIG	Flag- Claims but no eligibility record

Although it was a necessary part of the development of MAXEM, the cross-reference file may also be useful to researchers using MAX who want to link and unduplicate records. While the MAXEM research files will be sufficient for researchers interested in basic demographic and enrollment characteristics of unique enrollees, others will need to create their own analytic files to study measures not included in MAXEM—for example, expenditure patterns among enrollees in more than one state or more than one year. The MAXEM cross-reference file will enable researchers to merge records for the same individual within a MAX year and across years and states.

2. MAXEM Research File

Two MAXEM research files were constructed—one file representing unique persons in each state in MAX 2005 and the other in MAX 2006. Unlike the cross-reference file, which is intended for linking purposes only, MAXEM is a stand-alone research file containing one record per unique individual in the MAX PS files within a state (and year). A person enrolled in Medicaid in more than one state will have one record per state, but all of these records will have the same MAXEM ID.

Table IV.32 Variable List for CMS MAXEM Research File

Variable	Label
FNL_MAXEM_ID	Final MAXEM ID
STATE	State
YEAR	Year
NSTATE	Total number of states person is enrolled in specific year
NEW_MAX_SSN	Updated SSN (from MAX)
NEW_EDB_SSN	Updated SSN (from EDB)
NEW_HIC	Updated Medicare HIC number
NEW_DOB	Updated date of birth
NEW_SEX	Updated sex
NEW_RACETHN	Updated race/ethnicity (from MAX)
NEW_CHIP_1	Updated SCHIP eligibility (Jan)
NEW_CHIP_2	Updated SCHIP eligibility (Feb)
NEW_CHIP_3	Updated SCHIP eligibility (Mar)
NEW_CHIP_4	Updated SCHIP eligibility (Apr)
NEW_CHIP_5	Updated SCHIP eligibility (May)
NEW_CHIP_6	Updated SCHIP eligibility (Jun)
NEW_CHIP_7	Updated SCHIP eligibility (Jul)
NEW_CHIP_8	Updated SCHIP eligibility (Aug)
NEW_CHIP_9	Updated SCHIP eligibility (Sep)
NEW_CHIP_10	Updated SCHIP eligibility (Oct)
NEW_CHIP_11	Updated SCHIP eligibility (Nov)
NEW_CHIP_12	Updated SCHIP eligibility (Dec)
NEW_UEG_ANN	Updated uniform eligibility group (annual)
NEW_UEG_1	Updated MAX eligibility group (Jan)
NEW_UEG_2	Updated MAX eligibility group (Feb)
NEW_UEG_3	Updated MAX eligibility group (Mar)
NEW_UEG_4	Updated MAX eligibility group (Apr)
NEW_UEG_5	Updated MAX eligibility group (May)
NEW_UEG_6	Updated MAX eligibility group (Jun)
NEW_UEG_7	Updated MAX eligibility group (Jul)
NEW_UEG_8	Updated MAX eligibility group (Aug)
NEW_UEG_9	Updated MAX eligibility group (Sep)
NEW_UEG_10	Updated MAX eligibility group (Oct)
NEW_UEG_11	Updated MAX eligibility group (Nov)
NEW_UEG_12	Updated MAX eligibility group (Dec)
NEW_RBF_ANN	Updated restricted benefits flag (annual)
NEW_DUAL_ANN	Updated Medicare/Medicaid Dual (annual)
NEW_TOS_01	Updated type of service indicator (MAX TOS 01)
NEW_TOS_02	Updated type of service indicator (MAX TOS 02)
NEW_TOS_04	Updated type of service indicator (MAX TOS 04)
NEW_TOS_05	Updated type of service indicator (MAX TOS 05)
NEW_TOS_07	Updated type of service indicator (MAX TOS 07)
NEW_TOS_08	Updated type of service indicator (MAX TOS 08)
NEW_TOS_09	Updated type of service indicator (MAX TOS 09)
NEW_TOS_10	Updated type of service indicator (MAX TOS 10)
NEW_TOS_10	Updated type of service indicator (MAX TOS 10)
NEW_TOS_11	Updated type of service indicator (MAX TOS 11)
NEW_TOS_12	Updated type of service indicator (MAX TOS 12)

Variable	Label
NEW_TOS_13	Updated type of service indicator (MAX TOS 13)
NEW_TOS_15	Updated type of service indicator (MAX TOS 15)
NEW_TOS_16	Updated type of service indicator (MAX TOS 16)
NEW_TOS_19	Updated type of service indicator (MAX TOS 19)
NEW_TOS_20	Updated type of service indicator (MAX TOS 20)
NEW_TOS_21	Updated type of service indicator (MAX TOS 21)
NEW_TOS_22	Updated type of service indicator (MAX TOS 22)
NEW_TOS_24	Updated type of service indicator (MAX TOS 24)
NEW_TOS_25	Updated type of service indicator (MAX TOS 25)
NEW_TOS_26	Updated type of service indicator (MAX TOS 26)
NEW_TOS_30	Updated type of service indicator (MAX TOS 30)
NEW_TOS_31	Updated type of service indicator (MAX TOS 31)
NEW_TOS_33	Updated type of service indicator (MAX TOS 33)
NEW_TOS_34	Updated type of service indicator (MAX TOS 34)
NEW_TOS_35	Updated type of service indicator (MAX TOS 35)
NEW_TOS_36	Updated type of service indicator (MAX TOS 36)
NEW_TOS_37	Updated type of service indicator (MAX TOS 37)
NEW_TOS_38	Updated type of service indicator (MAX TOS 38)
NEW_TOS_39	Updated type of service indicator (MAX TOS 39)
NEW_TOS_51	Updated type of service indicator (MAX TOS 51)
NEW_TOS_52	Updated type of service indicator (MAX TOS 52)
NEW_TOS_53	Updated type of service indicator (MAX TOS 53)
NEW_TOS_54	Updated type of service indicator (MAX TOS 54)
NEW_TOS_99	Updated type of service indicator (MAX TOS 99)

The core variables included in the MAXEM files were defined by CMS and include basic identifiers (MAX SSN, EDB-SSN, HIC, state, and year), demographic characteristics (sex, DOB, and race/ethnicity), the final MAXEM ID, the total number of states in which the person was enrolled in that year, eligibility characteristics (dual Medicare and Medicaid enrollment status, MAX annual and monthly CHIP and uniform eligibility group codes), and both service use and premium payment indicators (for capitation payments associated with managed care enrollment).

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V. IMPACT OF UNDUPLICATION

In the design report, we proposed creating a series of public-use tables to show MAXEM users the impact of unduplication on state and national estimates of the full range of enrollee variables included in the MAXEM research files. These tables are reproduced in the Appendix, which also includes an overview. Section A of this chapter summarizes select findings, including unduplicated counts of Medicaid enrollees nationally in 2005 and 2006. Section B presents tabulations of cross-state linkages by state pairs.

A. Selected Findings from Unduplication

The principal finding from the unduplication of Medicaid records nationally is an estimate of the unduplicated number of Medicaid enrollees nationally in each of 2005 and 2006. Results for both years are presented in Table V.1. In 2005, duplicate records within states accounted for just 0.30 percent of the total Medicaid enrollment records in the MAX PS file (including enrollees with only S-CHIP during the year) whereas cross-state duplicates accounted for 2.34 percent of the total enrollment records. Subtracting these duplicates from the 60.516 million total Medicaid and S-CHIP-only enrollment records yields an unduplicated count of 58.917 million enrollees in 2005, or 97.36 percent of the total enrollment records. The figures for 2006 were very similar. The unduplicated annual enrollment in Medicaid and S-CHIP-only in 2006 was 97.52 percent of the total enrollment records for that year.

Before unduplication, there were about 891,000 S-CHIP-only enrollees in 2005 and 1.061 million in 2006. Duplication was less common among S-CHIP enrollees than among other Medicaid enrollees. The unduplicated total number of S-CHIP-only enrollees was 98.26 percent of the 2005 total S-CHIP-only enrollees and 98.45 percent of the 2006 total S-CHIP-only enrollees. The unduplicated count of Medicaid enrollees excluding those with only S-CHIP was 58.041 million in 2005 and 58.281 million in 2006.

Table V.1 Unduplication of National Annual Medicaid Enrollment, 2005 and 2006

Enrollee Population	Number of Enrollment Records		Percent of Total Enrollment Records	
	2005	2006	2005	2006
Medicaid Including S-CHIP Only				
Total Medicaid and S-CHIP Records in MAX PS	60,515,865	60,832,034	100.00	100.00
Duplicate Records Within States	181,000	137,705	0.30	0.23
Duplicate Records Across States	1,417,953	1,368,740	2.34	2.25
Unduplicated Medicaid and S-CHIP Enrollment	58,916,912	59,325,589	97.36	97.52
S-CHIP Only				
Total S-CHIP Only Records in MAX PS	891,163	1,061,213	100.00	100.00
Duplicate Records Within States	4,811	4,521	0.54	0.43
Duplicate Records Across States	10,678	11,879	1.20	1.12
Unduplicated S-CHIP Only Enrollment	875,674	1,044,813	98.26	98.45
Medicaid Excluding S-CHIP Only				
Total Medicaid Records in MAX PS	59,624,702	59,770,821	100.00	100.00
Duplicate Records Within States	176,189	133,184	0.30	0.22
Duplicate Records Across States	1,407,275	1,356,861	2.36	2.27
Unduplicated Medicaid Enrollment	58,041,238	58,280,776	97.34	97.51

The incidence of duplication in Medicaid enrollment varies by eligibility group. Disabled and child beneficiaries have twice the rate of duplication as aged beneficiaries and about 50 percent more duplication than adult beneficiaries. In 2005, the unduplicated annual enrollment of aged beneficiaries was 98.42 percent of the total annual enrollment of this subpopulation (Table V.2).²⁷ The unduplicated annual enrollment was 96.93 percent of the annual total enrollment for disabled beneficiaries, 96.87 percent for child beneficiaries, and 98.11 percent for adult beneficiaries. The unduplicated totals for these eligibility groups accounted for similar shares of total enrollment in 2006 (Table V.3). We are not surprised that aged beneficiaries have the lowest level of duplication, given their likely low rates of geographic mobility, but we would not

²⁷ To calculate an unduplicated national total, we weighted each record by the inverse of the number of states in which that individual was enrolled during the calendar year. For example, if the individual was enrolled in two states, the weight was 1/2. If the individual was classified as a child in one state and an adult in the other, then the individual would be counted in both eligibility groups but as half an enrollee in each.

have expected to find the highest rates of duplication among disabled and child beneficiaries, or to find adult beneficiaries more similar to aged beneficiaries than to either disabled or child beneficiaries. This suggests a need for further research, for which the MAXEM data may be uniquely well suited.

Table V.2 Unduplication of National Annual Medicaid Enrollment by Basis of Eligibility, 2005

Enrollee Population	Aged	Disabled	Child	Adult
Number of Enrollment Records				
Total Medicaid Records in MAX PS	5,484,215	9,016,615	29,690,217	15,433,655
Duplicate Records Within States	26,560	20,390	104,512	24,727
Duplicate Records Across States	60,280	255,971	824,691	266,333
Unduplicated Medicaid Enrollment	5,397,375	8,740,254	28,761,014	15,142,595
Percent of Total Enrollment Records				
Total Medicaid Records in MAX PS	100.00	100.00	100.00	100.00
Duplicate Records Within States	0.48	0.23	0.35	0.16
Duplicate Records Across States	1.10	2.84	2.78	1.73
Unduplicated Medicaid Enrollment	98.42	96.93	96.87	98.11

Note: Estimates exclude S-CHIP only enrollment.

Table V.3 Unduplication of National Annual Medicaid Enrollment by Basis of Eligibility, 2006

Enrollee Population	Aged	Disabled	Child	Adult
Number of Enrollment Records				
Total Medicaid Records in MAX PS	5,324,879	9,160,962	29,828,370	15,456,610
Duplicate Records Within States	10,155	18,934	79,884	24,211
Duplicate Records Across States	59,763	252,068	791,513	253,516
Unduplicated Medicaid Enrollment	5,254,961	8,889,960	28,956,973	15,178,883
Percent of Total Enrollment Records				
Total Medicaid Records in MAX PS	100.00	100.00	100.00	100.00
Duplicate Records Within States	0.19	0.21	0.27	0.16
Duplicate Records Across States	1.12	2.75	2.65	1.64
Unduplicated Medicaid Enrollment	98.69	97.04	97.08	98.20

Note: Estimates exclude S-CHIP only enrollment.

An estimate of the percentage of enrollee records that are duplicates is not the same as an estimate of the fraction of enrollees with multiple records. There are more duplicates than

enrollees with multiple enrollment records because an enrollee can have more than two enrollment records. As we reported in Chapter IV, however, more than 96 percent of enrollees who were enrolled in more than one state in 2005 or 2006 were enrolled in just two states. This implies that estimates of the percentage of enrollee records that are duplicates, as reported in Tables V.1 through V.3, will differ by only a few percentage points from estimates of the percentage of enrollees with multiple enrollment records, as reported in Chapter IV. We identified 1.368 million Medicaid plus S-CHIP-only enrollees who were enrolled in multiple states in 2005, and 1.322 million in 2006 (Table IV.26). These compare to estimates of 1.418 million duplicate Medicaid plus S-CHIP-only enrollee records across states in 2005 and 1.369 million in 2006 (Table V.1). Dividing the number enrolled in more than one state by the unduplicated count of enrollees from Table V.1, we estimate that 2.32 percent of unique Medicaid and S-CHIP-only enrollees in 2005 and 2.23 percent in 2006 were enrolled in more than one state.

These estimates of the proportion of unique Medicaid and S-CHIP enrollees who were eligible in more than one state in the same calendar year can be compared to estimates generated by a recent project that linked MSIS records from 2000 to 2002 to several household surveys in order to evaluate Medicaid reporting. This project, which was conducted by a team from several organizations, including CMS, estimated that 2.2 percent of unique individuals who were eligible for Medicaid in the same calendar year were eligible in more than one state *in the same month* (Research Project to Understand the Medicaid Undercount 2007). In addition, 1.7 percent were eligible not only in the same month but for more than the number of days in the month—true evidence of duplicate enrollment. Our own estimates reflect a less restrictive definition of

duplicate enrollment consistent with our desire to determine how many unique individuals were ever enrolled in Medicaid during a given calendar year.²⁸ That they approximate the upper bound of the estimates produced by the Medicaid Undercount project gives us confidence that we have identified a very large fraction of the duplicate enrollees within the 2005 and 2006 MAX PS files.

B. Cross-state Linkages

In Chapter IV we documented the relative frequency of cross-state linkages by state. Here we document the frequency with which each combination of states occurred in pairs of records linked within year (specifically 2005) and between years (2005 and 2006). The frequencies of individual pairs of states are reflective of migration patterns among Medicaid enrollees who moved and re-enrolled within the same calendar year or who moved at some point between one year and the next and were enrolled in the first state in 2005 and the second state in 2006.

Counts of pairs of records linked across states within 2005 are reported in Table V.4. In all, there were 1.471 million linked pairs, where each pair represents two states in no particular order. There are a dozen state pairings with frequencies in excess of 10,000. The pair with the highest frequency by far is Louisiana-Texas, with 49,171. As noted earlier, 2005 was the year that Hurricane Katrina struck New Orleans, producing extensive dislocation of Louisiana residents. Florida-New York is next most common pair, with a frequency of 28,091. Arizona-California and Florida-Georgia follow, with frequencies over 24,000. California-Texas, California-Nevada, and New York-Pennsylvania follow in that order, with frequencies ranging

²⁸ The project also limited the estimate of duplicates to SSNs that were successfully validated by comparing the sex and DOB to the corresponding information maintained in SSA records. The impact of this restriction is not obvious. Validated SSNs could produce a higher linkage rate because of their higher quality and, perhaps more importantly, the smaller denominator, but they also preclude linkages that result from SSN sharing—that is, different individuals using the same SSN—except where the individuals who are sharing the same SSN also share the same sex and DOB (at least as reported to Medicaid).

from 17,445 down to 16,014. The remaining pairs, in order, are Illinois-Indiana (15,876), California-Washington (14,681), Georgia-Louisiana (13,879), Oklahoma-Texas (10,613), and North Carolina-New York (10,137). These combinations reflect the importance of proximity (seven of the pairs involve neighboring states), size, and a rare, momentous event (producing an evacuation).

Table V.5 reports counts of pairs linked across states within 2006. The findings are very similar to those for 2005, both in terms of total linked pairs and the frequency of specific state-to-state transitions.

Table V.6 provides counts of cross-year, cross-state pairs. These differ from the within-year pairs in Tables V.4 and V.5 in that they have direction. The rows indicate the 2005 state, and the columns indicate the 2006 state. To compare the counts in Table V.6 with those in Table V.4, one must sum the flows between pairs of states in both directions reported in Table V.6, since Table V.4 reports the combined flows in a single number. In addition, Table V.6 reports two estimates for each state pair—one showing movement from the first state to the second and the other showing movement from the second state to the first. For example, the table shows that 200 persons moved from California to Alabama while 88 moved from Alabama to California.

In general, Table V.6 supports the same conclusions as Tables V.4 and V.5—namely, that the magnitudes of flows between states reflect the importance of proximity, size, and special events. And while the counts in Table V.6 are low because we restricted the across-state pairs to those that were not already included among the within-state pairs, they convey useful information about the direction of movement between states. We see, for example, that the movement of enrollees from California to Arizona and Nevada is twice the size of the movement in the reverse direction. Specifically, 3,172 enrollees moved from California to Arizona but only 1,494 moved from Arizona to California; and 1,940 enrollees moved from California to Nevada

but only 1,144 moved from Nevada to California. Other pairings show asymmetric migration as well. For instance, reflecting the impact of Hurricane Katrina, 1,583 enrollees moved from Louisiana to Texas while only 895 moved from Texas to Louisiana.

Table V.4a. Cross-State Linked Pairs, 2005

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
AL	0	77	381	765	1,740	311	212	59	46	7,327	9,437
AK	0	0	329	92	1,069	176	20	8	2	276	144
AZ	0	0	0	859	24,241	3,191	277	113	26	2,039	1,093
AR	0	0	0	0	3,868	650	74	43	19	1,890	1,296
CA	0	0	0	0	0	6,471	579	224	222	6,925	5,969
CO	0	0	0	0	0	0	93	38	37	1,854	814
CT	0	0	0	0	0	0	0	130	30	4,098	1,126
DE	0	0	0	0	0	0	0	0	36	814	433
DC	0	0	0	0	0	0	0	0	0	317	337
FL	0	0	0	0	0	0	0	0	0	0	24,075
GA	0	0	0	0	0	0	0	0	0	0	0
HI	0	0	0	0	0	0	0	0	0	0	0
ID	0	0	0	0	0	0	0	0	0	0	0
IL	0	0	0	0	0	0	0	0	0	0	0
IN	0	0	0	0	0	0	0	0	0	0	0
IA	0	0	0	0	0	0	0	0	0	0	0
KS	0	0	0	0	0	0	0	0	0	0	0
KY	0	0	0	0	0	0	0	0	0	0	0
LA	0	0	0	0	0	0	0	0	0	0	0
ME	0	0	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	0	0	0	0	0	0	0
MA	0	0	0	0	0	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0	0	0	0
MN	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0
NV	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	0	77	710	1,716	30,918	10,799	1,255	615	418	25,540	44,724

Table V.4b. Cross-State Linked Pairs, 2005

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
AL	49	72	1,738	933	214	217	856	3,351	131	374	299
AK	339	256	75	71	42	48	44	121	44	30	54
AZ	391	1,085	3,274	1,357	860	837	469	1,234	272	447	661
AR	48	156	2,894	928	639	1,089	598	4,998	83	172	139
CA	2,589	3,694	7,449	2,793	1,746	2,181	1,197	6,460	441	1,566	2,038
CO	153	530	1,450	519	598	1,495	289	1,294	124	246	240
CT	25	9	237	123	52	42	56	202	681	300	3,128
DE	9	17	101	80	31	12	53	130	42	2,730	123
DC	2	1	85	25	7	8	20	229	2	7,699	58
FL	372	336	7,119	4,514	912	846	3,902	5,976	1,344	3,313	8,656
GA	172	136	4,878	2,024	502	626	1,915	13,879	304	1,992	1,690
HI	0	73	136	50	25	61	43	82	31	59	91
ID	0	0	207	104	144	144	96	143	25	67	68
IL	0	0	0	15,876	6,404	957	2,836	2,676	144	556	588
IN	0	0	0	0	644	363	6,570	1,233	96	327	208
IA	0	0	0	0	0	504	223	559	75	106	96
KS	0	0	0	0	0	0	229	711	63	105	106
KY	0	0	0	0	0	0	0	1,113	102	264	153
LA	0	0	0	0	0	0	0	0	139	1,010	441
ME	0	0	0	0	0	0	0	0	0	155	2,502
MD	0	0	0	0	0	0	0	0	0	0	567
MA	0	0	0	0	0	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0	0	0	0
MN	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0
NV	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	4,149	6,365	29,643	29,397	12,820	9,430	19,396	44,391	4,143	21,518	21,906

Table V.4c. Cross-State Linked Pairs, 2005

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
AL	2,001	243	3,274	814	46	136	159	55	361	160	1,289
AK	151	155	46	162	125	78	151	11	31	86	130
AZ	1,924	1,009	397	1,892	511	572	2,400	130	416	5,914	1,980
AR	1,543	539	1,775	6,463	130	317	330	17	105	331	431
CA	3,410	2,837	1,895	5,044	1,160	1,566	16,104	229	1,356	3,760	4,903
CO	761	629	394	1,437	449	1,423	942	57	184	3,265	668
CT	234	56	70	133	19	43	76	213	929	38	5,449
DE	98	33	41	62	6	11	24	20	943	21	1,122
DC	66	33	48	44	5	8	17	1	89	14	445
FL	7,934	1,248	3,081	2,939	276	510	1,051	922	8,500	768	28,091
GA	3,999	809	4,013	1,924	94	300	465	125	2,851	287	9,441
HI	109	72	20	164	33	16	609	9	62	94	216
ID	143	125	47	289	762	125	638	10	36	244	97
IL	5,135	5,896	3,947	9,224	144	699	1,167	80	620	572	1,823
IN	5,042	1,180	1,096	1,577	97	225	365	51	265	225	899
IA	538	1,808	439	2,514	102	3,274	194	14	64	194	260
KS	349	322	367	7,862	97	1,072	275	39	82	573	246
KY	1,974	225	574	1,056	30	118	127	60	180	145	752
LA	1,747	703	7,668	2,336	113	396	857	87	499	421	1,263
ME	130	180	60	175	21	38	50	1,370	168	64	688
MD	444	197	280	346	14	57	153	82	1,347	118	3,832
MA	345	200	143	306	45	52	155	3,024	1,206	91	6,687
MI	0	1,017	1,400	1,640	104	364	592	80	395	338	1,863
MN	0	0	554	1,229	234	670	316	39	194	220	604
MS	0	0	0	1,292	55	199	260	16	175	144	554
MO	0	0	0	0	240	1,006	500	91	209	477	823
MT	0	0	0	0	0	123	231	12	18	228	70
NE	0	0	0	0	0	0	198	21	73	203	166
NV	0	0	0	0	0	0	0	28	181	605	633
NH	0	0	0	0	0	0	0	0	81	26	520
NJ	0	0	0	0	0	0	0	0	0	112	10,917
NM	0	0	0	0	0	0	0	0	0	0	289
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	38,077	19,516	31,629	50,924	4,912	13,398	28,406	6,893	21,620	19,738	87,151

Table V.4d. Cross-State Linked Pairs, 2005

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
AL	1,201	24	1,748	406	182	562	52	941	41	4,233	2,229
AK	130	22	90	136	594	98	20	84	25	82	324
AZ	875	145	1,821	1,331	2,107	1,184	107	412	336	1,156	4,763
AR	666	39	686	5,390	412	322	29	291	113	3,671	8,020
CA	3,901	256	3,288	4,845	12,210	2,387	332	1,296	541	4,131	17,445
CO	608	148	670	1,297	826	459	59	257	542	669	5,124
CT	1,283	9	386	109	39	1,120	718	754	15	226	345
DE	472	4	157	37	13	2,225	20	220	7	167	247
DC	829	3	138	23	6	295	12	360	5	59	138
FL	9,848	109	9,212	1,627	723	8,872	1,846	5,560	205	8,414	9,768
GA	7,152	53	4,630	1,088	344	2,997	358	8,203	93	8,417	6,356
HI	137	10	122	72	486	106	13	58	14	95	329
ID	119	44	168	245	2,266	144	18	74	130	198	854
IL	1,743	105	3,258	1,279	405	1,017	95	785	246	5,844	7,792
IN	1,089	29	5,037	580	221	642	51	515	124	3,764	3,356
IA	326	76	396	497	275	186	12	144	714	598	1,813
KS	350	72	321	3,450	264	253	18	170	144	482	3,325
KY	1,171	42	8,236	390	150	585	47	699	56	7,370	1,400
LA	2,387	59	1,731	1,885	367	873	112	1,234	93	4,221	49,171
ME	435	12	228	91	86	363	361	218	20	269	332
MD	3,594	18	877	184	76	4,244	119	1,426	37	748	1,165
MA	1,471	12	643	129	125	1,876	3,347	729	31	616	869
MI	1,851	79	5,742	696	362	1,121	80	903	119	4,646	6,882
MN	516	1,725	680	480	370	343	44	169	1,502	896	5,098
MS	929	19	949	578	188	469	65	578	55	6,522	3,542
MO	874	95	1,294	3,811	627	662	61	437	253	2,623	4,831
MT	83	446	89	175	794	113	5	50	323	158	492
NE	193	103	186	463	194	139	14	90	1,350	393	1,760
NV	312	33	551	359	1,014	367	29	128	87	386	1,521
NH	288	6	99	30	44	168	141	173	8	161	152
NJ	3,884	9	888	100	65	8,797	214	1,503	7	571	1,064
NM	252	53	328	1,047	335	176	28	144	209	373	7,712
NY	10,137	34	3,013	371	334	16,014	1,529	4,755	83	1,822	3,074
NC	0	0	3,019	633	214	3,791	376	11,308	72	3,545	3,518
ND	0	0	60	89	96	42	2	11	1,056	51	575
OH	0	0	0	697	301	4,839	135	1,593	93	4,745	3,704
OK	0	0	0	0	536	344	40	332	144	1,102	10,613
OR	0	0	0	0	0	212	12	140	163	406	1,302
PA	0	0	0	0	0	0	376	2,072	110	1,266	1,671
RI	0	0	0	0	0	0	0	230	4	119	176
SC	0	0	0	0	0	0	0	0	46	1,688	1,509
SD	0	0	0	0	0	0	0	0	0	111	439
TN	0	0	0	0	0	0	0	0	0	0	4,338
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	59,106	3,893	60,741	34,620	27,651	68,407	10,897	49,046	9,216	87,014	189,138

Table V.4e. Cross-State Linked Pairs, 2005

State	UT	VT	VA	WA	WV	WI	WY	Total
AL	76	36	639	362	216	427	49	50,551
AK	126	18	57	1,237	16	170	51	7,646
AZ	2,664	117	453	3,161	196	1,134	476	82,309
AR	161	19	277	661	136	914	158	53,530
CA	4,550	170	2,045	14,681	393	2,445	635	170,359
CO	1,219	56	355	1,310	148	484	1,408	35,622
CT	41	283	603	114	70	111	12	23,737
DE	18	14	513	38	87	32	6	11,269
DC	7	5	1,232	33	70	32	0	12,807
FL	568	642	4,066	1,504	1,787	2,084	221	183,741
GA	255	123	3,261	1,003	691	1,102	91	98,643
HI	304	28	109	1,028	17	73	15	5,071
ID	1,803	14	109	4,447	29	127	436	14,739
IL	363	48	884	1,159	335	11,868	158	96,728
IN	176	30	588	510	442	1,663	87	39,367
IA	195	19	170	402	58	1,238	125	18,208
KS	168	20	193	535	89	266	193	22,811
KY	116	39	896	343	1,816	383	65	30,677
LA	384	45	1,806	1,167	189	721	127	84,252
ME	47	371	211	160	66	75	27	8,973
MD	78	75	4,642	256	2,190	127	21	27,314
MA	115	933	680	300	107	209	24	24,470
MI	179	54	860	701	464	2,742	100	35,374
MN	183	19	239	885	63	5,628	139	23,039
MS	74	29	622	331	122	1,152	53	18,972
MO	391	40	554	1,145	231	1,115	234	22,624
MT	385	8	55	2,083	38	163	633	6,775
NE	191	11	105	339	50	218	513	6,973
NV	1,173	31	174	1,333	46	314	137	9,442
NH	29	982	150	58	33	37	11	3,197
NJ	64	73	2,019	223	218	149	19	30,896
NM	652	34	136	591	55	162	264	12,840
NY	273	946	5,713	781	524	646	44	50,093
NC	162	225	8,798	583	2,599	647	91	39,581
ND	57	3	19	313	15	158	102	2,649
OH	245	107	1,663	734	6,951	779	100	26,686
OK	318	36	345	829	122	415	241	15,417
OR	726	36	123	9,707	52	270	289	13,438
PA	185	164	2,557	414	1,834	448	108	11,205
RI	18	69	203	41	8	79	1	948
SC	109	143	1,938	375	841	292	46	6,987
SD	151	6	50	382	41	208	409	1,797
TN	208	142	3,515	716	960	1,643	119	11,641
TX	998	92	1,967	3,026	512	2,706	600	9,901
UT	0	22	179	1,152	44	153	749	2,299
VT	0	0	87	37	54	34	20	232
VA	0	0	0	377	2,859	231	47	3,514
WA	0	0	0	0	110	604	410	1,124

State	UT	VT	VA	WA	WV	WI	WY	Total
WV	0	0	0	0	0	93	24	117
WI	0	0	0	0	0	0	81	81
WY	0	0	0	0	0	0	0	0
Total	20,205	6,377	55,860	61,567	27,994	46,771	9,969	1,470,666

Table V.5 Cross-State Linked Pairs, 2006

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
AL	0	70	371	736	1,695	320	208	63	36	6,625	8,472
AK	0	0	264	94	1,007	173	31	1	2	234	138
AZ	0	0	0	854	21,883	3,077	182	66	42	1,786	999
AR	0	0	0	0	3,950	589	38	30	23	1,762	1,258
CA	0	0	0	0	0	6,016	541	216	249	5,934	5,605
CO	0	0	0	0	0	0	103	47	26	1,632	655
CT	0	0	0	0	0	0	0	131	16	3,522	995
DE	0	0	0	0	0	0	0	0	49	683	361
DC	0	0	0	0	0	0	0	0	0	286	271
FL	0	0	0	0	0	0	0	0	0	0	22,749
GA	0	0	0	0	0	0	0	0	0	0	0
HI	0	0	0	0	0	0	0	0	0	0	0
ID	0	0	0	0	0	0	0	0	0	0	0
IL	0	0	0	0	0	0	0	0	0	0	0
IN	0	0	0	0	0	0	0	0	0	0	0
IA	0	0	0	0	0	0	0	0	0	0	0
KS	0	0	0	0	0	0	0	0	0	0	0
KY	0	0	0	0	0	0	0	0	0	0	0
LA	0	0	0	0	0	0	0	0	0	0	0
ME	0	0	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	0	0	0	0	0	0	0
MA	0	0	0	0	0	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0	0	0	0
MN	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0
NV	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	0	70	635	1,684	28,535	10,175	1,103	554	443	22,464	41,503

Table V.5b Cross-State Linked Pairs, 2006

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
AL	46	46	1,824	945	181	209	784	3,776	139	307	315
AK	317	176	92	69	44	47	51	115	32	22	37
AZ	434	863	3,246	1,132	736	834	453	1,083	345	343	656
AR	57	135	2,854	867	623	978	605	5,374	47	171	152
CA	2,510	3,326	7,373	2,673	1,599	2,026	1,149	5,671	348	1,484	1,918
CO	182	502	1,393	504	591	1,421	290	1,373	109	235	252
CT	24	12	230	110	45	37	72	186	630	286	3,158
DE	8	9	116	87	16	19	62	103	46	2,577	114
DC	4	1	81	27	8	10	22	179	6	7,489	80
FL	312	284	6,440	4,116	811	711	3,553	5,859	1,213	2,995	8,264
GA	145	123	4,547	1,910	454	508	1,686	14,220	275	1,896	1,801
HI	0	87	115	92	38	51	49	55	32	57	97
ID	0	0	245	106	124	113	66	96	24	36	42
IL	0	0	0	16,048	6,905	909	2,727	2,225	189	512	622
IN	0	0	0	0	640	312	6,398	1,240	98	335	253
IA	0	0	0	0	0	521	252	491	53	96	95
KS	0	0	0	0	0	0	252	675	52	82	99
KY	0	0	0	0	0	0	0	1,020	98	275	174
LA	0	0	0	0	0	0	0	0	117	943	407
ME	0	0	0	0	0	0	0	0	0	127	2,486
MD	0	0	0	0	0	0	0	0	0	0	552
MA	0	0	0	0	0	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0	0	0	0
MN	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0
NV	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	4,039	5,564	28,556	28,686	12,815	8,706	18,471	43,741	3,853	20,268	21,574

Table V.5c Cross-State Linked Pairs, 2006

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
AL	1,907	232	3,370	688	38	92	165	31	356	134	1,269
AK	110	176	38	115	92	47	113	11	25	109	126
AZ	2,089	991	400	1,552	421	513	2,068	140	431	5,298	1,732
AR	1,474	543	1,825	5,842	147	306	261	31	120	306	445
CA	3,406	2,464	1,814	4,448	1,092	1,614	14,364	218	1,430	3,511	4,761
CO	701	606	382	1,266	451	1,265	803	40	185	2,937	606
CT	177	67	67	101	10	17	71	207	898	49	5,305
DE	82	19	36	44	1	18	34	25	901	14	1,096
DC	76	23	54	24	6	3	20	1	110	11	443
FL	7,510	1,075	3,071	2,344	209	490	945	803	7,603	621	24,500
GA	3,750	740	3,723	1,524	68	306	431	155	2,969	281	8,675
HI	107	89	16	151	38	19	560	6	58	87	216
ID	189	136	36	301	650	127	551	22	46	206	102
IL	4,919	5,628	3,664	8,500	131	704	1,008	77	628	569	1,852
IN	5,015	1,146	1,122	1,485	61	188	355	55	322	231	888
IA	491	1,788	459	2,343	112	3,215	140	18	78	171	289
KS	360	353	334	7,079	79	976	221	16	87	483	217
KY	1,877	259	592	1,045	66	108	124	48	212	141	696
LA	1,652	659	8,276	2,144	121	359	688	64	472	387	1,093
ME	147	114	63	133	21	24	52	1,320	174	57	706
MD	463	174	254	278	26	51	117	64	1,355	95	3,638
MA	368	213	158	230	43	41	175	3,082	1,364	96	7,016
MI	0	948	1,374	1,553	116	296	680	79	462	367	1,611
MN	0	0	603	1,180	244	557	271	27	175	187	603
MS	0	0	0	1,200	46	190	229	27	193	101	528
MO	0	0	0	0	143	976	439	58	208	400	639
MT	0	0	0	0	0	122	182	7	17	204	88
NE	0	0	0	0	0	0	171	23	69	162	134
NV	0	0	0	0	0	0	0	31	179	494	574
NH	0	0	0	0	0	0	0	0	85	22	486
NJ	0	0	0	0	0	0	0	0	0	79	11,746
NM	0	0	0	0	0	0	0	0	0	0	262
NY	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0
ND	0	0	0	0	0	0	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	36,870	18,443	31,731	45,570	4,432	12,624	25,238	6,686	21,212	17,810	82,342

Table V.5d Cross-State Linked Pairs, 2006

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
AL	1,246	18	1,670	393	159	600	32	802	32	4,288	2,212
AK	142	24	86	121	534	81	4	63	31	127	351
AZ	794	131	1,687	1,291	1,934	1,000	103	362	324	1,134	4,178
AR	648	31	770	5,506	402	349	45	277	97	3,815	7,705
CA	3,847	233	3,107	4,573	10,909	2,271	273	1,179	514	4,062	17,790
CO	548	190	650	1,189	668	513	62	246	522	738	4,825
CT	1,273	6	376	69	38	1,263	772	678	28	235	300
DE	487	5	148	31	16	2,230	13	185	3	175	209
DC	848	2	111	25	5	266	11	357	1	80	157
FL	9,631	126	8,202	1,478	608	7,994	1,731	4,904	270	8,319	8,901
GA	6,486	72	4,116	884	330	2,922	322	6,841	74	8,123	5,847
HI	127	10	101	91	432	77	8	56	13	97	349
ID	139	48	175	180	1,946	127	9	50	102	175	811
IL	1,760	101	3,209	1,249	386	1,079	110	735	209	6,206	7,224
IN	1,034	46	4,892	598	240	700	55	490	119	3,838	2,950
IA	346	75	363	426	207	197	18	144	758	612	1,776
KS	307	29	327	3,173	186	193	24	142	148	536	2,986
KY	1,232	43	8,236	363	170	640	38	636	58	7,557	1,315
LA	2,374	32	1,515	1,997	321	810	106	959	106	5,046	61,049
ME	451	20	257	94	63	355	376	207	23	282	246
MD	3,549	14	827	195	72	4,455	127	1,351	28	825	1,097
MA	1,740	25	814	160	129	1,996	3,495	809	41	717	706
MI	1,768	85	5,810	692	274	1,084	57	889	129	4,822	6,307
MN	506	1,894	689	424	339	370	74	178	1,390	897	4,804
MS	938	9	960	632	152	446	51	492	42	7,030	3,896
MO	704	103	1,121	3,364	539	591	31	365	238	2,490	4,150
MT	93	442	91	155	718	90	5	57	330	123	432
NE	133	142	191	443	212	182	12	84	1,276	373	1,529
NV	287	43	519	338	917	302	30	135	70	361	1,346
NH	231	8	92	27	27	201	180	120	9	165	121
NJ	4,144	14	919	116	86	9,617	263	1,429	15	591	964
NM	222	33	339	931	370	208	27	129	186	340	6,611
NY	10,134	47	2,879	437	270	15,908	1,491	4,386	70	1,834	2,490
NC	0	57	3,024	571	217	4,024	424	10,341	65	3,565	3,314
ND	0	0	40	77	101	43	2	20	997	58	481
OH	0	0	0	659	317	4,833	116	1,480	92	4,739	3,314
OK	0	0	0	0	509	363	33	287	203	1,097	9,831
OR	0	0	0	0	0	190	18	169	217	420	1,165
PA	0	0	0	0	0	0	443	2,009	68	1,313	1,849
RI	0	0	0	0	0	0	0	225	11	130	125
SC	0	0	0	0	0	0	0	0	23	1,622	1,217
SD	0	0	0	0	0	0	0	0	0	121	374
TN	0	0	0	0	0	0	0	0	0	0	4,273
TX	0	0	0	0	0	0	0	0	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0	0
WA	0	0	0	0	0	0	0	0	0	0	0

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
WV	0	0	0	0	0	0	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	0	0	0	0	0	0	0
Total	58,169	4,158	58,313	32,952	24,803	68,570	10,991	44,268	8,932	89,078	191,577

Table V.5e Cross-State Linked Pairs, 2006

State	UT	VT	VA	WA	WV	WI	WY	Total
AL	115	38	640	357	240	381	41	48,714
AK	95	14	70	1,244	17	114	42	7,068
AZ	2,227	114	436	2,985	178	1,048	418	74,993
AR	171	29	332	625	125	905	134	52,779
CA	4,729	175	1,976	13,999	314	2,235	672	160,618
CO	1,113	56	338	1,227	117	532	1,357	33,448
CT	43	253	537	126	70	114	9	22,613
DE	23	14	475	55	93	30	5	10,717
DC	9	6	1,235	33	64	29	1	12,475
FL	514	580	3,782	1,322	1,676	1,937	152	168,605
GA	178	121	2,907	1,031	573	982	78	92,074
HI	221	14	112	1,036	12	53	19	4,848
ID	1,615	24	75	3,991	23	98	412	13,218
IL	332	47	939	1,193	270	12,095	171	95,132
IN	187	51	632	535	475	1,506	88	38,580
IA	180	15	175	465	56	1,301	122	17,848
KS	174	22	178	431	66	267	149	20,703
KY	129	49	889	330	1,747	388	46	30,601
LA	314	50	1,682	1,147	170	650	125	95,835
ME	57	365	246	165	88	84	24	8,827
MD	73	73	4,548	278	2,083	140	18	26,820
MA	104	944	786	326	129	207	26	25,940
MI	205	42	865	679	488	2,755	173	34,610
MN	159	28	255	864	38	5,201	145	22,102
MS	121	18	601	340	130	1,229	66	18,467
MO	374	40	527	1,057	176	1,054	245	21,232
MT	309	23	43	1,767	36	139	590	6,063
NE	143	13	126	360	33	180	398	6,389
NV	1,029	12	185	1,233	72	336	109	8,602
NH	34	1,106	123	35	39	40	17	3,168
NJ	74	79	2,076	231	240	168	21	32,872
NM	527	31	139	612	53	160	224	11,404
NY	241	973	5,246	747	458	547	61	48,219
NC	201	209	8,948	643	2,375	558	69	38,605
ND	53	2	18	254	11	119	108	2,384
OH	224	85	1,504	672	6,471	925	88	25,519
OK	284	26	359	872	140	412	266	14,682
OR	610	26	134	9,010	59	231	201	12,450
PA	170	127	2,507	501	1,772	445	81	11,285
RI	8	77	209	44	17	75	2	923
SC	86	109	1,756	389	712	295	41	6,250
SD	88	11	48	314	27	246	451	1,680
TN	240	125	3,873	796	917	1,856	121	12,201
TX	852	85	1,817	3,047	434	2,378	580	9,193
UT	0	18	151	1,013	27	108	603	1,920
VT	0	0	112	68	23	32	8	243
VA	0	0	0	382	2,731	267	41	3,421
WA	0	0	0	0	107	572	379	1,058

State	UT	VT	VA	WA	WV	WI	WY	Total
WV	0	0	0	0	0	92	18	110
WI	0	0	0	0	0	0	93	93
WY	0	0	0	0	0	0	0	0
Total	18,635	6,319	54,612	58,831	26,172	45,516	9,308	1,417,601

Table V.6 Cross-state Linked Pairs, 2005 to 2006

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
AL	0	3	25	65	88	20	14	3	1	365	514
AK	15	0	61	16	115	31	6	2	0	39	28
AZ	70	49	0	113	1,494	367	23	13	6	217	102
AR	47	8	51	0	155	48	5	3	1	85	92
CA	200	114	3,172	522	0	710	82	23	19	657	577
CO	31	23	333	52	379	0	8	5	3	119	71
CT	24	4	25	10	36	7	0	3	4	480	129
DE	4	0	6	2	18	4	7	0	2	84	34
DC	7	1	5	0	17	1	2	2	0	21	27
FL	686	38	264	178	558	144	317	47	24	0	2,144
GA	830	29	132	125	370	102	60	32	18	1,598	0
HI	6	34	68	7	238	26	2	0	3	41	30
ID	7	17	117	13	173	52	0	0	2	27	21
IL	120	10	248	204	333	89	8	10	5	410	262
IN	75	8	144	87	173	48	12	8	5	451	205
IA	14	2	107	59	134	61	8	1	1	70	48
KS	18	15	116	94	150	151	8	0	1	98	59
KY	77	4	59	45	87	24	9	8	3	271	131
LA	110	7	42	235	182	50	3	2	6	182	307
ME	3	5	55	9	35	15	61	10	1	99	22
MD	30	5	53	24	99	19	19	184	426	298	193
MA	17	3	71	8	97	23	169	22	2	520	136
MI	143	12	288	140	241	77	10	15	7	643	309
MN	33	11	106	65	199	72	5	2	2	137	115
MS	267	6	29	120	82	24	10	0	6	178	210
MO	76	10	203	503	351	142	21	3	2	280	163
MT	10	7	61	14	93	51	4	0	0	33	8
NE	19	2	91	44	143	128	5	3	2	67	25
NV	13	20	385	42	1,144	87	11	0	7	93	52
NH	8	0	14	6	35	9	29	0	0	81	16
NJ	26	6	59	15	101	19	112	66	13	708	236
NM	27	17	607	44	262	342	10	1	1	114	28
NY	127	14	226	49	391	65	589	127	31	2,652	878
NC	97	15	115	55	231	68	84	56	34	707	549
ND	5	0	20	4	27	38	0	0	0	6	6
OH	169	6	189	56	249	74	34	19	24	776	359
OK	47	13	129	404	312	128	11	0	2	138	79
OR	17	72	253	44	757	85	2	0	2	64	27
PA	47	11	121	30	181	61	126	219	21	763	219
RI	6	0	10	0	37	7	114	2	0	158	24
SC	73	7	38	14	79	28	25	22	13	323	494
SD	2	3	40	7	55	42	4	0	0	19	5
TN	219	10	81	146	108	42	14	5	2	344	332
TX	269	66	608	719	1,197	623	51	23	10	844	514
UT	8	31	378	27	372	148	3	0	1	48	22
VT	10	0	24	10	34	9	39	1	0	39	6
VA	63	5	65	28	110	24	31	34	81	383	228
WA	58	147	389	72	885	121	17	5	5	187	110

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
WV	24	9	25	21	16	13	10	10	3	122	47
WI	47	7	117	89	151	41	4	3	1	175	109
WY	10	10	43	10	61	120	0	1	0	19	3
Total	4,311	896	9,868	4,646	12,835	4,680	2,198	995	803	16,233	10,305

Table V.6b. Cross-state Linked Pairs, 2005 to 2006

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
AL	4	5	88	72	17	22	62	81	13	16	22
AK	45	12	8	7	11	6	2	5	6	4	3
AZ	53	136	244	144	142	107	74	73	34	37	52
AR	1	20	120	65	36	43	53	188	6	15	6
CA	210	431	532	354	219	283	166	243	48	107	139
CO	14	38	88	50	65	145	19	29	15	30	22
CT	5	0	18	9	6	5	3	10	46	30	172
DE	4	4	5	6	5	4	4	12	2	180	9
DC	0	0	7	1	1	0	0	4	1	592	2
FL	36	51	513	472	98	103	372	247	124	227	437
GA	21	11	351	240	72	68	183	300	44	127	89
HI	0	9	14	4	4	2	5	6	4	11	9
ID	5	0	27	14	15	8	14	3	1	1	5
IL	9	13	0	796	425	55	213	93	5	34	21
IN	3	17	700	0	112	24	597	47	13	24	18
IA	4	18	319	63	0	41	39	25	7	16	12
KS	7	14	87	26	59	0	24	42	3	12	7
KY	6	8	134	488	31	24	0	33	9	17	6
LA	8	3	69	36	36	22	30	0	6	17	9
ME	4	1	14	8	8	4	2	6	0	17	113
MD	1	4	20	31	6	15	18	30	12	0	39
MA	10	5	26	20	9	9	13	9	178	26	0
MI	14	14	300	402	72	44	175	107	9	45	31
MN	7	21	252	92	236	43	20	23	11	14	17
MS	5	3	161	70	19	17	64	215	3	10	8
MO	23	54	676	123	278	712	99	97	7	17	20
MT	6	59	17	18	10	15	9	12	7	3	3
NE	5	14	56	31	351	88	7	19	4	14	10
NV	56	119	108	44	36	48	19	44	10	21	14
NH	4	6	10	4	4	5	2	1	159	6	196
NJ	4	2	44	25	13	5	12	19	13	90	81
NM	9	26	53	27	17	68	32	38	5	17	13
NY	21	20	146	101	27	24	98	49	74	323	437
NC	11	19	90	89	29	41	121	80	34	185	68
ND	1	8	7	9	19	4	6	4	1	2	1
OH	7	11	167	441	54	36	648	66	38	62	36
OK	3	15	81	64	50	236	51	63	6	20	8
OR	47	244	31	28	38	25	9	20	13	11	12
PA	10	13	61	74	32	21	56	35	25	292	121
RI	0	1	9	7	0	2	7	3	25	14	201
SC	5	3	58	37	15	14	66	54	19	72	41
SD	1	7	22	12	90	16	9	3	0	0	1
TN	5	9	181	191	47	37	341	64	11	30	31
TX	29	85	544	302	185	302	203	895	33	103	62
UT	27	180	36	22	29	27	15	25	6	8	6
VT	1	0	0	12	0	2	10	6	48	3	61
VA	3	1	58	73	17	14	68	57	14	297	50
WA	62	376	79	60	57	62	48	34	16	24	31

State	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
WV	6	5	24	39	4	5	119	16	5	156	9
WI	3	21	475	109	117	24	52	56	8	14	24
WY	4	45	16	9	14	16	3	6	1	3	3
Total	829	2,181	7,146	5,421	3,237	2,943	4,262	3,597	1,182	3,396	2,788

Table V.6c. Cross-state Linked Pairs, 2005 to 2006

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
AL	88	13	190	37	8	7	21	5	26	6	47
AK	10	9	0	14	32	7	23	1	3	14	11
AZ	192	142	70	189	79	74	310	10	39	672	191
AR	77	58	93	300	12	28	33	5	9	16	13
CA	273	294	136	441	110	148	1,940	30	148	437	378
CO	73	66	14	105	45	129	76	7	30	269	42
CT	16	7	1	19	2	3	18	34	88	3	328
DE	7	5	2	5	0	0	6	3	81	2	79
DC	0	2	1	2	0	0	1	2	8	0	15
FL	559	138	221	235	26	67	114	102	591	64	1,675
GA	278	95	247	140	6	27	74	21	185	27	551
HI	3	7	2	15	1	4	99	0	6	18	39
ID	25	21	12	21	62	20	66	6	13	34	13
IL	295	280	181	473	5	50	79	3	25	42	79
IN	442	128	67	130	5	23	43	3	27	23	57
IA	66	192	36	202	32	275	21	1	11	9	45
KS	35	38	27	641	19	102	23	4	2	49	18
KY	104	23	35	102	7	9	15	5	10	7	45
LA	54	21	300	79	7	8	38	1	12	26	35
ME	16	10	2	17	5	9	11	129	26	6	76
MD	38	16	26	32	1	7	8	3	111	7	192
MA	30	14	11	12	0	0	8	214	70	7	305
MI	0	117	88	143	16	40	87	8	41	37	128
MN	99	0	43	101	30	55	34	3	20	38	39
MS	86	61	0	59	1	13	15	3	9	10	23
MO	154	136	98	0	25	119	56	2	17	39	84
MT	9	55	4	18	0	18	28	1	1	19	11
NE	41	42	15	107	5	0	29	6	8	29	17
NV	42	33	32	89	31	35	0	5	23	60	63
NH	19	3	8	9	0	3	4	0	14	4	49
NJ	37	19	11	23	2	1	15	16	0	5	566
NM	33	31	12	36	28	35	55	4	6	0	40
NY	136	63	40	67	11	22	84	70	1,342	30	0
NC	154	41	49	50	12	19	34	21	187	32	494
ND	9	223	2	9	47	16	22	2	6	12	3
OH	434	78	79	101	17	21	54	15	80	38	193
OK	40	51	48	235	24	49	48	2	6	96	30
OR	29	39	7	61	80	27	133	8	7	51	22
PA	64	37	27	52	9	10	54	21	602	31	911
RI	6	10	2	4	4	0	5	17	17	1	95
SC	76	19	34	42	10	8	13	20	87	12	213
SD	4	124	10	13	21	79	18	3	2	19	9
TN	190	38	301	103	10	17	18	1	27	22	93
TX	394	401	286	405	49	160	172	18	69	739	254
UT	41	20	7	57	31	18	176	5	12	78	30
VT	9	4	2	7	0	1	12	121	7	4	111
VA	64	20	27	55	9	9	23	9	113	14	330
WA	86	105	33	105	160	32	147	7	20	58	73

State	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
WV	33	12	14	21	3	3	4	0	16	0	40
WI	202	467	75	70	26	18	36	7	20	15	55
WY	25	18	9	20	39	30	17	1	1	18	2
Total	5,197	3,846	3,037	5,273	1,164	1,855	4,420	985	4,281	3,249	8,212

Table V.6d. Cross-state Linked Pairs, 2005 to 2006

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
AL	93	2	86	35	12	28	2	41	1	215	205
AK	22	1	9	25	91	11	2	6	10	4	33
AZ	102	18	204	218	272	142	9	48	31	123	521
AR	52	7	44	324	30	18	2	26	15	171	545
CA	474	45	279	581	1,181	218	38	147	56	387	2,361
CO	79	13	69	148	53	42	0	22	55	49	464
CT	156	0	43	4	8	155	68	67	1	42	30
DE	53	1	9	10	0	155	1	15	0	18	23
DC	72	0	5	4	0	17	2	10	1	1	23
FL	1,144	12	722	195	103	818	92	505	19	877	961
GA	666	18	356	97	42	256	26	530	6	675	702
HI	25	1	13	22	46	7	3	7	3	9	42
ID	23	8	8	25	197	22	1	3	7	28	83
IL	136	7	151	96	58	79	8	25	23	308	484
IN	130	3	439	63	19	75	12	61	11	309	263
IA	20	20	66	72	27	20	0	21	73	47	215
KS	43	8	45	352	33	10	0	28	18	46	330
KY	100	1	613	35	25	61	2	63	1	411	142
LA	66	3	37	124	32	28	0	21	2	219	1,583
ME	25	0	29	8	10	39	23	18	1	15	10
MD	354	1	94	17	9	422	11	80	6	63	99
MA	149	0	26	13	13	111	177	70	1	29	29
MI	196	15	504	83	35	100	1	95	16	355	479
MN	74	227	74	72	50	43	0	12	143	69	415
MS	53	0	57	55	12	23	4	19	0	398	262
MO	115	7	130	386	75	48	6	35	26	227	419
MT	15	36	13	21	81	8	0	5	26	16	46
NE	14	26	29	55	31	6	3	16	104	27	175
NV	39	11	49	82	160	42	0	24	12	51	239
NH	34	0	7	1	3	23	13	25	1	9	11
NJ	351	2	67	19	8	912	12	103	2	59	116
NM	32	13	21	147	37	23	0	28	17	39	699
NY	1,092	4	293	39	23	1,844	106	354	3	144	273
NC	0	2	213	85	38	257	28	761	11	291	284
ND	2	0	7	21	15	5	0	3	93	3	65
OH	305	13	0	78	27	349	7	148	9	286	354
OK	66	14	50	0	60	45	2	44	19	78	869
OR	37	18	33	57	0	28	3	7	18	56	146
PA	396	15	332	38	25	0	26	140	8	97	155
RI	60	2	19	1	0	36	0	31	1	14	12
SC	803	5	110	40	15	159	10	0	1	144	134
SD	9	87	11	26	21	4	0	10	0	6	20
TN	203	12	211	63	22	88	6	98	3	0	197
TX	374	63	343	1,277	158	174	12	127	38	352	0
UT	22	8	34	41	114	16	0	9	9	17	170
VT	46	0	7	9	7	15	5	9	0	4	5
VA	758	5	115	36	16	217	12	110	4	225	183
WA	90	50	53	85	852	81	8	43	33	103	297

State	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
WV	226	4	427	16	8	144	0	42	5	84	52
WI	55	29	57	41	28	57	1	14	27	102	189
WY	9	12	8	29	24	3	0	4	41	11	45
Total	9,460	849	6,621	5,371	4,206	7,484	744	4,130	1,011	7,313	15,459

Table V.6e. Cross-state Linked Pairs, 2005 to 2006

State	UT	VT	VA	WA	WV	WI	WY	Total
AL	9	0	51	42	15	42	4	2,831
AK	23	3	11	215	0	6	19	1,037
AZ	308	9	81	424	26	123	71	8,248
AR	18	2	15	52	5	39	13	3,070
CA	607	30	193	1,412	50	201	94	21,497
CO	128	5	49	153	13	61	124	3,922
CT	9	30	56	8	2	9	3	2,236
DE	0	0	37	7	8	3	0	926
DC	0	0	97	3	8	2	1	968
FL	78	61	401	192	174	227	21	17,474
GA	52	10	289	130	52	89	17	10,466
HI	40	2	11	129	0	11	3	1,091
ID	207	1	9	394	2	9	47	1,889
IL	35	3	40	83	10	599	13	7,033
IN	16	4	65	62	60	142	12	5,465
IA	25	1	14	64	4	113	12	2,753
KS	21	3	15	41	4	35	12	2,993
KY	9	0	66	41	118	40	10	3,574
LA	5	3	49	48	10	21	6	4,200
ME	12	28	20	18	4	8	5	1,072
MD	6	4	364	24	198	14	5	3,738
MA	4	64	40	40	7	7	2	2,826
MI	22	8	73	67	45	230	11	6,138
MN	26	3	27	149	2	485	16	3,832
MS	7	3	24	25	3	72	7	2,811
MO	56	5	56	119	21	99	19	6,439
MT	42	4	4	185	2	5	70	1,183
NE	25	0	8	33	8	29	65	2,081
NV	179	5	14	194	4	45	34	3,970
NH	2	111	18	9	6	3	2	986
NJ	7	2	146	33	24	11	3	4,241
NM	103	3	14	93	3	34	26	3,370
NY	23	93	424	81	58	60	3	13,251
NC	26	17	589	81	222	57	8	6,841
ND	10	1	2	24	1	29	9	809
OH	27	7	131	72	505	62	7	7,018
OK	33	0	29	80	22	30	19	3,949
OR	105	4	35	1,132	8	36	30	4,018
PA	28	20	216	51	117	23	8	6,052
RI	2	6	18	11	3	6	0	1,010
SC	9	9	126	27	52	24	10	3,712
SD	9	1	2	29	1	23	42	941
TN	9	12	174	61	55	69	7	4,360
TX	103	13	223	298	40	201	57	14,467
UT	0	5	22	157	6	13	112	2,649
VT	5	0	7	10	5	12	0	739
VA	20	15	0	34	230	20	3	4,380
WA	124	20	49	0	11	67	61	5,698

State	UT	VT	VA	WA	WV	WI	WY	Total
WV	4	2	222	10	0	8	3	2,091
WI	20	1	20	80	11	0	10	3,380
WY	63	1	8	35	2	14	0	886
Total	2,701	634	4,654	6,762	2,237	3,568	1,136	230,611

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VI. RECOMMENDATIONS FOR FUTURE MAXEM DEVELOPMENT

Drawing from our experience implementing and evaluating MAXEM for 2005 and 2006, we have a number of observations and recommendations for future MAXEM development. We divide these into priorities for MSIS/MAX enhancements and prospective modifications to the implementation process for MAXEM 2007.

A. Priorities for MSIS/MAX Enhancements

The quality of the unduplication of MAX records for MAXEM depends on the underlying data. Records can be linked correctly only if the person-level identifiers needed to establish that two records do or do not belong to the same individual are captured and correctly recorded. Because of missing, incomplete, or incorrect information, records belonging to the same individual may go unlinked, and records belonging to different individuals may be associated inappropriately. Such linkage errors will very likely continue to plague future MAXEM file production unless significant improvements in the data provided by a large number of states can be realized. Particular problems that need to be addressed include:

- Missing SSNs
- Incorrect SSNs
- Discrepant MSIS IDs
- Insufficient information to validate linkages
- Data anomalies

We discuss these areas in turn.

Missing SSNs. The single greatest obstacle to full unduplication of MAX records is the absence of SSNs for a significant percentage of records in many states. Between 9 and 10 percent of the records that we attempted to unduplicate lacked SSNs—a level of missing data that has not declined since at least 2000. Because of the way the SSNs are distributed, we do not

believe that these missing SSNs translate directly into 10 percent too few linked pairs, nevertheless, this is the single greatest source of missed linkages in MAXEM. Roughly two-thirds of the missing SSNs are from California, which has the largest number of recipients of partial benefits, most of whom, we suspect, are not likely to be eligible for Medicaid in other states in the near term. In other states, however, there is no reason to suspect that records with missing SSNs belong to individuals who are any less likely to become eligible in another state than those with complete SSNs. While 14 states were missing between 5 and 10 percent of MAX SSNs in 2006, very few states were missing fewer than 1 percent. Improved capture of SSNs would do more to enhance the unduplication of MAX records than any other improvement to the data or unduplication process.

Incorrect SSNs. When SSNs are present, the evidence that we and others have compiled suggests that their quality is very high but that errors do occur. In our own work, we were limited to performing range checks through the high group test discussed in Chapter II. Exceedingly few SSNs failed this test, but passing the test provides little assurance that the reported SSN is correct. In the Medicaid undercount project mentioned in Chapter V, Census Bureau staff performed a validation check by comparing MSIS SSNs and their reported sex and DOB with SSA records. Of the SSNs that passed range checks, 98.8 percent were validated (Research Project to Understand the Medicaid Undercount 2007). The 1.2 percent that failed validation in that study is much smaller than the 10 percent that is missing MAX SSNs, but it nevertheless implies potential missed links and indicates that there is room for improvement.

Discrepant MSIS IDs. Generally speaking, duplication of enrollment records within a state and year should not occur, as state Medicaid tracking systems were designed to prevent this. We found, however, that while 35 states had within-year duplication rates below 0.1 percent of their total records, four states had within-year duplication rates in excess of 1 percent and ranging as

high as 2.6 percent. The states with this issue stand out; identifying them should help them see they have a problem relative to other states and seek solutions. Because most states have dealt so effectively with tracking Medicaid enrollees, the technical know-how to solve tracking problems should be widely available.

Insufficient Information to Validate Linkages. With the MSIS IDs and SSNs reported on MAX records, we can readily establish links among records but we lack the information needed to confirm that a linkage is correct. In the implementation of MAXEM for 2005 and 2006, we were forced to attempt to validate linkages using variables that show considerable disagreement even when linkages are correct. We could not explore small enhancements to our methods because we could not measure improvement with sufficient reliability. Given this situation, we cannot underestimate the importance of obtaining additional identifying information for at least a sample of linked records.

In addition, the discrepancies in reported race/ethnicity that appear to stem from state-to-state differences in race coding should be examined to determine their source. Such discrepancies seriously weaken the value of agreement on race/ethnicity in confirming linkages across states.

Data Anomalies. Annual listings of known irregularities in Medicaid data have been compiled by the states and CMS contractors for decades, but the number of problems do not seem to have diminished over time—perhaps, in part, because both internal and external review have improved. In Chapter IV we noted problems affecting thousands of records in a number of states. Such problems are isolated, but they continue to crop up, requiring vigilance by the states and MAX users alike. We found indirect evidence, through divergent linkage rates, of data anomalies in several states, but we could only flag these states as outliers rather than trace the apparent problems to specific sources.

Past experience suggests that there will be no significant improvement in any of these areas without some incentive to the states. Yet the most significant enhancement to the unduplication of Medicaid records clearly would come through increased reporting of SSNs. How to bring this about is a challenge that CMS must confront if the agency is to achieve better outcomes with MAXEM.

B. Process Improvements

While this report reviews implementation of MAXEM on the 2005 and 2006 MAX files, the prospective addition of a third year compels us to consider how we might approach the task differently in light of the modified requirements. Four main topics are relevant to this review:

- The linkage algorithm
- The pair-wise approach to linkage
- Updating MAXEM data
- Dissemination of findings

We consider these aspects of MAXEM unduplication in turn.

Linkage Algorithm. The deterministic record-linkage algorithm that was selected for implementation of MAXEM performed admirably. The algorithm is well suited to the data, which provides two high-quality linking variables: the MSIS ID, which is highly effective in linking records within states but of no use in linking records across states; and the MAX SSN, which adds little to the linkages identified through the MSIS ID but accounts for nearly all of the cross-state linkages. The EDB-SSN and the EDB-HIC account for few linkages not already identified by the MSIS ID or SSN. One strength of the deterministic algorithm in this context is its efficiency, which is vitally important when each year of MAX files contains 60 million records. We see no value in exploring small refinements to the linkage algorithm—such as making additional allowance for error in the linking variables—as these have been shown to add too few records to offset the risks of increased numbers of false positives.

Pair-wise Linking. Our approach to unduplicating each MAX file is built on the construction of linked pairs; if four records represent the same individual, the construction of linked pairs will yield six pairs. This strategy for reassigning MAXEM IDs two records at a time appears cumbersome, but it proved effective and we have no countersuggestion, pending an assessment of its performance with three years of data.

One area where the pair-wise approach did present problems was in its creation of asymmetric linked pairs. It is possible, for example, that record A will link to records B, C, and D, but record C will not link to D. In such a case, depending on how the MAXEM IDs were distributed among the records, it is possible that record C might end up with a different MAXEM ID than records A, B, and D.

We found no good solution to this problem. In a few cases, the application of cross-state linkage resulted in a new, common MAXEM ID being assigned to records that previously had different MAXEM IDs—in some cases creating within-year duplicates. As a result, these within-year duplicates were not resolved into a common record, as they would have been if the common MAXEM ID had been assigned earlier. We recommend that subsequent MAXEM development efforts improve on the algorithm's treatment of multiple asymmetric linked pairs.

Updating MAXEM Data. Each new year of data that is added to MAXEM will introduce corrections and new linkages to previously completed data, so it is important to consider how to update the research products without putting users in the position of having to discard files used previously or, worse, redo their research. Finding a suitable strategy will require, first, that we take careful note of how a third year of data affects previous MAXEM data. We can anticipate that the 2007 data will provide numerous corrections to the 2006 data, just as 2006 did to 2005. By favoring later over earlier information in resolving inconsistencies, we ensure that the latest year of data will receive fewer edits than the previous year. What will be important to note,

however, is whether the third year of data yields any edits to the first year. If the edits are minor, it may be best to ignore them, establishing a pattern where the latest MAXEM research file can be viewed as interim while previous files are considered frozen.

Linkages between year three and year one introduce not only potential edits but changes to MAXEM IDs, which in turn have implications for prior cross-reference files. One way to make certain that previously assigned MAXEM IDs do not change is to incorporate the data year into the first segment of the MAXEM ID. Then, when the lower of two MAXEM IDs is assigned to each linked pair, any record from year one or year two that is linked to a record from year three will retain its MAXEM ID. That is, the year one or year two MAXEM ID will be assigned to the year three record. When the MAXEM ID was created for the 2005 and 2006 implementation of MAXEM, the year was included in the second rather than the first segment of the ID. The current MAXEM ID, then, will be subject to change when records from year three are linked to records from year two and, quite possibly, year one. This can be prevented in the future by changing the way that the MAXEM ID is constructed; we recommend that such a change be implemented.

Dissemination of Findings. For now, the public-use tables represent the only vehicle for disseminating the findings from this initial implementation of MAXEM. The tables should be reviewed to assess whether they provide sufficient information to potential users of MAXEM and others who may be interested in what CMS has learned by producing MAXEM. We recommend that CMS also consider other vehicles for disseminating key findings from future MAXEM production. Issue briefs and journal articles would be especially suitable for presenting findings that go beyond what can be communicated in stand-alone tables. Much of what MAXEM can tell us about enrollment patterns within and across states is complex. To fully

comprehend this information will require additional analysis, and communicating the findings to an outside audience will require well-written, thoroughly documented narrative.

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APPENDIX A
PUBLIC-USE TABLES

This appendix contains public-use tables that document the impact of unduplication. The public-use tables are tailored to high-level users who want detailed administrative counts of Medicaid enrollees and/or an in-depth breakdown of the degree of duplication within the MAX PS files. Each table contains statistics by state, and collectively the eight tables report the impact of unduplication on state-level counts for every programmatic variable included in MAXEM. These eight tables are described below.

Table A.1 was intended originally as a validation table for assessing the results of the unduplication and was presented as such in the design report (Wenzlow and Sykes 2009). Given that the full contents of Table A.1 are replicated in Tables A.2 through A.7 but with a different structure, we felt that Table A.1 was more appropriately classified as a public use table and have grouped it with those tables in this final report.

Table A.1 compares basic counts, before and after unduplication, for a wide range of MAXEM variables. There is a separate page (102 in all) for the District of Columbia and each state and for each year. Each page, or subtable, includes columns for counts produced before and after unduplication, followed by the percentage reduction in each row count as a result of unduplication.¹ The first set of rows includes the total PS records, the number with no enrollment, the number with S-CHIP only enrollment, and the total number of enrollment records (PS records less those with no enrollment). The remaining rows include the following sets of categories: (1) basis of eligibility (aged, disabled, child, and adult), (2) basis of eligibility after removing enrollees who qualified only for restricted benefits, (3) type of managed care premium payment—that is, health maintenance organization (HMO) or health insuring organization (HIO), pre-paid health plan (PHP), or primary care case management (PCCM), and (4) type of

¹ The percentage reduction is calculated as the difference between the count before versus after unduplication expressed as a percentage of the count before un-duplication

service used (for example, inpatient hospital services, mental hospital services for the aged, inpatient psychiatric facility services for individuals under age 21).

Tables A.2 through A.7 differ from Table A.1 in that they include all 50 states and the District of Columbia on each page. Each table also includes two rows containing national-level totals. The first national row is simply the sum of the state-level counts. A person who was enrolled in Medicaid in more than one state within a year is counted in each of these respective states and, therefore, is counted multiple times in the national total. In contrast, the second national total includes each individual only once; that is, it provides an unduplicated count of enrollees in that column.

Table A.2 displays counts of total PS records, records with no enrollment data, records with only S-CHIP enrollment during the year, and total enrollees (total PS records less those with no enrollment). There are three pages for each year (for a total of six), which present counts before unduplication, counts after unduplication, and counts of duplicates (the difference between the first two counts).²

Table A.3 displays counts of total enrollees (that is, Medicaid plus S-CHIP only) before and after unduplication along with counts of duplicates. There is a separate page for each of the two years. Table A.4 breaks down the Medicaid enrollees by basis of eligibility in the most recent month of enrollment, providing separate counts for aged, disabled, child, and adult enrollees. There are separate pages for counts before and after unduplication as well as the number of duplicates—all three for both years for a total of six pages. Table A.5 has the same layout as Table A.4, but the counts also exclude enrollees who qualified only for restricted Medicaid

² Counts of within-state duplicates removed in 2005 and 2006 were reported in Chapter IV—specifically, in Tables IV.10 and IV.11. In all, 181,000 records were removed from the 2005 file, and 137,705 were removed from the 2006 file.

benefits (family planning only, aliens eligible only for emergency services, and dual-eligibles receiving only cost-sharing benefits).

Table A.6 classifies Medicaid enrollees by type of managed care premium payment in the calendar year (i.e. HMO or HIO, PHP, PCCM). As with Tables A.3 through A.5, counts before and after unduplication and counts of duplicates are reported on separate pages, yielding three pages for each of the two calendar years.

Table A.7 provides counts of service utilization before and after unduplication along with the number of duplicates for each of 31 types of Medicaid service used in the calendar year (for example, inpatient hospital services, mental hospital services for the aged, inpatient psychiatric facility services for individuals under age 21, and so on). There is a printed page for each of the 31 types of service for each of 2005 and 2006, or 62 pages in all.

Finally, Table A.8 departs from the display of counts to report the Medicaid turnover rate before and after unduplication and the percent reduction (as calculated in Table A.1). The turnover rate measures the degree to which the Medicaid caseload has changed between years. The turnover rate equals the number of people who were ever enrolled in Medicaid over a two-year period (in this case 2005 and 2006) divided by the average number of enrollees across the two years. For example, if the number of enrollees was 100 in the first year, 75 are still enrolled in second year, 25 leave, and 50 enter, then the turnover rate would be 1.33 (ever enrolled = $75 + 25 + 50$; average enrolled = $(100 + 125)/2 = 112.5$; ever/average = 1.33). The turnover rate varies between a minimum of 1.0 (the same persons are enrolled in both years) and a maximum of 2.0 (entirely different persons are enrolled in the two years).

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Alabama.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	963,526	962,325	0.12
No enrollment	7,936	7,936	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	955,590	954,389	0.13
Medicaid Enrollees by Basis of Enrollment			
Aged	102,706	102,628	0.08
Disabled	206,514	206,302	0.10
Child	442,298	441,564	0.17
Adult	204,072	203,895	0.09
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	99,916	99,829	0.09
Disabled	202,889	202,678	0.10
Child	441,428	440,697	0.17
Adult	167,723	167,539	0.11
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	597,153	596,320	0.14
PCCM	439,529	439,229	0.07
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	113,587	113,563	0.02
Mental Hospital Services for the Aged	218	218	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	245	245	0.00
Nursing Facility Services	26,543	26,526	0.06
Physician Services	551,652	551,290	0.07
Dental Services	169,234	169,195	0.02
Other Practitioner Services	106,555	106,549	0.01
Outpatient Services	232,167	232,086	0.03
Clinic Services	225,315	225,221	0.04
Home Health Services	56,666	56,650	0.03
Lab/Xray Services	485,520	485,285	0.05
Drugs	548,899	548,512	0.07
Other Services	40,192	40,186	0.01
Sterilizations	2,925	2,925	0.00
Abortions	1,465	1,465	0.00
Transportation Services	45,672	45,659	0.03
Personal Care Services	0	0	0.00
Targeted Case Management	30,550	30,509	0.13
Rehabilitation Services	4,486	4,483	0.07
PT/OT/Hearing/Speech Services	4,661	4,656	0.11
Hospice Services	3,687	3,687	0.00
Nurse Midwife Services	4,357	4,357	0.00
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	36	36	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	145,628	145,609	0.01
Residential Care Services	2,828	2,828	0.00
Psychiatric Services	91,564	91,495	0.08
Adult Day Care	238	238	0.00
Unknown Services	144,893	144,819	0.05

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Alaska.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	133,699	133,651	0.04
No enrollment	849	849	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	132,850	132,802	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	7,306	7,306	0.00
Disabled	14,987	14,986	0.01
Child	82,319	82,273	0.06
Adult	28,238	28,237	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	7,292	7,292	0.00
Disabled	14,975	14,974	0.01
Child	82,319	82,273	0.06
Adult	28,238	28,237	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	14,599	14,599	0.00
Mental Hospital Services for the Aged	6	6	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,423	1,423	0.00
Intermediate Care Facility Services for the Mentally Retarded	0	0	0.00
Nursing Facility Services	947	947	0.00
Physician Services	84,856	84,850	0.01
Dental Services	40,764	40,760	0.01
Other Practitioner Services	21,047	21,045	0.01
Outpatient Services	43,986	43,980	0.01
Clinic Services	34,951	34,948	0.01
Home Health Services	379	379	0.00
Lab/Xray Services	62,979	62,976	0.00
Drugs	77,759	77,753	0.01
Other Services	8,186	8,186	0.00
Sterilizations	351	351	0.00
Abortions	0	0	0.00
Transportation Services	22,657	22,655	0.01
Personal Care Services	4,768	4,767	0.02
Targeted Case Management	4,664	4,664	0.00
Rehabilitation Services	163	163	0.00
PT/OT/Hearing/Speech Services	6,519	6,518	0.02
Hospice Services	24	24	0.00
Nurse Midwife Services	2,434	2,434	0.00
Nurse Practitioner Services	12,271	12,269	0.02
Private Nursing Services	144	144	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	30,394	30,392	0.01
Residential Care Services	861	861	0.00
Psychiatric Services	17,398	17,398	0.00
Adult Day Care	439	439	0.00
Unknown Services	2,741	2,741	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Arizona.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,491,569	1,489,015	0.17
No enrollment	14,727	14,727	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,476,842	1,474,288	0.17
Medicaid Enrollees by Basis of Enrollment			
Aged	79,784	77,986	2.25
Disabled	137,043	136,645	0.29
Child	671,165	670,946	0.03
Adult	588,850	588,711	0.02
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	78,877	76,825	2.60
Disabled	136,587	136,147	0.32
Child	670,384	670,166	0.03
Adult	579,197	579,028	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	943,281	943,094	0.02
PHP	946,074	945,852	0.02
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	187,132	187,123	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	758	758	0.00
Intermediate Care Facility Services for the Mentally Retarded	212	212	0.00
Nursing Facility Services	17,010	17,010	0.00
Physician Services	847,631	847,530	0.01
Dental Services	515	515	0.00
Other Practitioner Services	150,639	150,633	0.00
Outpatient Services	523,645	523,606	0.01
Clinic Services	124,014	124,010	0.00
Home Health Services	10,744	10,742	0.02
Lab/Xray Services	663,750	663,688	0.01
Drugs	731,940	731,878	0.01
Other Services	104,105	104,101	0.00
Sterilizations	3,439	3,439	0.00
Abortions	4,205	4,205	0.00
Transportation Services	162,838	162,823	0.01
Personal Care Services	10,978	10,978	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	21,713	21,712	0.00
PT/OT/Hearing/Speech Services	8,166	8,166	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	7,287	7,286	0.01
Nurse Practitioner Services	105,222	105,218	0.00
Private Nursing Services	6	6	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	259,774	259,766	0.00
Residential Care Services	11,177	11,177	0.00
Psychiatric Services	192,171	192,163	0.00
Adult Day Care	929	929	0.00
Unknown Services	215,309	215,299	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Arkansas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	762,193	761,387	0.11
No enrollment	15,687	15,687	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	746,506	745,700	0.11
Medicaid Enrollees by Basis of Enrollment			
Aged	63,588	63,434	0.24
Disabled	111,714	111,397	0.28
Child	398,675	398,517	0.04
Adult	172,529	172,352	0.10
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	62,447	62,190	0.41
Disabled	110,504	109,973	0.48
Child	397,651	397,490	0.04
Adult	154,572	154,364	0.13
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	462,403	462,254	0.03
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	85,549	85,532	0.02
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	5,705	5,704	0.02
Intermediate Care Facility Services for the Mentally Retarded	1,691	1,691	0.00
Nursing Facility Services	18,518	18,509	0.05
Physician Services	481,010	480,802	0.04
Dental Services	132,391	132,380	0.01
Other Practitioner Services	111,199	111,184	0.01
Outpatient Services	244,442	244,374	0.03
Clinic Services	206,444	206,391	0.03
Home Health Services	6,389	6,387	0.03
Lab/Xray Services	353,199	353,072	0.04
Drugs	455,727	455,532	0.04
Other Services	58,982	58,930	0.09
Sterilizations	4,115	4,115	0.00
Abortions	0	0	0.00
Transportation Services	536,144	535,803	0.06
Personal Care Services	15,300	15,297	0.02
Targeted Case Management	37,755	37,750	0.01
Rehabilitation Services	40	40	0.00
PT/OT/Hearing/Speech Services	18,439	18,435	0.02
Hospice Services	1,624	1,624	0.00
Nurse Midwife Services	842	842	0.00
Nurse Practitioner Services	6,432	6,432	0.00
Private Nursing Services	136	136	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	140,940	140,918	0.02
Residential Care Services	0	0	0.00
Psychiatric Services	80,531	80,467	0.08
Adult Day Care	490	490	0.00
Unknown Services	104,071	104,065	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, California.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	10,924,768	10,924,364	0.00
No enrollment	331,245	331,245	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	10,593,523	10,593,119	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	751,508	751,362	0.02
Disabled	1,111,609	1,111,577	0.00
Child	4,318,735	4,318,541	0.00
Adult	4,411,671	4,411,639	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	740,656	740,502	0.02
Disabled	1,108,128	1,108,095	0.00
Child	4,292,800	4,292,592	0.00
Adult	4,384,911	4,384,849	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	4,149,147	4,149,077	0.00
PHP	6,581,392	6,581,225	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	588,772	588,771	0.00
Mental Hospital Services for the Aged	13	13	0.00
Inpatient Psychiatric Facility Services (under Age 21)	576	576	0.00
Intermediate Care Facility Services for the Mentally Retarded	9,980	9,980	0.00
Nursing Facility Services	128,051	128,021	0.02
Physician Services	4,531,205	4,531,127	0.00
Dental Services	2,103,714	2,103,705	0.00
Other Practitioner Services	654,637	654,635	0.00
Outpatient Services	2,009,350	2,009,320	0.00
Clinic Services	2,561,336	2,561,315	0.00
Home Health Services	41,886	41,886	0.00
Lab/Xray Services	4,525,217	4,525,180	0.00
Drugs	5,263,706	5,263,572	0.00
Other Services	1,477,393	1,477,364	0.00
Sterilizations	21,557	21,557	0.00
Abortions	0	0	0.00
Transportation Services	292,050	292,045	0.00
Personal Care Services	372,763	372,753	0.00
Targeted Case Management	200,266	200,264	0.00
Rehabilitation Services	90,891	90,891	0.00
PT/OT/Hearing/Speech Services	59,058	59,058	0.00
Hospice Services	13,725	13,725	0.00
Nurse Midwife Services	13,884	13,884	0.00
Nurse Practitioner Services	52,060	52,059	0.00
Private Nursing Services	1,820	1,820	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	3,465,836	3,465,814	0.00
Residential Care Services	61,088	61,087	0.00
Psychiatric Services	1,013,293	1,013,289	0.00
Adult Day Care	80,926	80,923	0.00
Unknown Services	934,387	934,364	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Colorado.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	645,965	645,723	0.04
No enrollment	42,016	42,016	0.00
Enrollees with S-CHIP only	47,057	47,045	0.03
Total Medicaid Enrollees	603,949	603,707	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	50,802	50,796	0.01
Disabled	78,934	78,924	0.01
Child	328,711	328,503	0.06
Adult	98,445	98,439	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	49,312	49,306	0.01
Disabled	76,632	76,622	0.01
Child	328,554	328,346	0.06
Adult	97,748	97,741	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	120,423	120,417	0.00
PHP	522,901	522,683	0.04
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	43,617	43,616	0.00
Mental Hospital Services for the Aged	12	12	0.00
Inpatient Psychiatric Facility Services (under Age 21)	166	166	0.00
Intermediate Care Facility Services for the Mentally Retarded	131	131	0.00
Nursing Facility Services	14,778	14,778	0.00
Physician Services	54,835	54,832	0.01
Dental Services	115,031	115,023	0.01
Other Practitioner Services	14,864	14,864	0.00
Outpatient Services	147,543	147,531	0.01
Clinic Services	331,655	331,596	0.02
Home Health Services	10,332	10,330	0.02
Lab/Xray Services	212,577	212,557	0.01
Drugs	240,494	240,461	0.01
Other Services	26,829	26,828	0.00
Sterilizations	1,853	1,853	0.00
Abortions	9	9	0.00
Transportation Services	21,865	21,865	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	1,303	1,303	0.00
Hospice Services	2,669	2,669	0.00
Nurse Midwife Services	539	539	0.00
Nurse Practitioner Services	672	672	0.00
Private Nursing Services	195	195	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	111,308	111,303	0.00
Residential Care Services	4,412	4,412	0.00
Psychiatric Services	29,365	29,365	0.00
Adult Day Care	1,200	1,200	0.00
Unknown Services	58,671	58,658	0.02

Table A.1 Within State/Within Year Validation Statistics Before and After Unuplication, 2005, Connecticut.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	531,515	530,865	0.12
No enrollment	2,396	2,396	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	529,119	528,469	0.12
Medicaid Enrollees by Basis of Enrollment			
Aged	64,105	64,091	0.02
Disabled	64,093	64,074	0.03
Child	285,444	284,846	0.21
Adult	115,477	115,458	0.02
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	61,266	61,246	0.03
Disabled	60,865	60,846	0.03
Child	285,444	284,846	0.21
Adult	115,353	115,333	0.02
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	383,092	382,543	0.14
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	30,526	30,526	0.00
Mental Hospital Services for the Aged	1,166	1,165	0.09
Inpatient Psychiatric Facility Services (under Age 21)	152	152	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,269	1,269	0.00
Nursing Facility Services	29,479	29,478	0.00
Physician Services	92,243	92,234	0.01
Dental Services	35,673	35,671	0.01
Other Practitioner Services	35,496	35,494	0.01
Outpatient Services	81,036	81,028	0.01
Clinic Services	30,870	30,868	0.01
Home Health Services	21,633	21,631	0.01
Lab/Xray Services	96,011	96,001	0.01
Drugs	120,626	120,613	0.01
Other Services	52,160	52,147	0.02
Sterilizations	275	275	0.00
Abortions	41	41	0.00
Transportation Services	33,305	33,304	0.00
Personal Care Services	12,846	12,846	0.00
Targeted Case Management	14,395	14,393	0.01
Rehabilitation Services	5,799	5,799	0.00
PT/OT/Hearing/Speech Services	2,094	2,094	0.00
Hospice Services	42	42	0.00
Nurse Midwife Services	1,136	1,136	0.00
Nurse Practitioner Services	9,290	9,290	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	64,486	64,483	0.00
Residential Care Services	6,500	6,499	0.02
Psychiatric Services	30,348	30,347	0.00
Adult Day Care	4,809	4,808	0.02
Unknown Services	5,828	5,828	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Delaware.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	181,053	181,031	0.01
No enrollment	1,118	1,118	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	179,935	179,913	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	12,728	12,727	0.01
Disabled	20,723	20,721	0.01
Child	77,346	77,329	0.02
Adult	69,138	69,136	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	12,276	12,274	0.02
Disabled	20,017	20,015	0.01
Child	77,137	77,120	0.02
Adult	63,888	63,886	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	127,465	127,452	0.01
PHP	155,596	155,582	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	12,348	12,348	0.00
Mental Hospital Services for the Aged	223	223	0.00
Inpatient Psychiatric Facility Services (under Age 21)	52	52	0.00
Intermediate Care Facility Services for the Mentally Retarded	181	181	0.00
Nursing Facility Services	3,673	3,673	0.00
Physician Services	119,503	119,494	0.01
Dental Services	23,812	23,812	0.00
Other Practitioner Services	42,890	42,889	0.00
Outpatient Services	17,096	17,095	0.01
Clinic Services	8,812	8,812	0.00
Home Health Services	1,313	1,313	0.00
Lab/Xray Services	86,245	86,243	0.00
Drugs	110,970	110,966	0.00
Other Services	26,613	26,612	0.00
Sterilizations	683	683	0.00
Abortions	109	109	0.00
Transportation Services	16,003	16,003	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	537	537	0.00
PT/OT/Hearing/Speech Services	7,414	7,414	0.00
Hospice Services	428	428	0.00
Nurse Midwife Services	236	236	0.00
Nurse Practitioner Services	1,214	1,214	0.00
Private Nursing Services	2,856	2,856	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	26,119	26,119	0.00
Residential Care Services	309	309	0.00
Psychiatric Services	24,425	24,425	0.00
Adult Day Care	203	203	0.00
Unknown Services	63,812	63,810	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, District of Columbia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	167,845	167,771	0.04
No enrollment	1,331	1,331	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	166,514	166,440	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	10,116	10,110	0.06
Disabled	34,150	34,121	0.08
Child	80,409	80,383	0.03
Adult	41,839	41,826	0.03
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,208	9,199	0.10
Disabled	33,483	33,456	0.08
Child	80,408	80,382	0.03
Adult	41,766	41,753	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	112,269	112,256	0.01
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	14,407	14,407	0.00
Mental Hospital Services for the Aged	86	86	0.00
Inpatient Psychiatric Facility Services (under Age 21)	239	239	0.00
Intermediate Care Facility Services for the Mentally Retarded	749	749	0.00
Nursing Facility Services	4,206	4,206	0.00
Physician Services	22,943	22,942	0.00
Dental Services	2,528	2,528	0.00
Other Practitioner Services	7,109	7,109	0.00
Outpatient Services	19,454	19,453	0.01
Clinic Services	17,934	17,930	0.02
Home Health Services	2,895	2,895	0.00
Lab/Xray Services	30,171	30,169	0.01
Drugs	36,968	36,963	0.01
Other Services	18,752	18,750	0.01
Sterilizations	61	61	0.00
Abortions	6	6	0.00
Transportation Services	13,915	13,912	0.02
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	119	119	0.00
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	165	165	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	958	958	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	19,660	19,659	0.01
Residential Care Services	0	0	0.00
Psychiatric Services	17,139	17,138	0.01
Adult Day Care	0	0	0.00
Unknown Services	2,122	2,121	0.05

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Georgia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,107,826	2,104,924	0.14
No enrollment	24,602	24,602	0.00
Enrollees with S-CHIP only	244,314	243,326	0.40
Total Medicaid Enrollees	2,083,224	2,080,322	0.14
Medicaid Enrollees by Basis of Enrollment			
Aged	134,996	134,965	0.02
Disabled	291,736	291,639	0.03
Child	1,093,356	1,091,637	0.16
Adult	318,822	318,755	0.02
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	127,682	127,642	0.03
Disabled	285,350	285,250	0.04
Child	1,092,698	1,090,979	0.16
Adult	316,746	316,679	0.02
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	1,624,392	1,623,913	0.03
PCCM	1,286,010	1,285,410	0.05
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	241,321	241,319	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,146	1,146	0.00
Nursing Facility Services	39,255	39,254	0.00
Physician Services	1,230,830	1,230,611	0.02
Dental Services	493,269	493,218	0.01
Other Practitioner Services	281,578	281,568	0.00
Outpatient Services	709,241	709,177	0.01
Clinic Services	462,344	462,310	0.01
Home Health Services	9,259	9,259	0.00
Lab/Xray Services	914,456	914,343	0.01
Drugs	1,175,475	1,175,293	0.02
Other Services	84,499	84,489	0.01
Sterilizations	8,233	8,233	0.00
Abortions	103	103	0.00
Transportation Services	93,959	93,957	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	205,519	205,507	0.01
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	1,683	1,683	0.00
Hospice Services	5,854	5,854	0.00
Nurse Midwife Services	20,398	20,397	0.00
Nurse Practitioner Services	183,898	183,889	0.00
Private Nursing Services	559	559	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	488,240	488,220	0.00
Residential Care Services	4,266	4,266	0.00
Psychiatric Services	199,088	199,082	0.00
Adult Day Care	5,411	5,411	0.00
Unknown Services	359,987	359,964	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Florida.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	3,059,524	3,059,056	0.02
No enrollment	39,422	39,422	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	3,020,102	3,019,634	0.02
Medicaid Enrollees by Basis of Enrollment			
Aged	347,360	347,307	0.02
Disabled	533,460	533,320	0.03
Child	1,570,668	1,570,406	0.02
Adult	568,614	568,601	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	331,934	331,874	0.02
Disabled	516,483	516,340	0.03
Child	1,569,690	1,569,428	0.02
Adult	554,482	554,467	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,254,716	1,254,626	0.01
PHP	243,855	243,844	0.00
PCCM	1,195,568	1,195,482	0.01
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	305,605	305,598	0.00
Mental Hospital Services for the Aged	161	161	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	3,206	3,206	0.00
Nursing Facility Services	79,730	79,724	0.01
Physician Services	1,245,365	1,245,278	0.01
Dental Services	342,055	342,055	0.00
Other Practitioner Services	204,811	204,809	0.00
Outpatient Services	617,200	617,180	0.00
Clinic Services	288,898	288,892	0.00
Home Health Services	27,563	27,559	0.01
Lab/Xray Services	935,467	935,413	0.01
Drugs	1,306,628	1,306,539	0.01
Other Services	580,820	580,791	0.00
Sterilizations	7,641	7,641	0.00
Abortions	63	63	0.00
Transportation Services	202,820	202,818	0.00
Personal Care Services	6,498	6,497	0.02
Targeted Case Management	84,023	84,013	0.01
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	71,624	71,615	0.01
Hospice Services	16,612	16,612	0.00
Nurse Midwife Services	1,136	1,136	0.00
Nurse Practitioner Services	159,236	159,231	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	282,353	282,341	0.00
Residential Care Services	8,611	8,610	0.01
Psychiatric Services	240,513	240,508	0.00
Adult Day Care	12,869	12,868	0.01
Unknown Services	220,747	220,731	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Hawaii.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	237,736	237,569	0.07
No enrollment	5,949	5,949	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	231,787	231,620	0.07
Medicaid Enrollees by Basis of Enrollment			
Aged	22,271	22,266	0.02
Disabled	25,479	25,475	0.02
Child	107,745	107,620	0.12
Adult	76,292	76,259	0.04
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	21,939	21,933	0.03
Disabled	25,272	25,268	0.02
Child	107,745	107,620	0.12
Adult	76,288	76,255	0.04
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	181,610	181,481	0.07
PHP	9,340	9,339	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	23,593	23,591	0.01
Mental Hospital Services for the Aged	141	141	0.00
Inpatient Psychiatric Facility Services (under Age 21)	40	40	0.00
Intermediate Care Facility Services for the Mentally Retarded	105	105	0.00
Nursing Facility Services	4,895	4,894	0.02
Physician Services	165,803	165,759	0.03
Dental Services	58,390	58,384	0.01
Other Practitioner Services	21,185	21,182	0.01
Outpatient Services	63,941	63,935	0.01
Clinic Services	24,157	24,154	0.01
Home Health Services	5,114	5,114	0.00
Lab/Xray Services	118,322	118,303	0.02
Drugs	152,883	152,849	0.02
Other Services	31,660	31,660	0.00
Sterilizations	986	986	0.00
Abortions	1,561	1,561	0.00
Transportation Services	15,355	15,355	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	3,265	3,265	0.00
Rehabilitation Services	227	227	0.00
PT/OT/Hearing/Speech Services	3,295	3,295	0.00
Hospice Services	122	122	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	11,768	11,766	0.02
Private Nursing Services	803	803	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	43,764	43,761	0.01
Residential Care Services	244	244	0.00
Psychiatric Services	33,060	33,055	0.02
Adult Day Care	1,427	1,427	0.00
Unknown Services	17,549	17,548	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Idaho.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	233,765	233,746	0.01
No enrollment	413	413	0.00
Enrollees with S-CHIP only	2,082	2,082	0.00
Total Medicaid Enrollees	233,352	233,333	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	15,776	15,776	0.00
Disabled	33,563	33,559	0.01
Child	147,540	147,526	0.01
Adult	34,391	34,390	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	15,255	15,255	0.00
Disabled	33,039	33,034	0.02
Child	147,540	147,526	0.01
Adult	34,386	34,385	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	109,771	109,771	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	24,863	24,862	0.00
Mental Hospital Services for the Aged	841	841	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,024	1,024	0.00
Intermediate Care Facility Services for the Mentally Retarded	624	624	0.00
Nursing Facility Services	4,665	4,665	0.00
Physician Services	147,303	147,298	0.00
Dental Services	72,994	72,993	0.00
Other Practitioner Services	46,559	46,558	0.00
Outpatient Services	73,827	73,826	0.00
Clinic Services	54,812	54,811	0.00
Home Health Services	1,832	1,831	0.05
Lab/Xray Services	101,337	101,334	0.00
Drugs	146,091	146,085	0.00
Other Services	26,732	26,729	0.01
Sterilizations	1,089	1,089	0.00
Abortions	0	0	0.00
Transportation Services	14,668	14,667	0.01
Personal Care Services	6,558	6,557	0.02
Targeted Case Management	7,996	7,992	0.05
Rehabilitation Services	2,012	2,012	0.00
PT/OT/Hearing/Speech Services	9,757	9,756	0.01
Hospice Services	230	230	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	26,162	26,162	0.00
Private Nursing Services	1,203	1,203	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	41,415	41,413	0.00
Residential Care Services	4,613	4,613	0.00
Psychiatric Services	30,788	30,784	0.01
Adult Day Care	445	445	0.00
Unknown Services	8,250	8,250	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Illinois.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,612,709	2,572,719	1.53
No enrollment	2,238	2,238	0.00
Enrollees with S-CHIP only	160,064	158,439	1.02
Total Medicaid Enrollees	2,610,471	2,570,481	1.53
Medicaid Enrollees by Basis of Enrollment			
Aged	355,652	337,254	5.17
Disabled	333,222	331,899	0.40
Child	1,302,965	1,287,146	1.21
Adult	458,568	455,743	0.62
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	346,404	316,180	8.73
Disabled	328,088	326,431	0.51
Child	1,302,185	1,286,215	1.23
Adult	404,526	401,513	0.74
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	222,497	222,379	0.05
PHP	27,402	27,393	0.03
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	190,860	190,691	0.09
Mental Hospital Services for the Aged	1,829	1,826	0.16
Inpatient Psychiatric Facility Services (under Age 21)	4,374	4,369	0.11
Intermediate Care Facility Services for the Mentally Retarded	9,636	9,633	0.03
Nursing Facility Services	77,097	77,057	0.05
Physician Services	1,309,917	1,307,072	0.22
Dental Services	542,540	542,200	0.06
Other Practitioner Services	220,118	220,083	0.02
Outpatient Services	682,154	681,156	0.15
Clinic Services	296,581	296,234	0.12
Home Health Services	12,729	12,713	0.13
Lab/Xray Services	1,067,685	1,065,464	0.21
Drugs	1,674,854	1,661,347	0.81
Other Services	108,481	108,427	0.05
Sterilizations	5,810	5,809	0.02
Abortions	64	64	0.00
Transportation Services	170,920	170,753	0.10
Personal Care Services	22,232	22,229	0.01
Targeted Case Management	770,451	769,000	0.19
Rehabilitation Services	13,277	13,274	0.02
PT/OT/Hearing/Speech Services	91,118	90,921	0.22
Hospice Services	6,939	6,938	0.01
Nurse Midwife Services	714	711	0.42
Nurse Practitioner Services	12,012	12,010	0.02
Private Nursing Services	13,965	13,965	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	397,705	397,498	0.05
Residential Care Services	9,015	9,007	0.09
Psychiatric Services	269,854	269,427	0.16
Adult Day Care	1,815	1,815	0.00
Unknown Services	130,999	130,941	0.04

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Indiana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,060,392	1,060,267	0.01
No enrollment	15,503	15,503	0.00
Enrollees with S-CHIP only	16,263	16,262	0.01
Total Medicaid Enrollees	1,044,889	1,044,764	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	80,935	80,932	0.00
Disabled	150,403	150,394	0.01
Child	607,504	607,398	0.02
Adult	189,784	189,778	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	72,449	72,446	0.00
Disabled	141,208	141,199	0.01
Child	607,496	607,390	0.02
Adult	189,750	189,744	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	679,654	679,634	0.00
PHP	0	0	0.00
PCCM	295,194	295,194	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	113,794	113,794	0.00
Mental Hospital Services for the Aged	134	134	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,803	2,803	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,255	4,255	0.00
Nursing Facility Services	38,000	38,000	0.00
Physician Services	598,862	598,853	0.00
Dental Services	336,379	336,378	0.00
Other Practitioner Services	38,628	38,628	0.00
Outpatient Services	371,295	371,291	0.00
Clinic Services	334,782	334,779	0.00
Home Health Services	13,217	13,217	0.00
Lab/Xray Services	481,238	481,234	0.00
Drugs	626,806	626,797	0.00
Other Services	202,744	202,744	0.00
Sterilizations	2,321	2,321	0.00
Abortions	0	0	0.00
Transportation Services	82,399	82,399	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	14,106	14,106	0.00
Rehabilitation Services	64,139	64,139	0.00
PT/OT/Hearing/Speech Services	24,564	24,564	0.00
Hospice Services	4,590	4,590	0.00
Nurse Midwife Services	925	925	0.00
Nurse Practitioner Services	2,443	2,443	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	227,825	227,824	0.00
Residential Care Services	5,345	5,345	0.00
Psychiatric Services	142,649	142,648	0.00
Adult Day Care	209	209	0.00
Unknown Services	134,126	134,124	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Iowa.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	430,985	430,450	0.12
No enrollment	2,171	2,171	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	428,814	428,279	0.12
Medicaid Enrollees by Basis of Enrollment			
Aged	41,247	41,245	0.00
Disabled	68,159	68,151	0.01
Child	222,651	222,133	0.23
Adult	96,757	96,750	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	39,384	39,382	0.01
Disabled	66,582	66,574	0.01
Child	222,646	222,128	0.23
Adult	96,314	96,307	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	30,621	30,621	0.00
PHP	351,401	350,890	0.15
PCCM	180,566	180,560	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	54,247	54,247	0.00
Mental Hospital Services for the Aged	12	12	0.00
Inpatient Psychiatric Facility Services (under Age 21)	954	954	0.00
Intermediate Care Facility Services for the Mentally Retarded	2,343	2,343	0.00
Nursing Facility Services	19,332	19,332	0.00
Physician Services	279,947	279,815	0.05
Dental Services	128,681	128,623	0.05
Other Practitioner Services	105,153	105,140	0.01
Outpatient Services	164,507	164,481	0.02
Clinic Services	147,092	147,053	0.03
Home Health Services	24,946	24,946	0.00
Lab/Xray Services	223,290	223,243	0.02
Drugs	290,352	290,128	0.08
Other Services	45,551	45,540	0.02
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	15,174	15,174	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	10,747	10,740	0.07
Rehabilitation Services	2,234	2,226	0.36
PT/OT/Hearing/Speech Services	4,957	4,956	0.02
Hospice Services	0	0	0.00
Nurse Midwife Services	1,509	1,509	0.00
Nurse Practitioner Services	23,327	23,322	0.02
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	132,611	132,588	0.02
Residential Care Services	11,580	11,574	0.05
Psychiatric Services	63,776	63,743	0.05
Adult Day Care	3,557	3,557	0.00
Unknown Services	37,323	37,322	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Kansas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	361,325	361,293	0.01
No enrollment	4,587	4,587	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	356,738	356,706	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	34,121	34,120	0.00
Disabled	59,892	59,888	0.01
Child	201,869	201,843	0.01
Adult	60,856	60,855	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	31,712	31,711	0.00
Disabled	56,915	56,911	0.01
Child	201,866	201,840	0.01
Adult	60,835	60,834	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	111,637	111,632	0.00
PHP	0	0	0.00
PCCM	97,855	97,851	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	49,585	49,585	0.00
Mental Hospital Services for the Aged	184	184	0.00
Inpatient Psychiatric Facility Services (under Age 21)	409	409	0.00
Intermediate Care Facility Services for the Mentally Retarded	649	649	0.00
Nursing Facility Services	15,104	15,104	0.00
Physician Services	232,940	232,932	0.00
Dental Services	75,426	75,424	0.00
Other Practitioner Services	40,002	40,002	0.00
Outpatient Services	107,921	107,917	0.00
Clinic Services	91,030	91,027	0.00
Home Health Services	5,448	5,448	0.00
Lab/Xray Services	168,847	168,842	0.00
Drugs	236,243	236,234	0.00
Other Services	52,696	52,694	0.00
Sterilizations	1,263	1,263	0.00
Abortions	5	5	0.00
Transportation Services	22,009	22,009	0.00
Personal Care Services	375	375	0.00
Targeted Case Management	23,760	23,760	0.00
Rehabilitation Services	3,871	3,871	0.00
PT/OT/Hearing/Speech Services	1,638	1,638	0.00
Hospice Services	2,510	2,510	0.00
Nurse Midwife Services	579	579	0.00
Nurse Practitioner Services	20,276	20,275	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	65,074	65,073	0.00
Residential Care Services	4,261	4,261	0.00
Psychiatric Services	66,385	66,382	0.00
Adult Day Care	88	88	0.00
Unknown Services	31,670	31,670	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Kentucky.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	894,282	881,254	1.46
No enrollment	7,322	7,322	0.00
Enrollees with S-CHIP only	12,760	12,463	2.33
Total Medicaid Enrollees	886,960	873,932	1.47
Medicaid Enrollees by Basis of Enrollment			
Aged	70,323	70,233	0.13
Disabled	232,951	232,459	0.21
Child	437,850	425,856	2.74
Adult	133,076	132,921	0.12
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	67,570	67,478	0.14
Disabled	229,993	229,498	0.22
Child	437,691	425,697	2.74
Adult	132,818	132,658	0.12
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	172,885	168,581	2.49
PHP	811,157	800,034	1.37
PCCM	444,099	438,325	1.30
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	79,896	79,748	0.19
Mental Hospital Services for the Aged	307	307	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,502	3,494	0.23
Intermediate Care Facility Services for the Mentally Retarded	769	769	0.00
Nursing Facility Services	27,705	27,693	0.04
Physician Services	617,420	611,333	0.99
Dental Services	235,862	235,359	0.21
Other Practitioner Services	206,268	206,116	0.07
Outpatient Services	399,789	398,456	0.33
Clinic Services	206,744	205,194	0.75
Home Health Services	19,765	19,718	0.24
Lab/Xray Services	467,523	465,471	0.44
Drugs	635,350	630,881	0.70
Other Services	244,125	242,134	0.82
Sterilizations	4,718	4,717	0.02
Abortions	1,180	1,180	0.00
Transportation Services	77,402	77,338	0.08
Personal Care Services	0	0	0.00
Targeted Case Management	15,956	15,882	0.46
Rehabilitation Services	129	129	0.00
PT/OT/Hearing/Speech Services	3,107	3,098	0.29
Hospice Services	3,069	3,069	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	98,978	98,595	0.39
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	189,519	189,198	0.17
Residential Care Services	2,214	2,212	0.09
Psychiatric Services	148,427	147,793	0.43
Adult Day Care	3,296	3,295	0.03
Unknown Services	123,105	120,661	1.99

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Louisiana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,244,886	1,244,852	0.00
No enrollment	78,733	78,733	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,166,153	1,166,119	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	111,175	111,162	0.01
Disabled	201,014	201,012	0.00
Child	710,679	710,661	0.00
Adult	143,285	143,284	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	106,639	106,624	0.01
Disabled	196,536	196,534	0.00
Child	710,677	710,659	0.00
Adult	143,203	143,202	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	831,977	831,967	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	144,990	144,990	0.00
Mental Hospital Services for the Aged	6,562	6,562	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,272	3,272	0.00
Intermediate Care Facility Services for the Mentally Retarded	5,671	5,671	0.00
Nursing Facility Services	31,486	31,486	0.00
Physician Services	769,586	769,581	0.00
Dental Services	232,865	232,865	0.00
Other Practitioner Services	167,412	167,411	0.00
Outpatient Services	435,591	435,589	0.00
Clinic Services	141,026	141,026	0.00
Home Health Services	10,198	10,198	0.00
Lab/Xray Services	608,618	608,615	0.00
Drugs	767,987	767,983	0.00
Other Services	426,745	426,744	0.00
Sterilizations	5,727	5,727	0.00
Abortions	4	4	0.00
Transportation Services	102,726	102,726	0.00
Personal Care Services	7,293	7,293	0.00
Targeted Case Management	11,579	11,579	0.00
Rehabilitation Services	4,983	4,983	0.00
PT/OT/Hearing/Speech Services	70,628	70,627	0.00
Hospice Services	3,756	3,756	0.00
Nurse Midwife Services	76,297	76,297	0.00
Nurse Practitioner Services	6,163	6,163	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	284,155	284,154	0.00
Residential Care Services	0	0	0.00
Psychiatric Services	69,918	69,918	0.00
Adult Day Care	0	0	0.00
Unknown Services	4,569	4,569	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Maine.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	327,491	327,400	0.03
No enrollment	991	991	0.00
Enrollees with S-CHIP only	4,006	4,005	0.02
Total Medicaid Enrollees	326,500	326,409	0.03
Medicaid Enrollees by Basis of Enrollment			
Aged	35,471	35,460	0.03
Disabled	51,902	51,886	0.03
Child	127,231	127,178	0.04
Adult	107,890	107,880	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	33,589	33,575	0.04
Disabled	50,649	50,632	0.03
Child	127,212	127,159	0.04
Adult	107,680	107,670	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	0	0	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	0	0	0.00
Nursing Facility Services	0	0	0.00
Physician Services	0	0	0.00
Dental Services	0	0	0.00
Other Practitioner Services	0	0	0.00
Outpatient Services	0	0	0.00
Clinic Services	0	0	0.00
Home Health Services	0	0	0.00
Lab/Xray Services	0	0	0.00
Drugs	226,209	226,194	0.01
Other Services	0	0	0.00
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	0	0	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	0	0	0.00
Residential Care Services	0	0	0.00
Psychiatric Services	0	0	0.00
Adult Day Care	0	0	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Maryland.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	868,686	868,665	0.00
No enrollment	1,765	1,765	0.00
Enrollees with S-CHIP only	7,820	7,817	0.04
Total Medicaid Enrollees	866,921	866,900	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	68,850	68,847	0.00
Disabled	137,688	137,686	0.00
Child	473,614	473,605	0.00
Adult	178,949	178,945	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	66,926	66,922	0.01
Disabled	132,506	132,504	0.00
Child	470,195	470,186	0.00
Adult	156,250	156,247	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	602,730	602,723	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	112,712	112,711	0.00
Mental Hospital Services for the Aged	53	53	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,624	2,624	0.00
Intermediate Care Facility Services for the Mentally Retarded	381	381	0.00
Nursing Facility Services	24,735	24,735	0.00
Physician Services	529,630	529,625	0.00
Dental Services	127,566	127,566	0.00
Other Practitioner Services	20,196	20,196	0.00
Outpatient Services	281,618	281,616	0.00
Clinic Services	32,526	32,526	0.00
Home Health Services	19,267	19,267	0.00
Lab/Xray Services	214,746	214,745	0.00
Drugs	487,844	487,841	0.00
Other Services	55,561	55,561	0.00
Sterilizations	1,048	1,048	0.00
Abortions	3,340	3,340	0.00
Transportation Services	26,806	26,806	0.00
Personal Care Services	4,976	4,976	0.00
Targeted Case Management	16,105	16,105	0.00
Rehabilitation Services	3,571	3,571	0.00
PT/OT/Hearing/Speech Services	59,340	59,340	0.00
Hospice Services	1,604	1,604	0.00
Nurse Midwife Services	7,119	7,119	0.00
Nurse Practitioner Services	33,841	33,841	0.00
Private Nursing Services	677	677	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	152,442	152,442	0.00
Residential Care Services	54,493	54,493	0.00
Psychiatric Services	152,633	152,632	0.00
Adult Day Care	85,617	85,617	0.00
Unknown Services	16,098	16,098	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Massachusetts.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,255,313	1,255,261	0.00
No enrollment	9,418	9,418	0.00
Enrollees with S-CHIP only	24,134	24,133	0.00
Total Medicaid Enrollees	1,245,895	1,245,843	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	145,040	145,035	0.00
Disabled	239,917	239,912	0.00
Child	484,330	484,312	0.00
Adult	352,474	352,451	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	142,698	142,692	0.00
Disabled	239,763	239,758	0.00
Child	484,330	484,312	0.00
Adult	352,426	352,403	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	449,640	449,631	0.00
PHP	424,297	424,287	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	73,741	73,740	0.00
Mental Hospital Services for the Aged	31	31	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,649	3,649	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,062	1,062	0.00
Nursing Facility Services	51,536	51,536	0.00
Physician Services	485,649	485,643	0.00
Dental Services	266,436	266,433	0.00
Other Practitioner Services	84,203	84,203	0.00
Outpatient Services	389,695	389,687	0.00
Clinic Services	88,411	88,410	0.00
Home Health Services	34,237	34,237	0.00
Lab/Xray Services	391,853	391,848	0.00
Drugs	576,344	576,338	0.00
Other Services	95,217	95,216	0.00
Sterilizations	1,547	1,547	0.00
Abortions	0	0	0.00
Transportation Services	101,443	101,441	0.00
Personal Care Services	8,980	8,980	0.00
Targeted Case Management	32,131	32,130	0.00
Rehabilitation Services	69,588	69,588	0.00
PT/OT/Hearing/Speech Services	7,672	7,672	0.00
Hospice Services	3,962	3,962	0.00
Nurse Midwife Services	2,190	2,190	0.00
Nurse Practitioner Services	24,387	24,387	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	117,849	117,848	0.00
Residential Care Services	12,794	12,794	0.00
Psychiatric Services	137,688	137,687	0.00
Adult Day Care	6,513	6,513	0.00
Unknown Services	19,889	19,888	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Michigan.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,878,812	1,878,738	0.00
No enrollment	21,037	21,037	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,857,775	1,857,701	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	135,204	135,183	0.02
Disabled	293,117	293,104	0.00
Child	990,757	990,725	0.00
Adult	438,697	438,689	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	129,904	129,882	0.02
Disabled	286,890	286,876	0.00
Child	989,741	989,709	0.00
Adult	437,941	437,933	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,191,467	1,191,456	0.00
PHP	1,628,886	1,628,823	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	92,537	92,536	0.00
Mental Hospital Services for the Aged	68	68	0.00
Inpatient Psychiatric Facility Services (under Age 21)	312	312	0.00
Intermediate Care Facility Services for the Mentally Retarded	175	175	0.00
Nursing Facility Services	44,631	44,625	0.01
Physician Services	465,473	465,460	0.00
Dental Services	333,143	333,142	0.00
Other Practitioner Services	89,937	89,937	0.00
Outpatient Services	280,782	280,779	0.00
Clinic Services	137,350	137,349	0.00
Home Health Services	6,973	6,973	0.00
Lab/Xray Services	225,343	225,339	0.00
Drugs	661,304	661,283	0.00
Other Services	34,858	34,857	0.00
Sterilizations	2,795	2,795	0.00
Abortions	23	23	0.00
Transportation Services	28,236	28,236	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	52,426	52,426	0.00
Rehabilitation Services	12	12	0.00
PT/OT/Hearing/Speech Services	76	76	0.00
Hospice Services	828	828	0.00
Nurse Midwife Services	3,150	3,150	0.00
Nurse Practitioner Services	19,488	19,488	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	137,297	137,296	0.00
Residential Care Services	5,356	5,356	0.00
Psychiatric Services	64,111	64,111	0.00
Adult Day Care	407	407	0.00
Unknown Services	16,625	16,625	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Minnesota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	792,366	792,269	0.01
No enrollment	1,654	1,654	0.00
Enrollees with S-CHIP only	26,499	26,499	0.00
Total Medicaid Enrollees	790,712	790,615	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	91,881	91,794	0.09
Disabled	108,700	108,692	0.01
Child	388,219	388,217	0.00
Adult	175,413	175,413	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	89,915	89,828	0.10
Disabled	107,447	107,439	0.01
Child	387,969	387,967	0.00
Adult	175,060	175,060	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	529,268	529,246	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	66,815	66,814	0.00
Mental Hospital Services for the Aged	156	156	0.00
Inpatient Psychiatric Facility Services (under Age 21)	684	684	0.00
Intermediate Care Facility Services for the Mentally Retarded	3,127	3,126	0.03
Nursing Facility Services	32,114	32,096	0.06
Physician Services	520,555	520,536	0.00
Dental Services	230,310	230,306	0.00
Other Practitioner Services	152,080	152,078	0.00
Outpatient Services	260,842	260,837	0.00
Clinic Services	44,742	44,742	0.00
Home Health Services	62,163	62,158	0.01
Lab/Xray Services	397,181	397,171	0.00
Drugs	483,947	483,917	0.01
Other Services	108,724	108,721	0.00
Sterilizations	1,804	1,804	0.00
Abortions	8	8	0.00
Transportation Services	64,670	64,668	0.00
Personal Care Services	40,295	40,283	0.03
Targeted Case Management	103,745	103,731	0.01
Rehabilitation Services	9,857	9,857	0.00
PT/OT/Hearing/Speech Services	24,897	24,897	0.00
Hospice Services	2,621	2,620	0.04
Nurse Midwife Services	7,796	7,796	0.00
Nurse Practitioner Services	101,669	101,663	0.01
Private Nursing Services	1,532	1,532	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	184,937	184,926	0.01
Residential Care Services	9,158	9,157	0.01
Psychiatric Services	131,169	131,169	0.00
Adult Day Care	12,204	12,204	0.00
Unknown Services	103,948	103,947	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Mississippi.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	787,537	785,813	0.22
No enrollment	7,291	7,291	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	780,246	778,522	0.22
Medicaid Enrollees by Basis of Enrollment			
Aged	84,787	84,728	0.07
Disabled	170,455	169,499	0.56
Child	394,240	393,804	0.11
Adult	130,764	130,491	0.21
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	81,963	81,898	0.08
Disabled	168,372	167,400	0.58
Child	394,043	393,607	0.11
Adult	112,733	112,396	0.30
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	100,188	100,163	0.02
Mental Hospital Services for the Aged	247	247	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,377	2,377	0.00
Intermediate Care Facility Services for the Mentally Retarded	2,879	2,879	0.00
Nursing Facility Services	20,263	20,262	0.00
Physician Services	473,263	473,070	0.04
Dental Services	159,998	159,990	0.01
Other Practitioner Services	211,407	211,372	0.02
Outpatient Services	339,737	339,652	0.03
Clinic Services	205,595	205,555	0.02
Home Health Services	8,223	8,222	0.01
Lab/Xray Services	423,539	423,384	0.04
Drugs	543,865	543,667	0.04
Other Services	120,573	120,554	0.02
Sterilizations	4,937	4,937	0.00
Abortions	2	2	0.00
Transportation Services	70,939	70,921	0.03
Personal Care Services	360	360	0.00
Targeted Case Management	39,172	39,157	0.04
Rehabilitation Services	125	125	0.00
PT/OT/Hearing/Speech Services	7,343	7,342	0.01
Hospice Services	2,339	2,339	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	116,620	116,602	0.02
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	224,834	224,803	0.01
Residential Care Services	100	100	0.00
Psychiatric Services	89,919	89,891	0.03
Adult Day Care	734	734	0.00
Unknown Services	19,353	19,352	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Missouri.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,219,756	1,219,327	0.04
No enrollment	1,827	1,827	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,217,929	1,217,500	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	100,849	100,837	0.01
Disabled	194,214	194,207	0.00
Child	658,177	657,823	0.05
Adult	264,689	264,633	0.02
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	98,170	98,157	0.01
Disabled	190,272	190,265	0.00
Child	658,137	657,783	0.05
Adult	248,597	248,542	0.02
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	777,628	777,426	0.03
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	135,371	135,369	0.00
Mental Hospital Services for the Aged	14	14	0.00
Inpatient Psychiatric Facility Services (under Age 21)	364	364	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,168	1,168	0.00
Nursing Facility Services	38,472	38,471	0.00
Physician Services	630,463	630,399	0.01
Dental Services	199,248	199,241	0.00
Other Practitioner Services	158,535	158,535	0.00
Outpatient Services	558,425	558,374	0.01
Clinic Services	506,537	506,481	0.01
Home Health Services	6,648	6,647	0.02
Lab/Xray Services	628,802	628,740	0.01
Drugs	856,035	855,924	0.01
Other Services	309,908	309,866	0.01
Sterilizations	2,109	2,109	0.00
Abortions	33	33	0.00
Transportation Services	81,564	81,559	0.01
Personal Care Services	47,719	47,719	0.00
Targeted Case Management	39,027	39,022	0.01
Rehabilitation Services	13,524	13,524	0.00
PT/OT/Hearing/Speech Services	5,021	5,021	0.00
Hospice Services	1,057	1,057	0.00
Nurse Midwife Services	1,208	1,208	0.00
Nurse Practitioner Services	20,810	20,810	0.00
Private Nursing Services	53	53	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	267,495	267,485	0.00
Residential Care Services	10,690	10,690	0.00
Psychiatric Services	139,028	139,021	0.01
Adult Day Care	1,449	1,449	0.00
Unknown Services	154,967	154,934	0.02

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Montana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	129,052	129,052	0.00
No enrollment	1,048	1,048	0.00
Enrollees with S-CHIP only	12,723	12,723	0.00
Total Medicaid Enrollees	128,004	128,004	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	10,117	10,117	0.00
Disabled	19,450	19,450	0.00
Child	62,248	62,248	0.00
Adult	23,466	23,466	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	10,117	10,117	0.00
Disabled	19,450	19,450	0.00
Child	62,248	62,248	0.00
Adult	23,466	23,466	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	77,170	77,170	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	16,829	16,829	0.00
Mental Hospital Services for the Aged	55	55	0.00
Inpatient Psychiatric Facility Services (under Age 21)	424	424	0.00
Intermediate Care Facility Services for the Mentally Retarded	95	95	0.00
Nursing Facility Services	5,228	5,228	0.00
Physician Services	71,668	71,668	0.00
Dental Services	21,989	21,989	0.00
Other Practitioner Services	20,708	20,708	0.00
Outpatient Services	41,858	41,858	0.00
Clinic Services	17,275	17,275	0.00
Home Health Services	416	416	0.00
Lab/Xray Services	51,341	51,341	0.00
Drugs	70,760	70,760	0.00
Other Services	99,569	99,569	0.00
Sterilizations	3	3	0.00
Abortions	1,221	1,221	0.00
Transportation Services	6,324	6,324	0.00
Personal Care Services	3,119	3,119	0.00
Targeted Case Management	11,031	11,031	0.00
Rehabilitation Services	339	339	0.00
PT/OT/Hearing/Speech Services	3	3	0.00
Hospice Services	218	218	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	27,743	27,743	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	29,944	29,944	0.00
Residential Care Services	91	91	0.00
Psychiatric Services	17,824	17,824	0.00
Adult Day Care	281	281	0.00
Unknown Services	3,146	3,146	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Nebraska.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	261,841	261,840	0.00
No enrollment	469	469	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	261,372	261,371	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	23,808	23,808	0.00
Disabled	33,876	33,876	0.00
Child	156,743	156,742	0.00
Adult	46,945	46,945	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	23,341	23,341	0.00
Disabled	33,489	33,489	0.00
Child	156,743	156,742	0.00
Adult	46,945	46,945	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	41,832	41,832	0.00
PHP	0	0	0.00
PCCM	54,144	54,144	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	32,101	32,101	0.00
Mental Hospital Services for the Aged	1	1	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,645	1,645	0.00
Intermediate Care Facility Services for the Mentally Retarded	641	641	0.00
Nursing Facility Services	11,320	11,320	0.00
Physician Services	190,973	190,973	0.00
Dental Services	100,870	100,870	0.00
Other Practitioner Services	68,136	68,136	0.00
Outpatient Services	95,983	95,983	0.00
Clinic Services	38,517	38,517	0.00
Home Health Services	5,351	5,351	0.00
Lab/Xray Services	148,632	148,632	0.00
Drugs	194,251	194,251	0.00
Other Services	33,189	33,189	0.00
Sterilizations	1,479	1,479	0.00
Abortions	0	0	0.00
Transportation Services	23,078	23,078	0.00
Personal Care Services	1,574	1,574	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	13,757	13,757	0.00
Hospice Services	1,097	1,097	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	8,486	8,486	0.00
Private Nursing Services	233	233	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	93,937	93,937	0.00
Residential Care Services	2,783	2,783	0.00
Psychiatric Services	48,217	48,217	0.00
Adult Day Care	371	371	0.00
Unknown Services	47,350	47,350	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Nevada.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	272,739	272,692	0.02
No enrollment	4,859	4,859	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	267,880	267,833	0.02
Medicaid Enrollees by Basis of Enrollment			
Aged	22,514	22,513	0.00
Disabled	37,700	37,699	0.00
Child	154,446	154,402	0.03
Adult	53,220	53,219	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	21,728	21,727	0.00
Disabled	36,975	36,974	0.00
Child	154,436	154,392	0.03
Adult	53,152	53,151	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	146,433	146,431	0.00
PHP	234,838	234,832	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	35,624	35,624	0.00
Mental Hospital Services for the Aged	8	8	0.00
Inpatient Psychiatric Facility Services (under Age 21)	880	880	0.00
Intermediate Care Facility Services for the Mentally Retarded	225	225	0.00
Nursing Facility Services	4,801	4,801	0.00
Physician Services	139,642	139,637	0.00
Dental Services	40,401	40,400	0.00
Other Practitioner Services	15,889	15,889	0.00
Outpatient Services	45,223	45,223	0.00
Clinic Services	21,512	21,512	0.00
Home Health Services	799	799	0.00
Lab/Xray Services	92,123	92,122	0.00
Drugs	76,812	76,811	0.00
Other Services	14,609	14,609	0.00
Sterilizations	4,269	4,269	0.00
Abortions	0	0	0.00
Transportation Services	17,450	17,450	0.00
Personal Care Services	4,858	4,858	0.00
Targeted Case Management	9,519	9,519	0.00
Rehabilitation Services	7,295	7,295	0.00
PT/OT/Hearing/Speech Services	3,460	3,460	0.00
Hospice Services	779	779	0.00
Nurse Midwife Services	269	269	0.00
Nurse Practitioner Services	19,387	19,387	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	33,531	33,531	0.00
Residential Care Services	1,536	1,536	0.00
Psychiatric Services	17,328	17,328	0.00
Adult Day Care	286	286	0.00
Unknown Services	16,996	16,996	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, New Hampshire.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	145,834	145,825	0.01
No enrollment	97	97	0.00
Enrollees with S-CHIP only	6,091	6,090	0.02
Total Medicaid Enrollees	145,737	145,728	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	14,230	14,230	0.00
Disabled	20,199	20,199	0.00
Child	85,379	85,373	0.01
Adult	19,838	19,836	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	13,326	13,326	0.00
Disabled	18,886	18,886	0.00
Child	85,379	85,373	0.01
Adult	19,737	19,735	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	14,454	14,454	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	313	313	0.00
Intermediate Care Facility Services for the Mentally Retarded	34	34	0.00
Nursing Facility Services	7,190	7,190	0.00
Physician Services	84,756	84,754	0.00
Dental Services	35,925	35,925	0.00
Other Practitioner Services	22,048	22,048	0.00
Outpatient Services	48,415	48,412	0.01
Clinic Services	35,056	35,056	0.00
Home Health Services	2,814	2,814	0.00
Lab/Xray Services	55,810	55,806	0.01
Drugs	92,805	92,801	0.00
Other Services	10,743	10,743	0.00
Sterilizations	717	717	0.00
Abortions	1	1	0.00
Transportation Services	6,616	6,616	0.00
Personal Care Services	189	189	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	2,119	2,119	0.00
PT/OT/Hearing/Speech Services	1,562	1,562	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	1,168	1,168	0.00
Private Nursing Services	136	136	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	32,789	32,788	0.00
Residential Care Services	459	459	0.00
Psychiatric Services	27,904	27,903	0.00
Adult Day Care	480	480	0.00
Unknown Services	4,978	4,978	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, New Jersey.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,134,761	1,130,753	0.35
No enrollment	8,991	8,991	0.00
Enrollees with S-CHIP only	88,862	88,384	0.54
Total Medicaid Enrollees	1,125,770	1,121,762	0.36
Medicaid Enrollees by Basis of Enrollment			
Aged	117,720	117,017	0.60
Disabled	197,672	197,145	0.27
Child	536,292	534,340	0.36
Adult	185,224	184,876	0.19
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	116,406	115,415	0.85
Disabled	197,150	196,418	0.37
Child	536,253	534,296	0.36
Adult	184,832	184,482	0.19
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	687,111	686,260	0.12
PHP	41,854	41,712	0.34
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	115,787	115,772	0.01
Mental Hospital Services for the Aged	394	393	0.25
Inpatient Psychiatric Facility Services (under Age 21)	1,659	1,656	0.18
Intermediate Care Facility Services for the Mentally Retarded	3,110	3,109	0.03
Nursing Facility Services	42,649	42,505	0.34
Physician Services	630,984	630,446	0.09
Dental Services	218,737	218,694	0.02
Other Practitioner Services	129,617	129,610	0.01
Outpatient Services	362,171	361,949	0.06
Clinic Services	67,555	67,512	0.06
Home Health Services	15,002	15,000	0.01
Lab/Xray Services	508,238	507,935	0.06
Drugs	702,430	701,830	0.09
Other Services	133,913	133,885	0.02
Sterilizations	406	406	0.00
Abortions	0	0	0.00
Transportation Services	85,470	85,411	0.07
Personal Care Services	27,369	27,363	0.02
Targeted Case Management	2,752	2,750	0.07
Rehabilitation Services	20,280	20,269	0.05
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	3,532	3,532	0.00
Nurse Midwife Services	1,221	1,221	0.00
Nurse Practitioner Services	7,335	7,335	0.00
Private Nursing Services	234	234	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	221,359	221,292	0.03
Residential Care Services	8,374	8,372	0.02
Psychiatric Services	114,797	114,743	0.05
Adult Day Care	14,692	14,689	0.02
Unknown Services	156,521	156,430	0.06

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, New Mexico.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	530,733	530,725	0.00
No enrollment	3,031	3,031	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	527,702	527,694	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	25,472	25,468	0.02
Disabled	63,308	63,304	0.01
Child	311,944	311,944	0.00
Adult	126,978	126,978	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	24,861	24,855	0.02
Disabled	62,547	62,543	0.01
Child	311,845	311,845	0.00
Adult	108,814	108,814	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	466,244	466,242	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	47,295	47,295	0.00
Mental Hospital Services for the Aged	45	45	0.00
Inpatient Psychiatric Facility Services (under Age 21)	5,687	5,687	0.00
Intermediate Care Facility Services for the Mentally Retarded	274	274	0.00
Nursing Facility Services	6,718	6,717	0.01
Physician Services	312,167	312,166	0.00
Dental Services	153,947	153,947	0.00
Other Practitioner Services	66,411	66,411	0.00
Outpatient Services	170,644	170,644	0.00
Clinic Services	45,835	45,835	0.00
Home Health Services	3,072	3,072	0.00
Lab/Xray Services	219,649	219,649	0.00
Drugs	305,061	305,061	0.00
Other Services	82,820	82,819	0.00
Sterilizations	795	795	0.00
Abortions	287	287	0.00
Transportation Services	28,975	28,975	0.00
Personal Care Services	10,217	10,217	0.00
Targeted Case Management	19,042	19,042	0.00
Rehabilitation Services	960	960	0.00
PT/OT/Hearing/Speech Services	22,230	22,230	0.00
Hospice Services	1,051	1,051	0.00
Nurse Midwife Services	10,561	10,561	0.00
Nurse Practitioner Services	47,220	47,220	0.00
Private Nursing Services	3	3	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	119,281	119,281	0.00
Residential Care Services	2,527	2,527	0.00
Psychiatric Services	57,142	57,142	0.00
Adult Day Care	31	31	0.00
Unknown Services	92,119	92,119	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, New York.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	5,118,695	5,043,983	1.46
No enrollment	30,861	30,861	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	5,087,834	5,013,122	1.47
Medicaid Enrollees by Basis of Enrollment			
Aged	436,330	432,271	0.93
Disabled	735,576	721,935	1.85
Child	2,079,846	2,041,295	1.85
Adult	1,836,082	1,817,621	1.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	433,514	429,328	0.97
Disabled	733,900	720,218	1.86
Child	2,074,386	2,035,686	1.87
Adult	1,814,738	1,795,982	1.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	2,974,787	2,950,930	0.80
PHP	255,635	254,707	0.36
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	625,670	624,162	0.24
Mental Hospital Services for the Aged	4,319	4,286	0.76
Inpatient Psychiatric Facility Services (under Age 21)	11,409	11,183	1.98
Intermediate Care Facility Services for the Mentally Retarded	9,704	9,691	0.13
Nursing Facility Services	150,925	150,823	0.07
Physician Services	2,718,635	2,710,130	0.31
Dental Services	1,158,054	1,156,790	0.11
Other Practitioner Services	282,453	282,321	0.05
Outpatient Services	1,937,742	1,930,893	0.35
Clinic Services	857,576	855,500	0.24
Home Health Services	274,200	273,737	0.17
Lab/Xray Services	2,144,854	2,139,603	0.24
Drugs	3,101,220	3,087,943	0.43
Other Services	931,513	929,606	0.20
Sterilizations	4,313	4,313	0.00
Abortions	540	540	0.00
Transportation Services	419,864	418,943	0.22
Personal Care Services	100,315	100,227	0.09
Targeted Case Management	32,417	32,370	0.14
Rehabilitation Services	119,832	119,642	0.16
PT/OT/Hearing/Speech Services	24,298	24,296	0.01
Hospice Services	6,872	6,870	0.03
Nurse Midwife Services	7,088	7,088	0.00
Nurse Practitioner Services	106,548	106,519	0.03
Private Nursing Services	6,860	6,849	0.16
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	633,627	633,149	0.08
Residential Care Services	47,061	47,003	0.12
Psychiatric Services	780,227	777,450	0.36
Adult Day Care	62,751	62,595	0.25
Unknown Services	498,890	498,453	0.09

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, North Carolina.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,729,575	1,728,885	0.04
No enrollment	967	967	0.00
Enrollees with S-CHIP only	126,721	126,694	0.02
Total Medicaid Enrollees	1,728,608	1,727,918	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	182,568	182,549	0.01
Disabled	283,799	283,423	0.13
Child	833,090	832,868	0.03
Adult	302,430	302,384	0.02
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	177,592	177,573	0.01
Disabled	279,160	278,784	0.13
Child	833,017	832,795	0.03
Adult	294,830	294,784	0.02
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	17,756	17,755	0.01
PHP	78,815	78,811	0.01
PCCM	1,093,255	1,093,052	0.02
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	207,627	207,592	0.02
Mental Hospital Services for the Aged	176	176	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,226	2,226	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,413	4,413	0.00
Nursing Facility Services	42,003	42,003	0.00
Physician Services	1,170,789	1,170,475	0.03
Dental Services	458,590	458,575	0.00
Other Practitioner Services	231,009	231,006	0.00
Outpatient Services	626,129	626,010	0.02
Clinic Services	480,388	480,291	0.02
Home Health Services	37,855	37,834	0.06
Lab/Xray Services	913,181	912,990	0.02
Drugs	1,107,208	1,106,959	0.02
Other Services	212,366	212,335	0.01
Sterilizations	7,517	7,517	0.00
Abortions	19	19	0.00
Transportation Services	126,004	125,992	0.01
Personal Care Services	81,549	81,546	0.00
Targeted Case Management	145,680	145,587	0.06
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	24,299	24,293	0.02
Hospice Services	5,132	5,132	0.00
Nurse Midwife Services	1,501	1,501	0.00
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	451,068	450,997	0.02
Residential Care Services	31	31	0.00
Psychiatric Services	198,205	198,149	0.03
Adult Day Care	467	467	0.00
Unknown Services	27,809	27,809	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, North Dakota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	79,961	78,448	1.89
No enrollment	1,336	1,336	0.00
Enrollees with S-CHIP only	3,639	2,495	31.44
Total Medicaid Enrollees	78,625	77,112	1.92
Medicaid Enrollees by Basis of Enrollment			
Aged	9,718	9,474	2.51
Disabled	10,480	10,360	1.15
Child	38,137	38,133	0.01
Adult	16,651	16,650	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,237	8,989	2.68
Disabled	10,119	9,992	1.26
Child	38,137	38,133	0.01
Adult	16,649	16,648	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,459	1,459	0.00
PHP	0	0	0.00
PCCM	38,605	38,605	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	9,189	9,189	0.00
Mental Hospital Services for the Aged	11	11	0.00
Inpatient Psychiatric Facility Services (under Age 21)	52	52	0.00
Intermediate Care Facility Services for the Mentally Retarded	646	646	0.00
Nursing Facility Services	5,176	5,176	0.00
Physician Services	45,658	45,645	0.03
Dental Services	19,397	19,397	0.00
Other Practitioner Services	19,569	19,567	0.01
Outpatient Services	25,485	25,479	0.02
Clinic Services	23,451	23,447	0.02
Home Health Services	1,496	1,496	0.00
Lab/Xray Services	32,612	32,612	0.00
Drugs	47,219	47,218	0.00
Other Services	8,413	8,412	0.01
Sterilizations	296	296	0.00
Abortions	57	57	0.00
Transportation Services	5,944	5,944	0.00
Personal Care Services	1,387	1,387	0.00
Targeted Case Management	3,723	3,723	0.00
Rehabilitation Services	9,207	9,206	0.01
PT/OT/Hearing/Speech Services	1,807	1,807	0.00
Hospice Services	328	328	0.00
Nurse Midwife Services	347	347	0.00
Nurse Practitioner Services	5,367	5,367	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	21,190	21,188	0.01
Residential Care Services	659	659	0.00
Psychiatric Services	11,017	11,016	0.01
Adult Day Care	1,045	1,045	0.00
Unknown Services	2,540	2,540	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Ohio.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,127,176	2,113,998	0.62
No enrollment	550	550	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	2,126,626	2,113,448	0.62
Medicaid Enrollees by Basis of Enrollment			
Aged	173,471	173,428	0.02
Disabled	338,623	338,238	0.11
Child	1,124,213	1,111,855	1.10
Adult	490,319	489,927	0.08
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	148,805	148,763	0.03
Disabled	317,319	316,931	0.12
Child	1,124,212	1,111,854	1.10
Adult	489,824	489,431	0.08
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	790,169	790,072	0.01
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	216,842	216,766	0.04
Mental Hospital Services for the Aged	17	17	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,660	1,651	0.54
Intermediate Care Facility Services for the Mentally Retarded	7,840	7,839	0.01
Nursing Facility Services	85,099	85,093	0.01
Physician Services	1,143,138	1,140,243	0.25
Dental Services	452,398	451,719	0.15
Other Practitioner Services	335,039	334,930	0.03
Outpatient Services	824,155	822,518	0.20
Clinic Services	248,441	248,126	0.13
Home Health Services	43,204	43,166	0.09
Lab/Xray Services	780,435	778,640	0.23
Drugs	1,115,961	1,112,952	0.27
Other Services	271,523	271,323	0.07
Sterilizations	7,174	7,174	0.00
Abortions	18	18	0.00
Transportation Services	160,921	160,872	0.03
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	107,451	107,363	0.08
PT/OT/Hearing/Speech Services	15,000	14,995	0.03
Hospice Services	2,007	2,007	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	148,841	148,749	0.06
Private Nursing Services	16,679	16,644	0.21
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	320,531	320,324	0.06
Residential Care Services	16,498	16,498	0.00
Psychiatric Services	340,653	338,617	0.60
Adult Day Care	2,894	2,894	0.00
Unknown Services	184,244	184,013	0.13

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Oklahoma.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	730,873	728,101	0.38
No enrollment	2,264	2,264	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	728,609	725,837	0.38
Medicaid Enrollees by Basis of Enrollment			
Aged	64,738	64,634	0.16
Disabled	101,506	101,235	0.27
Child	456,522	454,511	0.44
Adult	105,843	105,457	0.36
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	60,007	59,899	0.18
Disabled	98,515	98,238	0.28
Child	456,421	454,410	0.44
Adult	101,091	100,681	0.41
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	654,809	653,109	0.26
PCCM	13,008	13,004	0.03
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	109,716	109,688	0.03
Mental Hospital Services for the Aged	110	110	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,639	3,633	0.16
Intermediate Care Facility Services for the Mentally Retarded	1,843	1,841	0.11
Nursing Facility Services	22,052	22,037	0.07
Physician Services	437,857	437,236	0.14
Dental Services	181,319	181,226	0.05
Other Practitioner Services	69,905	69,898	0.01
Outpatient Services	285,277	285,007	0.09
Clinic Services	126,734	126,682	0.04
Home Health Services	6,252	6,250	0.03
Lab/Xray Services	341,621	341,305	0.09
Drugs	469,250	468,565	0.15
Other Services	56,937	56,920	0.03
Sterilizations	5,463	5,461	0.04
Abortions	55	55	0.00
Transportation Services	36,602	36,595	0.02
Personal Care Services	5,259	5,257	0.04
Targeted Case Management	38,816	38,731	0.22
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	2,192	2,192	0.00
Hospice Services	50	50	0.00
Nurse Midwife Services	130	130	0.00
Nurse Practitioner Services	13,062	13,061	0.01
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	167,905	167,834	0.04
Residential Care Services	3,863	3,860	0.08
Psychiatric Services	76,922	76,813	0.14
Adult Day Care	516	516	0.00
Unknown Services	31,446	31,437	0.03

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Oregon.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	565,361	564,481	0.16
No enrollment	1,916	1,916	0.00
Enrollees with S-CHIP only	24,855	24,810	0.18
Total Medicaid Enrollees	563,445	562,565	0.16
Medicaid Enrollees by Basis of Enrollment			
Aged	48,516	48,508	0.02
Disabled	78,905	78,854	0.06
Child	273,095	272,446	0.24
Adult	138,074	137,947	0.09
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	47,098	47,089	0.02
Disabled	77,225	77,174	0.07
Child	272,698	272,049	0.24
Adult	137,557	137,429	0.09
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	364,898	364,602	0.08
PHP	445,010	444,586	0.10
PCCM	10,841	10,833	0.07
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	58,051	58,046	0.01
Mental Hospital Services for the Aged	87	87	0.00
Inpatient Psychiatric Facility Services (under Age 21)	878	876	0.23
Intermediate Care Facility Services for the Mentally Retarded	45	45	0.00
Nursing Facility Services	9,910	9,910	0.00
Physician Services	309,411	309,264	0.05
Dental Services	131,785	131,768	0.01
Other Practitioner Services	63,447	63,441	0.01
Outpatient Services	181,181	181,136	0.02
Clinic Services	68,520	68,500	0.03
Home Health Services	2,003	2,003	0.00
Lab/Xray Services	239,879	239,816	0.03
Drugs	173,726	173,663	0.04
Other Services	35,060	35,055	0.01
Sterilizations	1,888	1,888	0.00
Abortions	3,338	3,338	0.00
Transportation Services	45,390	45,383	0.02
Personal Care Services	8,777	8,777	0.00
Targeted Case Management	45,976	45,935	0.09
Rehabilitation Services	41,517	41,506	0.03
PT/OT/Hearing/Speech Services	5,840	5,839	0.02
Hospice Services	555	555	0.00
Nurse Midwife Services	1,597	1,597	0.00
Nurse Practitioner Services	60,452	60,441	0.02
Private Nursing Services	254	254	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	125,526	125,514	0.01
Residential Care Services	9,443	9,443	0.00
Psychiatric Services	82,404	82,376	0.03
Adult Day Care	204	204	0.00
Unknown Services	159,353	159,306	0.03

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Pennsylvania.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,038,176	2,038,014	0.01
No enrollment	8,282	8,282	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	2,029,894	2,029,732	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	231,063	231,015	0.02
Disabled	473,531	473,455	0.02
Child	959,344	959,314	0.00
Adult	365,956	365,948	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	226,299	226,248	0.02
Disabled	469,549	469,473	0.02
Child	958,703	958,673	0.00
Adult	365,796	365,788	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,435,826	1,435,736	0.01
PHP	1,333,902	1,333,800	0.01
PCCM	342,462	342,455	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	84,584	84,584	0.00
Mental Hospital Services for the Aged	7,193	7,193	0.00
Inpatient Psychiatric Facility Services (under Age 21)	5,608	5,608	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,146	4,146	0.00
Nursing Facility Services	80,102	80,101	0.00
Physician Services	367,935	367,931	0.00
Dental Services	129,037	129,037	0.00
Other Practitioner Services	72,246	72,246	0.00
Outpatient Services	195,339	195,339	0.00
Clinic Services	69,850	69,848	0.00
Home Health Services	17,047	17,046	0.01
Lab/Xray Services	277,035	277,033	0.00
Drugs	449,244	449,234	0.00
Other Services	111,815	111,813	0.00
Sterilizations	1,570	1,570	0.00
Abortions	0	0	0.00
Transportation Services	26,366	26,366	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	56,186	56,183	0.01
Rehabilitation Services	1,284	1,284	0.00
PT/OT/Hearing/Speech Services	11,641	11,640	0.01
Hospice Services	895	895	0.00
Nurse Midwife Services	2,265	2,265	0.00
Nurse Practitioner Services	452	452	0.00
Private Nursing Services	287	287	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	79,432	79,431	0.00
Residential Care Services	1,044	1,044	0.00
Psychiatric Services	143,525	143,521	0.00
Adult Day Care	2,222	2,222	0.00
Unknown Services	61,963	61,962	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Rhode Island.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	224,884	224,883	0.00
No enrollment	5,100	5,100	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	219,784	219,783	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	21,060	21,060	0.00
Disabled	43,159	43,159	0.00
Child	99,441	99,441	0.00
Adult	56,124	56,123	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	20,569	20,569	0.00
Disabled	42,766	42,766	0.00
Child	99,440	99,440	0.00
Adult	54,871	54,870	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	151,891	151,891	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	31,227	31,227	0.00
Mental Hospital Services for the Aged	167	167	0.00
Inpatient Psychiatric Facility Services (under Age 21)	176	176	0.00
Intermediate Care Facility Services for the Mentally Retarded	45	45	0.00
Nursing Facility Services	10,681	10,681	0.00
Physician Services	94,497	94,497	0.00
Dental Services	58,912	58,912	0.00
Other Practitioner Services	44,173	44,173	0.00
Outpatient Services	88,000	87,999	0.00
Clinic Services	31,191	31,191	0.00
Home Health Services	8,881	8,881	0.00
Lab/Xray Services	131,869	131,869	0.00
Drugs	150,776	150,775	0.00
Other Services	42,165	42,165	0.00
Sterilizations	527	527	0.00
Abortions	456	456	0.00
Transportation Services	11,789	11,789	0.00
Personal Care Services	1,768	1,768	0.00
Targeted Case Management	9,535	9,535	0.00
Rehabilitation Services	6,842	6,842	0.00
PT/OT/Hearing/Speech Services	422	422	0.00
Hospice Services	99	99	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	365	365	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	31,154	31,154	0.00
Residential Care Services	3,070	3,070	0.00
Psychiatric Services	40,384	40,384	0.00
Adult Day Care	4,463	4,463	0.00
Unknown Services	16,803	16,803	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, South Carolina.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,012,763	1,012,647	0.01
No enrollment	476	476	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,012,287	1,012,171	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	130,497	130,432	0.05
Disabled	155,070	155,050	0.01
Child	490,420	490,396	0.00
Adult	236,300	236,293	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	128,215	128,134	0.06
Disabled	153,970	153,949	0.01
Child	489,691	489,667	0.00
Adult	201,061	201,054	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	89,046	89,046	0.00
PHP	39,334	39,333	0.00
PCCM	50,799	50,799	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	105,656	105,656	0.00
Mental Hospital Services for the Aged	247	247	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,038	1,038	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,831	1,831	0.00
Nursing Facility Services	17,049	17,049	0.00
Physician Services	538,860	538,857	0.00
Dental Services	264,977	264,977	0.00
Other Practitioner Services	135,850	135,850	0.00
Outpatient Services	291,687	291,687	0.00
Clinic Services	361,993	361,989	0.00
Home Health Services	3,411	3,411	0.00
Lab/Xray Services	421,662	421,659	0.00
Drugs	622,254	622,243	0.00
Other Services	9,222	9,222	0.00
Sterilizations	5,302	5,302	0.00
Abortions	12	12	0.00
Transportation Services	58,028	58,028	0.00
Personal Care Services	17,112	17,112	0.00
Targeted Case Management	46,653	46,652	0.00
Rehabilitation Services	6,168	6,168	0.00
PT/OT/Hearing/Speech Services	8,155	8,155	0.00
Hospice Services	1,821	1,821	0.00
Nurse Midwife Services	7,235	7,235	0.00
Nurse Practitioner Services	20,920	20,920	0.00
Private Nursing Services	13	13	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	187,780	187,778	0.00
Residential Care Services	383	383	0.00
Psychiatric Services	111,931	111,930	0.00
Adult Day Care	9,029	9,028	0.01
Unknown Services	19,289	19,289	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, South Dakota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	130,988	128,932	1.57
No enrollment	94	94	0.00
Enrollees with S-CHIP only	1,810	1,790	1.10
Total Medicaid Enrollees	130,894	128,838	1.57
Medicaid Enrollees by Basis of Enrollment			
Aged	10,160	10,158	0.02
Disabled	18,186	18,155	0.17
Child	79,442	77,441	2.52
Adult	21,296	21,294	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,851	9,849	0.02
Disabled	17,956	17,925	0.17
Child	79,442	77,441	2.52
Adult	21,285	21,283	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	129,084	127,048	1.58
PCCM	61,504	61,503	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	15,822	15,801	0.13
Mental Hospital Services for the Aged	45	45	0.00
Inpatient Psychiatric Facility Services (under Age 21)	489	481	1.64
Intermediate Care Facility Services for the Mentally Retarded	198	198	0.00
Nursing Facility Services	5,737	5,737	0.00
Physician Services	72,854	72,392	0.63
Dental Services	17,032	16,996	0.21
Other Practitioner Services	44,551	44,382	0.38
Outpatient Services	37,750	37,689	0.16
Clinic Services	40,298	40,131	0.41
Home Health Services	432	432	0.00
Lab/Xray Services	58,925	58,604	0.54
Drugs	75,234	74,709	0.70
Other Services	12,340	12,328	0.10
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	11,286	11,258	0.25
Personal Care Services	2,343	2,343	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	895	895	0.00
PT/OT/Hearing/Speech Services	5,142	5,120	0.43
Hospice Services	259	259	0.00
Nurse Midwife Services	776	775	0.13
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	5	5	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	30,016	29,937	0.26
Residential Care Services	1,268	1,258	0.79
Psychiatric Services	14,364	14,052	2.17
Adult Day Care	3	3	0.00
Unknown Services	13,675	13,659	0.12

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Tennessee.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,607,615	1,607,239	0.02
No enrollment	13,370	13,370	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,594,245	1,593,869	0.02
Medicaid Enrollees by Basis of Enrollment			
Aged	124,231	124,197	0.03
Disabled	359,437	359,336	0.03
Child	705,980	705,797	0.03
Adult	404,597	404,539	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	109,041	109,004	0.03
Disabled	351,987	351,886	0.03
Child	705,701	705,517	0.03
Adult	403,872	403,813	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,565,493	1,565,275	0.01
PHP	1,561,520	1,561,301	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	78,995	78,995	0.00
Mental Hospital Services for the Aged	34	34	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,466	2,466	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,335	1,335	0.00
Nursing Facility Services	33,681	33,681	0.00
Physician Services	965,674	965,629	0.00
Dental Services	279,994	279,986	0.00
Other Practitioner Services	213,481	213,475	0.00
Outpatient Services	315,911	315,906	0.00
Clinic Services	183,965	183,960	0.00
Home Health Services	20,164	20,162	0.01
Lab/Xray Services	823,427	823,391	0.00
Drugs	1,179,088	1,179,024	0.01
Other Services	15,902	15,902	0.00
Sterilizations	11,843	11,843	0.00
Abortions	7,681	7,681	0.00
Transportation Services	121,845	121,844	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	5,917	5,916	0.02
PT/OT/Hearing/Speech Services	15,050	15,049	0.01
Hospice Services	3,542	3,542	0.00
Nurse Midwife Services	2,343	2,343	0.00
Nurse Practitioner Services	93,055	93,052	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	204,848	204,842	0.00
Residential Care Services	3,841	3,841	0.00
Psychiatric Services	306,782	306,763	0.01
Adult Day Care	56	56	0.00
Unknown Services	168,420	168,418	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Texas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	4,164,091	4,156,996	0.17
No enrollment	60,821	60,821	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	4,103,270	4,096,175	0.17
Medicaid Enrollees by Basis of Enrollment			
Aged	418,277	418,088	0.05
Disabled	502,985	502,544	0.09
Child	2,625,173	2,619,279	0.22
Adult	556,835	556,264	0.10
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	406,260	406,053	0.05
Disabled	497,665	497,215	0.09
Child	2,625,077	2,619,181	0.22
Adult	556,447	555,872	0.10
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,365,977	1,364,216	0.13
PHP	439,099	438,505	0.14
PCCM	1,299,319	1,299,059	0.02
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	496,863	496,804	0.01
Mental Hospital Services for the Aged	556	556	0.00
Inpatient Psychiatric Facility Services (under Age 21)	6,606	6,604	0.03
Intermediate Care Facility Services for the Mentally Retarded	12,812	12,810	0.02
Nursing Facility Services	93,921	93,905	0.02
Physician Services	1,975,204	1,974,197	0.05
Dental Services	1,195,153	1,194,877	0.02
Other Practitioner Services	447,677	447,596	0.02
Outpatient Services	842,369	842,116	0.03
Clinic Services	305,353	305,266	0.03
Home Health Services	22,527	22,521	0.03
Lab/Xray Services	1,727,345	1,726,612	0.04
Drugs	2,760,015	2,758,679	0.05
Other Services	546,739	546,630	0.02
Sterilizations	21,480	21,477	0.01
Abortions	5,976	5,975	0.02
Transportation Services	169,999	169,974	0.01
Personal Care Services	1,497	1,496	0.07
Targeted Case Management	161,336	161,268	0.04
Rehabilitation Services	39,880	39,866	0.04
PT/OT/Hearing/Speech Services	8,875	8,875	0.00
Hospice Services	15,769	15,768	0.01
Nurse Midwife Services	9,855	9,852	0.03
Nurse Practitioner Services	108,142	108,115	0.02
Private Nursing Services	41	41	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	698,347	698,218	0.02
Residential Care Services	3,173	3,173	0.00
Psychiatric Services	251,733	251,664	0.03
Adult Day Care	22,673	22,670	0.01
Unknown Services	47,800	47,791	0.02

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Utah.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	359,506	359,493	0.00
No enrollment	14,055	14,055	0.00
Enrollees with S-CHIP only	36,166	36,166	0.00
Total Medicaid Enrollees	345,451	345,438	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	14,304	14,303	0.01
Disabled	35,040	35,039	0.00
Child	172,151	172,145	0.00
Adult	87,790	87,785	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	13,159	13,158	0.01
Disabled	33,466	33,465	0.00
Child	172,108	172,102	0.00
Adult	87,550	87,545	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,076	1,076	0.00
PHP	225,512	225,506	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	30,878	30,878	0.00
Mental Hospital Services for the Aged	5	5	0.00
Inpatient Psychiatric Facility Services (under Age 21)	109	109	0.00
Intermediate Care Facility Services for the Mentally Retarded	837	837	0.00
Nursing Facility Services	5,559	5,559	0.00
Physician Services	86,298	86,297	0.00
Dental Services	83,030	83,030	0.00
Other Practitioner Services	22,648	22,648	0.00
Outpatient Services	50,138	50,136	0.00
Clinic Services	123,984	123,981	0.00
Home Health Services	1,985	1,985	0.00
Lab/Xray Services	102,861	102,859	0.00
Drugs	201,158	201,154	0.00
Other Services	10,974	10,974	0.00
Sterilizations	1,050	1,050	0.00
Abortions	0	0	0.00
Transportation Services	12,990	12,990	0.00
Personal Care Services	483	483	0.00
Targeted Case Management	7,317	7,317	0.00
Rehabilitation Services	488	488	0.00
PT/OT/Hearing/Speech Services	6,089	6,089	0.00
Hospice Services	1,030	1,030	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	13,462	13,462	0.00
Private Nursing Services	21	21	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	40,663	40,663	0.00
Residential Care Services	1,053	1,053	0.00
Psychiatric Services	16,372	16,371	0.01
Adult Day Care	60	60	0.00
Unknown Services	7,930	7,930	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Vermont.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	165,860	165,841	0.01
No enrollment	3,098	3,098	0.00
Enrollees with S-CHIP only	2,111	2,111	0.00
Total Medicaid Enrollees	162,762	162,743	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	18,918	18,915	0.02
Disabled	21,434	21,433	0.00
Child	67,524	67,510	0.02
Adult	52,775	52,774	0.00
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	17,943	17,940	0.02
Disabled	20,659	20,658	0.00
Child	67,524	67,510	0.02
Adult	52,751	52,750	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	10,677	10,677	0.00
Mental Hospital Services for the Aged	86	86	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	7	7	0.00
Nursing Facility Services	3,539	3,539	0.00
Physician Services	107,553	107,553	0.00
Dental Services	46,370	46,370	0.00
Other Practitioner Services	14,513	14,513	0.00
Outpatient Services	56,030	56,030	0.00
Clinic Services	26,605	26,605	0.00
Home Health Services	3,758	3,758	0.00
Lab/Xray Services	79,605	79,605	0.00
Drugs	116,408	116,408	0.00
Other Services	24,336	24,336	0.00
Sterilizations	706	706	0.00
Abortions	142	142	0.00
Transportation Services	15,435	15,435	0.00
Personal Care Services	1,938	1,938	0.00
Targeted Case Management	6,385	6,385	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	3,708	3,708	0.00
Hospice Services	77	77	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	2,358	2,358	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	19,295	19,295	0.00
Residential Care Services	62	62	0.00
Psychiatric Services	34,562	34,562	0.00
Adult Day Care	0	0	0.00
Unknown Services	9,271	9,271	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Virginia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	928,642	927,841	0.09
No enrollment	957	957	0.00
Enrollees with S-CHIP only	43,186	43,018	0.39
Total Medicaid Enrollees	927,685	926,884	0.09
Medicaid Enrollees by Basis of Enrollment			
Aged	99,217	99,211	0.01
Disabled	155,084	155,023	0.04
Child	495,825	495,293	0.11
Adult	134,373	134,339	0.03
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	95,918	95,911	0.01
Disabled	151,960	151,898	0.04
Child	495,796	495,264	0.11
Adult	121,904	121,869	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	472,719	472,445	0.06
PHP	0	0	0.00
PCCM	113,987	113,948	0.03
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	152,545	152,540	0.00
Mental Hospital Services for the Aged	831	831	0.00
Inpatient Psychiatric Facility Services (under Age 21)	714	714	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,992	1,992	0.00
Nursing Facility Services	28,080	28,079	0.00
Physician Services	601,519	601,369	0.02
Dental Services	139,783	139,773	0.01
Other Practitioner Services	44,131	44,130	0.00
Outpatient Services	31,134	31,132	0.01
Clinic Services	91,941	91,930	0.01
Home Health Services	6,276	6,276	0.00
Lab/Xray Services	429,729	429,625	0.02
Drugs	516,958	516,823	0.03
Other Services	58,316	58,312	0.01
Sterilizations	4,358	4,358	0.00
Abortions	103	103	0.00
Transportation Services	88,050	88,041	0.01
Personal Care Services	12,370	12,370	0.00
Targeted Case Management	4,474	4,474	0.00
Rehabilitation Services	3,290	3,290	0.00
PT/OT/Hearing/Speech Services	4,460	4,458	0.04
Hospice Services	1,762	1,762	0.00
Nurse Midwife Services	1,807	1,807	0.00
Nurse Practitioner Services	16,344	16,343	0.01
Private Nursing Services	464	463	0.22
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	81,860	81,854	0.01
Residential Care Services	0	0	0.00
Psychiatric Services	95,748	95,714	0.04
Adult Day Care	620	620	0.00
Unknown Services	139,927	139,904	0.02

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Washington.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,285,090	1,284,959	0.01
No enrollment	85,518	85,518	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,199,572	1,199,441	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	86,812	86,804	0.01
Disabled	167,232	167,193	0.02
Child	606,371	606,321	0.01
Adult	339,157	339,123	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	82,112	82,104	0.01
Disabled	160,192	160,153	0.02
Child	605,063	605,007	0.01
Adult	323,181	323,134	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	677,936	677,900	0.01
PHP	0	0	0.00
PCCM	5,386	5,386	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	90,863	90,862	0.00
Mental Hospital Services for the Aged	1,009	1,009	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	59	59	0.00
Nursing Facility Services	24,900	24,900	0.00
Physician Services	385,904	385,877	0.01
Dental Services	384,271	384,268	0.00
Other Practitioner Services	125,403	125,402	0.00
Outpatient Services	210,388	210,379	0.00
Clinic Services	125,115	125,111	0.00
Home Health Services	21	21	0.00
Lab/Xray Services	525,753	525,726	0.01
Drugs	483,474	483,453	0.00
Other Services	168,064	168,056	0.00
Sterilizations	1,235	1,235	0.00
Abortions	133	133	0.00
Transportation Services	30,621	30,620	0.00
Personal Care Services	42,071	42,070	0.00
Targeted Case Management	2,542	2,542	0.00
Rehabilitation Services	4,820	4,820	0.00
PT/OT/Hearing/Speech Services	16,113	16,111	0.01
Hospice Services	2,279	2,279	0.00
Nurse Midwife Services	2,136	2,136	0.00
Nurse Practitioner Services	11,323	11,323	0.00
Private Nursing Services	533	533	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	282,802	282,793	0.00
Residential Care Services	18,516	18,516	0.00
Psychiatric Services	104,215	104,215	0.00
Adult Day Care	2,736	2,736	0.00
Unknown Services	336,595	336,584	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, West Virginia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	393,616	393,504	0.03
No enrollment	10,505	10,505	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	383,111	382,999	0.03
Medicaid Enrollees by Basis of Enrollment			
Aged	30,896	30,884	0.04
Disabled	104,969	104,929	0.04
Child	188,290	188,237	0.03
Adult	58,956	58,949	0.01
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	30,359	30,347	0.04
Disabled	103,796	103,756	0.04
Child	188,290	188,237	0.03
Adult	58,901	58,894	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	171,623	171,623	0.00
PHP	0	0	0.00
PCCM	51,354	51,354	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	28,808	28,808	0.00
Mental Hospital Services for the Aged	217	217	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,902	1,902	0.00
Intermediate Care Facility Services for the Mentally Retarded	545	545	0.00
Nursing Facility Services	10,889	10,889	0.00
Physician Services	190,938	190,936	0.00
Dental Services	97,914	97,913	0.00
Other Practitioner Services	33,376	33,376	0.00
Outpatient Services	126,125	126,125	0.00
Clinic Services	81,128	81,128	0.00
Home Health Services	2,134	2,134	0.00
Lab/Xray Services	154,120	154,120	0.00
Drugs	288,779	288,771	0.00
Other Services	59,182	59,180	0.00
Sterilizations	0	0	0.00
Abortions	2	2	0.00
Transportation Services	38,605	38,605	0.00
Personal Care Services	4,284	4,284	0.00
Targeted Case Management	7,468	7,468	0.00
Rehabilitation Services	23,483	23,481	0.01
PT/OT/Hearing/Speech Services	15,918	15,917	0.01
Hospice Services	644	644	0.00
Nurse Midwife Services	2,879	2,879	0.00
Nurse Practitioner Services	31,907	31,907	0.00
Private Nursing Services	644	644	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	55,895	55,895	0.00
Residential Care Services	3,468	3,468	0.00
Psychiatric Services	83,192	83,189	0.00
Adult Day Care	3	3	0.00
Unknown Services	8,106	8,106	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Wisconsin.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,034,583	1,028,142	0.62
No enrollment	12,380	12,380	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,022,203	1,015,762	0.63
Medicaid Enrollees by Basis of Enrollment			
Aged	145,573	145,565	0.01
Disabled	144,286	144,195	0.06
Child	431,040	424,880	1.43
Adult	301,304	301,122	0.06
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	139,868	139,860	0.01
Disabled	141,759	141,668	0.06
Child	429,442	423,280	1.43
Adult	284,733	284,543	0.07
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	501,010	497,562	0.69
PHP	14,846	14,844	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	102,977	102,813	0.16
Mental Hospital Services for the Aged	162	162	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,772	2,771	0.04
Intermediate Care Facility Services for the Mentally Retarded	2,144	2,144	0.00
Nursing Facility Services	34,232	34,232	0.00
Physician Services	443,842	440,618	0.73
Dental Services	196,900	196,845	0.03
Other Practitioner Services	140,938	140,790	0.11
Outpatient Services	368,676	367,446	0.33
Clinic Services	395,981	394,921	0.27
Home Health Services	7,729	7,713	0.21
Lab/Xray Services	503,184	501,859	0.26
Drugs	684,309	681,777	0.37
Other Services	155,173	155,087	0.06
Sterilizations	3,696	3,696	0.00
Abortions	0	0	0.00
Transportation Services	73,701	73,663	0.05
Personal Care Services	12,920	12,919	0.01
Targeted Case Management	35,090	34,976	0.32
Rehabilitation Services	8,361	8,327	0.41
PT/OT/Hearing/Speech Services	14,844	14,808	0.24
Hospice Services	3,141	3,141	0.00
Nurse Midwife Services	415	415	0.00
Nurse Practitioner Services	34,676	34,597	0.23
Private Nursing Services	349	347	0.57
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	236,933	236,684	0.11
Residential Care Services	10,881	10,880	0.01
Psychiatric Services	109,035	108,997	0.03
Adult Day Care	2,953	2,953	0.00
Unknown Services	158,924	156,491	1.53

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2005, Wyoming.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	81,599	81,529	0.09
No enrollment	400	400	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	81,199	81,129	0.09
Medicaid Enrollees by Basis of Enrollment			
Aged	5,424	5,422	0.04
Disabled	9,469	9,467	0.02
Child	52,764	52,702	0.12
Adult	13,542	13,538	0.03
Total Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	5,287	5,285	0.04
Disabled	9,377	9,375	0.02
Child	52,763	52,701	0.12
Adult	13,517	13,513	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	11,300	11,298	0.02
Mental Hospital Services for the Aged	18	18	0.00
Inpatient Psychiatric Facility Services (under Age 21)	461	461	0.00
Intermediate Care Facility Services for the Mentally Retarded	89	89	0.00
Nursing Facility Services	2,436	2,436	0.00
Physician Services	52,857	52,829	0.05
Dental Services	18,551	18,548	0.02
Other Practitioner Services	11,787	11,787	0.00
Outpatient Services	29,699	29,690	0.03
Clinic Services	15,716	15,712	0.03
Home Health Services	553	553	0.00
Lab/Xray Services	38,866	38,854	0.03
Drugs	50,008	49,985	0.05
Other Services	19,280	19,273	0.04
Sterilizations	463	463	0.00
Abortions	2	2	0.00
Transportation Services	3,011	3,011	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	2,258	2,258	0.00
Rehabilitation Services	3,408	3,408	0.00
PT/OT/Hearing/Speech Services	620	620	0.00
Hospice Services	78	78	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	8,671	8,668	0.03
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	21,348	21,345	0.01
Residential Care Services	1,022	1,022	0.00
Psychiatric Services	9,895	9,895	0.00
Adult Day Care	52	52	0.00
Unknown Services	9,890	9,888	0.02

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Alabama.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	976,361	975,571	0.08
No enrollment	8,584	8,584	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	967,777	966,987	0.08
Medicaid Enrollees by Basis of Enrollment			
Aged	104,417	104,378	0.04
Disabled	211,356	211,182	0.08
Child	439,256	438,798	0.10
Adult	212,748	212,629	0.06
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	101,845	101,797	0.05
Disabled	208,009	207,833	0.08
Child	438,997	438,538	0.10
Adult	177,833	177,708	0.07
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	596,874	596,363	0.09
PCCM	443,785	443,541	0.05
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	115,408	115,391	0.01
Mental Hospital Services for the Aged	218	218	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	254	254	0.00
Nursing Facility Services	26,100	26,085	0.06
Physician Services	561,111	560,864	0.04
Dental Services	173,815	173,788	0.02
Other Practitioner Services	110,025	110,018	0.01
Outpatient Services	233,014	232,962	0.02
Clinic Services	221,410	221,348	0.03
Home Health Services	51,213	51,203	0.02
Lab/Xray Services	490,566	490,394	0.04
Drugs	531,227	530,982	0.05
Other Services	36,283	36,280	0.01
Sterilizations	2,896	2,896	0.00
Abortions	1,421	1,421	0.00
Transportation Services	46,790	46,782	0.02
Personal Care Services	0	0	0.00
Targeted Case Management	30,536	30,499	0.12
Rehabilitation Services	4,543	4,540	0.07
PT/OT/Hearing/Speech Services	4,925	4,922	0.06
Hospice Services	3,850	3,850	0.00
Nurse Midwife Services	3,930	3,930	0.00
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	46	46	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	146,099	146,085	0.01
Residential Care Services	2,964	2,964	0.00
Psychiatric Services	95,464	95,417	0.05
Adult Day Care	248	248	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Alaska.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	131,586	131,581	0.00
No enrollment	846	846	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	130,740	130,735	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	7,373	7,373	0.00
Disabled	15,497	15,497	0.00
Child	79,601	79,596	0.01
Adult	28,269	28,269	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	7,337	7,337	0.00
Disabled	15,454	15,454	0.00
Child	79,601	79,596	0.01
Adult	28,269	28,269	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	15,514	15,514	0.00
Mental Hospital Services for the Aged	2	2	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,435	1,435	0.00
Intermediate Care Facility Services for the Mentally Retarded	0	0	0.00
Nursing Facility Services	1,263	1,263	0.00
Physician Services	82,240	82,239	0.00
Dental Services	40,811	40,808	0.01
Other Practitioner Services	19,250	19,249	0.01
Outpatient Services	42,658	42,658	0.00
Clinic Services	35,530	35,530	0.00
Home Health Services	351	351	0.00
Lab/Xray Services	61,206	61,206	0.00
Drugs	67,854	67,853	0.00
Other Services	7,611	7,611	0.00
Sterilizations	386	386	0.00
Abortions	1	1	0.00
Transportation Services	22,958	22,958	0.00
Personal Care Services	4,600	4,600	0.00
Targeted Case Management	5,150	5,150	0.00
Rehabilitation Services	162	162	0.00
PT/OT/Hearing/Speech Services	5,973	5,973	0.00
Hospice Services	29	29	0.00
Nurse Midwife Services	2,208	2,208	0.00
Nurse Practitioner Services	12,123	12,123	0.00
Private Nursing Services	74	74	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	29,979	29,979	0.00
Residential Care Services	851	851	0.00
Psychiatric Services	17,237	17,237	0.00
Adult Day Care	443	443	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Arizona.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,533,874	1,533,658	0.01
No enrollment	22,020	22,020	0.00
Enrollees with S-CHIP only	47,232	47,185	0.10
Total Medicaid Enrollees	1,511,854	1,511,638	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	75,084	75,080	0.01
Disabled	138,895	138,880	0.01
Child	672,404	672,306	0.01
Adult	578,239	578,187	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	72,782	72,778	0.01
Disabled	137,468	137,450	0.01
Child	671,642	671,544	0.01
Adult	568,239	568,182	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	899,761	899,649	0.01
PHP	936,251	936,160	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	191,536	191,530	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	740	740	0.00
Intermediate Care Facility Services for the Mentally Retarded	0	0	0.00
Nursing Facility Services	15,244	15,244	0.00
Physician Services	843,459	843,427	0.00
Dental Services	472	472	0.00
Other Practitioner Services	157,241	157,241	0.00
Outpatient Services	501,354	501,348	0.00
Clinic Services	128,691	128,684	0.01
Home Health Services	9,798	9,798	0.00
Lab/Xray Services	668,591	668,575	0.00
Drugs	729,327	729,299	0.00
Other Services	103,829	103,827	0.00
Sterilizations	3,801	3,801	0.00
Abortions	4,182	4,182	0.00
Transportation Services	154,541	154,540	0.00
Personal Care Services	8,656	8,656	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	22,919	22,918	0.00
PT/OT/Hearing/Speech Services	9,430	9,430	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	7,084	7,084	0.00
Nurse Practitioner Services	112,270	112,270	0.00
Private Nursing Services	6	6	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	253,312	253,308	0.00
Residential Care Services	5,656	5,656	0.00
Psychiatric Services	193,340	193,333	0.00
Adult Day Care	764	764	0.00
Unknown Services	1	1	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Arkansas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	771,587	770,869	0.09
No enrollment	12,681	12,681	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	758,906	758,188	0.09
Medicaid Enrollees by Basis of Enrollment			
Aged	64,391	64,267	0.19
Disabled	116,927	116,613	0.27
Child	426,732	426,582	0.04
Adult	150,856	150,726	0.09
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	59,227	59,041	0.31
Disabled	115,801	115,304	0.43
Child	425,338	425,185	0.04
Adult	137,756	137,605	0.11
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	481,640	481,511	0.03
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	88,379	88,365	0.02
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	6,085	6,083	0.03
Intermediate Care Facility Services for the Mentally Retarded	1,717	1,717	0.00
Nursing Facility Services	18,434	18,424	0.05
Physician Services	494,326	494,076	0.05
Dental Services	127,844	127,833	0.01
Other Practitioner Services	116,043	116,029	0.01
Outpatient Services	248,599	248,523	0.03
Clinic Services	228,581	228,520	0.03
Home Health Services	6,491	6,490	0.02
Lab/Xray Services	375,854	375,699	0.04
Drugs	457,535	457,408	0.03
Other Services	62,952	62,877	0.12
Sterilizations	4,034	4,034	0.00
Abortions	1	1	0.00
Transportation Services	551,352	551,061	0.05
Personal Care Services	14,816	14,814	0.01
Targeted Case Management	16,670	16,663	0.04
Rehabilitation Services	59	59	0.00
PT/OT/Hearing/Speech Services	19,775	19,772	0.02
Hospice Services	1,893	1,893	0.00
Nurse Midwife Services	896	896	0.00
Nurse Practitioner Services	5,433	5,429	0.07
Private Nursing Services	129	129	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	150,296	150,270	0.02
Residential Care Services	0	0	0.00
Psychiatric Services	94,991	94,902	0.09
Adult Day Care	506	505	0.20
Unknown Services	2,883	2,881	0.07

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, California.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	10,946,644	10,946,521	0.00
No enrollment	334,725	334,725	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	10,611,919	10,611,796	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	764,574	764,483	0.01
Disabled	1,125,246	1,125,220	0.00
Child	4,280,264	4,280,264	0.00
Adult	4,441,835	4,441,829	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	752,973	752,880	0.01
Disabled	1,121,140	1,121,114	0.00
Child	4,256,145	4,256,145	0.00
Adult	4,414,245	4,414,239	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	4,142,519	4,142,515	0.00
PHP	6,551,301	6,551,229	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	586,236	586,236	0.00
Mental Hospital Services for the Aged	7	7	0.00
Inpatient Psychiatric Facility Services (under Age 21)	631	631	0.00
Intermediate Care Facility Services for the Mentally Retarded	9,856	9,856	0.00
Nursing Facility Services	127,512	127,501	0.01
Physician Services	4,507,908	4,507,897	0.00
Dental Services	2,063,131	2,063,130	0.00
Other Practitioner Services	676,826	676,824	0.00
Outpatient Services	2,021,747	2,021,744	0.00
Clinic Services	2,661,687	2,661,685	0.00
Home Health Services	38,604	38,604	0.00
Lab/Xray Services	4,538,162	4,538,159	0.00
Drugs	5,188,379	5,188,363	0.00
Other Services	1,280,646	1,280,642	0.00
Sterilizations	22,613	22,613	0.00
Abortions	0	0	0.00
Transportation Services	291,028	291,024	0.00
Personal Care Services	392,778	392,770	0.00
Targeted Case Management	202,281	202,280	0.00
Rehabilitation Services	115,693	115,693	0.00
PT/OT/Hearing/Speech Services	50,672	50,672	0.00
Hospice Services	14,307	14,307	0.00
Nurse Midwife Services	11,915	11,915	0.00
Nurse Practitioner Services	56,069	56,069	0.00
Private Nursing Services	1,811	1,811	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	2,956,977	2,956,969	0.00
Residential Care Services	67,362	67,362	0.00
Psychiatric Services	918,062	918,062	0.00
Adult Day Care	80,290	80,287	0.00
Unknown Services	14,478	14,478	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Colorado.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	642,575	642,291	0.04
No enrollment	15,807	15,807	0.00
Enrollees with S-CHIP only	55,064	55,048	0.03
Total Medicaid Enrollees	626,768	626,484	0.05
Medicaid Enrollees by Basis of Enrollment			
Aged	52,174	52,169	0.01
Disabled	76,797	76,785	0.02
Child	336,889	336,652	0.07
Adult	105,844	105,830	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	50,970	50,965	0.01
Disabled	75,752	75,739	0.02
Child	336,793	336,556	0.07
Adult	105,454	105,437	0.02
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	176,427	176,416	0.01
PHP	537,443	537,182	0.05
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	46,032	46,030	0.00
Mental Hospital Services for the Aged	11	11	0.00
Inpatient Psychiatric Facility Services (under Age 21)	136	136	0.00
Intermediate Care Facility Services for the Mentally Retarded	137	137	0.00
Nursing Facility Services	14,831	14,831	0.00
Physician Services	55,026	55,021	0.01
Dental Services	122,192	122,171	0.02
Other Practitioner Services	14,757	14,757	0.00
Outpatient Services	159,699	159,682	0.01
Clinic Services	364,481	364,411	0.02
Home Health Services	10,220	10,214	0.06
Lab/Xray Services	228,050	228,024	0.01
Drugs	254,945	254,878	0.03
Other Services	29,309	29,305	0.01
Sterilizations	1,948	1,948	0.00
Abortions	13	13	0.00
Transportation Services	17,618	17,618	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	1,896	1,891	0.26
Hospice Services	2,701	2,701	0.00
Nurse Midwife Services	588	588	0.00
Nurse Practitioner Services	623	623	0.00
Private Nursing Services	184	183	0.54
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	118,787	118,775	0.01
Residential Care Services	4,561	4,559	0.04
Psychiatric Services	34,897	34,894	0.01
Adult Day Care	1,344	1,344	0.00
Unknown Services	969	969	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Connecticut.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	534,495	533,902	0.11
No enrollment	927	927	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	533,568	532,975	0.11
Medicaid Enrollees by Basis of Enrollment			
Aged	64,392	64,383	0.01
Disabled	65,983	65,964	0.03
Child	284,332	283,798	0.19
Adult	118,861	118,830	0.03
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	61,719	61,705	0.02
Disabled	62,264	62,245	0.03
Child	284,331	283,797	0.19
Adult	118,749	118,718	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	378,665	378,161	0.13
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	32,091	32,088	0.01
Mental Hospital Services for the Aged	1,101	1,101	0.00
Inpatient Psychiatric Facility Services (under Age 21)	866	866	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,257	1,256	0.08
Nursing Facility Services	29,578	29,578	0.00
Physician Services	99,997	99,992	0.01
Dental Services	37,876	37,874	0.01
Other Practitioner Services	36,500	36,498	0.01
Outpatient Services	88,340	88,331	0.01
Clinic Services	42,746	42,739	0.02
Home Health Services	22,030	22,029	0.00
Lab/Xray Services	98,632	98,624	0.01
Drugs	116,428	116,422	0.01
Other Services	30,306	30,295	0.04
Sterilizations	278	278	0.00
Abortions	0	0	0.00
Transportation Services	34,074	34,073	0.00
Personal Care Services	13,257	13,257	0.00
Targeted Case Management	15,004	15,002	0.01
Rehabilitation Services	6,665	6,664	0.02
PT/OT/Hearing/Speech Services	3,043	3,043	0.00
Hospice Services	35	35	0.00
Nurse Midwife Services	1,360	1,360	0.00
Nurse Practitioner Services	13,634	13,634	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	74,584	74,581	0.00
Residential Care Services	6,593	6,592	0.02
Psychiatric Services	59,504	59,455	0.08
Adult Day Care	1,875	1,875	0.00
Unknown Services	3,332	3,332	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Delaware.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	185,602	185,588	0.01
No enrollment	1,060	1,060	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	184,542	184,528	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	13,226	13,226	0.00
Disabled	21,627	21,626	0.00
Child	79,128	79,119	0.01
Adult	70,561	70,557	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	12,724	12,724	0.00
Disabled	20,858	20,857	0.00
Child	78,893	78,884	0.01
Adult	64,792	64,788	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	131,056	131,049	0.01
PHP	158,250	158,240	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	10,158	10,158	0.00
Mental Hospital Services for the Aged	184	184	0.00
Inpatient Psychiatric Facility Services (under Age 21)	36	36	0.00
Intermediate Care Facility Services for the Mentally Retarded	150	150	0.00
Nursing Facility Services	3,647	3,647	0.00
Physician Services	124,673	124,669	0.00
Dental Services	25,954	25,952	0.01
Other Practitioner Services	48,464	48,464	0.00
Outpatient Services	18,527	18,527	0.00
Clinic Services	9,009	9,009	0.00
Home Health Services	1,321	1,321	0.00
Lab/Xray Services	92,320	92,319	0.00
Drugs	112,897	112,894	0.00
Other Services	24,454	24,454	0.00
Sterilizations	733	733	0.00
Abortions	61	61	0.00
Transportation Services	15,745	15,745	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	580	580	0.00
PT/OT/Hearing/Speech Services	7,496	7,496	0.00
Hospice Services	495	495	0.00
Nurse Midwife Services	55	55	0.00
Nurse Practitioner Services	66	66	0.00
Private Nursing Services	2,789	2,789	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	30,782	30,782	0.00
Residential Care Services	357	357	0.00
Psychiatric Services	26,026	26,026	0.00
Adult Day Care	220	220	0.00
Unknown Services	53,771	53,770	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, District of Columbia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	169,814	169,722	0.05
No enrollment	2,640	2,640	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	167,174	167,082	0.06
Medicaid Enrollees by Basis of Enrollment			
Aged	10,111	10,105	0.06
Disabled	35,596	35,567	0.08
Child	80,275	80,233	0.05
Adult	41,192	41,177	0.04
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,726	9,719	0.07
Disabled	35,045	35,016	0.08
Child	80,274	80,232	0.05
Adult	41,164	41,149	0.04
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	112,773	112,746	0.02
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	15,150	15,150	0.00
Mental Hospital Services for the Aged	151	151	0.00
Inpatient Psychiatric Facility Services (under Age 21)	212	212	0.00
Intermediate Care Facility Services for the Mentally Retarded	706	706	0.00
Nursing Facility Services	3,835	3,835	0.00
Physician Services	22,703	22,702	0.00
Dental Services	2,587	2,587	0.00
Other Practitioner Services	7,530	7,529	0.01
Outpatient Services	19,179	19,176	0.02
Clinic Services	17,970	17,967	0.02
Home Health Services	3,390	3,390	0.00
Lab/Xray Services	31,871	31,864	0.02
Drugs	31,586	31,582	0.01
Other Services	20,851	20,844	0.03
Sterilizations	50	50	0.00
Abortions	1	1	0.00
Transportation Services	13,394	13,392	0.01
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	144	144	0.00
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	214	214	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	789	789	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	19,619	19,615	0.02
Residential Care Services	0	0	0.00
Psychiatric Services	16,613	16,613	0.00
Adult Day Care	0	0	0.00
Unknown Services	15	15	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Florida.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	3,042,834	3,042,487	0.01
No enrollment	45,033	45,033	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	2,997,801	2,997,454	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	353,678	353,619	0.02
Disabled	530,551	530,459	0.02
Child	1,555,568	1,555,383	0.01
Adult	558,004	557,993	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	339,147	339,077	0.02
Disabled	517,476	517,382	0.02
Child	1,554,599	1,554,414	0.01
Adult	543,353	543,340	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,275,827	1,275,750	0.01
PHP	530,692	530,680	0.00
PCCM	1,172,701	1,172,634	0.01
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	317,039	317,033	0.00
Mental Hospital Services for the Aged	174	174	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	3,127	3,127	0.00
Nursing Facility Services	78,418	78,412	0.01
Physician Services	1,206,330	1,206,264	0.01
Dental Services	333,788	333,786	0.00
Other Practitioner Services	218,941	218,941	0.00
Outpatient Services	581,484	581,477	0.00
Clinic Services	276,752	276,751	0.00
Home Health Services	27,218	27,218	0.00
Lab/Xray Services	966,648	966,610	0.00
Drugs	1,080,996	1,080,948	0.00
Other Services	573,225	573,213	0.00
Sterilizations	7,258	7,258	0.00
Abortions	66	66	0.00
Transportation Services	173,938	173,930	0.00
Personal Care Services	7,095	7,093	0.03
Targeted Case Management	73,607	73,605	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	72,857	72,854	0.00
Hospice Services	17,449	17,449	0.00
Nurse Midwife Services	1,207	1,207	0.00
Nurse Practitioner Services	164,299	164,299	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	348,389	348,383	0.00
Residential Care Services	9,033	9,033	0.00
Psychiatric Services	202,631	202,628	0.00
Adult Day Care	13,537	13,537	0.00
Unknown Services	892	892	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Georgia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,101,713	2,101,652	0.00
No enrollment	58,064	58,064	0.00
Enrollees with S-CHIP only	284,861	284,828	0.01
Total Medicaid Enrollees	2,043,649	2,043,588	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	137,078	137,071	0.01
Disabled	289,256	289,249	0.00
Child	1,031,574	1,031,560	0.00
Adult	300,880	300,880	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	131,972	131,960	0.01
Disabled	284,260	284,252	0.00
Child	1,031,541	1,031,527	0.00
Adult	300,518	300,518	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	970,633	970,627	0.00
PHP	1,571,374	1,571,363	0.00
PCCM	1,064,172	1,064,164	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	193,389	193,388	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,097	1,097	0.00
Nursing Facility Services	38,255	38,255	0.00
Physician Services	1,089,426	1,089,422	0.00
Dental Services	382,862	382,862	0.00
Other Practitioner Services	252,191	252,191	0.00
Outpatient Services	560,260	560,259	0.00
Clinic Services	385,091	385,091	0.00
Home Health Services	7,259	7,259	0.00
Lab/Xray Services	797,856	797,852	0.00
Drugs	1,038,665	1,038,663	0.00
Other Services	77,546	77,546	0.00
Sterilizations	4,558	4,558	0.00
Abortions	131	131	0.00
Transportation Services	76,896	76,896	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	213,010	213,008	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	1,651	1,651	0.00
Hospice Services	5,449	5,449	0.00
Nurse Midwife Services	16,494	16,494	0.00
Nurse Practitioner Services	143,039	143,039	0.00
Private Nursing Services	694	694	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	398,791	398,790	0.00
Residential Care Services	2,319	2,319	0.00
Psychiatric Services	171,509	171,509	0.00
Adult Day Care	3,114	3,114	0.00
Unknown Services	38,947	38,947	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Hawaii.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	238,226	238,093	0.06
No enrollment	6,584	6,584	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	231,642	231,509	0.06
Medicaid Enrollees by Basis of Enrollment			
Aged	22,312	22,310	0.01
Disabled	25,827	25,822	0.02
Child	109,235	109,135	0.09
Adult	74,268	74,242	0.04
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	21,942	21,940	0.01
Disabled	25,541	25,536	0.02
Child	109,235	109,135	0.09
Adult	74,264	74,238	0.04
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	181,318	181,216	0.06
PHP	4,725	4,725	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	22,355	22,354	0.00
Mental Hospital Services for the Aged	129	129	0.00
Inpatient Psychiatric Facility Services (under Age 21)	16	16	0.00
Intermediate Care Facility Services for the Mentally Retarded	88	88	0.00
Nursing Facility Services	4,711	4,711	0.00
Physician Services	158,203	158,178	0.02
Dental Services	59,444	59,439	0.01
Other Practitioner Services	18,872	18,872	0.00
Outpatient Services	59,243	59,240	0.01
Clinic Services	23,211	23,209	0.01
Home Health Services	5,286	5,286	0.00
Lab/Xray Services	110,958	110,945	0.01
Drugs	152,102	152,080	0.01
Other Services	28,276	28,274	0.01
Sterilizations	650	650	0.00
Abortions	1,538	1,538	0.00
Transportation Services	14,218	14,218	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	1,992	1,992	0.00
Rehabilitation Services	170	170	0.00
PT/OT/Hearing/Speech Services	2,957	2,957	0.00
Hospice Services	120	120	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	10,143	10,143	0.00
Private Nursing Services	797	797	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	38,088	38,087	0.00
Residential Care Services	858	858	0.00
Psychiatric Services	31,990	31,988	0.01
Adult Day Care	1,535	1,535	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Idaho.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	230,815	230,796	0.01
No enrollment	903	903	0.00
Enrollees with S-CHIP only	3,703	3,703	0.00
Total Medicaid Enrollees	229,912	229,893	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	16,274	16,274	0.00
Disabled	35,080	35,080	0.00
Child	142,625	142,607	0.01
Adult	32,230	32,229	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	15,773	15,773	0.00
Disabled	34,501	34,501	0.00
Child	142,624	142,606	0.01
Adult	32,221	32,220	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	189,159	189,142	0.01
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	24,539	24,539	0.00
Mental Hospital Services for the Aged	838	838	0.00
Inpatient Psychiatric Facility Services (under Age 21)	948	948	0.00
Intermediate Care Facility Services for the Mentally Retarded	593	593	0.00
Nursing Facility Services	4,528	4,528	0.00
Physician Services	147,399	147,397	0.00
Dental Services	76,368	76,366	0.00
Other Practitioner Services	48,608	48,608	0.00
Outpatient Services	77,056	77,056	0.00
Clinic Services	57,464	57,463	0.00
Home Health Services	1,825	1,825	0.00
Lab/Xray Services	102,446	102,444	0.00
Drugs	129,588	129,582	0.00
Other Services	26,395	26,394	0.00
Sterilizations	1,095	1,095	0.00
Abortions	0	0	0.00
Transportation Services	15,611	15,611	0.00
Personal Care Services	6,628	6,628	0.00
Targeted Case Management	8,476	8,476	0.00
Rehabilitation Services	4,083	4,083	0.00
PT/OT/Hearing/Speech Services	9,625	9,625	0.00
Hospice Services	322	322	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	26,638	26,638	0.00
Private Nursing Services	1,584	1,584	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	42,551	42,551	0.00
Residential Care Services	4,946	4,946	0.00
Psychiatric Services	31,560	31,557	0.01
Adult Day Care	529	529	0.00
Unknown Services	456	456	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Illinois.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,602,268	2,575,245	1.04
No enrollment	1,621	1,621	0.00
Enrollees with S-CHIP only	196,048	193,735	1.18
Total Medicaid Enrollees	2,600,647	2,573,624	1.04
Medicaid Enrollees by Basis of Enrollment			
Aged	197,732	193,827	1.97
Disabled	341,708	340,780	0.27
Child	1,367,081	1,350,508	1.21
Adult	498,078	494,774	0.66
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	186,964	180,374	3.52
Disabled	327,881	326,532	0.41
Child	1,366,233	1,349,472	1.23
Adult	437,019	433,429	0.82
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	169,410	169,337	0.04
PHP	32,551	32,539	0.04
PCCM	121	121	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	191,439	191,287	0.08
Mental Hospital Services for the Aged	1,784	1,781	0.17
Inpatient Psychiatric Facility Services (under Age 21)	5,177	5,172	0.10
Intermediate Care Facility Services for the Mentally Retarded	9,504	9,502	0.02
Nursing Facility Services	73,913	73,887	0.04
Physician Services	1,319,532	1,316,572	0.22
Dental Services	605,146	604,717	0.07
Other Practitioner Services	219,406	219,373	0.02
Outpatient Services	696,268	695,224	0.15
Clinic Services	469,640	468,952	0.15
Home Health Services	13,393	13,365	0.21
Lab/Xray Services	1,096,952	1,094,462	0.23
Drugs	1,467,608	1,463,976	0.25
Other Services	114,194	114,124	0.06
Sterilizations	5,536	5,536	0.00
Abortions	328	328	0.00
Transportation Services	160,212	160,076	0.08
Personal Care Services	22,261	22,257	0.02
Targeted Case Management	748,829	747,785	0.14
Rehabilitation Services	13,344	13,338	0.04
PT/OT/Hearing/Speech Services	101,145	100,911	0.23
Hospice Services	7,528	7,528	0.00
Nurse Midwife Services	1,433	1,430	0.21
Nurse Practitioner Services	38,292	38,277	0.04
Private Nursing Services	719	715	0.56
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	405,091	404,823	0.07
Residential Care Services	8,989	8,980	0.10
Psychiatric Services	288,389	287,943	0.15
Adult Day Care	1,943	1,942	0.05
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Indiana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,067,016	1,066,881	0.01
No enrollment	553	553	0.00
Enrollees with S-CHIP only	16,703	16,703	0.00
Total Medicaid Enrollees	1,066,463	1,066,328	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	81,241	81,237	0.00
Disabled	152,797	152,790	0.00
Child	622,409	622,294	0.02
Adult	193,313	193,304	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	71,584	71,580	0.01
Disabled	140,244	140,237	0.00
Child	622,333	622,218	0.02
Adult	193,248	193,239	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	724,495	724,440	0.01
PHP	0	0	0.00
PCCM	79,628	79,627	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	119,550	119,549	0.00
Mental Hospital Services for the Aged	316	316	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,798	2,798	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,261	4,261	0.00
Nursing Facility Services	37,202	37,202	0.00
Physician Services	595,099	595,072	0.00
Dental Services	349,317	349,311	0.00
Other Practitioner Services	59,617	59,617	0.00
Outpatient Services	385,342	385,336	0.00
Clinic Services	312,715	312,707	0.00
Home Health Services	22,278	22,278	0.00
Lab/Xray Services	490,596	490,585	0.00
Drugs	610,276	610,252	0.00
Other Services	187,358	187,353	0.00
Sterilizations	1,796	1,796	0.00
Abortions	0	0	0.00
Transportation Services	73,698	73,698	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	12,056	12,056	0.00
Rehabilitation Services	63,433	63,428	0.01
PT/OT/Hearing/Speech Services	23,720	23,720	0.00
Hospice Services	4,935	4,935	0.00
Nurse Midwife Services	784	784	0.00
Nurse Practitioner Services	4,440	4,440	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	286,208	286,205	0.00
Residential Care Services	5,769	5,769	0.00
Psychiatric Services	143,838	143,827	0.01
Adult Day Care	250	250	0.00
Unknown Services	4	4	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Iowa.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	468,572	468,135	0.09
No enrollment	1,225	1,225	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	467,347	466,910	0.09
Medicaid Enrollees by Basis of Enrollment			
Aged	41,813	41,809	0.01
Disabled	70,390	70,380	0.01
Child	230,481	230,067	0.18
Adult	124,663	124,654	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	39,976	39,972	0.01
Disabled	68,639	68,629	0.01
Child	230,023	229,607	0.18
Adult	118,436	118,424	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	7,673	7,673	0.00
PHP	356,978	356,589	0.11
PCCM	180,754	180,748	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	59,769	59,769	0.00
Mental Hospital Services for the Aged	10	10	0.00
Inpatient Psychiatric Facility Services (under Age 21)	967	967	0.00
Intermediate Care Facility Services for the Mentally Retarded	2,316	2,316	0.00
Nursing Facility Services	18,969	18,969	0.00
Physician Services	289,194	289,096	0.03
Dental Services	131,483	131,432	0.04
Other Practitioner Services	121,934	121,920	0.01
Outpatient Services	173,109	173,070	0.02
Clinic Services	171,974	171,935	0.02
Home Health Services	27,860	27,855	0.02
Lab/Xray Services	247,933	247,886	0.02
Drugs	278,239	278,067	0.06
Other Services	50,299	50,278	0.04
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	16,891	16,891	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	11,379	11,372	0.06
Rehabilitation Services	2,482	2,477	0.20
PT/OT/Hearing/Speech Services	4,985	4,985	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	1,689	1,689	0.00
Nurse Practitioner Services	28,288	28,282	0.02
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	152,197	152,173	0.02
Residential Care Services	12,151	12,147	0.03
Psychiatric Services	92,093	91,995	0.11
Adult Day Care	4,079	4,079	0.00
Unknown Services	6,452	6,452	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Kansas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	361,498	361,478	0.01
No enrollment	2,747	2,747	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	358,751	358,731	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	34,458	34,458	0.00
Disabled	61,740	61,739	0.00
Child	202,682	202,663	0.01
Adult	59,871	59,871	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	33,060	33,060	0.00
Disabled	59,623	59,622	0.00
Child	202,681	202,662	0.01
Adult	59,853	59,853	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	120,162	120,160	0.00
PHP	0	0	0.00
PCCM	87,322	87,320	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	50,009	50,009	0.00
Mental Hospital Services for the Aged	166	166	0.00
Inpatient Psychiatric Facility Services (under Age 21)	333	333	0.00
Intermediate Care Facility Services for the Mentally Retarded	646	646	0.00
Nursing Facility Services	14,622	14,622	0.00
Physician Services	238,627	238,621	0.00
Dental Services	79,312	79,311	0.00
Other Practitioner Services	41,644	41,644	0.00
Outpatient Services	112,211	112,211	0.00
Clinic Services	93,841	93,839	0.00
Home Health Services	6,000	6,000	0.00
Lab/Xray Services	174,111	174,109	0.00
Drugs	223,415	223,411	0.00
Other Services	53,864	53,863	0.00
Sterilizations	1,158	1,158	0.00
Abortions	2	2	0.00
Transportation Services	22,105	22,105	0.00
Personal Care Services	359	359	0.00
Targeted Case Management	18,926	18,924	0.01
Rehabilitation Services	4,054	4,054	0.00
PT/OT/Hearing/Speech Services	1,927	1,927	0.00
Hospice Services	2,707	2,707	0.00
Nurse Midwife Services	704	704	0.00
Nurse Practitioner Services	24,051	24,051	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	62,235	62,235	0.00
Residential Care Services	4,384	4,384	0.00
Psychiatric Services	63,845	63,843	0.00
Adult Day Care	85	85	0.00
Unknown Services	1,504	1,504	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Kentucky.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	893,225	893,221	0.00
No enrollment	3,133	3,133	0.00
Enrollees with S-CHIP only	18,250	18,250	0.00
Total Medicaid Enrollees	890,092	890,088	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	71,479	71,478	0.00
Disabled	237,036	237,034	0.00
Child	427,910	427,909	0.00
Adult	135,417	135,417	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	69,363	69,362	0.00
Disabled	234,635	234,633	0.00
Child	427,832	427,831	0.00
Adult	134,978	134,978	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	172,571	172,571	0.00
PHP	798,364	798,364	0.00
PCCM	428,424	428,424	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	84,907	84,907	0.00
Mental Hospital Services for the Aged	338	338	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,324	3,324	0.00
Intermediate Care Facility Services for the Mentally Retarded	712	712	0.00
Nursing Facility Services	27,261	27,261	0.00
Physician Services	611,281	611,281	0.00
Dental Services	237,388	237,388	0.00
Other Practitioner Services	214,293	214,293	0.00
Outpatient Services	397,912	397,912	0.00
Clinic Services	221,827	221,827	0.00
Home Health Services	20,190	20,190	0.00
Lab/Xray Services	495,555	495,555	0.00
Drugs	629,366	629,366	0.00
Other Services	243,598	243,598	0.00
Sterilizations	4,881	4,881	0.00
Abortions	859	859	0.00
Transportation Services	76,200	76,200	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	16,115	16,115	0.00
Rehabilitation Services	120	120	0.00
PT/OT/Hearing/Speech Services	3,524	3,524	0.00
Hospice Services	2,796	2,796	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	94,261	94,261	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	203,065	203,065	0.00
Residential Care Services	2,437	2,437	0.00
Psychiatric Services	152,918	152,918	0.00
Adult Day Care	3,380	3,380	0.00
Unknown Services	3,114	3,114	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Louisiana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,273,978	1,273,959	0.00
No enrollment	60,901	60,901	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,213,077	1,213,058	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	111,104	111,089	0.01
Disabled	197,602	197,599	0.00
Child	749,866	749,866	0.00
Adult	154,505	154,504	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	107,254	107,238	0.01
Disabled	193,752	193,748	0.00
Child	749,863	749,863	0.00
Adult	152,163	152,161	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	824,809	824,809	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	134,351	134,351	0.00
Mental Hospital Services for the Aged	6,117	6,117	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,349	3,349	0.00
Intermediate Care Facility Services for the Mentally Retarded	5,539	5,539	0.00
Nursing Facility Services	29,007	29,006	0.00
Physician Services	756,344	756,344	0.00
Dental Services	227,266	227,266	0.00
Other Practitioner Services	168,140	168,140	0.00
Outpatient Services	435,899	435,899	0.00
Clinic Services	157,527	157,527	0.00
Home Health Services	10,428	10,428	0.00
Lab/Xray Services	609,005	609,005	0.00
Drugs	707,806	707,806	0.00
Other Services	429,126	429,126	0.00
Sterilizations	6,233	6,233	0.00
Abortions	18	18	0.00
Transportation Services	96,301	96,301	0.00
Personal Care Services	8,792	8,792	0.00
Targeted Case Management	11,878	11,878	0.00
Rehabilitation Services	4,875	4,875	0.00
PT/OT/Hearing/Speech Services	68,729	68,729	0.00
Hospice Services	3,932	3,932	0.00
Nurse Midwife Services	29,923	29,923	0.00
Nurse Practitioner Services	97,046	97,046	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	284,837	284,837	0.00
Residential Care Services	0	0	0.00
Psychiatric Services	63,596	63,596	0.00
Adult Day Care	0	0	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Maine.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	337,424	337,421	0.00
No enrollment	1,287	1,287	0.00
Enrollees with S-CHIP only	3,726	3,726	0.00
Total Medicaid Enrollees	336,137	336,134	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	40,547	40,546	0.00
Disabled	53,718	53,716	0.00
Child	128,668	128,668	0.00
Adult	109,478	109,478	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	38,594	38,593	0.00
Disabled	52,391	52,389	0.00
Child	128,651	128,651	0.00
Adult	109,267	109,267	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	0	0	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	0	0	0.00
Nursing Facility Services	0	0	0.00
Physician Services	0	0	0.00
Dental Services	0	0	0.00
Other Practitioner Services	0	0	0.00
Outpatient Services	0	0	0.00
Clinic Services	0	0	0.00
Home Health Services	0	0	0.00
Lab/Xray Services	0	0	0.00
Drugs	210,669	210,669	0.00
Other Services	0	0	0.00
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	0	0	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	0	0	0.00
Residential Care Services	0	0	0.00
Psychiatric Services	0	0	0.00
Adult Day Care	0	0	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Maryland.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	867,649	867,637	0.00
No enrollment	1,672	1,672	0.00
Enrollees with S-CHIP only	10,232	10,229	0.03
Total Medicaid Enrollees	865,977	865,965	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	62,751	62,750	0.00
Disabled	139,127	139,127	0.00
Child	478,217	478,209	0.00
Adult	175,650	175,650	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	61,020	61,019	0.00
Disabled	134,549	134,549	0.00
Child	474,771	474,763	0.00
Adult	132,868	132,868	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	588,452	588,446	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	117,194	117,194	0.00
Mental Hospital Services for the Aged	48	48	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,846	2,846	0.00
Intermediate Care Facility Services for the Mentally Retarded	346	346	0.00
Nursing Facility Services	24,150	24,150	0.00
Physician Services	557,765	557,759	0.00
Dental Services	140,875	140,875	0.00
Other Practitioner Services	21,928	21,928	0.00
Outpatient Services	286,375	286,371	0.00
Clinic Services	33,529	33,529	0.00
Home Health Services	19,663	19,663	0.00
Lab/Xray Services	315,915	315,914	0.00
Drugs	463,974	463,969	0.00
Other Services	61,005	61,005	0.00
Sterilizations	1,196	1,196	0.00
Abortions	3,351	3,351	0.00
Transportation Services	27,402	27,402	0.00
Personal Care Services	4,727	4,727	0.00
Targeted Case Management	10,597	10,597	0.00
Rehabilitation Services	3,415	3,415	0.00
PT/OT/Hearing/Speech Services	59,698	59,698	0.00
Hospice Services	2,142	2,142	0.00
Nurse Midwife Services	7,699	7,699	0.00
Nurse Practitioner Services	37,156	37,156	0.00
Private Nursing Services	736	736	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	151,885	151,885	0.00
Residential Care Services	353,607	353,604	0.00
Psychiatric Services	276,352	276,351	0.00
Adult Day Care	365,328	365,326	0.00
Unknown Services	4,917	4,917	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Massachusetts.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,315,266	1,315,161	0.01
No enrollment	7,592	7,592	0.00
Enrollees with S-CHIP only	50,728	50,726	0.00
Total Medicaid Enrollees	1,307,674	1,307,569	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	152,356	152,348	0.01
Disabled	247,892	247,877	0.01
Child	477,264	477,230	0.01
Adult	379,434	379,388	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	147,905	147,893	0.01
Disabled	247,662	247,647	0.01
Child	477,263	477,229	0.01
Adult	379,378	379,332	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	475,814	475,806	0.00
PHP	406,100	406,090	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	76,534	76,533	0.00
Mental Hospital Services for the Aged	21	21	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,840	3,840	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,032	1,032	0.00
Nursing Facility Services	50,799	50,799	0.00
Physician Services	488,229	488,218	0.00
Dental Services	358,951	358,949	0.00
Other Practitioner Services	105,263	105,263	0.00
Outpatient Services	391,262	391,253	0.00
Clinic Services	95,769	95,767	0.00
Home Health Services	35,198	35,197	0.00
Lab/Xray Services	417,809	417,800	0.00
Drugs	521,231	521,219	0.00
Other Services	111,543	111,542	0.00
Sterilizations	1,246	1,246	0.00
Abortions	0	0	0.00
Transportation Services	92,805	92,804	0.00
Personal Care Services	10,279	10,279	0.00
Targeted Case Management	33,346	33,346	0.00
Rehabilitation Services	69,987	69,987	0.00
PT/OT/Hearing/Speech Services	8,072	8,072	0.00
Hospice Services	5,016	5,016	0.00
Nurse Midwife Services	2,405	2,405	0.00
Nurse Practitioner Services	29,501	29,501	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	167,390	167,388	0.00
Residential Care Services	12,884	12,884	0.00
Psychiatric Services	142,944	142,944	0.00
Adult Day Care	6,913	6,913	0.00
Unknown Services	2,751	2,751	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Michigan.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,958,996	1,958,848	0.01
No enrollment	20,597	20,597	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,938,399	1,938,251	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	134,837	134,817	0.01
Disabled	301,863	301,840	0.01
Child	1,025,731	1,025,632	0.01
Adult	475,968	475,962	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	129,247	129,226	0.02
Disabled	295,276	295,249	0.01
Child	1,024,711	1,024,612	0.01
Adult	471,370	471,364	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,221,750	1,221,689	0.00
PHP	1,677,937	1,677,809	0.01
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	94,486	94,485	0.00
Mental Hospital Services for the Aged	49	49	0.00
Inpatient Psychiatric Facility Services (under Age 21)	543	543	0.00
Intermediate Care Facility Services for the Mentally Retarded	160	160	0.00
Nursing Facility Services	43,828	43,824	0.01
Physician Services	495,199	495,182	0.00
Dental Services	396,869	396,863	0.00
Other Practitioner Services	91,112	91,112	0.00
Outpatient Services	289,214	289,209	0.00
Clinic Services	164,028	164,025	0.00
Home Health Services	7,068	7,068	0.00
Lab/Xray Services	273,450	273,445	0.00
Drugs	589,121	589,103	0.00
Other Services	42,697	42,696	0.00
Sterilizations	2,806	2,806	0.00
Abortions	20	20	0.00
Transportation Services	30,766	30,766	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	52,281	52,281	0.00
Rehabilitation Services	24	24	0.00
PT/OT/Hearing/Speech Services	82	82	0.00
Hospice Services	875	875	0.00
Nurse Midwife Services	3,676	3,676	0.00
Nurse Practitioner Services	22,001	22,001	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	169,199	169,197	0.00
Residential Care Services	5,721	5,721	0.00
Psychiatric Services	64,942	64,939	0.00
Adult Day Care	384	384	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Minnesota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	809,009	808,952	0.01
No enrollment	6,827	6,827	0.00
Enrollees with S-CHIP only	24,056	24,056	0.00
Total Medicaid Enrollees	802,182	802,125	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	92,908	92,853	0.06
Disabled	112,599	112,597	0.00
Child	390,325	390,325	0.00
Adult	182,294	182,294	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	90,911	90,856	0.06
Disabled	110,931	110,929	0.00
Child	389,941	389,941	0.00
Adult	181,605	181,605	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	531,216	531,207	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	72,569	72,568	0.00
Mental Hospital Services for the Aged	118	118	0.00
Inpatient Psychiatric Facility Services (under Age 21)	643	643	0.00
Intermediate Care Facility Services for the Mentally Retarded	2,823	2,823	0.00
Nursing Facility Services	30,400	30,392	0.03
Physician Services	539,843	539,834	0.00
Dental Services	225,159	225,156	0.00
Other Practitioner Services	166,579	166,574	0.00
Outpatient Services	280,175	280,172	0.00
Clinic Services	49,004	49,004	0.00
Home Health Services	74,579	74,578	0.00
Lab/Xray Services	425,800	425,795	0.00
Drugs	493,560	493,559	0.00
Other Services	122,586	122,585	0.00
Sterilizations	1,841	1,841	0.00
Abortions	23	23	0.00
Transportation Services	66,127	66,124	0.00
Personal Care Services	44,441	44,438	0.01
Targeted Case Management	104,404	104,399	0.00
Rehabilitation Services	10,677	10,676	0.01
PT/OT/Hearing/Speech Services	27,382	27,381	0.00
Hospice Services	2,771	2,771	0.00
Nurse Midwife Services	8,897	8,897	0.00
Nurse Practitioner Services	113,919	113,916	0.00
Private Nursing Services	2,123	2,123	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	198,542	198,537	0.00
Residential Care Services	11,189	11,187	0.02
Psychiatric Services	143,896	143,896	0.00
Adult Day Care	12,440	12,439	0.01
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Mississippi.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	777,471	775,018	0.32
No enrollment	1,472	1,472	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	775,999	773,546	0.32
Medicaid Enrollees by Basis of Enrollment			
Aged	83,517	83,436	0.10
Disabled	168,390	167,167	0.73
Child	388,035	387,314	0.19
Adult	136,057	135,629	0.31
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	79,574	79,465	0.14
Disabled	164,013	162,750	0.77
Child	387,765	387,042	0.19
Adult	113,445	112,809	0.56
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	2	2	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	97,155	97,107	0.05
Mental Hospital Services for the Aged	239	239	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,510	2,505	0.20
Intermediate Care Facility Services for the Mentally Retarded	2,865	2,865	0.00
Nursing Facility Services	21,705	21,703	0.01
Physician Services	445,413	444,963	0.10
Dental Services	149,336	149,311	0.02
Other Practitioner Services	200,945	200,869	0.04
Outpatient Services	322,114	321,873	0.07
Clinic Services	203,537	203,410	0.06
Home Health Services	7,687	7,683	0.05
Lab/Xray Services	403,028	402,639	0.10
Drugs	428,193	427,733	0.11
Other Services	101,826	101,799	0.03
Sterilizations	5,546	5,546	0.00
Abortions	0	0	0.00
Transportation Services	63,358	63,312	0.07
Personal Care Services	356	356	0.00
Targeted Case Management	36,117	36,073	0.12
Rehabilitation Services	125	125	0.00
PT/OT/Hearing/Speech Services	5,488	5,481	0.13
Hospice Services	2,211	2,211	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	127,567	127,518	0.04
Private Nursing Services	1	1	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	213,264	213,184	0.04
Residential Care Services	90	90	0.00
Psychiatric Services	81,831	81,756	0.09
Adult Day Care	798	798	0.00
Unknown Services	28	28	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Missouri.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,115,164	1,115,145	0.00
No enrollment	3,766	3,766	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,111,398	1,111,379	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	95,551	95,547	0.00
Disabled	184,547	184,543	0.00
Child	619,852	619,841	0.00
Adult	211,448	211,448	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	92,083	92,078	0.01
Disabled	178,361	178,356	0.00
Child	619,810	619,799	0.00
Adult	190,373	190,373	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	748,835	748,827	0.00
PHP	5,729	5,729	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	123,947	123,947	0.00
Mental Hospital Services for the Aged	5	5	0.00
Inpatient Psychiatric Facility Services (under Age 21)	399	399	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,050	1,050	0.00
Nursing Facility Services	37,920	37,920	0.00
Physician Services	453,732	453,732	0.00
Dental Services	150,873	150,873	0.00
Other Practitioner Services	124,836	124,836	0.00
Outpatient Services	517,614	517,613	0.00
Clinic Services	508,068	508,064	0.00
Home Health Services	6,023	6,023	0.00
Lab/Xray Services	579,806	579,806	0.00
Drugs	741,211	741,209	0.00
Other Services	272,867	272,867	0.00
Sterilizations	1,920	1,920	0.00
Abortions	30	30	0.00
Transportation Services	80,506	80,506	0.00
Personal Care Services	45,497	45,497	0.00
Targeted Case Management	38,211	38,210	0.00
Rehabilitation Services	11,673	11,673	0.00
PT/OT/Hearing/Speech Services	3,994	3,994	0.00
Hospice Services	1,191	1,191	0.00
Nurse Midwife Services	1,273	1,273	0.00
Nurse Practitioner Services	4,001	4,001	0.00
Private Nursing Services	51	51	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	217,553	217,553	0.00
Residential Care Services	11,197	11,197	0.00
Psychiatric Services	126,368	126,367	0.00
Adult Day Care	1,448	1,448	0.00
Unknown Services	188	188	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Montana.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	129,162	129,162	0.00
No enrollment	2,228	2,228	0.00
Enrollees with S-CHIP only	14,168	14,168	0.00
Total Medicaid Enrollees	126,934	126,934	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	9,670	9,670	0.00
Disabled	19,437	19,437	0.00
Child	61,361	61,361	0.00
Adult	22,298	22,298	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,670	9,670	0.00
Disabled	19,437	19,437	0.00
Child	61,361	61,361	0.00
Adult	22,298	22,298	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	73,501	73,501	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	16,962	16,962	0.00
Mental Hospital Services for the Aged	54	54	0.00
Inpatient Psychiatric Facility Services (under Age 21)	422	422	0.00
Intermediate Care Facility Services for the Mentally Retarded	86	86	0.00
Nursing Facility Services	5,039	5,039	0.00
Physician Services	70,962	70,962	0.00
Dental Services	21,711	21,711	0.00
Other Practitioner Services	21,312	21,312	0.00
Outpatient Services	42,465	42,465	0.00
Clinic Services	16,806	16,806	0.00
Home Health Services	415	415	0.00
Lab/Xray Services	49,897	49,897	0.00
Drugs	60,651	60,651	0.00
Other Services	97,518	97,518	0.00
Sterilizations	3	3	0.00
Abortions	1,265	1,265	0.00
Transportation Services	5,211	5,211	0.00
Personal Care Services	3,104	3,104	0.00
Targeted Case Management	10,557	10,557	0.00
Rehabilitation Services	377	377	0.00
PT/OT/Hearing/Speech Services	9	9	0.00
Hospice Services	266	266	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	27,684	27,684	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	29,716	29,716	0.00
Residential Care Services	99	99	0.00
Psychiatric Services	17,480	17,480	0.00
Adult Day Care	265	265	0.00
Unknown Services	203	203	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Nebraska.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	262,403	262,331	0.03
No enrollment	389	389	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	262,014	261,942	0.03
Medicaid Enrollees by Basis of Enrollment			
Aged	23,941	23,939	0.01
Disabled	34,782	34,773	0.03
Child	157,188	157,129	0.04
Adult	46,103	46,101	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	23,431	23,429	0.01
Disabled	34,218	34,208	0.03
Child	157,188	157,129	0.04
Adult	46,103	46,101	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	42,566	42,564	0.00
PHP	0	0	0.00
PCCM	55,185	55,183	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	32,579	32,579	0.00
Mental Hospital Services for the Aged	1	1	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,683	1,683	0.00
Intermediate Care Facility Services for the Mentally Retarded	641	641	0.00
Nursing Facility Services	11,065	11,065	0.00
Physician Services	192,260	192,249	0.01
Dental Services	103,178	103,165	0.01
Other Practitioner Services	70,856	70,855	0.00
Outpatient Services	97,711	97,707	0.00
Clinic Services	41,198	41,193	0.01
Home Health Services	5,633	5,633	0.00
Lab/Xray Services	150,575	150,569	0.00
Drugs	192,161	192,134	0.01
Other Services	32,818	32,818	0.00
Sterilizations	1,518	1,518	0.00
Abortions	0	0	0.00
Transportation Services	22,950	22,950	0.00
Personal Care Services	2,017	2,016	0.05
Targeted Case Management	0	0	0.00
Rehabilitation Services	1	1	0.00
PT/OT/Hearing/Speech Services	14,058	14,056	0.01
Hospice Services	1,189	1,189	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	9,311	9,311	0.00
Private Nursing Services	176	176	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	95,314	95,312	0.00
Residential Care Services	3,264	3,263	0.03
Psychiatric Services	49,620	49,604	0.03
Adult Day Care	3,212	3,212	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Nevada.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	256,955	256,946	0.00
No enrollment	2,208	2,208	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	254,747	254,738	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	23,023	23,016	0.03
Disabled	38,423	38,421	0.01
Child	143,193	143,193	0.00
Adult	50,108	50,108	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	22,257	22,250	0.03
Disabled	37,616	37,613	0.01
Child	143,173	143,173	0.00
Adult	50,042	50,042	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	134,995	134,995	0.00
PHP	219,383	219,382	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	36,614	36,614	0.00
Mental Hospital Services for the Aged	7	7	0.00
Inpatient Psychiatric Facility Services (under Age 21)	903	903	0.00
Intermediate Care Facility Services for the Mentally Retarded	162	162	0.00
Nursing Facility Services	4,564	4,564	0.00
Physician Services	134,459	134,458	0.00
Dental Services	43,391	43,391	0.00
Other Practitioner Services	14,854	14,854	0.00
Outpatient Services	41,021	41,021	0.00
Clinic Services	20,167	20,167	0.00
Home Health Services	825	825	0.00
Lab/Xray Services	91,183	91,183	0.00
Drugs	81,851	81,850	0.00
Other Services	14,394	14,394	0.00
Sterilizations	4,486	4,486	0.00
Abortions	0	0	0.00
Transportation Services	16,604	16,604	0.00
Personal Care Services	5,441	5,441	0.00
Targeted Case Management	10,084	10,084	0.00
Rehabilitation Services	7,108	7,108	0.00
PT/OT/Hearing/Speech Services	3,067	3,067	0.00
Hospice Services	741	741	0.00
Nurse Midwife Services	308	308	0.00
Nurse Practitioner Services	17,067	17,067	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	33,228	33,228	0.00
Residential Care Services	1,218	1,218	0.00
Psychiatric Services	17,880	17,880	0.00
Adult Day Care	342	342	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, New Hampshire.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	148,759	148,752	0.00
No enrollment	88	88	0.00
Enrollees with S-CHIP only	6,446	6,446	0.00
Total Medicaid Enrollees	148,671	148,664	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	14,354	14,354	0.00
Disabled	21,203	21,203	0.00
Child	86,632	86,625	0.01
Adult	20,036	20,036	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	13,269	13,269	0.00
Disabled	19,495	19,495	0.00
Child	86,632	86,625	0.01
Adult	19,894	19,894	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	15,265	15,265	0.00
Mental Hospital Services for the Aged	0	0	0.00
Inpatient Psychiatric Facility Services (under Age 21)	283	283	0.00
Intermediate Care Facility Services for the Mentally Retarded	38	38	0.00
Nursing Facility Services	7,124	7,124	0.00
Physician Services	89,912	89,910	0.00
Dental Services	41,502	41,499	0.01
Other Practitioner Services	22,104	22,104	0.00
Outpatient Services	55,643	55,643	0.00
Clinic Services	37,294	37,293	0.00
Home Health Services	2,882	2,882	0.00
Lab/Xray Services	61,282	61,282	0.00
Drugs	88,129	88,125	0.00
Other Services	11,366	11,365	0.01
Sterilizations	688	688	0.00
Abortions	2	2	0.00
Transportation Services	7,287	7,287	0.00
Personal Care Services	171	171	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	2,285	2,285	0.00
PT/OT/Hearing/Speech Services	1,849	1,849	0.00
Hospice Services	0	0	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	1,025	1,025	0.00
Private Nursing Services	129	129	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	34,955	34,955	0.00
Residential Care Services	528	528	0.00
Psychiatric Services	29,473	29,470	0.01
Adult Day Care	460	460	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, New Jersey.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,190,176	1,189,236	0.08
No enrollment	9,499	9,499	0.00
Enrollees with S-CHIP only	99,179	99,174	0.01
Total Medicaid Enrollees	1,180,677	1,179,737	0.08
Medicaid Enrollees by Basis of Enrollment			
Aged	126,998	126,403	0.47
Disabled	189,826	189,507	0.17
Child	560,671	560,663	0.00
Adult	204,003	203,990	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	125,891	125,107	0.62
Disabled	189,377	188,905	0.25
Child	560,650	560,642	0.00
Adult	203,600	203,587	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	740,917	740,913	0.00
PHP	39,943	39,791	0.38
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	109,396	109,394	0.00
Mental Hospital Services for the Aged	359	359	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,794	1,792	0.11
Intermediate Care Facility Services for the Mentally Retarded	3,056	3,056	0.00
Nursing Facility Services	41,834	41,663	0.41
Physician Services	658,405	658,378	0.00
Dental Services	255,061	255,041	0.01
Other Practitioner Services	87,020	87,016	0.00
Outpatient Services	380,505	380,480	0.01
Clinic Services	68,928	68,923	0.01
Home Health Services	14,426	14,424	0.01
Lab/Xray Services	512,168	512,141	0.01
Drugs	715,713	715,639	0.01
Other Services	183,640	183,625	0.01
Sterilizations	413	413	0.00
Abortions	0	0	0.00
Transportation Services	90,358	90,307	0.06
Personal Care Services	27,562	27,553	0.03
Targeted Case Management	4,105	4,104	0.02
Rehabilitation Services	27,887	27,887	0.00
PT/OT/Hearing/Speech Services	0	0	0.00
Hospice Services	3,977	3,977	0.00
Nurse Midwife Services	744	744	0.00
Nurse Practitioner Services	14,609	14,609	0.00
Private Nursing Services	426	426	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	228,185	228,169	0.01
Residential Care Services	8,693	8,692	0.01
Psychiatric Services	125,137	125,121	0.01
Adult Day Care	14,399	14,395	0.03
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, New Mexico.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	521,785	521,777	0.00
No enrollment	4,923	4,923	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	516,862	516,854	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	26,226	26,220	0.02
Disabled	65,664	65,662	0.00
Child	303,629	303,629	0.00
Adult	121,343	121,343	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	25,514	25,508	0.02
Disabled	64,811	64,807	0.01
Child	303,536	303,536	0.00
Adult	104,317	104,317	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	438,092	438,092	0.00
PHP	442,693	442,693	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	52,247	52,247	0.00
Mental Hospital Services for the Aged	73	73	0.00
Inpatient Psychiatric Facility Services (under Age 21)	4,742	4,742	0.00
Intermediate Care Facility Services for the Mentally Retarded	259	259	0.00
Nursing Facility Services	6,359	6,359	0.00
Physician Services	315,157	315,156	0.00
Dental Services	161,936	161,936	0.00
Other Practitioner Services	66,200	66,200	0.00
Outpatient Services	184,683	184,683	0.00
Clinic Services	45,611	45,611	0.00
Home Health Services	3,857	3,857	0.00
Lab/Xray Services	225,939	225,939	0.00
Drugs	310,991	310,991	0.00
Other Services	89,720	89,720	0.00
Sterilizations	804	804	0.00
Abortions	11	11	0.00
Transportation Services	30,122	30,122	0.00
Personal Care Services	11,263	11,263	0.00
Targeted Case Management	21,938	21,938	0.00
Rehabilitation Services	841	841	0.00
PT/OT/Hearing/Speech Services	23,762	23,762	0.00
Hospice Services	1,052	1,052	0.00
Nurse Midwife Services	10,454	10,454	0.00
Nurse Practitioner Services	49,949	49,949	0.00
Private Nursing Services	5	5	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	122,818	122,818	0.00
Residential Care Services	2,560	2,560	0.00
Psychiatric Services	60,861	60,861	0.00
Adult Day Care	21	21	0.00
Unknown Services	24,608	24,607	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, New York.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	5,123,013	5,052,299	1.38
No enrollment	30,076	30,076	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	5,092,937	5,022,223	1.39
Medicaid Enrollees by Basis of Enrollment			
Aged	438,055	433,946	0.94
Disabled	740,854	726,884	1.89
Child	2,029,293	1,995,124	1.68
Adult	1,884,735	1,866,269	0.98
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	434,323	430,089	0.97
Disabled	737,990	723,961	1.90
Child	2,024,391	1,990,113	1.69
Adult	1,864,318	1,845,550	1.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	3,214,581	3,193,866	0.64
PHP	219,058	218,802	0.12
PCCM	11	11	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	650,867	649,429	0.22
Mental Hospital Services for the Aged	4,155	4,143	0.29
Inpatient Psychiatric Facility Services (under Age 21)	11,308	11,114	1.72
Intermediate Care Facility Services for the Mentally Retarded	8,678	8,655	0.27
Nursing Facility Services	148,004	147,897	0.07
Physician Services	2,779,270	2,770,393	0.32
Dental Services	1,301,431	1,299,850	0.12
Other Practitioner Services	291,979	291,832	0.05
Outpatient Services	1,913,229	1,906,686	0.34
Clinic Services	965,971	963,642	0.24
Home Health Services	267,084	266,650	0.16
Lab/Xray Services	2,210,127	2,204,618	0.25
Drugs	3,053,643	3,041,074	0.41
Other Services	946,331	944,276	0.22
Sterilizations	3,162	3,162	0.00
Abortions	9	9	0.00
Transportation Services	446,686	445,757	0.21
Personal Care Services	97,568	97,467	0.10
Targeted Case Management	35,252	35,155	0.28
Rehabilitation Services	119,090	118,799	0.24
PT/OT/Hearing/Speech Services	33,205	33,201	0.01
Hospice Services	7,176	7,175	0.01
Nurse Midwife Services	6,636	6,633	0.05
Nurse Practitioner Services	113,286	113,243	0.04
Private Nursing Services	9,168	9,157	0.12
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	613,928	613,456	0.08
Residential Care Services	45,712	45,655	0.12
Psychiatric Services	794,701	792,071	0.33
Adult Day Care	61,656	61,531	0.20
Unknown Services	4	4	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, North Carolina.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,782,760	1,782,735	0.00
No enrollment	1,807	1,807	0.00
Enrollees with S-CHIP only	107,324	107,318	0.01
Total Medicaid Enrollees	1,780,953	1,780,928	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	182,851	182,851	0.00
Disabled	288,753	288,753	0.00
Child	884,020	884,006	0.00
Adult	318,005	318,000	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	176,749	176,749	0.00
Disabled	282,566	282,566	0.00
Child	883,684	883,670	0.00
Adult	298,240	298,235	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	12,329	12,329	0.00
PHP	88,333	88,333	0.00
PCCM	1,137,269	1,137,258	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	211,929	211,928	0.00
Mental Hospital Services for the Aged	183	183	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,257	2,257	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,158	4,158	0.00
Nursing Facility Services	41,335	41,335	0.00
Physician Services	1,229,813	1,229,812	0.00
Dental Services	493,488	493,486	0.00
Other Practitioner Services	231,911	231,911	0.00
Outpatient Services	665,175	665,175	0.00
Clinic Services	458,240	458,238	0.00
Home Health Services	38,229	38,229	0.00
Lab/Xray Services	971,587	971,587	0.00
Drugs	1,034,092	1,034,091	0.00
Other Services	241,445	241,445	0.00
Sterilizations	8,149	8,149	0.00
Abortions	15	15	0.00
Transportation Services	132,438	132,438	0.00
Personal Care Services	78,675	78,675	0.00
Targeted Case Management	141,390	141,390	0.00
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	25,975	25,975	0.00
Hospice Services	5,701	5,701	0.00
Nurse Midwife Services	1,533	1,533	0.00
Nurse Practitioner Services	1	1	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	461,172	461,172	0.00
Residential Care Services	21	21	0.00
Psychiatric Services	211,895	211,895	0.00
Adult Day Care	493	493	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, North Dakota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	80,920	78,366	3.16
No enrollment	1,110	1,110	0.00
Enrollees with S-CHIP only	4,933	2,966	39.87
Total Medicaid Enrollees	79,810	77,256	3.20
Medicaid Enrollees by Basis of Enrollment			
Aged	9,928	9,584	3.46
Disabled	10,855	10,613	2.23
Child	37,873	37,873	0.00
Adult	16,221	16,220	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	9,341	8,982	3.84
Disabled	10,346	10,085	2.52
Child	37,871	37,871	0.00
Adult	16,217	16,216	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,303	1,303	0.00
PHP	0	0	0.00
PCCM	38,177	38,177	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	8,860	8,860	0.00
Mental Hospital Services for the Aged	14	14	0.00
Inpatient Psychiatric Facility Services (under Age 21)	50	50	0.00
Intermediate Care Facility Services for the Mentally Retarded	636	636	0.00
Nursing Facility Services	5,156	5,156	0.00
Physician Services	45,236	45,202	0.08
Dental Services	18,742	18,742	0.00
Other Practitioner Services	19,685	19,682	0.02
Outpatient Services	24,884	24,873	0.04
Clinic Services	22,321	22,312	0.04
Home Health Services	1,393	1,391	0.14
Lab/Xray Services	34,695	34,684	0.03
Drugs	41,858	41,858	0.00
Other Services	8,599	8,595	0.05
Sterilizations	286	286	0.00
Abortions	75	75	0.00
Transportation Services	5,384	5,381	0.06
Personal Care Services	1,445	1,445	0.00
Targeted Case Management	3,876	3,875	0.03
Rehabilitation Services	9,453	9,453	0.00
PT/OT/Hearing/Speech Services	2,040	2,040	0.00
Hospice Services	377	377	0.00
Nurse Midwife Services	522	522	0.00
Nurse Practitioner Services	6,668	6,667	0.01
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	20,019	20,014	0.02
Residential Care Services	675	675	0.00
Psychiatric Services	12,594	12,586	0.06
Adult Day Care	1,052	1,052	0.00
Unknown Services	2	2	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Ohio.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,157,415	2,144,555	0.60
No enrollment	367	367	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	2,157,048	2,144,188	0.60
Medicaid Enrollees by Basis of Enrollment			
Aged	177,036	177,002	0.02
Disabled	346,620	346,266	0.10
Child	1,141,935	1,129,612	1.08
Adult	491,457	491,308	0.03
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	151,442	151,404	0.03
Disabled	316,802	316,446	0.11
Child	1,141,933	1,129,609	1.08
Adult	491,117	490,967	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,183,867	1,183,782	0.01
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	166,956	166,890	0.04
Mental Hospital Services for the Aged	12	12	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,677	1,666	0.66
Intermediate Care Facility Services for the Mentally Retarded	7,772	7,770	0.03
Nursing Facility Services	83,399	83,396	0.00
Physician Services	1,035,752	1,033,111	0.25
Dental Services	376,188	375,530	0.17
Other Practitioner Services	297,387	297,264	0.04
Outpatient Services	743,037	741,586	0.20
Clinic Services	232,578	232,336	0.10
Home Health Services	43,415	43,346	0.16
Lab/Xray Services	695,728	694,200	0.22
Drugs	967,421	964,424	0.31
Other Services	127,719	127,685	0.03
Sterilizations	5,333	5,333	0.00
Abortions	14	14	0.00
Transportation Services	157,435	157,387	0.03
Personal Care Services	0	0	0.00
Targeted Case Management	1	1	0.00
Rehabilitation Services	43,254	43,229	0.06
PT/OT/Hearing/Speech Services	16,307	16,306	0.01
Hospice Services	2,128	2,128	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	150,360	150,237	0.08
Private Nursing Services	15,304	15,261	0.28
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	366,209	365,899	0.08
Residential Care Services	11,418	11,417	0.01
Psychiatric Services	315,004	313,104	0.60
Adult Day Care	14,659	14,659	0.00
Unknown Services	201	201	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Oklahoma.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	763,254	760,886	0.31
No enrollment	2,186	2,186	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	761,068	758,700	0.31
Medicaid Enrollees by Basis of Enrollment			
Aged	65,012	64,905	0.16
Disabled	108,652	108,434	0.20
Child	466,826	465,212	0.35
Adult	120,578	120,149	0.36
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	63,448	63,328	0.19
Disabled	106,456	106,203	0.24
Child	466,696	465,080	0.35
Adult	113,091	112,621	0.42
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	673,907	672,718	0.18
PCCM	12,939	12,937	0.02
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	114,230	114,202	0.02
Mental Hospital Services for the Aged	98	98	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,667	3,659	0.22
Intermediate Care Facility Services for the Mentally Retarded	1,829	1,829	0.00
Nursing Facility Services	21,545	21,532	0.06
Physician Services	464,418	463,994	0.09
Dental Services	201,496	201,434	0.03
Other Practitioner Services	66,253	66,247	0.01
Outpatient Services	308,363	308,161	0.07
Clinic Services	141,624	141,565	0.04
Home Health Services	7,293	7,290	0.04
Lab/Xray Services	367,171	366,938	0.06
Drugs	431,938	431,487	0.10
Other Services	61,679	61,658	0.03
Sterilizations	5,971	5,971	0.00
Abortions	175	175	0.00
Transportation Services	39,384	39,376	0.02
Personal Care Services	4,016	4,016	0.00
Targeted Case Management	40,505	40,449	0.14
Rehabilitation Services	0	0	0.00
PT/OT/Hearing/Speech Services	1,897	1,897	0.00
Hospice Services	79	79	0.00
Nurse Midwife Services	110	110	0.00
Nurse Practitioner Services	13,498	13,495	0.02
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	192,797	192,732	0.03
Residential Care Services	4,294	4,292	0.05
Psychiatric Services	83,490	83,427	0.08
Adult Day Care	603	603	0.00
Unknown Services	3,862	3,862	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Oregon.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	554,749	554,074	0.12
No enrollment	1,934	1,934	0.00
Enrollees with S-CHIP only	28,688	28,660	0.10
Total Medicaid Enrollees	552,815	552,140	0.12
Medicaid Enrollees by Basis of Enrollment			
Aged	49,207	49,191	0.03
Disabled	81,162	81,121	0.05
Child	272,235	271,715	0.19
Adult	121,523	121,453	0.06
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	47,752	47,737	0.03
Disabled	79,193	79,152	0.05
Child	271,835	271,316	0.19
Adult	121,061	120,991	0.06
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	351,371	351,100	0.08
PHP	427,969	427,584	0.09
PCCM	9,602	9,594	0.08
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	63,852	63,849	0.00
Mental Hospital Services for the Aged	87	87	0.00
Inpatient Psychiatric Facility Services (under Age 21)	450	450	0.00
Intermediate Care Facility Services for the Mentally Retarded	43	43	0.00
Nursing Facility Services	9,683	9,683	0.00
Physician Services	300,643	300,507	0.05
Dental Services	143,057	143,038	0.01
Other Practitioner Services	65,293	65,285	0.01
Outpatient Services	172,907	172,879	0.02
Clinic Services	70,970	70,961	0.01
Home Health Services	2,533	2,533	0.00
Lab/Xray Services	233,419	233,369	0.02
Drugs	222,338	222,245	0.04
Other Services	34,847	34,844	0.01
Sterilizations	1,993	1,993	0.00
Abortions	3,236	3,236	0.00
Transportation Services	51,890	51,884	0.01
Personal Care Services	7,967	7,967	0.00
Targeted Case Management	45,430	45,393	0.08
Rehabilitation Services	28,468	28,461	0.02
PT/OT/Hearing/Speech Services	6,612	6,606	0.09
Hospice Services	565	565	0.00
Nurse Midwife Services	2,466	2,466	0.00
Nurse Practitioner Services	60,360	60,355	0.01
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	120,757	120,745	0.01
Residential Care Services	9,227	9,227	0.00
Psychiatric Services	80,682	80,656	0.03
Adult Day Care	139	139	0.00
Unknown Services	32,180	32,177	0.01

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Pennsylvania.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	2,111,259	2,111,111	0.01
No enrollment	17,212	17,212	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	2,094,047	2,093,899	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	232,145	232,097	0.02
Disabled	497,436	497,378	0.01
Child	977,430	977,392	0.00
Adult	387,036	387,032	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	223,896	223,840	0.03
Disabled	489,270	489,211	0.01
Child	974,969	974,931	0.00
Adult	386,325	386,322	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,319,011	1,318,968	0.00
PHP	1,464,378	1,464,299	0.01
PCCM	378,138	378,132	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	108,163	108,161	0.00
Mental Hospital Services for the Aged	6,999	6,999	0.00
Inpatient Psychiatric Facility Services (under Age 21)	5,213	5,213	0.00
Intermediate Care Facility Services for the Mentally Retarded	4,060	4,060	0.00
Nursing Facility Services	79,195	79,192	0.00
Physician Services	431,759	431,753	0.00
Dental Services	157,106	157,105	0.00
Other Practitioner Services	79,456	79,456	0.00
Outpatient Services	220,501	220,499	0.00
Clinic Services	79,125	79,125	0.00
Home Health Services	16,760	16,759	0.01
Lab/Xray Services	324,427	324,425	0.00
Drugs	489,167	489,160	0.00
Other Services	119,550	119,544	0.01
Sterilizations	1,810	1,810	0.00
Abortions	0	0	0.00
Transportation Services	29,171	29,170	0.00
Personal Care Services	1	1	0.00
Targeted Case Management	72,592	72,590	0.00
Rehabilitation Services	9,371	9,370	0.01
PT/OT/Hearing/Speech Services	9,362	9,362	0.00
Hospice Services	960	960	0.00
Nurse Midwife Services	2,496	2,496	0.00
Nurse Practitioner Services	498	498	0.00
Private Nursing Services	241	241	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	94,338	94,336	0.00
Residential Care Services	758	758	0.00
Psychiatric Services	103,734	103,733	0.00
Adult Day Care	2,120	2,120	0.00
Unknown Services	26	26	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Rhode Island.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	225,873	225,872	0.00
No enrollment	4,823	4,823	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	221,050	221,049	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	20,946	20,946	0.00
Disabled	44,066	44,066	0.00
Child	99,916	99,916	0.00
Adult	56,122	56,121	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	20,412	20,412	0.00
Disabled	43,542	43,542	0.00
Child	99,913	99,913	0.00
Adult	54,673	54,672	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	150,954	150,954	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	31,343	31,343	0.00
Mental Hospital Services for the Aged	167	167	0.00
Inpatient Psychiatric Facility Services (under Age 21)	190	190	0.00
Intermediate Care Facility Services for the Mentally Retarded	45	45	0.00
Nursing Facility Services	10,284	10,284	0.00
Physician Services	92,199	92,199	0.00
Dental Services	59,011	59,011	0.00
Other Practitioner Services	44,921	44,921	0.00
Outpatient Services	90,177	90,176	0.00
Clinic Services	47,001	47,001	0.00
Home Health Services	9,377	9,377	0.00
Lab/Xray Services	131,373	131,373	0.00
Drugs	154,845	154,844	0.00
Other Services	43,832	43,832	0.00
Sterilizations	482	482	0.00
Abortions	402	402	0.00
Transportation Services	12,888	12,888	0.00
Personal Care Services	1,418	1,418	0.00
Targeted Case Management	8,049	8,049	0.00
Rehabilitation Services	6,711	6,711	0.00
PT/OT/Hearing/Speech Services	390	390	0.00
Hospice Services	1,014	1,014	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	11	11	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	31,724	31,724	0.00
Residential Care Services	2,207	2,207	0.00
Psychiatric Services	42,870	42,870	0.00
Adult Day Care	3,987	3,987	0.00
Unknown Services	50	50	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, South Carolina.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	949,921	949,830	0.01
No enrollment	360	360	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	949,561	949,470	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	77,059	77,045	0.02
Disabled	157,312	157,286	0.02
Child	482,432	482,387	0.01
Adult	232,758	232,752	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	75,917	75,903	0.02
Disabled	156,100	156,073	0.02
Child	481,880	481,835	0.01
Adult	198,143	198,137	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	125,342	125,341	0.00
PHP	42,275	42,274	0.00
PCCM	75,456	75,454	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	107,042	107,041	0.00
Mental Hospital Services for the Aged	229	229	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,003	1,003	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,736	1,736	0.00
Nursing Facility Services	16,229	16,228	0.01
Physician Services	532,146	532,125	0.00
Dental Services	264,556	264,551	0.00
Other Practitioner Services	145,401	145,401	0.00
Outpatient Services	284,059	284,054	0.00
Clinic Services	344,609	344,602	0.00
Home Health Services	3,232	3,232	0.00
Lab/Xray Services	413,996	413,990	0.00
Drugs	519,461	519,440	0.00
Other Services	10,325	10,325	0.00
Sterilizations	5,116	5,116	0.00
Abortions	5	5	0.00
Transportation Services	55,210	55,209	0.00
Personal Care Services	17,721	17,721	0.00
Targeted Case Management	42,035	42,032	0.01
Rehabilitation Services	7,095	7,093	0.03
PT/OT/Hearing/Speech Services	7,346	7,346	0.00
Hospice Services	2,647	2,647	0.00
Nurse Midwife Services	7,095	7,095	0.00
Nurse Practitioner Services	20,285	20,285	0.00
Private Nursing Services	22	22	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	182,637	182,634	0.00
Residential Care Services	362	362	0.00
Psychiatric Services	105,548	105,546	0.00
Adult Day Care	9,120	9,120	0.00
Unknown Services	129	129	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, South Dakota.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	132,647	130,590	1.55
No enrollment	113	113	0.00
Enrollees with S-CHIP only	1,883	1,867	0.85
Total Medicaid Enrollees	132,534	130,477	1.55
Medicaid Enrollees by Basis of Enrollment			
Aged	10,337	10,334	0.03
Disabled	18,799	18,770	0.15
Child	80,365	78,357	2.50
Adult	21,150	21,149	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	10,055	10,052	0.03
Disabled	18,567	18,538	0.16
Child	80,364	78,356	2.50
Adult	21,142	21,140	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	130,651	128,610	1.56
PCCM	61,142	61,140	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	16,600	16,584	0.10
Mental Hospital Services for the Aged	55	55	0.00
Inpatient Psychiatric Facility Services (under Age 21)	488	480	1.64
Intermediate Care Facility Services for the Mentally Retarded	191	191	0.00
Nursing Facility Services	5,736	5,736	0.00
Physician Services	73,335	72,927	0.56
Dental Services	16,878	16,846	0.19
Other Practitioner Services	46,325	46,182	0.31
Outpatient Services	38,233	38,187	0.12
Clinic Services	41,986	41,841	0.35
Home Health Services	457	455	0.44
Lab/Xray Services	59,072	58,770	0.51
Drugs	71,137	70,598	0.76
Other Services	6,823	6,821	0.03
Sterilizations	0	0	0.00
Abortions	0	0	0.00
Transportation Services	9,662	9,656	0.06
Personal Care Services	2,326	2,326	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	767	765	0.26
PT/OT/Hearing/Speech Services	5,135	5,117	0.35
Hospice Services	304	304	0.00
Nurse Midwife Services	986	984	0.20
Nurse Practitioner Services	0	0	0.00
Private Nursing Services	3	3	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	30,611	30,535	0.25
Residential Care Services	1,290	1,278	0.93
Psychiatric Services	15,686	15,387	1.91
Adult Day Care	3	3	0.00
Unknown Services	2,034	2,033	0.05

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Tennessee.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,499,759	1,499,447	0.02
No enrollment	20,393	20,393	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,479,366	1,479,054	0.02
Medicaid Enrollees by Basis of Enrollment			
Aged	115,228	115,206	0.02
Disabled	346,508	346,420	0.03
Child	726,110	725,948	0.02
Adult	291,520	291,480	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	98,682	98,656	0.03
Disabled	340,501	340,413	0.03
Child	725,968	725,806	0.02
Adult	291,221	291,180	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	382	382	0.00
PHP	1,432,581	1,432,287	0.02
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	116,583	116,581	0.00
Mental Hospital Services for the Aged	103	103	0.00
Inpatient Psychiatric Facility Services (under Age 21)	3,343	3,343	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,292	1,292	0.00
Nursing Facility Services	32,893	32,892	0.00
Physician Services	836,556	836,509	0.01
Dental Services	288,768	288,751	0.01
Other Practitioner Services	227,459	227,455	0.00
Outpatient Services	404,770	404,764	0.00
Clinic Services	214,809	214,797	0.01
Home Health Services	20,621	20,620	0.00
Lab/Xray Services	744,703	744,676	0.00
Drugs	847,233	847,176	0.01
Other Services	17,120	17,120	0.00
Sterilizations	10,255	10,255	0.00
Abortions	8,451	8,451	0.00
Transportation Services	113,438	113,437	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	0	0	0.00
Rehabilitation Services	8,165	8,165	0.00
PT/OT/Hearing/Speech Services	14,420	14,420	0.00
Hospice Services	6,700	6,700	0.00
Nurse Midwife Services	4,397	4,397	0.00
Nurse Practitioner Services	149,554	149,552	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	191,815	191,813	0.00
Residential Care Services	4,560	4,560	0.00
Psychiatric Services	311,838	311,810	0.01
Adult Day Care	43	43	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Texas.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	4,184,402	4,176,360	0.19
No enrollment	32,738	32,738	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	4,151,664	4,143,622	0.19
Medicaid Enrollees by Basis of Enrollment			
Aged	426,251	425,970	0.07
Disabled	536,447	535,936	0.10
Child	2,650,688	2,644,079	0.25
Adult	538,278	537,637	0.12
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	414,398	414,085	0.08
Disabled	530,370	529,851	0.10
Child	2,650,570	2,643,961	0.25
Adult	537,851	537,204	0.12
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	1,714,227	1,712,708	0.09
PHP	451,976	451,355	0.14
PCCM	1,323,451	1,322,986	0.04
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	518,183	518,076	0.02
Mental Hospital Services for the Aged	460	460	0.00
Inpatient Psychiatric Facility Services (under Age 21)	7,124	7,116	0.11
Intermediate Care Facility Services for the Mentally Retarded	12,513	12,512	0.01
Nursing Facility Services	95,602	95,578	0.03
Physician Services	2,231,742	2,230,533	0.05
Dental Services	1,243,760	1,243,470	0.02
Other Practitioner Services	429,190	429,145	0.01
Outpatient Services	918,456	918,156	0.03
Clinic Services	304,282	304,195	0.03
Home Health Services	23,388	23,383	0.02
Lab/Xray Services	1,807,844	1,807,017	0.05
Drugs	2,625,505	2,624,001	0.06
Other Services	551,510	551,424	0.02
Sterilizations	22,921	22,918	0.01
Abortions	6,081	6,081	0.00
Transportation Services	231,390	231,353	0.02
Personal Care Services	1,603	1,603	0.00
Targeted Case Management	201,227	201,079	0.07
Rehabilitation Services	44,431	44,423	0.02
PT/OT/Hearing/Speech Services	12,120	12,120	0.00
Hospice Services	16,697	16,696	0.01
Nurse Midwife Services	9,856	9,851	0.05
Nurse Practitioner Services	129,800	129,773	0.02
Private Nursing Services	164	164	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	879,246	879,103	0.02
Residential Care Services	2,438	2,437	0.04
Psychiatric Services	280,762	280,604	0.06
Adult Day Care	24,050	24,050	0.00
Unknown Services	35	35	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Utah.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	339,648	339,599	0.01
No enrollment	205	205	0.00
Enrollees with S-CHIP only	39,277	39,276	0.00
Total Medicaid Enrollees	339,443	339,394	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	14,277	14,276	0.01
Disabled	36,602	36,601	0.00
Child	167,009	166,973	0.02
Adult	82,278	82,268	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	13,517	13,516	0.01
Disabled	35,055	35,053	0.01
Child	166,960	166,924	0.02
Adult	82,061	82,050	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	589	589	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	31,515	31,515	0.00
Mental Hospital Services for the Aged	1	1	0.00
Inpatient Psychiatric Facility Services (under Age 21)	112	112	0.00
Intermediate Care Facility Services for the Mentally Retarded	826	826	0.00
Nursing Facility Services	5,381	5,381	0.00
Physician Services	81,535	81,533	0.00
Dental Services	86,032	86,030	0.00
Other Practitioner Services	21,434	21,433	0.00
Outpatient Services	48,687	48,686	0.00
Clinic Services	120,973	120,967	0.00
Home Health Services	1,970	1,970	0.00
Lab/Xray Services	100,425	100,419	0.01
Drugs	184,247	184,234	0.01
Other Services	11,655	11,654	0.01
Sterilizations	947	947	0.00
Abortions	0	0	0.00
Transportation Services	12,346	12,346	0.00
Personal Care Services	473	473	0.00
Targeted Case Management	150	150	0.00
Rehabilitation Services	478	478	0.00
PT/OT/Hearing/Speech Services	5,699	5,699	0.00
Hospice Services	997	997	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	13,428	13,428	0.00
Private Nursing Services	18	18	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	39,126	39,126	0.00
Residential Care Services	1,216	1,216	0.00
Psychiatric Services	17,164	17,158	0.03
Adult Day Care	54	54	0.00
Unknown Services	388	388	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Vermont.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	164,682	164,679	0.00
No enrollment	3,146	3,146	0.00
Enrollees with S-CHIP only	2,066	2,066	0.00
Total Medicaid Enrollees	161,536	161,533	0.00
Medicaid Enrollees by Basis of Enrollment			
Aged	18,661	18,659	0.01
Disabled	22,044	22,043	0.00
Child	66,651	66,651	0.00
Adult	52,114	52,114	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	17,710	17,708	0.01
Disabled	21,325	21,324	0.00
Child	66,651	66,651	0.00
Adult	52,085	52,085	0.00
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	10,897	10,897	0.00
Mental Hospital Services for the Aged	164	164	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	6	6	0.00
Nursing Facility Services	3,497	3,497	0.00
Physician Services	108,575	108,575	0.00
Dental Services	46,974	46,974	0.00
Other Practitioner Services	14,816	14,816	0.00
Outpatient Services	55,056	55,056	0.00
Clinic Services	31,318	31,318	0.00
Home Health Services	3,542	3,542	0.00
Lab/Xray Services	83,095	83,095	0.00
Drugs	113,901	113,901	0.00
Other Services	21,424	21,424	0.00
Sterilizations	683	683	0.00
Abortions	42	42	0.00
Transportation Services	15,718	15,717	0.01
Personal Care Services	2,007	2,007	0.00
Targeted Case Management	6,354	6,354	0.00
Rehabilitation Services	6	6	0.00
PT/OT/Hearing/Speech Services	4,192	4,192	0.00
Hospice Services	101	101	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	2,598	2,598	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	22,190	22,190	0.00
Residential Care Services	67	67	0.00
Psychiatric Services	36,534	36,534	0.00
Adult Day Care	0	0	0.00
Unknown Services	56	56	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Virginia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	956,145	955,610	0.06
No enrollment	1,660	1,660	0.00
Enrollees with S-CHIP only	46,646	46,562	0.18
Total Medicaid Enrollees	954,485	953,950	0.06
Medicaid Enrollees by Basis of Enrollment			
Aged	99,814	99,809	0.01
Disabled	160,073	160,038	0.02
Child	507,165	506,789	0.07
Adult	140,787	140,752	0.02
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	96,496	96,490	0.01
Disabled	156,706	156,670	0.02
Child	507,138	506,762	0.07
Adult	126,994	126,959	0.03
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	504,112	503,921	0.04
PHP	0	0	0.00
PCCM	82,651	82,631	0.02
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	157,855	157,847	0.01
Mental Hospital Services for the Aged	904	904	0.00
Inpatient Psychiatric Facility Services (under Age 21)	757	757	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,923	1,923	0.00
Nursing Facility Services	28,035	28,034	0.00
Physician Services	625,876	625,743	0.02
Dental Services	179,229	179,203	0.01
Other Practitioner Services	43,120	43,120	0.00
Outpatient Services	17,076	17,075	0.01
Clinic Services	90,280	90,271	0.01
Home Health Services	5,709	5,709	0.00
Lab/Xray Services	432,415	432,320	0.02
Drugs	538,699	538,569	0.02
Other Services	56,758	56,752	0.01
Sterilizations	4,687	4,687	0.00
Abortions	115	115	0.00
Transportation Services	90,928	90,922	0.01
Personal Care Services	12,537	12,537	0.00
Targeted Case Management	5,376	5,376	0.00
Rehabilitation Services	3,694	3,694	0.00
PT/OT/Hearing/Speech Services	4,733	4,733	0.00
Hospice Services	2,418	2,418	0.00
Nurse Midwife Services	1,768	1,768	0.00
Nurse Practitioner Services	20,523	20,522	0.00
Private Nursing Services	510	509	0.20
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	81,092	81,082	0.01
Residential Care Services	0	0	0.00
Psychiatric Services	103,899	103,872	0.03
Adult Day Care	631	631	0.00
Unknown Services	0	0	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Washington.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,245,992	1,245,914	0.01
No enrollment	54,521	54,521	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,191,471	1,191,393	0.01
Medicaid Enrollees by Basis of Enrollment			
Aged	85,955	85,953	0.00
Disabled	170,717	170,698	0.01
Child	622,822	622,776	0.01
Adult	311,977	311,966	0.00
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	81,026	81,024	0.00
Disabled	161,711	161,692	0.01
Child	621,542	621,493	0.01
Adult	292,248	292,231	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	692,036	692,012	0.00
PHP	0	0	0.00
PCCM	5,487	5,487	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	89,891	89,888	0.00
Mental Hospital Services for the Aged	928	928	0.00
Inpatient Psychiatric Facility Services (under Age 21)	0	0	0.00
Intermediate Care Facility Services for the Mentally Retarded	59	59	0.00
Nursing Facility Services	21,068	21,068	0.00
Physician Services	371,532	371,518	0.00
Dental Services	386,072	386,065	0.00
Other Practitioner Services	123,770	123,770	0.00
Outpatient Services	209,692	209,689	0.00
Clinic Services	110,929	110,928	0.00
Home Health Services	18	18	0.00
Lab/Xray Services	506,543	506,532	0.00
Drugs	739,279	739,249	0.00
Other Services	161,415	161,408	0.00
Sterilizations	1,119	1,119	0.00
Abortions	140	140	0.00
Transportation Services	29,906	29,906	0.00
Personal Care Services	25,342	25,342	0.00
Targeted Case Management	2,591	2,591	0.00
Rehabilitation Services	4,986	4,986	0.00
PT/OT/Hearing/Speech Services	16,361	16,360	0.01
Hospice Services	2,395	2,394	0.04
Nurse Midwife Services	1,911	1,911	0.00
Nurse Practitioner Services	11,983	11,983	0.00
Private Nursing Services	338	338	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	271,598	271,596	0.00
Residential Care Services	37,029	37,029	0.00
Psychiatric Services	105,019	105,019	0.00
Adult Day Care	3,345	3,345	0.00
Unknown Services	4	4	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, West Virginia.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	393,607	393,440	0.04
No enrollment	862	862	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	392,745	392,578	0.04
Medicaid Enrollees by Basis of Enrollment			
Aged	36,846	36,749	0.26
Disabled	110,319	110,280	0.04
Child	187,208	187,181	0.01
Adult	58,372	58,368	0.01
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	35,739	35,622	0.33
Disabled	108,215	108,162	0.05
Child	187,208	187,181	0.01
Adult	58,306	58,302	0.01
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	194,381	194,373	0.00
PHP	0	0	0.00
PCCM	31,900	31,900	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	23,985	23,985	0.00
Mental Hospital Services for the Aged	199	199	0.00
Inpatient Psychiatric Facility Services (under Age 21)	1,858	1,858	0.00
Intermediate Care Facility Services for the Mentally Retarded	547	547	0.00
Nursing Facility Services	10,799	10,791	0.07
Physician Services	168,158	168,152	0.00
Dental Services	96,074	96,072	0.00
Other Practitioner Services	36,189	36,189	0.00
Outpatient Services	111,961	111,959	0.00
Clinic Services	71,428	71,425	0.00
Home Health Services	1,988	1,988	0.00
Lab/Xray Services	138,475	138,468	0.01
Drugs	269,610	269,594	0.01
Other Services	48,940	48,935	0.01
Sterilizations	0	0	0.00
Abortions	1	1	0.00
Transportation Services	35,471	35,468	0.01
Personal Care Services	5,528	5,527	0.02
Targeted Case Management	5,686	5,686	0.00
Rehabilitation Services	20,966	20,965	0.00
PT/OT/Hearing/Speech Services	15,496	15,496	0.00
Hospice Services	780	780	0.00
Nurse Midwife Services	1,842	1,842	0.00
Nurse Practitioner Services	28,982	28,981	0.00
Private Nursing Services	615	615	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	50,664	50,659	0.01
Residential Care Services	3,599	3,599	0.00
Psychiatric Services	77,341	77,340	0.00
Adult Day Care	0	0	0.00
Unknown Services	7	7	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Wisconsin.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	1,051,903	1,049,766	0.20
No enrollment	13,099	13,099	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	1,038,804	1,036,667	0.21
Medicaid Enrollees by Basis of Enrollment			
Aged	150,181	150,170	0.01
Disabled	146,619	146,564	0.04
Child	436,533	434,569	0.45
Adult	305,471	305,364	0.04
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	144,355	144,343	0.01
Disabled	143,355	143,300	0.04
Child	435,149	433,184	0.45
Adult	289,292	289,182	0.04
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	524,025	523,420	0.12
PHP	56,001	55,940	0.11
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	102,905	102,796	0.11
Mental Hospital Services for the Aged	158	158	0.00
Inpatient Psychiatric Facility Services (under Age 21)	2,801	2,801	0.00
Intermediate Care Facility Services for the Mentally Retarded	1,667	1,667	0.00
Nursing Facility Services	32,783	32,783	0.00
Physician Services	462,576	461,582	0.21
Dental Services	198,299	198,285	0.01
Other Practitioner Services	145,231	145,197	0.02
Outpatient Services	373,213	372,827	0.10
Clinic Services	404,368	404,035	0.08
Home Health Services	7,997	7,984	0.16
Lab/Xray Services	519,706	519,368	0.07
Drugs	684,398	683,271	0.16
Other Services	153,014	152,958	0.04
Sterilizations	3,772	3,772	0.00
Abortions	0	0	0.00
Transportation Services	70,214	70,202	0.02
Personal Care Services	13,920	13,920	0.00
Targeted Case Management	36,920	36,889	0.08
Rehabilitation Services	7,791	7,782	0.12
PT/OT/Hearing/Speech Services	15,745	15,736	0.06
Hospice Services	3,010	3,010	0.00
Nurse Midwife Services	650	650	0.00
Nurse Practitioner Services	37,022	37,001	0.06
Private Nursing Services	519	518	0.19
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	272,916	272,821	0.03
Residential Care Services	10,871	10,871	0.00
Psychiatric Services	110,205	110,189	0.01
Adult Day Care	3,335	3,335	0.00
Unknown Services	29	29	0.00

Table A.1 Within State/Within Year Validation Statistics Before and After Unduplication, 2006, Wyoming.

Measure	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Before Un-duplication (MAX)			
Total PS records	80,790	80,767	0.03
No enrollment	393	393	0.00
Enrollees with S-CHIP only	0	0	0.00
Total Medicaid Enrollees	80,397	80,374	0.03
Medicaid Enrollees by Basis of Enrollment			
Aged	5,500	5,496	0.07
Disabled	9,742	9,741	0.01
Child	52,781	52,767	0.03
Adult	12,374	12,370	0.03
Medicaid Enrollees (Excluding Persons with Restricted Benefits Only)			
Aged	5,362	5,358	0.07
Disabled	9,655	9,654	0.01
Child	52,769	52,755	0.03
Adult	12,354	12,349	0.04
Medicaid Enrollees by Type of Managed Care Premium Payment			
HMO/HIO	0	0	0.00
PHP	0	0	0.00
PCCM	0	0	0.00
Medicaid Enrollees by Type of Service Performed			
Inpatient Hospital	11,189	11,189	0.00
Mental Hospital Services for the Aged	11	11	0.00
Inpatient Psychiatric Facility Services (under Age 21)	497	497	0.00
Intermediate Care Facility Services for the Mentally Retarded	96	96	0.00
Nursing Facility Services	2,303	2,303	0.00
Physician Services	52,590	52,583	0.01
Dental Services	20,095	20,094	0.00
Other Practitioner Services	11,680	11,679	0.01
Outpatient Services	29,640	29,639	0.00
Clinic Services	16,101	16,099	0.01
Home Health Services	591	591	0.00
Lab/Xray Services	39,220	39,216	0.01
Drugs	47,005	46,999	0.01
Other Services	19,896	19,892	0.02
Sterilizations	480	480	0.00
Abortions	1	1	0.00
Transportation Services	3,010	3,010	0.00
Personal Care Services	0	0	0.00
Targeted Case Management	2,307	2,307	0.00
Rehabilitation Services	3,480	3,480	0.00
PT/OT/Hearing/Speech Services	499	499	0.00
Hospice Services	83	83	0.00
Nurse Midwife Services	0	0	0.00
Nurse Practitioner Services	10,165	10,165	0.00
Private Nursing Services	0	0	0.00
Religious Non-Medical Services	0	0	0.00
Durable Medical Equipment	15,965	15,963	0.01
Residential Care Services	1,084	1,084	0.00
Psychiatric Services	10,149	10,149	0.00
Adult Day Care	48	48	0.00
Unknown Services	2	2	0.00

Table A.2 Person Summary File Record Count, Before Unduplication, 2005

State	Before Unduplication (MAX)			
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	Total Medicaid Enrollees
Alabama	963,526	7,936	0	955,590
Alaska	133,699	849	0	132,850
Arizona	1,491,569	14,727	0	1,476,842
Arkansas	762,193	15,687	0	746,506
California	10,924,768	331,245	0	10,593,523
Colorado	645,965	42,016	47,057	603,949
Connecticut	531,515	2,396	0	529,119
Delaware	181,053	1,118	0	179,935
District of Columbia	167,845	1,331	0	166,514
Florida	3,059,524	39,422	0	3,020,102
Georgia	2,107,826	24,602	244,314	2,083,224
Hawaii	237,736	5,949	0	231,787
Idaho	233,765	413	2,082	233,352
Illinois	2,612,709	2,238	160,064	2,610,471
Indiana	1,060,392	15,503	16,263	1,044,889
Iowa	430,985	2,171	0	428,814
Kansas	361,325	4,587	0	356,738
Kentucky	894,282	7,322	12,760	886,960
Louisiana	1,244,886	78,733	0	1,166,153
Maine	327,491	991	4,006	326,500
Maryland	868,686	1,765	7,820	866,921
Massachusetts	1,255,313	9,418	24,134	1,245,895
Michigan	1,878,812	21,037	0	1,857,775
Minnesota	792,366	1,654	26,499	790,712
Mississippi	787,537	7,291	0	780,246
Missouri	1,219,756	1,827	0	1,217,929
Montana	129,052	1,048	12,723	128,004
Nebraska	261,841	469	0	261,372
Nevada	272,739	4,859	0	267,880
New Hampshire	145,834	97	6,091	145,737
New Jersey	1,134,761	8,991	88,862	1,125,770
New Mexico	530,733	3,031	0	527,702
New York	5,118,695	30,861	0	5,087,834
North Carolina	1,729,575	967	126,721	1,728,608
North Dakota	79,961	1,336	3,639	78,625
Ohio	2,127,176	550	0	2,126,626
Oklahoma	730,873	2,264	0	728,609
Oregon	565,361	1,916	24,855	563,445
Pennsylvania	2,038,176	8,282	0	2,029,894
Rhode Island	224,884	5,100	0	219,784
South Carolina	1,012,763	476	0	1,012,287
South Dakota	130,988	94	1,810	130,894
Tennessee	1,607,615	13,370	0	1,594,245
Texas	4,164,091	60,821	0	4,103,270
Utah	359,506	14,055	36,166	345,451
Vermont	165,860	3,098	2,111	162,762
Virginia	928,642	957	43,186	927,685
Washington	1,285,090	85,518	0	1,199,572
West Virginia	393,616	10,505	0	383,111
Wisconsin	1,034,583	12,380	0	1,022,203
Wyoming	81,599	400	0	81,199
United States	61,429,538	913,673	891,163	60,515,865

Table A.2 Person Summary File Record Count , After Unduplication, 2005

State	After Unduplication (MAXEM)			
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	Total Medicaid Enrollees
Alabama	962,325	7,936	0	954,389
Alaska	133,651	849	0	132,802
Arizona	1,489,015	14,727	0	1,474,288
Arkansas	761,387	15,687	0	745,700
California	10,924,364	331,245	0	10,593,119
Colorado	645,723	42,016	47,045	603,707
Connecticut	530,865	2,396	0	528,469
Delaware	181,031	1,118	0	179,913
District of Columbia	167,771	1,331	0	166,440
Florida	3,059,056	39,422	0	3,019,634
Georgia	2,104,924	24,602	243,326	2,080,322
Hawaii	237,569	5,949	0	231,620
Idaho	233,746	413	2,082	233,333
Illinois	2,572,719	2,238	158,439	2,570,481
Indiana	1,060,267	15,503	16,262	1,044,764
Iowa	430,450	2,171	0	428,279
Kansas	361,293	4,587	0	356,706
Kentucky	881,254	7,322	12,463	873,932
Louisiana	1,244,852	78,733	0	1,166,119
Maine	327,400	991	4,005	326,409
Maryland	868,665	1,765	7,817	866,900
Massachusetts	1,255,261	9,418	24,133	1,245,843
Michigan	1,878,738	21,037	0	1,857,701
Minnesota	792,269	1,654	26,499	790,615
Mississippi	785,813	7,291	0	778,522
Missouri	1,219,327	1,827	0	1,217,500
Montana	129,052	1,048	12,723	128,004
Nebraska	261,840	469	0	261,371
Nevada	272,692	4,859	0	267,833
New Hampshire	145,825	97	6,090	145,728
New Jersey	1,130,753	8,991	88,384	1,121,762
New Mexico	530,725	3,031	0	527,694
New York	5,043,983	30,861	0	5,013,122
North Carolina	1,728,885	967	126,694	1,727,918
North Dakota	78,448	1,336	2,495	77,112
Ohio	2,113,998	550	0	2,113,448
Oklahoma	728,101	2,264	0	725,837
Oregon	564,481	1,916	24,810	562,565
Pennsylvania	2,038,014	8,282	0	2,029,732
Rhode Island	224,883	5,100	0	219,783
South Carolina	1,012,647	476	0	1,012,171
South Dakota	128,932	94	1,790	128,838
Tennessee	1,607,239	13,370	0	1,593,869
Texas	4,156,996	60,821	0	4,096,175
Utah	359,493	14,055	36,166	345,438
Vermont	165,841	3,098	2,111	162,743
Virginia	927,841	957	43,018	926,884
Washington	1,284,959	85,518	0	1,199,441
West Virginia	393,504	10,505	0	382,999
Wisconsin	1,028,142	12,380	0	1,015,762
Wyoming	81,529	400	0	81,129
United States	61,248,538	913,673	886,352	60,334,865
United States (across states)	59,830,585	913,673	875,674	58,916,912

Table A.2 Person Summary File Record Count, Duplicates 2005

State	Duplicates			
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	Total Medicaid Enrollees
Alabama	1,201	0	0	1,201
Alaska	48	0	0	48
Arizona	2,554	0	0	2,554
Arkansas	806	0	0	806
California	404	0	0	404
Colorado	242	0	12	242
Connecticut	650	0	0	650
Delaware	22	0	0	22
District of Columbia	74	0	0	74
Florida	468	0	0	468
Georgia	2,902	0	988	2,902
Hawaii	167	0	0	167
Idaho	19	0	0	19
Illinois	39,990	0	1,625	39,990
Indiana	125	0	1	125
Iowa	535	0	0	535
Kansas	32	0	0	32
Kentucky	13,028	0	297	13,028
Louisiana	34	0	0	34
Maine	91	0	1	91
Maryland	21	0	3	21
Massachusetts	52	0	1	52
Michigan	74	0	0	74
Minnesota	97	0	0	97
Mississippi	1,724	0	0	1,724
Missouri	429	0	0	429
Montana	0	0	0	0
Nebraska	1	0	0	1
Nevada	47	0	0	47
New Hampshire	9	0	1	9
New Jersey	4,008	0	478	4,008
New Mexico	8	0	0	8
New York	74,712	0	0	74,712
North Carolina	690	0	27	690
North Dakota	1,513	0	1,144	1,513
Ohio	13,178	0	0	13,178
Oklahoma	2,772	0	0	2,772
Oregon	880	0	45	880
Pennsylvania	162	0	0	162
Rhode Island	1	0	0	1
South Carolina	116	0	0	116
South Dakota	2,056	0	20	2,056
Tennessee	376	0	0	376
Texas	7,095	0	0	7,095
Utah	13	0	0	13
Vermont	19	0	0	19
Virginia	801	0	168	801
Washington	131	0	0	131
West Virginia	112	0	0	112
Wisconsin	6,441	0	0	6,441
Wyoming	70	0	0	70
United States	181,000	0	4,811	181,000

Table A.2 Person Summary File Record Count Before Unduplication, 2006

State	Before Unduplication (MAX)			Total Medicaid Enrollees
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	
Alabama	976,361	8,584	0	967,777
Alaska	131,586	846	0	130,740
Arizona	1,533,874	22,020	47,232	1,511,854
Arkansas	771,587	12,681	0	758,906
California	10,946,644	334,725	0	10,611,919
Colorado	642,575	15,807	55,064	626,768
Connecticut	534,495	927	0	533,568
Delaware	185,602	1,060	0	184,542
District of Columbia	169,814	2,640	0	167,174
Florida	3,042,834	45,033	0	2,997,801
Georgia	2,101,713	58,064	284,861	2,043,649
Hawaii	238,226	6,584	0	231,642
Idaho	230,815	903	3,703	229,912
Illinois	2,602,268	1,621	196,048	2,600,647
Indiana	1,067,016	553	16,703	1,066,463
Iowa	468,572	1,225	0	467,347
Kansas	361,498	2,747	0	358,751
Kentucky	893,225	3,133	18,250	890,092
Louisiana	1,273,978	60,901	0	1,213,077
Maine	337,424	1,287	3,726	336,137
Maryland	867,649	1,672	10,232	865,977
Massachusetts	1,315,266	7,592	50,728	1,307,674
Michigan	1,958,996	20,597	0	1,938,399
Minnesota	809,009	6,827	24,056	802,182
Mississippi	777,471	1,472	0	775,999
Missouri	1,115,164	3,766	0	1,111,398
Montana	129,162	2,228	14,168	126,934
Nebraska	262,403	389	0	262,014
Nevada	256,955	2,208	0	254,747
New Hampshire	148,759	88	6,446	148,671
New Jersey	1,190,176	9,499	99,179	1,180,677
New Mexico	521,785	4,923	0	516,862
New York	5,123,013	30,076	0	5,092,937
North Carolina	1,782,760	1,807	107,324	1,780,953
North Dakota	80,920	1,110	4,933	79,810
Ohio	2,157,415	367	0	2,157,048
Oklahoma	763,254	2,186	0	761,068
Oregon	554,749	1,934	28,688	552,815
Pennsylvania	2,111,259	17,212	0	2,094,047
Rhode Island	225,873	4,823	0	221,050
South Carolina	949,921	360	0	949,561
South Dakota	132,647	113	1,883	132,534
Tennessee	1,499,759	20,393	0	1,479,366
Texas	4,184,402	32,738	0	4,151,664
Utah	339,648	205	39,277	339,443
Vermont	164,682	3,146	2,066	161,536
Virginia	956,145	1,660	46,646	954,485
Washington	1,245,992	54,521	0	1,191,471
West Virginia	393,607	862	0	392,745
Wisconsin	1,051,903	13,099	0	1,038,804
Wyoming	80,790	393	0	80,397
United States	61,661,641	829,607	1,061,213	60,832,034

Table A.2 Person Summary File Record Count, After Unduplication, 2006

State	After Unduplication (MAXEM)			Total Medicaid Enrollees
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	
Alabama	975,571	8,584	0	966,987
Alaska	131,581	846	0	130,735
Arizona	1,533,658	22,020	47,185	1,511,638
Arkansas	770,869	12,681	0	758,188
California	10,946,521	334,725	0	10,611,796
Colorado	642,291	15,807	55,048	626,484
Connecticut	533,902	927	0	532,975
Delaware	185,588	1,060	0	184,528
District of Columbia	169,722	2,640	0	167,082
Florida	3,042,487	45,033	0	2,997,454
Georgia	2,101,652	58,064	284,828	2,043,588
Hawaii	238,093	6,584	0	231,509
Idaho	230,796	903	3,703	229,893
Illinois	2,575,245	1,621	193,735	2,573,624
Indiana	1,066,881	553	16,703	1,066,328
Iowa	468,135	1,225	0	466,910
Kansas	361,478	2,747	0	358,731
Kentucky	893,221	3,133	18,250	890,088
Louisiana	1,273,959	60,901	0	1,213,058
Maine	337,421	1,287	3,726	336,134
Maryland	867,637	1,672	10,229	865,965
Massachusetts	1,315,161	7,592	50,726	1,307,569
Michigan	1,958,848	20,597	0	1,938,251
Minnesota	808,952	6,827	24,056	802,125
Mississippi	775,018	1,472	0	773,546
Missouri	1,115,145	3,766	0	1,111,379
Montana	129,162	2,228	14,168	126,934
Nebraska	262,331	389	0	261,942
Nevada	256,946	2,208	0	254,738
New Hampshire	148,752	88	6,446	148,664
New Jersey	1,189,236	9,499	99,174	1,179,737
New Mexico	521,777	4,923	0	516,854
New York	5,052,299	30,076	0	5,022,223
North Carolina	1,782,735	1,807	107,318	1,780,928
North Dakota	78,366	1,110	2,966	77,256
Ohio	2,144,555	367	0	2,144,188
Oklahoma	760,886	2,186	0	758,700
Oregon	554,074	1,934	28,660	552,140
Pennsylvania	2,111,111	17,212	0	2,093,899
Rhode Island	225,872	4,823	0	221,049
South Carolina	949,830	360	0	949,470
South Dakota	130,590	113	1,867	130,477
Tennessee	1,499,447	20,393	0	1,479,054
Texas	4,176,360	32,738	0	4,143,622
Utah	339,599	205	39,276	339,394
Vermont	164,679	3,146	2,066	161,533
Virginia	955,610	1,660	46,562	953,950
Washington	1,245,914	54,521	0	1,191,393
West Virginia	393,440	862	0	392,578
Wisconsin	1,049,766	13,099	0	1,036,667
Wyoming	80,767	393	0	80,374
United States	61,523,936	829,607	1,056,692	60,694,329
United States (across states)	60,155,196	829,607	1,044,813	59,325,589

Table A.2 Person Summary File Record Count, Duplicates 2006

State	Duplicates			Total Medicaid Enrollees
	Total PS Records	Persons with No Enrollment	Enrolled Only in S-CHIP	
Alabama	790	0	0	790
Alaska	5	0	0	5
Arizona	216	0	47	216
Arkansas	718	0	0	718
California	123	0	0	123
Colorado	284	0	16	284
Connecticut	593	0	0	593
Delaware	14	0	0	14
District of Columbia	92	0	0	92
Florida	347	0	0	347
Georgia	61	0	33	61
Hawaii	133	0	0	133
Idaho	19	0	0	19
Illinois	27,023	0	2,313	27,023
Indiana	135	0	0	135
Iowa	437	0	0	437
Kansas	20	0	0	20
Kentucky	4	0	0	4
Louisiana	19	0	0	19
Maine	3	0	0	3
Maryland	12	0	3	12
Massachusetts	105	0	2	105
Michigan	148	0	0	148
Minnesota	57	0	0	57
Mississippi	2,453	0	0	2,453
Missouri	19	0	0	19
Montana	0	0	0	0
Nebraska	72	0	0	72
Nevada	9	0	0	9
New Hampshire	7	0	0	7
New Jersey	940	0	5	940
New Mexico	8	0	0	8
New York	70,714	0	0	70,714
North Carolina	25	0	6	25
North Dakota	2,554	0	1,967	2,554
Ohio	12,860	0	0	12,860
Oklahoma	2,368	0	0	2,368
Oregon	675	0	28	675
Pennsylvania	148	0	0	148
Rhode Island	1	0	0	1
South Carolina	91	0	0	91
South Dakota	2,057	0	16	2,057
Tennessee	312	0	0	312
Texas	8,042	0	0	8,042
Utah	49	0	1	49
Vermont	3	0	0	3
Virginia	535	0	84	535
Washington	78	0	0	78
West Virginia	167	0	0	167
Wisconsin	2,137	0	0	2,137
Wyoming	23	0	0	23
United States	137,705	0	4,521	137,705

Table A.3 Total Medicaid Enrollee Count Before and After Unduplication, 2005

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	955,590	954,389	1,201
Alaska	132,850	132,802	48
Arizona	1,476,842	1,474,288	2,554
Arkansas	746,506	745,700	806
California	10,593,523	10,593,119	404
Colorado	603,949	603,707	242
Connecticut	529,119	528,469	650
Delaware	179,935	179,913	22
District of Columbia	166,514	166,440	74
Florida	3,020,102	3,019,634	468
Georgia	2,083,224	2,080,322	2,902
Hawaii	231,787	231,620	167
Idaho	233,352	233,333	19
Illinois	2,610,471	2,570,481	39,990
Indiana	1,044,889	1,044,764	125
Iowa	428,814	428,279	535
Kansas	356,738	356,706	32
Kentucky	886,960	873,932	13,028
Louisiana	1,166,153	1,166,119	34
Maine	326,500	326,409	91
Maryland	866,921	866,900	21
Massachusetts	1,245,895	1,245,843	52
Michigan	1,857,775	1,857,701	74
Minnesota	790,712	790,615	97
Mississippi	780,246	778,522	1,724
Missouri	1,217,929	1,217,500	429
Montana	128,004	128,004	0
Nebraska	261,372	261,371	1
Nevada	267,880	267,833	47
New Hampshire	145,737	145,728	9
New Jersey	1,125,770	1,121,762	4,008
New Mexico	527,702	527,694	8
New York	5,087,834	5,013,122	74,712
North Carolina	1,728,608	1,727,918	690
North Dakota	78,625	77,112	1,513
Ohio	2,126,626	2,113,448	13,178
Oklahoma	728,609	725,837	2,772
Oregon	563,445	562,565	880
Pennsylvania	2,029,894	2,029,732	162
Rhode Island	219,784	219,783	1
South Carolina	1,012,287	1,012,171	116
South Dakota	130,894	128,838	2,056
Tennessee	1,594,245	1,593,869	376
Texas	4,103,270	4,096,175	7,095
Utah	345,451	345,438	13
Vermont	162,762	162,743	19
Virginia	927,685	926,884	801
Washington	1,199,572	1,199,441	131
West Virginia	383,111	382,999	112
Wisconsin	1,022,203	1,015,762	6,441
Wyoming	81,199	81,129	70
United States	60,515,865	60,334,865	181,000
United States (across states)	N/A	58,916,912	N/A

Table A.3 Total Medicaid Enrollee Count Before and After Unduplication, 2006

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	967,777	966,987	790
Alaska	130,740	130,735	5
Arizona	1,511,854	1,511,638	216
Arkansas	758,906	758,188	718
California	10,611,919	10,611,796	123
Colorado	626,768	626,484	284
Connecticut	533,568	532,975	593
Delaware	184,542	184,528	14
District of Columbia	167,174	167,082	92
Florida	2,997,801	2,997,454	347
Georgia	2,043,649	2,043,588	61
Hawaii	231,642	231,509	133
Idaho	229,912	229,893	19
Illinois	2,600,647	2,573,624	27,023
Indiana	1,066,463	1,066,328	135
Iowa	467,347	466,910	437
Kansas	358,751	358,731	20
Kentucky	890,092	890,088	4
Louisiana	1,213,077	1,213,058	19
Maine	336,137	336,134	3
Maryland	865,977	865,965	12
Massachusetts	1,307,674	1,307,569	105
Michigan	1,938,399	1,938,251	148
Minnesota	802,182	802,125	57
Mississippi	775,999	773,546	2,453
Missouri	1,111,398	1,111,379	19
Montana	126,934	126,934	0
Nebraska	262,014	261,942	72
Nevada	254,747	254,738	9
New Hampshire	148,671	148,664	7
New Jersey	1,180,677	1,179,737	940
New Mexico	516,862	516,854	8
New York	5,092,937	5,022,223	70,714
North Carolina	1,780,953	1,780,928	25
North Dakota	79,810	77,256	2,554
Ohio	2,157,048	2,144,188	12,860
Oklahoma	761,068	758,700	2,368
Oregon	552,815	552,140	675
Pennsylvania	2,094,047	2,093,899	148
Rhode Island	221,050	221,049	1
South Carolina	949,561	949,470	91
South Dakota	132,534	130,477	2,057
Tennessee	1,479,366	1,479,054	312
Texas	4,151,664	4,143,622	8,042
Utah	339,443	339,394	49
Vermont	161,536	161,533	3
Virginia	954,485	953,950	535
Washington	1,191,471	1,191,393	78
West Virginia	392,745	392,578	167
Wisconsin	1,038,804	1,036,667	2,137
Wyoming	80,397	80,374	23
United States	60,832,034	60,694,329	137,705
United States (across states)	N/A	59,325,589	N/A

Table A.4 Medicaid Enrollees by Basis of Eligibility, Before Unduplication 2005

State	Before Unduplication (MAX)				
	Total	Aged	Disabled	Child	Adult
Alabama	955,590	102,706	206,514	442,298	204,072
Alaska	132,850	7,306	14,987	82,319	28,238
Arizona	1,476,842	79,784	137,043	671,165	588,850
Arkansas	746,506	63,588	111,714	398,675	172,529
California	10,593,523	751,508	1,111,609	4,318,735	4,411,671
Colorado	556,892	50,802	78,934	328,711	98,445
Connecticut	529,119	64,105	64,093	285,444	115,477
Delaware	179,935	12,728	20,723	77,346	69,138
District of Columbia	166,514	10,116	34,150	80,409	41,839
Florida	3,020,102	347,360	533,460	1,570,668	568,614
Georgia	1,838,910	134,996	291,736	1,093,356	318,822
Hawaii	231,787	22,271	25,479	107,745	76,292
Idaho	231,270	15,776	33,563	147,540	34,391
Illinois	2,450,407	355,652	333,222	1,302,965	458,568
Indiana	1,028,626	80,935	150,403	607,504	189,784
Iowa	428,814	41,247	68,159	222,651	96,757
Kansas	356,738	34,121	59,892	201,869	60,856
Kentucky	874,200	70,323	232,951	437,850	133,076
Louisiana	1,166,153	111,175	201,014	710,679	143,285
Maine	322,494	35,471	51,902	127,231	107,890
Maryland	859,101	68,850	137,688	473,614	178,949
Massachusetts	1,221,761	145,040	239,917	484,330	352,474
Michigan	1,857,775	135,204	293,117	990,757	438,697
Minnesota	764,213	91,881	108,700	388,219	175,413
Mississippi	780,246	84,787	170,455	394,240	130,764
Missouri	1,217,929	100,849	194,214	658,177	264,689
Montana	115,281	10,117	19,450	62,248	23,466
Nebraska	261,372	23,808	33,876	156,743	46,945
Nevada	267,880	22,514	37,700	154,446	53,220
New Hampshire	139,646	14,230	20,199	85,379	19,838
New Jersey	1,036,908	117,720	197,672	536,292	185,224
New Mexico	527,702	25,472	63,308	311,944	126,978
New York	5,087,834	436,330	735,576	2,079,846	1,836,082
North Carolina	1,601,887	182,568	283,799	833,090	302,430
North Dakota	74,986	9,718	10,480	38,137	16,651
Ohio	2,126,626	173,471	338,623	1,124,213	490,319
Oklahoma	728,609	64,738	101,506	456,522	105,843
Oregon	538,590	48,516	78,905	273,095	138,074
Pennsylvania	2,029,894	231,063	473,531	959,344	365,956
Rhode Island	219,784	21,060	43,159	99,441	56,124
South Carolina	1,012,287	130,497	155,070	490,420	236,300
South Dakota	129,084	10,160	18,186	79,442	21,296
Tennessee	1,594,245	124,231	359,437	705,980	404,597
Texas	4,103,270	418,277	502,985	2,625,173	556,835
Utah	309,285	14,304	35,040	172,151	87,790
Vermont	160,651	18,918	21,434	67,524	52,775
Virginia	884,499	99,217	155,084	495,825	134,373
Washington	1,199,572	86,812	167,232	606,371	339,157
West Virginia	383,111	30,896	104,969	188,290	58,956
Wisconsin	1,022,203	145,573	144,286	431,040	301,304
Wyoming	81,199	5,424	9,469	52,764	13,542
United States	59,624,702	5,484,215	9,016,615	29,690,217	15,433,655

Table A.4 Medicaid Enrollees by Basis of Eligibility, After Unduplication 2005

State	After Unduplication (MAXEM)				
	Total	Aged	Disabled	Child	Adult
Alabama	954,389	102,628	206,302	441,564	203,895
Alaska	132,802	7,306	14,986	82,273	28,237
Arizona	1,474,288	77,986	136,645	670,946	588,711
Arkansas	745,700	63,434	111,397	398,517	172,352
California	10,593,119	751,362	1,111,577	4,318,541	4,411,639
Colorado	556,662	50,796	78,924	328,503	98,439
Connecticut	528,469	64,091	64,074	284,846	115,458
Delaware	179,913	12,727	20,721	77,329	69,136
District of Columbia	166,440	10,110	34,121	80,383	41,826
Florida	3,019,634	347,307	533,320	1,570,406	568,601
Georgia	1,836,996	134,965	291,639	1,091,637	318,755
Hawaii	231,620	22,266	25,475	107,620	76,259
Idaho	231,251	15,776	33,559	147,526	34,390
Illinois	2,412,042	337,254	331,899	1,287,146	455,743
Indiana	1,028,502	80,932	150,394	607,398	189,778
Iowa	428,279	41,245	68,151	222,133	96,750
Kansas	356,706	34,120	59,888	201,843	60,855
Kentucky	861,469	70,233	232,459	425,856	132,921
Louisiana	1,166,119	111,162	201,012	710,661	143,284
Maine	322,404	35,460	51,886	127,178	107,880
Maryland	859,083	68,847	137,686	473,605	178,945
Massachusetts	1,221,710	145,035	239,912	484,312	352,451
Michigan	1,857,701	135,183	293,104	990,725	438,689
Minnesota	764,116	91,794	108,692	388,217	175,413
Mississippi	778,522	84,728	169,499	393,804	130,491
Missouri	1,217,500	100,837	194,207	657,823	264,633
Montana	115,281	10,117	19,450	62,248	23,466
Nebraska	261,371	23,808	33,876	156,742	46,945
Nevada	267,833	22,513	37,699	154,402	53,219
New Hampshire	139,638	14,230	20,199	85,373	19,836
New Jersey	1,033,378	117,017	197,145	534,340	184,876
New Mexico	527,694	25,468	63,304	311,944	126,978
New York	5,013,122	432,271	721,935	2,041,295	1,817,621
North Carolina	1,601,224	182,549	283,423	832,868	302,384
North Dakota	74,617	9,474	10,360	38,133	16,650
Ohio	2,113,448	173,428	338,238	1,111,855	489,927
Oklahoma	725,837	64,634	101,235	454,511	105,457
Oregon	537,755	48,508	78,854	272,446	137,947
Pennsylvania	2,029,732	231,015	473,455	959,314	365,948
Rhode Island	219,783	21,060	43,159	99,441	56,123
South Carolina	1,012,171	130,432	155,050	490,396	236,293
South Dakota	127,048	10,158	18,155	77,441	21,294
Tennessee	1,593,869	124,197	359,336	705,797	404,539
Texas	4,096,175	418,088	502,544	2,619,279	556,264
Utah	309,272	14,303	35,039	172,145	87,785
Vermont	160,632	18,915	21,433	67,510	52,774
Virginia	883,866	99,211	155,023	495,293	134,339
Washington	1,199,441	86,804	167,193	606,321	339,123
West Virginia	382,999	30,884	104,929	188,237	58,949
Wisconsin	1,015,762	145,565	144,195	424,880	301,122
Wyoming	81,129	5,422	9,467	52,702	13,538
United States	59,448,513	5,457,655	8,996,225	29,585,705	15,408,928
United States (across states)	58,041,238	5,397,375	8,740,254	28,761,014	15,142,595

Table A.4 Medicaid Enrollees by Basis of Eligibility, Duplicates 2005

State	Duplicates				
	Total	Aged	Disabled	Child	Adult
Alabama	1,201	78	212	734	177
Alaska	48	0	1	46	1
Arizona	2,554	1,798	398	219	139
Arkansas	806	154	317	158	177
California	404	146	32	194	32
Colorado	230	6	10	208	6
Connecticut	650	14	19	598	19
Delaware	22	1	2	17	2
District of Columbia	74	6	29	26	13
Florida	468	53	140	262	13
Georgia	1,914	31	97	1,719	67
Hawaii	167	5	4	125	33
Idaho	19	0	4	14	1
Illinois	38,365	18,398	1,323	15,819	2,825
Indiana	124	3	9	106	6
Iowa	535	2	8	518	7
Kansas	32	1	4	26	1
Kentucky	12,731	90	492	11,994	155
Louisiana	34	13	2	18	1
Maine	90	11	16	53	10
Maryland	18	3	2	9	4
Massachusetts	51	5	5	18	23
Michigan	74	21	13	32	8
Minnesota	97	87	8	2	0
Mississippi	1,724	59	956	436	273
Missouri	429	12	7	354	56
Montana	0	0	0	0	0
Nebraska	1	0	0	1	0
Nevada	47	1	1	44	1
New Hampshire	8	0	0	6	2
New Jersey	3,530	703	527	1,952	348
New Mexico	8	4	4	0	0
New York	74,712	4,059	13,641	38,551	18,461
North Carolina	663	19	376	222	46
North Dakota	369	244	120	4	1
Ohio	13,178	43	385	12,358	392
Oklahoma	2,772	104	271	2,011	386
Oregon	835	8	51	649	127
Pennsylvania	162	48	76	30	8
Rhode Island	1	0	0	0	1
South Carolina	116	65	20	24	7
South Dakota	2,036	2	31	2,001	2
Tennessee	376	34	101	183	58
Texas	7,095	189	441	5,894	571
Utah	13	1	1	6	5
Vermont	19	3	1	14	1
Virginia	633	6	61	532	34
Washington	131	8	39	50	34
West Virginia	112	12	40	53	7
Wisconsin	6,441	8	91	6,160	182
Wyoming	70	2	2	62	4
United States	176,189	26,560	20,390	104,512	24,727

Table A.4 Medicaid Enrollees by Basis of Eligibility, Before Unduplication 2006

State	Before Unduplication (MAX)				
	Total	Aged	Disabled	Child	Adult
Alabama	967,777	104,417	211,356	439,256	212,748
Alaska	130,740	7,373	15,497	79,601	28,269
Arizona	1,464,622	75,084	138,895	672,404	578,239
Arkansas	758,906	64,391	116,927	426,732	150,856
California	10,611,919	764,574	1,125,246	4,280,264	4,441,835
Colorado	571,704	52,174	76,797	336,889	105,844
Connecticut	533,568	64,392	65,983	284,332	118,861
Delaware	184,542	13,226	21,627	79,128	70,561
District of Columbia	167,174	10,111	35,596	80,275	41,192
Florida	2,997,801	353,678	530,551	1,555,568	558,004
Georgia	1,758,788	137,078	289,256	1,031,574	300,880
Hawaii	231,642	22,312	25,827	109,235	74,268
Idaho	226,209	16,274	35,080	142,625	32,230
Illinois	2,404,599	197,732	341,708	1,367,081	498,078
Indiana	1,049,760	81,241	152,797	622,409	193,313
Iowa	467,347	41,813	70,390	230,481	124,663
Kansas	358,751	34,458	61,740	202,682	59,871
Kentucky	871,842	71,479	237,036	427,910	135,417
Louisiana	1,213,077	111,104	197,602	749,866	154,505
Maine	332,411	40,547	53,718	128,668	109,478
Maryland	855,745	62,751	139,127	478,217	175,650
Massachusetts	1,256,946	152,356	247,892	477,264	379,434
Michigan	1,938,399	134,837	301,863	1,025,731	475,968
Minnesota	778,126	92,908	112,599	390,325	182,294
Mississippi	775,999	83,517	168,390	388,035	136,057
Missouri	1,111,398	95,551	184,547	619,852	211,448
Montana	112,766	9,670	19,437	61,361	22,298
Nebraska	262,014	23,941	34,782	157,188	46,103
Nevada	254,747	23,023	38,423	143,193	50,108
New Hampshire	142,225	14,354	21,203	86,632	20,036
New Jersey	1,081,498	126,998	189,826	560,671	204,003
New Mexico	516,862	26,226	65,664	303,629	121,343
New York	5,092,937	438,055	740,854	2,029,293	1,884,735
North Carolina	1,673,629	182,851	288,753	884,020	318,005
North Dakota	74,877	9,928	10,855	37,873	16,221
Ohio	2,157,048	177,036	346,620	1,141,935	491,457
Oklahoma	761,068	65,012	108,652	466,826	120,578
Oregon	524,127	49,207	81,162	272,235	121,523
Pennsylvania	2,094,047	232,145	497,436	977,430	387,036
Rhode Island	221,050	20,946	44,066	99,916	56,122
South Carolina	949,561	77,059	157,312	482,432	232,758
South Dakota	130,651	10,337	18,799	80,365	21,150
Tennessee	1,479,366	115,228	346,508	726,110	291,520
Texas	4,151,664	426,251	536,447	2,650,688	538,278
Utah	300,166	14,277	36,602	167,009	82,278
Vermont	159,470	18,661	22,044	66,651	52,114
Virginia	907,839	99,814	160,073	507,165	140,787
Washington	1,191,471	85,955	170,717	622,822	311,977
West Virginia	392,745	36,846	110,319	187,208	58,372
Wisconsin	1,038,804	150,181	146,619	436,533	305,471
Wyoming	80,397	5,500	9,742	52,781	12,374
United States	59,770,821	5,324,879	9,160,962	29,828,370	15,456,610

Table A.4 Medicaid Enrollees by Basis of Eligibility, After Unduplication 2006

State	After Unduplication (MAXEM)				
	Total	Aged	Disabled	Child	Adult
Alabama	966,987	104,378	211,182	438,798	212,629
Alaska	130,735	7,373	15,497	79,596	28,269
Arizona	1,464,453	75,080	138,880	672,306	578,187
Arkansas	758,188	64,267	116,613	426,582	150,726
California	10,611,796	764,483	1,125,220	4,280,264	4,441,829
Colorado	571,436	52,169	76,785	336,652	105,830
Connecticut	532,975	64,383	65,964	283,798	118,830
Delaware	184,528	13,226	21,626	79,119	70,557
District of Columbia	167,082	10,105	35,567	80,233	41,177
Florida	2,997,454	353,619	530,459	1,555,383	557,993
Georgia	1,758,760	137,071	289,249	1,031,560	300,880
Hawaii	231,509	22,310	25,822	109,135	74,242
Idaho	226,190	16,274	35,080	142,607	32,229
Illinois	2,379,889	193,827	340,780	1,350,508	494,774
Indiana	1,049,625	81,237	152,790	622,294	193,304
Iowa	466,910	41,809	70,380	230,067	124,654
Kansas	358,731	34,458	61,739	202,663	59,871
Kentucky	871,838	71,478	237,034	427,909	135,417
Louisiana	1,213,058	111,089	197,599	749,866	154,504
Maine	332,408	40,546	53,716	128,668	109,478
Maryland	855,736	62,750	139,127	478,209	175,650
Massachusetts	1,256,843	152,348	247,877	477,230	379,388
Michigan	1,938,251	134,817	301,840	1,025,632	475,962
Minnesota	778,069	92,853	112,597	390,325	182,294
Mississippi	773,546	83,436	167,167	387,314	135,629
Missouri	1,111,379	95,547	184,543	619,841	211,448
Montana	112,766	9,670	19,437	61,361	22,298
Nebraska	261,942	23,939	34,773	157,129	46,101
Nevada	254,738	23,016	38,421	143,193	50,108
New Hampshire	142,218	14,354	21,203	86,625	20,036
New Jersey	1,080,563	126,403	189,507	560,663	203,990
New Mexico	516,854	26,220	65,662	303,629	121,343
New York	5,022,223	433,946	726,884	1,995,124	1,866,269
North Carolina	1,673,610	182,851	288,753	884,006	318,000
North Dakota	74,290	9,584	10,613	37,873	16,220
Ohio	2,144,188	177,002	346,266	1,129,612	491,308
Oklahoma	758,700	64,905	108,434	465,212	120,149
Oregon	523,480	49,191	81,121	271,715	121,453
Pennsylvania	2,093,899	232,097	497,378	977,392	387,032
Rhode Island	221,049	20,946	44,066	99,916	56,121
South Carolina	949,470	77,045	157,286	482,387	232,752
South Dakota	128,610	10,334	18,770	78,357	21,149
Tennessee	1,479,054	115,206	346,420	725,948	291,480
Texas	4,143,622	425,970	535,936	2,644,079	537,637
Utah	300,118	14,276	36,601	166,973	82,268
Vermont	159,467	18,659	22,043	66,651	52,114
Virginia	907,388	99,809	160,038	506,789	140,752
Washington	1,191,393	85,953	170,698	622,776	311,966
West Virginia	392,578	36,749	110,280	187,181	58,368
Wisconsin	1,036,667	150,170	146,564	434,569	305,364
Wyoming	80,374	5,496	9,741	52,767	12,370
United States	59,637,637	5,314,724	9,142,028	29,748,486	15,432,399
United States (across states)	58,280,776	5,254,961	8,889,960	28,956,973	15,178,883

Table A.4 Medicaid Enrollees by Basis of Eligibility, Duplicates 2006

State	Duplicates				
	Total	Aged	Disabled	Child	Adult
Alabama	790	39	174	458	119
Alaska	5	0	0	5	0
Arizona	169	4	15	98	52
Arkansas	718	124	314	150	130
California	123	91	26	0	6
Colorado	268	5	12	237	14
Connecticut	593	9	19	534	31
Delaware	14	0	1	9	4
District of Columbia	92	6	29	42	15
Florida	347	59	92	185	11
Georgia	28	7	7	14	0
Hawaii	133	2	5	100	26
Idaho	19	0	0	18	1
Illinois	24,710	3,905	928	16,573	3,304
Indiana	135	4	7	115	9
Iowa	437	4	10	414	9
Kansas	20	0	1	19	0
Kentucky	4	1	2	1	0
Louisiana	19	15	3	0	1
Maine	3	1	2	0	0
Maryland	9	1	0	8	0
Massachusetts	103	8	15	34	46
Michigan	148	20	23	99	6
Minnesota	57	55	2	0	0
Mississippi	2,453	81	1,223	721	428
Missouri	19	4	4	11	0
Montana	0	0	0	0	0
Nebraska	72	2	9	59	2
Nevada	9	7	2	0	0
New Hampshire	7	0	0	7	0
New Jersey	935	595	319	8	13
New Mexico	8	6	2	0	0
New York	70,714	4,109	13,970	34,169	18,466
North Carolina	19	0	0	14	5
North Dakota	587	344	242	0	1
Ohio	12,860	34	354	12,323	149
Oklahoma	2,368	107	218	1,614	429
Oregon	647	16	41	520	70
Pennsylvania	148	48	58	38	4
Rhode Island	1	0	0	0	1
South Carolina	91	14	26	45	6
South Dakota	2,041	3	29	2,008	1
Tennessee	312	22	88	162	40
Texas	8,042	281	511	6,609	641
Utah	48	1	1	36	10
Vermont	3	2	1	0	0
Virginia	451	5	35	376	35
Washington	78	2	19	46	11
West Virginia	167	97	39	27	4
Wisconsin	2,137	11	55	1,964	107
Wyoming	23	4	1	14	4
United States	133,184	10,155	18,934	79,884	24,211

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
Before Unduplication 2005

State	Before Unduplication (MAX)				
	Total	Aged	Disabled	Child	Adult
Alabama	911,956	99,916	202,889	441,428	167,723
Alaska	132,824	7,292	14,975	82,319	28,238
Arizona	1,465,045	78,877	136,587	670,384	579,197
Arkansas	725,174	62,447	110,504	397,651	154,572
California	10,526,495	740,656	1,108,128	4,292,800	4,384,911
Colorado	552,246	49,312	76,632	328,554	97,748
Connecticut	522,928	61,266	60,865	285,444	115,353
Delaware	173,318	12,276	20,017	77,137	63,888
District of Columbia	164,865	9,208	33,483	80,408	41,766
Florida	2,972,589	331,934	516,483	1,569,690	554,482
Georgia	1,822,476	127,682	285,350	1,092,698	316,746
Hawaii	231,244	21,939	25,272	107,745	76,288
Idaho	230,220	15,255	33,039	147,540	34,386
Illinois	2,381,203	346,404	328,088	1,302,185	404,526
Indiana	1,010,903	72,449	141,208	607,496	189,750
Iowa	424,926	39,384	66,582	222,646	96,314
Kansas	351,328	31,712	56,915	201,866	60,835
Kentucky	868,072	67,570	229,993	437,691	132,818
Louisiana	1,157,055	106,639	196,536	710,677	143,203
Maine	319,130	33,589	50,649	127,212	107,680
Maryland	825,877	66,926	132,506	470,195	156,250
Massachusetts	1,219,217	142,698	239,763	484,330	352,426
Michigan	1,844,476	129,904	286,890	989,741	437,941
Minnesota	760,391	89,915	107,447	387,969	175,060
Mississippi	757,111	81,963	168,372	394,043	112,733
Missouri	1,195,176	98,170	190,272	658,137	248,597
Montana	115,281	10,117	19,450	62,248	23,466
Nebraska	260,518	23,341	33,489	156,743	46,945
Nevada	266,291	21,728	36,975	154,436	53,152
New Hampshire	137,328	13,326	18,886	85,379	19,737
New Jersey	1,034,641	116,406	197,150	536,253	184,832
New Mexico	508,067	24,861	62,547	311,845	108,814
New York	5,056,538	433,514	733,900	2,074,386	1,814,738
North Carolina	1,584,599	177,592	279,160	833,017	294,830
North Dakota	74,142	9,237	10,119	38,137	16,649
Ohio	2,080,160	148,805	317,319	1,124,212	489,824
Oklahoma	716,034	60,007	98,515	456,421	101,091
Oregon	534,578	47,098	77,225	272,698	137,557
Pennsylvania	2,020,347	226,299	469,549	958,703	365,796
Rhode Island	217,646	20,569	42,766	99,440	54,871
South Carolina	972,937	128,215	153,970	489,691	201,061
South Dakota	128,534	9,851	17,956	79,442	21,285
Tennessee	1,570,601	109,041	351,987	705,701	403,872
Texas	4,085,449	406,260	497,665	2,625,077	556,447
Utah	306,283	13,159	33,466	172,108	87,550
Vermont	158,877	17,943	20,659	67,524	52,751
Virginia	865,578	95,918	151,960	495,796	121,904
Washington	1,170,548	82,112	160,192	605,063	323,181
West Virginia	381,346	30,359	103,796	188,290	58,901
Wisconsin	995,802	139,868	141,759	429,442	284,733
Wyoming	80,944	5,287	9,377	52,763	13,517
United States	58,869,314	5,296,296	8,859,282	29,642,801	15,070,935

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
After Unduplication 2005

State	After Unduplication (MAXEM)				
	Total	Aged	Disabled	Child	Adult
Alabama	910,743	99,829	202,678	440,697	167,539
Alaska	132,776	7,292	14,974	82,273	28,237
Arizona	1,462,166	76,825	136,147	670,166	579,028
Arkansas	724,017	62,190	109,973	397,490	154,364
California	10,526,038	740,502	1,108,095	4,292,592	4,384,849
Colorado	552,015	49,306	76,622	328,346	97,741
Connecticut	522,271	61,246	60,846	284,846	115,333
Delaware	173,295	12,274	20,015	77,120	63,886
District of Columbia	164,790	9,199	33,456	80,382	41,753
Florida	2,972,109	331,874	516,340	1,569,428	554,467
Georgia	1,820,550	127,642	285,250	1,090,979	316,679
Hawaii	231,076	21,933	25,268	107,620	76,255
Idaho	230,200	15,255	33,034	147,526	34,385
Illinois	2,330,339	316,180	326,431	1,286,215	401,513
Indiana	1,010,779	72,446	141,199	607,390	189,744
Iowa	424,391	39,382	66,574	222,128	96,307
Kansas	351,296	31,711	56,911	201,840	60,834
Kentucky	855,331	67,478	229,498	425,697	132,658
Louisiana	1,157,019	106,624	196,534	710,659	143,202
Maine	319,036	33,575	50,632	127,159	107,670
Maryland	825,859	66,922	132,504	470,186	156,247
Massachusetts	1,219,165	142,692	239,758	484,312	352,403
Michigan	1,844,400	129,882	286,876	989,709	437,933
Minnesota	760,294	89,828	107,439	387,967	175,060
Mississippi	755,301	81,898	167,400	393,607	112,396
Missouri	1,194,747	98,157	190,265	657,783	248,542
Montana	115,281	10,117	19,450	62,248	23,466
Nebraska	260,517	23,341	33,489	156,742	46,945
Nevada	266,244	21,727	36,974	154,392	53,151
New Hampshire	137,320	13,326	18,886	85,373	19,735
New Jersey	1,030,611	115,415	196,418	534,296	184,482
New Mexico	508,057	24,855	62,543	311,845	108,814
New York	4,981,214	429,328	720,218	2,035,686	1,795,982
North Carolina	1,583,936	177,573	278,784	832,795	294,784
North Dakota	73,762	8,989	9,992	38,133	16,648
Ohio	2,066,979	148,763	316,931	1,111,854	489,431
Oklahoma	713,228	59,899	98,238	454,410	100,681
Oregon	533,741	47,089	77,174	272,049	137,429
Pennsylvania	2,020,182	226,248	469,473	958,673	365,788
Rhode Island	217,645	20,569	42,766	99,440	54,870
South Carolina	972,804	128,134	153,949	489,667	201,054
South Dakota	126,498	9,849	17,925	77,441	21,283
Tennessee	1,570,220	109,004	351,886	705,517	403,813
Texas	4,078,321	406,053	497,215	2,619,181	555,872
Utah	306,270	13,158	33,465	172,102	87,545
Vermont	158,858	17,940	20,658	67,510	52,750
Virginia	864,942	95,911	151,898	495,264	121,869
Washington	1,170,398	82,104	160,153	605,007	323,134
West Virginia	381,234	30,347	103,756	188,237	58,894
Wisconsin	989,351	139,860	141,668	423,280	284,543
Wyoming	80,874	5,285	9,375	52,701	13,513
United States	58,678,490	5,257,026	8,838,003	29,537,960	15,045,501
United States (across states)	57,284,922	5,199,553	8,585,757	28,713,684	14,785,928

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
 Duplicates 2005

State	Duplicates				
	Total	Aged	Disabled	Child	Adult
Alabama	1,213	87	211	731	184
Alaska	48	0	1	46	1
Arizona	2,879	2,052	440	218	169
Arkansas	1,157	257	531	161	208
California	457	154	33	208	62
Colorado	231	6	10	208	7
Connecticut	657	20	19	598	20
Delaware	23	2	2	17	2
District of Columbia	75	9	27	26	13
Florida	480	60	143	262	15
Georgia	1,926	40	100	1,719	67
Hawaii	168	6	4	125	33
Idaho	20	0	5	14	1
Illinois	50,864	30,224	1,657	15,970	3,013
Indiana	124	3	9	106	6
Iowa	535	2	8	518	7
Kansas	32	1	4	26	1
Kentucky	12,741	92	495	11,994	160
Louisiana	36	15	2	18	1
Maine	94	14	17	53	10
Maryland	18	4	2	9	3
Massachusetts	52	6	5	18	23
Michigan	76	22	14	32	8
Minnesota	97	87	8	2	0
Mississippi	1,810	65	972	436	337
Missouri	429	13	7	354	55
Montana	0	0	0	0	0
Nebraska	1	0	0	1	0
Nevada	47	1	1	44	1
New Hampshire	8	0	0	6	2
New Jersey	4,030	991	732	1,957	350
New Mexico	10	6	4	0	0
New York	75,324	4,186	13,682	38,700	18,756
North Carolina	663	19	376	222	46
North Dakota	380	248	127	4	1
Ohio	13,181	42	388	12,358	393
Oklahoma	2,806	108	277	2,011	410
Oregon	837	9	51	649	128
Pennsylvania	165	51	76	30	8
Rhode Island	1	0	0	0	1
South Carolina	133	81	21	24	7
South Dakota	2,036	2	31	2,001	2
Tennessee	381	37	101	184	59
Texas	7,128	207	450	5,896	575
Utah	13	1	1	6	5
Vermont	19	3	1	14	1
Virginia	636	7	62	532	35
Washington	150	8	39	56	47
West Virginia	112	12	40	53	7
Wisconsin	6,451	8	91	6,162	190
Wyoming	70	2	2	62	4
United States	190,824	39,270	21,279	104,841	25,434

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
Before Unduplication 2006

State	Before Unduplication (MAX)				
	Total	Aged	Disabled	Child	Adult
Alabama	926,684	101,845	208,009	438,997	177,833
Alaska	130,661	7,337	15,454	79,601	28,269
Arizona	1,450,131	72,782	137,468	671,642	568,239
Arkansas	738,122	59,227	115,801	425,338	137,756
California	10,544,503	752,973	1,121,140	4,256,145	4,414,245
Colorado	568,969	50,970	75,752	336,793	105,454
Connecticut	527,063	61,719	62,264	284,331	118,749
Delaware	177,267	12,724	20,858	78,893	64,792
District of Columbia	166,209	9,726	35,045	80,274	41,164
Florida	2,954,575	339,147	517,476	1,554,599	543,353
Georgia	1,748,291	131,972	284,260	1,031,541	300,518
Hawaii	230,982	21,942	25,541	109,235	74,264
Idaho	225,119	15,773	34,501	142,624	32,221
Illinois	2,318,097	186,964	327,881	1,366,233	437,019
Indiana	1,027,409	71,584	140,244	622,333	193,248
Iowa	457,074	39,976	68,639	230,023	118,436
Kansas	355,217	33,060	59,623	202,681	59,853
Kentucky	866,808	69,363	234,635	427,832	134,978
Louisiana	1,203,032	107,254	193,752	749,863	152,163
Maine	328,903	38,594	52,391	128,651	109,267
Maryland	803,208	61,020	134,549	474,771	132,868
Massachusetts	1,252,208	147,905	247,662	477,263	379,378
Michigan	1,920,604	129,247	295,276	1,024,711	471,370
Minnesota	773,388	90,911	110,931	389,941	181,605
Mississippi	744,797	79,574	164,013	387,765	113,445
Missouri	1,080,627	92,083	178,361	619,810	190,373
Montana	112,766	9,670	19,437	61,361	22,298
Nebraska	260,940	23,431	34,218	157,188	46,103
Nevada	253,088	22,257	37,616	143,173	50,042
New Hampshire	139,290	13,269	19,495	86,632	19,894
New Jersey	1,079,518	125,891	189,377	560,650	203,600
New Mexico	498,178	25,514	64,811	303,536	104,317
New York	5,061,022	434,323	737,990	2,024,391	1,864,318
North Carolina	1,641,239	176,749	282,566	883,684	298,240
North Dakota	73,775	9,341	10,346	37,871	16,217
Ohio	2,101,294	151,442	316,802	1,141,933	491,117
Oklahoma	749,691	63,448	106,456	466,696	113,091
Oregon	519,841	47,752	79,193	271,835	121,061
Pennsylvania	2,074,460	223,896	489,270	974,969	386,325
Rhode Island	218,540	20,412	43,542	99,913	54,673
South Carolina	912,040	75,917	156,100	481,880	198,143
South Dakota	130,128	10,055	18,567	80,364	21,142
Tennessee	1,456,372	98,682	340,501	725,968	291,221
Texas	4,133,189	414,398	530,370	2,650,570	537,851
Utah	297,593	13,517	35,055	166,960	82,061
Vermont	157,771	17,710	21,325	66,651	52,085
Virginia	887,334	96,496	156,706	507,138	126,994
Washington	1,156,527	81,026	161,711	621,542	292,248
West Virginia	389,468	35,739	108,215	187,208	58,306
Wisconsin	1,012,151	144,355	143,355	435,149	289,292
Wyoming	80,140	5,362	9,655	52,769	12,354
United States	58,916,303	5,126,324	8,974,205	29,781,921	15,033,853

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
After Unduplication 2006

State	After Unduplication (MAXEM)				
	Total	Aged	Disabled	Child	Adult
Alabama	925,876	101,797	207,833	438,538	177,708
Alaska	130,656	7,337	15,454	79,596	28,269
Arizona	1,449,954	72,778	137,450	671,544	568,182
Arkansas	737,135	59,041	115,304	425,185	137,605
California	10,544,378	752,880	1,121,114	4,256,145	4,414,239
Colorado	568,697	50,965	75,739	336,556	105,437
Connecticut	526,465	61,705	62,245	283,797	118,718
Delaware	177,253	12,724	20,857	78,884	64,788
District of Columbia	166,116	9,719	35,016	80,232	41,149
Florida	2,954,213	339,077	517,382	1,554,414	543,340
Georgia	1,748,257	131,960	284,252	1,031,527	300,518
Hawaii	230,849	21,940	25,536	109,135	74,238
Idaho	225,100	15,773	34,501	142,606	32,220
Illinois	2,289,807	180,374	326,532	1,349,472	433,429
Indiana	1,027,274	71,580	140,237	622,218	193,239
Iowa	456,632	39,972	68,629	229,607	118,424
Kansas	355,197	33,060	59,622	202,662	59,853
Kentucky	866,804	69,362	234,633	427,831	134,978
Louisiana	1,203,010	107,238	193,748	749,863	152,161
Maine	328,900	38,593	52,389	128,651	109,267
Maryland	803,199	61,019	134,549	474,763	132,868
Massachusetts	1,252,101	147,893	247,647	477,229	379,332
Michigan	1,920,451	129,226	295,249	1,024,612	471,364
Minnesota	773,331	90,856	110,929	389,941	181,605
Mississippi	742,066	79,465	162,750	387,042	112,809
Missouri	1,080,606	92,078	178,356	619,799	190,373
Montana	112,766	9,670	19,437	61,361	22,298
Nebraska	260,867	23,429	34,208	157,129	46,101
Nevada	253,078	22,250	37,613	143,173	50,042
New Hampshire	139,283	13,269	19,495	86,625	19,894
New Jersey	1,078,241	125,107	188,905	560,642	203,587
New Mexico	498,168	25,508	64,807	303,536	104,317
New York	4,989,713	430,089	723,961	1,990,113	1,845,550
North Carolina	1,641,220	176,749	282,566	883,670	298,235
North Dakota	73,154	8,982	10,085	37,871	16,216
Ohio	2,088,426	151,404	316,446	1,129,609	490,967
Oklahoma	747,232	63,328	106,203	465,080	112,621
Oregon	519,196	47,737	79,152	271,316	120,991
Pennsylvania	2,074,304	223,840	489,211	974,931	386,322
Rhode Island	218,539	20,412	43,542	99,913	54,672
South Carolina	911,948	75,903	156,073	481,835	198,137
South Dakota	128,086	10,052	18,538	78,356	21,140
Tennessee	1,456,055	98,656	340,413	725,806	291,180
Texas	4,125,101	414,085	529,851	2,643,961	537,204
Utah	297,543	13,516	35,053	166,924	82,050
Vermont	157,768	17,708	21,324	66,651	52,085
Virginia	886,881	96,490	156,670	506,762	126,959
Washington	1,156,440	81,024	161,692	621,493	292,231
West Virginia	389,267	35,622	108,162	187,181	58,302
Wisconsin	1,010,009	144,343	143,300	433,184	289,182
Wyoming	80,116	5,358	9,654	52,755	12,349
United States	58,777,728	5,112,943	8,954,314	29,701,726	15,008,745
United States (across states)	57,435,059	5,055,697	8,705,972	28,910,612	14,762,778

Table A.5 Medicaid Enrollees (Excluding Persons with Only Restricted Benefits) by Basis of Eligibility,
 Duplicates 2006

State	Duplicates				
	Total	Aged	Disabled	Child	Adult
Alabama	808	48	176	459	125
Alaska	5	0	0	5	0
Arizona	177	4	18	98	57
Arkansas	987	186	497	153	151
California	125	93	26	0	6
Colorado	272	5	13	237	17
Connecticut	598	14	19	534	31
Delaware	14	0	1	9	4
District of Columbia	93	7	29	42	15
Florida	362	70	94	185	13
Georgia	34	12	8	14	0
Hawaii	133	2	5	100	26
Idaho	19	0	0	18	1
Illinois	28,290	6,590	1,349	16,761	3,590
Indiana	135	4	7	115	9
Iowa	442	4	10	416	12
Kansas	20	0	1	19	0
Kentucky	4	1	2	1	0
Louisiana	22	16	4	0	2
Maine	3	1	2	0	0
Maryland	9	1	0	8	0
Massachusetts	107	12	15	34	46
Michigan	153	21	27	99	6
Minnesota	57	55	2	0	0
Mississippi	2,731	109	1,263	723	636
Missouri	21	5	5	11	0
Montana	0	0	0	0	0
Nebraska	73	2	10	59	2
Nevada	10	7	3	0	0
New Hampshire	7	0	0	7	0
New Jersey	1,277	784	472	8	13
New Mexico	10	6	4	0	0
New York	71,309	4,234	14,029	34,278	18,768
North Carolina	19	0	0	14	5
North Dakota	621	359	261	0	1
Ohio	12,868	38	356	12,324	150
Oklahoma	2,459	120	253	1,616	470
Oregon	645	15	41	519	70
Pennsylvania	156	56	59	38	3
Rhode Island	1	0	0	0	1
South Carolina	92	14	27	45	6
South Dakota	2,042	3	29	2,008	2
Tennessee	317	26	88	162	41
Texas	8,088	313	519	6,609	647
Utah	50	1	2	36	11
Vermont	3	2	1	0	0
Virginia	453	6	36	376	35
Washington	87	2	19	49	17
West Virginia	201	117	53	27	4
Wisconsin	2,142	12	55	1,965	110
Wyoming	24	4	1	14	5
United States	138,575	13,381	19,891	80,195	25,108

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2005, Before Unduplication

State	Before Unduplication (MAX)			
	Total	HMO/HIO	PHP or PHP and PCCM only	PCCM only
Alabama	1,036,682	0	597,153	439,529
Alaska	0	0	0	0
Arizona	1,889,355	943,281	946,074	0
Arkansas	462,403	0	0	462,403
California	10,730,539	4,149,147	6,581,392	0
Colorado	643,324	120,423	522,901	0
Connecticut	383,092	383,092	0	0
Delaware	283,061	127,465	155,596	0
District of Columbia	112,269	112,269	0	0
Florida	2,694,139	1,254,716	243,855	1,195,568
Georgia	2,910,402	0	1,624,392	1,286,010
Hawaii	190,950	181,610	9,340	0
Idaho	109,771	0	0	109,771
Illinois	249,899	222,497	27,402	0
Indiana	974,848	679,654	0	295,194
Iowa	562,588	30,621	351,401	180,566
Kansas	209,492	111,637	0	97,855
Kentucky	1,428,141	172,885	811,157	444,099
Louisiana	831,977	0	0	831,977
Maine	0	0	0	0
Maryland	602,730	602,730	0	0
Massachusetts	873,937	449,640	424,297	0
Michigan	2,820,353	1,191,467	1,628,886	0
Minnesota	529,268	529,268	0	0
Mississippi	0	0	0	0
Missouri	777,628	777,628	0	0
Montana	77,170	0	0	77,170
Nebraska	95,976	41,832	0	54,144
Nevada	381,271	146,433	234,838	0
New Hampshire	0	0	0	0
New Jersey	728,965	687,111	41,854	0
New Mexico	466,244	466,244	0	0
New York	3,230,422	2,974,787	255,635	0
North Carolina	1,189,826	17,756	78,815	1,093,255
North Dakota	40,064	1,459	0	38,605
Ohio	790,169	790,169	0	0
Oklahoma	667,817	0	654,809	13,008
Oregon	820,749	364,898	445,010	10,841
Pennsylvania	3,112,190	1,435,826	1,333,902	342,462
Rhode Island	151,891	151,891	0	0
South Carolina	179,179	89,046	39,334	50,799
South Dakota	190,588	0	129,084	61,504
Tennessee	3,127,013	1,565,493	1,561,520	0
Texas	3,104,395	1,365,977	439,099	1,299,319
Utah	226,588	1,076	225,512	0
Vermont	0	0	0	0
Virginia	586,706	472,719	0	113,987
Washington	683,322	677,936	0	5,386
West Virginia	222,977	171,623	0	51,354
Wisconsin	515,856	501,010	14,846	0
Wyoming	0	0	0	0
United States	51,896,226	23,963,316	19,378,104	8,554,806

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2005, After Unduplication

State	After Unduplication (MAXEM)			
	Total	HMO/ HIO	PHP or PHP and PCCM only	PCCM only
Alabama	1,035,549	0	596,320	439,229
Alaska	0	0	0	0
Arizona	1,888,946	943,094	945,852	0
Arkansas	462,254	0	0	462,254
California	10,730,302	4,149,077	6,581,225	0
Colorado	643,100	120,417	522,683	0
Connecticut	382,543	382,543	0	0
Delaware	283,034	127,452	155,582	0
District of Columbia	112,256	112,256	0	0
Florida	2,693,952	1,254,626	243,844	1,195,482
Georgia	2,909,323	0	1,623,913	1,285,410
Hawaii	190,820	181,481	9,339	0
Idaho	109,771	0	0	109,771
Illinois	249,772	222,379	27,393	0
Indiana	974,828	679,634	0	295,194
Iowa	562,071	30,621	350,890	180,560
Kansas	209,483	111,632	0	97,851
Kentucky	1,406,940	168,581	800,034	438,325
Louisiana	831,967	0	0	831,967
Maine	0	0	0	0
Maryland	602,723	602,723	0	0
Massachusetts	873,918	449,631	424,287	0
Michigan	2,820,279	1,191,456	1,628,823	0
Minnesota	529,246	529,246	0	0
Mississippi	0	0	0	0
Missouri	777,426	777,426	0	0
Montana	77,170	0	0	77,170
Nebraska	95,976	41,832	0	54,144
Nevada	381,263	146,431	234,832	0
New Hampshire	0	0	0	0
New Jersey	727,972	686,260	41,712	0
New Mexico	466,242	466,242	0	0
New York	3,205,637	2,950,930	254,707	0
North Carolina	1,189,618	17,755	78,811	1,093,052
North Dakota	40,064	1,459	0	38,605
Ohio	790,072	790,072	0	0
Oklahoma	666,113	0	653,109	13,004
Oregon	820,021	364,602	444,586	10,833
Pennsylvania	3,111,991	1,435,736	1,333,800	342,455
Rhode Island	151,891	151,891	0	0
South Carolina	179,178	89,046	39,333	50,799
South Dakota	188,551	0	127,048	61,503
Tennessee	3,126,576	1,565,275	1,561,301	0
Texas	3,101,780	1,364,216	438,505	1,299,059
Utah	226,582	1,076	225,506	0
Vermont	0	0	0	0
Virginia	586,393	472,445	0	113,948
Washington	683,286	677,900	0	5,386
West Virginia	222,977	171,623	0	51,354
Wisconsin	512,406	497,562	14,844	0
Wyoming	0	0	0	0
United States	51,832,262	23,926,628	19,358,279	8,547,355
United States(across stat	50,579,409	23,399,359	18,898,242	8,281,808

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2005, Duplicates

State	Duplicates			
	Total	HMO/ HIO	PHP or PHP and PCCM only	PCCM only
Alabama	1,133	0	833	300
Alaska	0	0	0	0
Arizona	409	187	222	0
Arkansas	149	0	0	149
California	237	70	167	0
Colorado	224	6	218	0
Connecticut	549	549	0	0
Delaware	27	13	14	0
District of Columbia	13	13	0	0
Florida	187	90	11	86
Georgia	1,079	0	479	600
Hawaii	130	129	1	0
Idaho	0	0	0	0
Illinois	127	118	9	0
Indiana	20	20	0	0
Iowa	517	0	511	6
Kansas	9	5	0	4
Kentucky	21,201	4,304	11,123	5,774
Louisiana	10	0	0	10
Maine	0	0	0	0
Maryland	7	7	0	0
Massachusetts	19	9	10	0
Michigan	74	11	63	0
Minnesota	22	22	0	0
Mississippi	0	0	0	0
Missouri	202	202	0	0
Montana	0	0	0	0
Nebraska	0	0	0	0
Nevada	8	2	6	0
New Hampshire	0	0	0	0
New Jersey	993	851	142	0
New Mexico	2	2	0	0
New York	24,785	23,857	928	0
North Carolina	208	1	4	203
North Dakota	0	0	0	0
Ohio	97	97	0	0
Oklahoma	1,704	0	1,700	4
Oregon	728	296	424	8
Pennsylvania	199	90	102	7
Rhode Island	0	0	0	0
South Carolina	1	0	1	0
South Dakota	2,037	0	2,036	1
Tennessee	437	218	219	0
Texas	2,615	1,761	594	260
Utah	6	0	6	0
Vermont	0	0	0	0
Virginia	313	274	0	39
Washington	36	36	0	0
West Virginia	0	0	0	0
Wisconsin	3,450	3,448	2	0
Wyoming	0	0	0	0
United States	63,964	36,688	19,825	7,451

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2006, Before Unduplication

State	Before Unduplication (MAX)			
	Total	HMO/ HIO	PHP or PHP and PCCM only	PCCM only
Alabama	1,040,659	0	596,874	443,785
Alaska	0	0	0	0
Arizona	1,836,012	899,761	936,251	0
Arkansas	481,640	0	0	481,640
California	10,693,820	4,142,519	6,551,301	0
Colorado	713,870	176,427	537,443	0
Connecticut	378,665	378,665	0	0
Delaware	289,306	131,056	158,250	0
District of Columbia	112,773	112,773	0	0
Florida	2,979,220	1,275,827	530,692	1,172,701
Georgia	3,606,179	970,633	1,571,374	1,064,172
Hawaii	186,043	181,318	4,725	0
Idaho	189,159	0	0	189,159
Illinois	202,082	169,410	32,551	121
Indiana	804,123	724,495	0	79,628
Iowa	545,405	7,673	356,978	180,754
Kansas	207,484	120,162	0	87,322
Kentucky	1,399,359	172,571	798,364	428,424
Louisiana	824,809	0	0	824,809
Maine	0	0	0	0
Maryland	588,452	588,452	0	0
Massachusetts	881,914	475,814	406,100	0
Michigan	2,899,687	1,221,750	1,677,937	0
Minnesota	531,216	531,216	0	0
Mississippi	2	0	2	0
Missouri	754,564	748,835	5,729	0
Montana	73,501	0	0	73,501
Nebraska	97,751	42,566	0	55,185
Nevada	354,378	134,995	219,383	0
New Hampshire	0	0	0	0
New Jersey	780,860	740,917	39,943	0
New Mexico	880,785	438,092	442,693	0
New York	3,433,650	3,214,581	219,058	11
North Carolina	1,237,931	12,329	88,333	1,137,269
North Dakota	39,480	1,303	0	38,177
Ohio	1,183,867	1,183,867	0	0
Oklahoma	686,846	0	673,907	12,939
Oregon	788,942	351,371	427,969	9,602
Pennsylvania	3,161,527	1,319,011	1,464,378	378,138
Rhode Island	150,954	150,954	0	0
South Carolina	243,073	125,342	42,275	75,456
South Dakota	191,793	0	130,651	61,142
Tennessee	1,432,963	382	1,432,581	0
Texas	3,489,654	1,714,227	451,976	1,323,451
Utah	589	589	0	0
Vermont	0	0	0	0
Virginia	586,763	504,112	0	82,651
Washington	697,523	692,036	0	5,487
West Virginia	226,281	194,381	0	31,900
Wisconsin	580,026	524,025	56,001	0
Wyoming	0	0	0	0
United States	52,465,580	24,374,437	19,853,719	8,237,424

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2006, After Unduplication

State	After Unduplication (MAXEM)			
	Total	HMO/ HIO	PHP or PHP and PCCM only	PCCM only
Alabama	1,039,904	0	596,363	443,541
Alaska	0	0	0	0
Arizona	1,835,809	899,649	936,160	0
Arkansas	481,511	0	0	481,511
California	10,693,744	4,142,515	6,551,229	0
Colorado	713,598	176,416	537,182	0
Connecticut	378,161	378,161	0	0
Delaware	289,289	131,049	158,240	0
District of Columbia	112,746	112,746	0	0
Florida	2,979,064	1,275,750	530,680	1,172,634
Georgia	3,606,154	970,627	1,571,363	1,064,164
Hawaii	185,941	181,216	4,725	0
Idaho	189,142	0	0	189,142
Illinois	201,997	169,337	32,539	121
Indiana	804,067	724,440	0	79,627
Iowa	545,010	7,673	356,589	180,748
Kansas	207,480	120,160	0	87,320
Kentucky	1,399,359	172,571	798,364	428,424
Louisiana	824,809	0	0	824,809
Maine	0	0	0	0
Maryland	588,446	588,446	0	0
Massachusetts	881,896	475,806	406,090	0
Michigan	2,899,498	1,221,689	1,677,809	0
Minnesota	531,207	531,207	0	0
Mississippi	2	0	2	0
Missouri	754,556	748,827	5,729	0
Montana	73,501	0	0	73,501
Nebraska	97,747	42,564	0	55,183
Nevada	354,377	134,995	219,382	0
New Hampshire	0	0	0	0
New Jersey	780,704	740,913	39,791	0
New Mexico	880,785	438,092	442,693	0
New York	3,412,679	3,193,866	218,802	11
North Carolina	1,237,920	12,329	88,333	1,137,258
North Dakota	39,480	1,303	0	38,177
Ohio	1,183,782	1,183,782	0	0
Oklahoma	685,655	0	672,718	12,937
Oregon	788,278	351,100	427,584	9,594
Pennsylvania	3,161,399	1,318,968	1,464,299	378,132
Rhode Island	150,954	150,954	0	0
South Carolina	243,069	125,341	42,274	75,454
South Dakota	189,750	0	128,610	61,140
Tennessee	1,432,669	382	1,432,287	0
Texas	3,487,049	1,712,708	451,355	1,322,986
Utah	589	589	0	0
Vermont	0	0	0	0
Virginia	586,552	503,921	0	82,631
Washington	697,499	692,012	0	5,487
West Virginia	226,273	194,373	0	31,900
Wisconsin	579,360	523,420	55,940	0
Wyoming	0	0	0	0
United States	52,433,461	24,349,897	19,847,132	8,236,432
United States(across stat	51,219,341	23,836,492	19,391,263	7,991,586

Table A.6 Medicaid Enrollees by Managed Care Premium Payment in Calendar Year 2006, Duplicates

State	Duplicates			
	Total	HMO/ HIO	PHP or PHP and PCCM only	PCCM only
Alabama	755	0	511	244
Alaska	0	0	0	0
Arizona	203	112	91	0
Arkansas	129	0	0	129
California	76	4	72	0
Colorado	272	11	261	0
Connecticut	504	504	0	0
Delaware	17	7	10	0
District of Columbia	27	27	0	0
Florida	156	77	12	67
Georgia	25	6	11	8
Hawaii	102	102	0	0
Idaho	17	0	0	17
Illinois	85	73	12	0
Indiana	56	55	0	1
Iowa	395	0	389	6
Kansas	4	2	0	2
Kentucky	0	0	0	0
Louisiana	0	0	0	0
Maine	0	0	0	0
Maryland	6	6	0	0
Massachusetts	18	8	10	0
Michigan	189	61	128	0
Minnesota	9	9	0	0
Mississippi	0	0	0	0
Missouri	8	8	0	0
Montana	0	0	0	0
Nebraska	4	2	0	2
Nevada	1	0	1	0
New Hampshire	0	0	0	0
New Jersey	156	4	152	0
New Mexico	0	0	0	0
New York	20,971	20,715	256	0
North Carolina	11	0	0	11
North Dakota	0	0	0	0
Ohio	85	85	0	0
Oklahoma	1,191	0	1,189	2
Oregon	664	271	385	8
Pennsylvania	128	43	79	6
Rhode Island	0	0	0	0
South Carolina	4	1	1	2
South Dakota	2,043	0	2,041	2
Tennessee	294	0	294	0
Texas	2,605	1,519	621	465
Utah	0	0	0	0
Vermont	0	0	0	0
Virginia	211	191	0	20
Washington	24	24	0	0
West Virginia	8	8	0	0
Wisconsin	666	605	61	0
Wyoming	0	0	0	0
United States	32,119	24,540	6,587	992

Table A.7 Medicaid Enrollees who Received Inpatient Hospital Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	113,587	113,563	24
Alaska	14,599	14,599	0
Arizona	187,132	187,123	9
Arkansas	85,549	85,532	17
California	588,772	588,771	1
Colorado	43,617	43,616	1
Connecticut	30,526	30,526	0
Delaware	12,348	12,348	0
District of Columbia	14,407	14,407	0
Florida	305,605	305,598	7
Georgia	241,321	241,319	2
Hawaii	23,593	23,591	2
Idaho	24,863	24,862	1
Illinois	190,860	190,691	169
Indiana	113,794	113,794	0
Iowa	54,247	54,247	0
Kansas	49,585	49,585	0
Kentucky	79,896	79,748	148
Louisiana	144,990	144,990	0
Maine	0	0	0
Maryland	112,712	112,711	1
Massachusetts	73,741	73,740	1
Michigan	92,537	92,536	1
Minnesota	66,815	66,814	1
Mississippi	100,188	100,163	25
Missouri	135,371	135,369	2
Montana	16,829	16,829	0
Nebraska	32,101	32,101	0
Nevada	35,624	35,624	0
New Hampshire	14,454	14,454	0
New Jersey	115,787	115,772	15
New Mexico	47,295	47,295	0
New York	625,670	624,162	1,508
North Carolina	207,627	207,592	35
North Dakota	9,189	9,189	0
Ohio	216,842	216,766	76
Oklahoma	109,716	109,688	28
Oregon	58,051	58,046	5
Pennsylvania	84,584	84,584	0
Rhode Island	31,227	31,227	0
South Carolina	105,656	105,656	0
South Dakota	15,822	15,801	21
Tennessee	78,995	78,995	0
Texas	496,863	496,804	59
Utah	30,878	30,878	0
Vermont	10,677	10,677	0
Virginia	152,545	152,540	5
Washington	90,863	90,862	1
West Virginia	28,808	28,808	0
Wisconsin	102,977	102,813	164
Wyoming	11,300	11,298	2
United States	5,631,035	5,628,704	2,331
United States (across states)	N/A	5,542,755	N/A

Table A.7 Medicaid Enrollees who Received Mental Hospital Services for the Aged in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	218	218	0
Alaska	6	6	0
Arizona	0	0	0
Arkansas	0	0	0
California	13	13	0
Colorado	12	12	0
Connecticut	1,166	1,165	1
Delaware	223	223	0
District of Columbia	86	86	0
Florida	161	161	0
Georgia	0	0	0
Hawaii	141	141	0
Idaho	841	841	0
Illinois	1,829	1,826	3
Indiana	134	134	0
Iowa	12	12	0
Kansas	184	184	0
Kentucky	307	307	0
Louisiana	6,562	6,562	0
Maine	0	0	0
Maryland	53	53	0
Massachusetts	31	31	0
Michigan	68	68	0
Minnesota	156	156	0
Mississippi	247	247	0
Missouri	14	14	0
Montana	55	55	0
Nebraska	1	1	0
Nevada	8	8	0
New Hampshire	0	0	0
New Jersey	394	393	1
New Mexico	45	45	0
New York	4,319	4,286	33
North Carolina	176	176	0
North Dakota	11	11	0
Ohio	17	17	0
Oklahoma	110	110	0
Oregon	87	87	0
Pennsylvania	7,193	7,193	0
Rhode Island	167	167	0
South Carolina	247	247	0
South Dakota	45	45	0
Tennessee	34	34	0
Texas	556	556	0
Utah	5	5	0
Vermont	86	86	0
Virginia	831	831	0
Washington	1,009	1,009	0
West Virginia	217	217	0
Wisconsin	162	162	0
Wyoming	18	18	0
United States	28,257	28,219	38
United States (across states)	N/A	27,443	N/A

Table A.7 Medicaid Enrollees who Received Inpatient Psychiatric Facility Services (under Age 21) in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	1,423	1,423	0
Arizona	758	758	0
Arkansas	5,705	5,704	1
California	576	576	0
Colorado	166	166	0
Connecticut	152	152	0
Delaware	52	52	0
District of Columbia	239	239	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	40	40	0
Idaho	1,024	1,024	0
Illinois	4,374	4,369	5
Indiana	2,803	2,803	0
Iowa	954	954	0
Kansas	409	409	0
Kentucky	3,502	3,494	8
Louisiana	3,272	3,272	0
Maine	0	0	0
Maryland	2,624	2,624	0
Massachusetts	3,649	3,649	0
Michigan	312	312	0
Minnesota	684	684	0
Mississippi	2,377	2,377	0
Missouri	364	364	0
Montana	424	424	0
Nebraska	1,645	1,645	0
Nevada	880	880	0
New Hampshire	313	313	0
New Jersey	1,659	1,656	3
New Mexico	5,687	5,687	0
New York	11,409	11,183	226
North Carolina	2,226	2,226	0
North Dakota	52	52	0
Ohio	1,660	1,651	9
Oklahoma	3,639	3,633	6
Oregon	878	876	2
Pennsylvania	5,608	5,608	0
Rhode Island	176	176	0
South Carolina	1,038	1,038	0
South Dakota	489	481	8
Tennessee	2,466	2,466	0
Texas	6,606	6,604	2
Utah	109	109	0
Vermont	0	0	0
Virginia	714	714	0
Washington	0	0	0
West Virginia	1,902	1,902	0
Wisconsin	2,772	2,771	1
Wyoming	461	461	0
United States	88,272	88,001	271
United States (across states)	N/A	85,528	N/A

Table A.7 Medicaid Enrollees who Received Intermediate Care Facility Services for the Mentally Retarded in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	245	245	0
Alaska	0	0	0
Arizona	212	212	0
Arkansas	1,691	1,691	0
California	9,980	9,980	0
Colorado	131	131	0
Connecticut	1,269	1,269	0
Delaware	181	181	0
District of Columbia	749	749	0
Florida	3,206	3,206	0
Georgia	1,146	1,146	0
Hawaii	105	105	0
Idaho	624	624	0
Illinois	9,636	9,633	3
Indiana	4,255	4,255	0
Iowa	2,343	2,343	0
Kansas	649	649	0
Kentucky	769	769	0
Louisiana	5,671	5,671	0
Maine	0	0	0
Maryland	381	381	0
Massachusetts	1,062	1,062	0
Michigan	175	175	0
Minnesota	3,127	3,126	1
Mississippi	2,879	2,879	0
Missouri	1,168	1,168	0
Montana	95	95	0
Nebraska	641	641	0
Nevada	225	225	0
New Hampshire	34	34	0
New Jersey	3,110	3,109	1
New Mexico	274	274	0
New York	9,704	9,691	13
North Carolina	4,413	4,413	0
North Dakota	646	646	0
Ohio	7,840	7,839	1
Oklahoma	1,843	1,841	2
Oregon	45	45	0
Pennsylvania	4,146	4,146	0
Rhode Island	45	45	0
South Carolina	1,831	1,831	0
South Dakota	198	198	0
Tennessee	1,335	1,335	0
Texas	12,812	12,810	2
Utah	837	837	0
Vermont	7	7	0
Virginia	1,992	1,992	0
Washington	59	59	0
West Virginia	545	545	0
Wisconsin	2,144	2,144	0
Wyoming	89	89	0
United States	106,564	106,541	23
United States (across states)	N/A	106,208	N/A

Table A.7 Medicaid Enrollees who Received Nursing Facility Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	26,543	26,526	17
Alaska	947	947	0
Arizona	17,010	17,010	0
Arkansas	18,518	18,509	9
California	128,051	128,021	30
Colorado	14,778	14,778	0
Connecticut	29,479	29,478	1
Delaware	3,673	3,673	0
District of Columbia	4,206	4,206	0
Florida	79,730	79,724	6
Georgia	39,255	39,254	1
Hawaii	4,895	4,894	1
Idaho	4,665	4,665	0
Illinois	77,097	77,057	40
Indiana	38,000	38,000	0
Iowa	19,332	19,332	0
Kansas	15,104	15,104	0
Kentucky	27,705	27,693	12
Louisiana	31,486	31,486	0
Maine	0	0	0
Maryland	24,735	24,735	0
Massachusetts	51,536	51,536	0
Michigan	44,631	44,625	6
Minnesota	32,114	32,096	18
Mississippi	20,263	20,262	1
Missouri	38,472	38,471	1
Montana	5,228	5,228	0
Nebraska	11,320	11,320	0
Nevada	4,801	4,801	0
New Hampshire	7,190	7,190	0
New Jersey	42,649	42,505	144
New Mexico	6,718	6,717	1
New York	150,925	150,823	102
North Carolina	42,003	42,003	0
North Dakota	5,176	5,176	0
Ohio	85,099	85,093	6
Oklahoma	22,052	22,037	15
Oregon	9,910	9,910	0
Pennsylvania	80,102	80,101	1
Rhode Island	10,681	10,681	0
South Carolina	17,049	17,049	0
South Dakota	5,737	5,737	0
Tennessee	33,681	33,681	0
Texas	93,921	93,905	16
Utah	5,559	5,559	0
Vermont	3,539	3,539	0
Virginia	28,080	28,079	1
Washington	24,900	24,900	0
West Virginia	10,889	10,889	0
Wisconsin	34,232	34,232	0
Wyoming	2,436	2,436	0
United States	1,536,102	1,535,673	429
United States (across states)	N/A	1,522,948	N/A

Table A.7 Medicaid Enrollees who Received Physician Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	551,652	551,290	362
Alaska	84,856	84,850	6
Arizona	847,631	847,530	101
Arkansas	481,010	480,802	208
California	4,531,205	4,531,127	78
Colorado	54,835	54,832	3
Connecticut	92,243	92,234	9
Delaware	119,503	119,494	9
District of Columbia	22,943	22,942	1
Florida	1,245,365	1,245,278	87
Georgia	1,230,830	1,230,611	219
Hawaii	165,803	165,759	44
Idaho	147,303	147,298	5
Illinois	1,309,917	1,307,072	2,845
Indiana	598,862	598,853	9
Iowa	279,947	279,815	132
Kansas	232,940	232,932	8
Kentucky	617,420	611,333	6,087
Louisiana	769,586	769,581	5
Maine	0	0	0
Maryland	529,630	529,625	5
Massachusetts	485,649	485,643	6
Michigan	465,473	465,460	13
Minnesota	520,555	520,536	19
Mississippi	473,263	473,070	193
Missouri	630,463	630,399	64
Montana	71,668	71,668	0
Nebraska	190,973	190,973	0
Nevada	139,642	139,637	5
New Hampshire	84,756	84,754	2
New Jersey	630,984	630,446	538
New Mexico	312,167	312,166	1
New York	2,718,635	2,710,130	8,505
North Carolina	1,170,789	1,170,475	314
North Dakota	45,658	45,645	13
Ohio	1,143,138	1,140,243	2,895
Oklahoma	437,857	437,236	621
Oregon	309,411	309,264	147
Pennsylvania	367,935	367,931	4
Rhode Island	94,497	94,497	0
South Carolina	538,860	538,857	3
South Dakota	72,854	72,392	462
Tennessee	965,674	965,629	45
Texas	1,975,204	1,974,197	1,007
Utah	86,298	86,297	1
Vermont	107,553	107,553	0
Virginia	601,519	601,369	150
Washington	385,904	385,877	27
West Virginia	190,938	190,936	2
Wisconsin	443,842	440,618	3,224
Wyoming	52,857	52,829	28
United States	29,628,497	29,599,985	28,512
United States (across states)	N/A	29,040,167	N/A

Table A.7 Medicaid Enrollees who Received Dental Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	169,234	169,195	39
Alaska	40,764	40,760	4
Arizona	515	515	0
Arkansas	132,391	132,380	11
California	2,103,714	2,103,705	9
Colorado	115,031	115,023	8
Connecticut	35,673	35,671	2
Delaware	23,812	23,812	0
District of Columbia	2,528	2,528	0
Florida	342,055	342,055	0
Georgia	493,269	493,218	51
Hawaii	58,390	58,384	6
Idaho	72,994	72,993	1
Illinois	542,540	542,200	340
Indiana	336,379	336,378	1
Iowa	128,681	128,623	58
Kansas	75,426	75,424	2
Kentucky	235,862	235,359	503
Louisiana	232,865	232,865	0
Maine	0	0	0
Maryland	127,566	127,566	0
Massachusetts	266,436	266,433	3
Michigan	333,143	333,142	1
Minnesota	230,310	230,306	4
Mississippi	159,998	159,990	8
Missouri	199,248	199,241	7
Montana	21,989	21,989	0
Nebraska	100,870	100,870	0
Nevada	40,401	40,400	1
New Hampshire	35,925	35,925	0
New Jersey	218,737	218,694	43
New Mexico	153,947	153,947	0
New York	1,158,054	1,156,790	1,264
North Carolina	458,590	458,575	15
North Dakota	19,397	19,397	0
Ohio	452,398	451,719	679
Oklahoma	181,319	181,226	93
Oregon	131,785	131,768	17
Pennsylvania	129,037	129,037	0
Rhode Island	58,912	58,912	0
South Carolina	264,977	264,977	0
South Dakota	17,032	16,996	36
Tennessee	279,994	279,986	8
Texas	1,195,153	1,194,877	276
Utah	83,030	83,030	0
Vermont	46,370	46,370	0
Virginia	139,783	139,773	10
Washington	384,271	384,268	3
West Virginia	97,914	97,913	1
Wisconsin	196,900	196,845	55
Wyoming	18,551	18,548	3
United States	12,344,160	12,340,598	3,562
United States (across states)	N/A	12,153,346	N/A

Table A.7 Medicaid Enrollees who Received Other Practitioner Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	106,555	106,549	6
Alaska	21,047	21,045	2
Arizona	150,639	150,633	6
Arkansas	111,199	111,184	15
California	654,637	654,635	2
Colorado	14,864	14,864	0
Connecticut	35,496	35,494	2
Delaware	42,890	42,889	1
District of Columbia	7,109	7,109	0
Florida	204,811	204,809	2
Georgia	281,578	281,568	10
Hawaii	21,185	21,182	3
Idaho	46,559	46,558	1
Illinois	220,118	220,083	35
Indiana	38,628	38,628	0
Iowa	105,153	105,140	13
Kansas	40,002	40,002	0
Kentucky	206,268	206,116	152
Louisiana	167,412	167,411	1
Maine	0	0	0
Maryland	20,196	20,196	0
Massachusetts	84,203	84,203	0
Michigan	89,937	89,937	0
Minnesota	152,080	152,078	2
Mississippi	211,407	211,372	35
Missouri	158,535	158,535	0
Montana	20,708	20,708	0
Nebraska	68,136	68,136	0
Nevada	15,889	15,889	0
New Hampshire	22,048	22,048	0
New Jersey	129,617	129,610	7
New Mexico	66,411	66,411	0
New York	282,453	282,321	132
North Carolina	231,009	231,006	3
North Dakota	19,569	19,567	2
Ohio	335,039	334,930	109
Oklahoma	69,905	69,898	7
Oregon	63,447	63,441	6
Pennsylvania	72,246	72,246	0
Rhode Island	44,173	44,173	0
South Carolina	135,850	135,850	0
South Dakota	44,551	44,382	169
Tennessee	213,481	213,475	6
Texas	447,677	447,596	81
Utah	22,648	22,648	0
Vermont	14,513	14,513	0
Virginia	44,131	44,130	1
Washington	125,403	125,402	1
West Virginia	33,376	33,376	0
Wisconsin	140,938	140,790	148
Wyoming	11,787	11,787	0
United States	5,867,513	5,866,553	960
United States (across states)	N/A	5,769,166	N/A

Table A.7 Medicaid Enrollees who Received Outpatient Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	232,167	232,086	81
Alaska	43,986	43,980	6
Arizona	523,645	523,606	39
Arkansas	244,442	244,374	68
California	2,009,350	2,009,320	30
Colorado	147,543	147,531	12
Connecticut	81,036	81,028	8
Delaware	17,096	17,095	1
District of Columbia	19,454	19,453	1
Florida	617,200	617,180	20
Georgia	709,241	709,177	64
Hawaii	63,941	63,935	6
Idaho	73,827	73,826	1
Illinois	682,154	681,156	998
Indiana	371,295	371,291	4
Iowa	164,507	164,481	26
Kansas	107,921	107,917	4
Kentucky	399,789	398,456	1,333
Louisiana	435,591	435,589	2
Maine	0	0	0
Maryland	281,618	281,616	2
Massachusetts	389,695	389,687	8
Michigan	280,782	280,779	3
Minnesota	260,842	260,837	5
Mississippi	339,737	339,652	85
Missouri	558,425	558,374	51
Montana	41,858	41,858	0
Nebraska	95,983	95,983	0
Nevada	45,223	45,223	0
New Hampshire	48,415	48,412	3
New Jersey	362,171	361,949	222
New Mexico	170,644	170,644	0
New York	1,937,742	1,930,893	6,849
North Carolina	626,129	626,010	119
North Dakota	25,485	25,479	6
Ohio	824,155	822,518	1,637
Oklahoma	285,277	285,007	270
Oregon	181,181	181,136	45
Pennsylvania	195,339	195,339	0
Rhode Island	88,000	87,999	1
South Carolina	291,687	291,687	0
South Dakota	37,750	37,689	61
Tennessee	315,911	315,906	5
Texas	842,369	842,116	253
Utah	50,138	50,136	2
Vermont	56,030	56,030	0
Virginia	31,134	31,132	2
Washington	210,388	210,379	9
West Virginia	126,125	126,125	0
Wisconsin	368,676	367,446	1,230
Wyoming	29,699	29,690	9
United States	16,342,793	16,329,212	13,581
United States (across states)	N/A	16,002,060	N/A

Table A.7 Medicaid Enrollees who Received Clinic Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	225,315	225,221	94
Alaska	34,951	34,948	3
Arizona	124,014	124,010	4
Arkansas	206,444	206,391	53
California	2,561,336	2,561,315	21
Colorado	331,655	331,596	59
Connecticut	30,870	30,868	2
Delaware	8,812	8,812	0
District of Columbia	17,934	17,930	4
Florida	288,898	288,892	6
Georgia	462,344	462,310	34
Hawaii	24,157	24,154	3
Idaho	54,812	54,811	1
Illinois	296,581	296,234	347
Indiana	334,782	334,779	3
Iowa	147,092	147,053	39
Kansas	91,030	91,027	3
Kentucky	206,744	205,194	1,550
Louisiana	141,026	141,026	0
Maine	0	0	0
Maryland	32,526	32,526	0
Massachusetts	88,411	88,410	1
Michigan	137,350	137,349	1
Minnesota	44,742	44,742	0
Mississippi	205,595	205,555	40
Missouri	506,537	506,481	56
Montana	17,275	17,275	0
Nebraska	38,517	38,517	0
Nevada	21,512	21,512	0
New Hampshire	35,056	35,056	0
New Jersey	67,555	67,512	43
New Mexico	45,835	45,835	0
New York	857,576	855,500	2,076
North Carolina	480,388	480,291	97
North Dakota	23,451	23,447	4
Ohio	248,441	248,126	315
Oklahoma	126,734	126,682	52
Oregon	68,520	68,500	20
Pennsylvania	69,850	69,848	2
Rhode Island	31,191	31,191	0
South Carolina	361,993	361,989	4
South Dakota	40,298	40,131	167
Tennessee	183,965	183,960	5
Texas	305,353	305,266	87
Utah	123,984	123,981	3
Vermont	26,605	26,605	0
Virginia	91,941	91,930	11
Washington	125,115	125,111	4
West Virginia	81,128	81,128	0
Wisconsin	395,981	394,921	1,060
Wyoming	15,716	15,712	4
United States	10,487,938	10,481,660	6,278
United States (across states)	N/A	10,290,418	N/A

Table A.7 Medicaid Enrollees who Received Home Health Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	56,666	56,650	16
Alaska	379	379	0
Arizona	10,744	10,742	2
Arkansas	6,389	6,387	2
California	41,886	41,886	0
Colorado	10,332	10,330	2
Connecticut	21,633	21,631	2
Delaware	1,313	1,313	0
District of Columbia	2,895	2,895	0
Florida	27,563	27,559	4
Georgia	9,259	9,259	0
Hawaii	5,114	5,114	0
Idaho	1,832	1,831	1
Illinois	12,729	12,713	16
Indiana	13,217	13,217	0
Iowa	24,946	24,946	0
Kansas	5,448	5,448	0
Kentucky	19,765	19,718	47
Louisiana	10,198	10,198	0
Maine	0	0	0
Maryland	19,267	19,267	0
Massachusetts	34,237	34,237	0
Michigan	6,973	6,973	0
Minnesota	62,163	62,158	5
Mississippi	8,223	8,222	1
Missouri	6,648	6,647	1
Montana	416	416	0
Nebraska	5,351	5,351	0
Nevada	799	799	0
New Hampshire	2,814	2,814	0
New Jersey	15,002	15,000	2
New Mexico	3,072	3,072	0
New York	274,200	273,737	463
North Carolina	37,855	37,834	21
North Dakota	1,496	1,496	0
Ohio	43,204	43,166	38
Oklahoma	6,252	6,250	2
Oregon	2,003	2,003	0
Pennsylvania	17,047	17,046	1
Rhode Island	8,881	8,881	0
South Carolina	3,411	3,411	0
South Dakota	432	432	0
Tennessee	20,164	20,162	2
Texas	22,527	22,521	6
Utah	1,985	1,985	0
Vermont	3,758	3,758	0
Virginia	6,276	6,276	0
Washington	21	21	0
West Virginia	2,134	2,134	0
Wisconsin	7,729	7,713	16
Wyoming	553	553	0
United States	907,201	906,551	650
United States (across states)	N/A	896,291	N/A

Table A.7 Medicaid Enrollees who Received Lab/Xray Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	485,520	485,285	235
Alaska	62,979	62,976	3
Arizona	663,750	663,688	62
Arkansas	353,199	353,072	127
California	4,525,217	4,525,180	37
Colorado	212,577	212,557	20
Connecticut	96,011	96,001	10
Delaware	86,245	86,243	2
District of Columbia	30,171	30,169	2
Florida	935,467	935,413	54
Georgia	914,456	914,343	113
Hawaii	118,322	118,303	19
Idaho	101,337	101,334	3
Illinois	1,067,685	1,065,464	2,221
Indiana	481,238	481,234	4
Iowa	223,290	223,243	47
Kansas	168,847	168,842	5
Kentucky	467,523	465,471	2,052
Louisiana	608,618	608,615	3
Maine	0	0	0
Maryland	214,746	214,745	1
Massachusetts	391,853	391,848	5
Michigan	225,343	225,339	4
Minnesota	397,181	397,171	10
Mississippi	423,539	423,384	155
Missouri	628,802	628,740	62
Montana	51,341	51,341	0
Nebraska	148,632	148,632	0
Nevada	92,123	92,122	1
New Hampshire	55,810	55,806	4
New Jersey	508,238	507,935	303
New Mexico	219,649	219,649	0
New York	2,144,854	2,139,603	5,251
North Carolina	913,181	912,990	191
North Dakota	32,612	32,612	0
Ohio	780,435	778,640	1,795
Oklahoma	341,621	341,305	316
Oregon	239,879	239,816	63
Pennsylvania	277,035	277,033	2
Rhode Island	131,869	131,869	0
South Carolina	421,662	421,659	3
South Dakota	58,925	58,604	321
Tennessee	823,427	823,391	36
Texas	1,727,345	1,726,612	733
Utah	102,861	102,859	2
Vermont	79,605	79,605	0
Virginia	429,729	429,625	104
Washington	525,753	525,726	27
West Virginia	154,120	154,120	0
Wisconsin	503,184	501,859	1,325
Wyoming	38,866	38,854	12
United States	24,686,672	24,670,927	15,745
United States (across states)	N/A	24,232,568	N/A

Table A.7 Medicaid Enrollees who Received Drug Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	548,899	548,512	387
Alaska	77,759	77,753	6
Arizona	731,940	731,878	62
Arkansas	455,727	455,532	195
California	5,263,706	5,263,572	134
Colorado	240,494	240,461	33
Connecticut	120,626	120,613	13
Delaware	110,970	110,966	4
District of Columbia	36,968	36,963	5
Florida	1,306,628	1,306,539	89
Georgia	1,175,475	1,175,293	182
Hawaii	152,883	152,849	34
Idaho	146,091	146,085	6
Illinois	1,674,854	1,661,347	13,507
Indiana	626,806	626,797	9
Iowa	290,352	290,128	224
Kansas	236,243	236,234	9
Kentucky	635,350	630,881	4,469
Louisiana	767,987	767,983	4
Maine	226,209	226,194	15
Maryland	487,844	487,841	3
Massachusetts	576,344	576,338	6
Michigan	661,304	661,283	21
Minnesota	483,947	483,917	30
Mississippi	543,865	543,667	198
Missouri	856,035	855,924	111
Montana	70,760	70,760	0
Nebraska	194,251	194,251	0
Nevada	76,812	76,811	1
New Hampshire	92,805	92,801	4
New Jersey	702,430	701,830	600
New Mexico	305,061	305,061	0
New York	3,101,220	3,087,943	13,277
North Carolina	1,107,208	1,106,959	249
North Dakota	47,219	47,218	1
Ohio	1,115,961	1,112,952	3,009
Oklahoma	469,250	468,565	685
Oregon	173,726	173,663	63
Pennsylvania	449,244	449,234	10
Rhode Island	150,776	150,775	1
South Carolina	622,254	622,243	11
South Dakota	75,234	74,709	525
Tennessee	1,179,088	1,179,024	64
Texas	2,760,015	2,758,679	1,336
Utah	201,158	201,154	4
Vermont	116,408	116,408	0
Virginia	516,958	516,823	135
Washington	483,474	483,453	21
West Virginia	288,779	288,771	8
Wisconsin	684,309	681,777	2,532
Wyoming	50,008	49,985	23
United States	33,469,714	33,427,399	42,315
United States (across states)	N/A	32,822,921	N/A

Table A.7 Medicaid Enrollees who Received Other Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	40,192	40,186	6
Alaska	8,186	8,186	0
Arizona	104,105	104,101	4
Arkansas	58,982	58,930	52
California	1,477,393	1,477,364	29
Colorado	26,829	26,828	1
Connecticut	52,160	52,147	13
Delaware	26,613	26,612	1
District of Columbia	18,752	18,750	2
Florida	580,820	580,791	29
Georgia	84,499	84,489	10
Hawaii	31,660	31,660	0
Idaho	26,732	26,729	3
Illinois	108,481	108,427	54
Indiana	202,744	202,744	0
Iowa	45,551	45,540	11
Kansas	52,696	52,694	2
Kentucky	244,125	242,134	1,991
Louisiana	426,745	426,744	1
Maine	0	0	0
Maryland	55,561	55,561	0
Massachusetts	95,217	95,216	1
Michigan	34,858	34,857	1
Minnesota	108,724	108,721	3
Mississippi	120,573	120,554	19
Missouri	309,908	309,866	42
Montana	99,569	99,569	0
Nebraska	33,189	33,189	0
Nevada	14,609	14,609	0
New Hampshire	10,743	10,743	0
New Jersey	133,913	133,885	28
New Mexico	82,820	82,819	1
New York	931,513	929,606	1,907
North Carolina	212,366	212,335	31
North Dakota	8,413	8,412	1
Ohio	271,523	271,323	200
Oklahoma	56,937	56,920	17
Oregon	35,060	35,055	5
Pennsylvania	111,815	111,813	2
Rhode Island	42,165	42,165	0
South Carolina	9,222	9,222	0
South Dakota	12,340	12,328	12
Tennessee	15,902	15,902	0
Texas	546,739	546,630	109
Utah	10,974	10,974	0
Vermont	24,336	24,336	0
Virginia	58,316	58,312	4
Washington	168,064	168,056	8
West Virginia	59,182	59,180	2
Wisconsin	155,173	155,087	86
Wyoming	19,280	19,273	7
United States	7,466,269	7,461,574	4,695
United States (across states)	N/A	7,345,784	N/A

Table A.7 Medicaid Enrollees who Received Sterilization Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	2,925	2,925	0
Alaska	351	351	0
Arizona	3,439	3,439	0
Arkansas	4,115	4,115	0
California	21,557	21,557	0
Colorado	1,853	1,853	0
Connecticut	275	275	0
Delaware	683	683	0
District of Columbia	61	61	0
Florida	7,641	7,641	0
Georgia	8,233	8,233	0
Hawaii	986	986	0
Idaho	1,089	1,089	0
Illinois	5,810	5,809	1
Indiana	2,321	2,321	0
Iowa	0	0	0
Kansas	1,263	1,263	0
Kentucky	4,718	4,717	1
Louisiana	5,727	5,727	0
Maine	0	0	0
Maryland	1,048	1,048	0
Massachusetts	1,547	1,547	0
Michigan	2,795	2,795	0
Minnesota	1,804	1,804	0
Mississippi	4,937	4,937	0
Missouri	2,109	2,109	0
Montana	3	3	0
Nebraska	1,479	1,479	0
Nevada	4,269	4,269	0
New Hampshire	717	717	0
New Jersey	406	406	0
New Mexico	795	795	0
New York	4,313	4,313	0
North Carolina	7,517	7,517	0
North Dakota	296	296	0
Ohio	7,174	7,174	0
Oklahoma	5,463	5,461	2
Oregon	1,888	1,888	0
Pennsylvania	1,570	1,570	0
Rhode Island	527	527	0
South Carolina	5,302	5,302	0
South Dakota	0	0	0
Tennessee	11,843	11,843	0
Texas	21,480	21,477	3
Utah	1,050	1,050	0
Vermont	706	706	0
Virginia	4,358	4,358	0
Washington	1,235	1,235	0
West Virginia	0	0	0
Wisconsin	3,696	3,696	0
Wyoming	463	463	0
United States	173,837	173,830	7
United States (across states)	N/A	170,791	N/A

Table A.7 Medicaid Enrollees who Received Abortion Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	1,465	1,465	0
Alaska	0	0	0
Arizona	4,205	4,205	0
Arkansas	0	0	0
California	0	0	0
Colorado	9	9	0
Connecticut	41	41	0
Delaware	109	109	0
District of Columbia	6	6	0
Florida	63	63	0
Georgia	103	103	0
Hawaii	1,561	1,561	0
Idaho	0	0	0
Illinois	64	64	0
Indiana	0	0	0
Iowa	0	0	0
Kansas	5	5	0
Kentucky	1,180	1,180	0
Louisiana	4	4	0
Maine	0	0	0
Maryland	3,340	3,340	0
Massachusetts	0	0	0
Michigan	23	23	0
Minnesota	8	8	0
Mississippi	2	2	0
Missouri	33	33	0
Montana	1,221	1,221	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	1	1	0
New Jersey	0	0	0
New Mexico	287	287	0
New York	540	540	0
North Carolina	19	19	0
North Dakota	57	57	0
Ohio	18	18	0
Oklahoma	55	55	0
Oregon	3,338	3,338	0
Pennsylvania	0	0	0
Rhode Island	456	456	0
South Carolina	12	12	0
South Dakota	0	0	0
Tennessee	7,681	7,681	0
Texas	5,976	5,975	1
Utah	0	0	0
Vermont	142	142	0
Virginia	103	103	0
Washington	133	133	0
West Virginia	2	2	0
Wisconsin	0	0	0
Wyoming	2	2	0
United States	32,264	32,263	1
United States (across states)	N/A	31,606	N/A

Table A.7 Medicaid Enrollees who Received Transportation Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	45,672	45,659	13
Alaska	22,657	22,655	2
Arizona	162,838	162,823	15
Arkansas	536,144	535,803	341
California	292,050	292,045	5
Colorado	21,865	21,865	0
Connecticut	33,305	33,304	1
Delaware	16,003	16,003	0
District of Columbia	13,915	13,912	3
Florida	202,820	202,818	2
Georgia	93,959	93,957	2
Hawaii	15,355	15,355	0
Idaho	14,668	14,667	1
Illinois	170,920	170,753	167
Indiana	82,399	82,399	0
Iowa	15,174	15,174	0
Kansas	22,009	22,009	0
Kentucky	77,402	77,338	64
Louisiana	102,726	102,726	0
Maine	0	0	0
Maryland	26,806	26,806	0
Massachusetts	101,443	101,441	2
Michigan	28,236	28,236	0
Minnesota	64,670	64,668	2
Mississippi	70,939	70,921	18
Missouri	81,564	81,559	5
Montana	6,324	6,324	0
Nebraska	23,078	23,078	0
Nevada	17,450	17,450	0
New Hampshire	6,616	6,616	0
New Jersey	85,470	85,411	59
New Mexico	28,975	28,975	0
New York	419,864	418,943	921
North Carolina	126,004	125,992	12
North Dakota	5,944	5,944	0
Ohio	160,921	160,872	49
Oklahoma	36,602	36,595	7
Oregon	45,390	45,383	7
Pennsylvania	26,366	26,366	0
Rhode Island	11,789	11,789	0
South Carolina	58,028	58,028	0
South Dakota	11,286	11,258	28
Tennessee	121,845	121,844	1
Texas	169,999	169,974	25
Utah	12,990	12,990	0
Vermont	15,435	15,435	0
Virginia	88,050	88,041	9
Washington	30,621	30,620	1
West Virginia	38,605	38,605	0
Wisconsin	73,701	73,663	38
Wyoming	3,011	3,011	0
United States	3,939,903	3,938,103	1,800
United States (across states)	N/A	3,852,652	N/A

Table A.7 Medicaid Enrollees who Received Personal Care Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	4,768	4,767	1
Arizona	10,978	10,978	0
Arkansas	15,300	15,297	3
California	372,763	372,753	10
Colorado	0	0	0
Connecticut	12,846	12,846	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	6,498	6,497	1
Georgia	0	0	0
Hawaii	0	0	0
Idaho	6,558	6,557	1
Illinois	22,232	22,229	3
Indiana	0	0	0
Iowa	0	0	0
Kansas	375	375	0
Kentucky	0	0	0
Louisiana	7,293	7,293	0
Maine	0	0	0
Maryland	4,976	4,976	0
Massachusetts	8,980	8,980	0
Michigan	0	0	0
Minnesota	40,295	40,283	12
Mississippi	360	360	0
Missouri	47,719	47,719	0
Montana	3,119	3,119	0
Nebraska	1,574	1,574	0
Nevada	4,858	4,858	0
New Hampshire	189	189	0
New Jersey	27,369	27,363	6
New Mexico	10,217	10,217	0
New York	100,315	100,227	88
North Carolina	81,549	81,546	3
North Dakota	1,387	1,387	0
Ohio	0	0	0
Oklahoma	5,259	5,257	2
Oregon	8,777	8,777	0
Pennsylvania	0	0	0
Rhode Island	1,768	1,768	0
South Carolina	17,112	17,112	0
South Dakota	2,343	2,343	0
Tennessee	0	0	0
Texas	1,497	1,496	1
Utah	483	483	0
Vermont	1,938	1,938	0
Virginia	12,370	12,370	0
Washington	42,071	42,070	1
West Virginia	4,284	4,284	0
Wisconsin	12,920	12,919	1
Wyoming	0	0	0
United States	903,340	903,207	133
United States (across states)	N/A	895,244	N/A

Table A.7 Medicaid Enrollees who Received Targeted Case Management Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	30,550	30,509	41
Alaska	4,664	4,664	0
Arizona	0	0	0
Arkansas	37,755	37,750	5
California	200,266	200,264	2
Colorado	0	0	0
Connecticut	14,395	14,393	2
Delaware	0	0	0
District of Columbia	0	0	0
Florida	84,023	84,013	10
Georgia	205,519	205,507	12
Hawaii	3,265	3,265	0
Idaho	7,996	7,992	4
Illinois	770,451	769,000	1,451
Indiana	14,106	14,106	0
Iowa	10,747	10,740	7
Kansas	23,760	23,760	0
Kentucky	15,956	15,882	74
Louisiana	11,579	11,579	0
Maine	0	0	0
Maryland	16,105	16,105	0
Massachusetts	32,131	32,130	1
Michigan	52,426	52,426	0
Minnesota	103,745	103,731	14
Mississippi	39,172	39,157	15
Missouri	39,027	39,022	5
Montana	11,031	11,031	0
Nebraska	0	0	0
Nevada	9,519	9,519	0
New Hampshire	0	0	0
New Jersey	2,752	2,750	2
New Mexico	19,042	19,042	0
New York	32,417	32,370	47
North Carolina	145,680	145,587	93
North Dakota	3,723	3,723	0
Ohio	0	0	0
Oklahoma	38,816	38,731	85
Oregon	45,976	45,935	41
Pennsylvania	56,186	56,183	3
Rhode Island	9,535	9,535	0
South Carolina	46,653	46,652	1
South Dakota	0	0	0
Tennessee	0	0	0
Texas	161,336	161,268	68
Utah	7,317	7,317	0
Vermont	6,385	6,385	0
Virginia	4,474	4,474	0
Washington	2,542	2,542	0
West Virginia	7,468	7,468	0
Wisconsin	35,090	34,976	114
Wyoming	2,258	2,258	0
United States	2,365,838	2,363,741	2,097
United States (across states)	N/A	2,319,109	N/A

Table A.7 Medicaid Enrollees who Received Rehabilitation Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	4,486	4,483	3
Alaska	163	163	0
Arizona	21,713	21,712	1
Arkansas	40	40	0
California	90,891	90,891	0
Colorado	0	0	0
Connecticut	5,799	5,799	0
Delaware	537	537	0
District of Columbia	119	119	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	227	227	0
Idaho	2,012	2,012	0
Illinois	13,277	13,274	3
Indiana	64,139	64,139	0
Iowa	2,234	2,226	8
Kansas	3,871	3,871	0
Kentucky	129	129	0
Louisiana	4,983	4,983	0
Maine	0	0	0
Maryland	3,571	3,571	0
Massachusetts	69,588	69,588	0
Michigan	12	12	0
Minnesota	9,857	9,857	0
Mississippi	125	125	0
Missouri	13,524	13,524	0
Montana	339	339	0
Nebraska	0	0	0
Nevada	7,295	7,295	0
New Hampshire	2,119	2,119	0
New Jersey	20,280	20,269	11
New Mexico	960	960	0
New York	119,832	119,642	190
North Carolina	0	0	0
North Dakota	9,207	9,206	1
Ohio	107,451	107,363	88
Oklahoma	0	0	0
Oregon	41,517	41,506	11
Pennsylvania	1,284	1,284	0
Rhode Island	6,842	6,842	0
South Carolina	6,168	6,168	0
South Dakota	895	895	0
Tennessee	5,917	5,916	1
Texas	39,880	39,866	14
Utah	488	488	0
Vermont	0	0	0
Virginia	3,290	3,290	0
Washington	4,820	4,820	0
West Virginia	23,483	23,481	2
Wisconsin	8,361	8,327	34
Wyoming	3,408	3,408	0
United States	725,133	724,766	367
United States (across states)	N/A	713,826	N/A

Table A.7 Medicaid Enrollees who Received PT/OT/Hearing/Speech Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	4,661	4,656	5
Alaska	6,519	6,518	1
Arizona	8,166	8,166	0
Arkansas	18,439	18,435	4
California	59,058	59,058	0
Colorado	1,303	1,303	0
Connecticut	2,094	2,094	0
Delaware	7,414	7,414	0
District of Columbia	0	0	0
Florida	71,624	71,615	9
Georgia	1,683	1,683	0
Hawaii	3,295	3,295	0
Idaho	9,757	9,756	1
Illinois	91,118	90,921	197
Indiana	24,564	24,564	0
Iowa	4,957	4,956	1
Kansas	1,638	1,638	0
Kentucky	3,107	3,098	9
Louisiana	70,628	70,627	1
Maine	0	0	0
Maryland	59,340	59,340	0
Massachusetts	7,672	7,672	0
Michigan	76	76	0
Minnesota	24,897	24,897	0
Mississippi	7,343	7,342	1
Missouri	5,021	5,021	0
Montana	3	3	0
Nebraska	13,757	13,757	0
Nevada	3,460	3,460	0
New Hampshire	1,562	1,562	0
New Jersey	0	0	0
New Mexico	22,230	22,230	0
New York	24,298	24,296	2
North Carolina	24,299	24,293	6
North Dakota	1,807	1,807	0
Ohio	15,000	14,995	5
Oklahoma	2,192	2,192	0
Oregon	5,840	5,839	1
Pennsylvania	11,641	11,640	1
Rhode Island	422	422	0
South Carolina	8,155	8,155	0
South Dakota	5,142	5,120	22
Tennessee	15,050	15,049	1
Texas	8,875	8,875	0
Utah	6,089	6,089	0
Vermont	3,708	3,708	0
Virginia	4,460	4,458	2
Washington	16,113	16,111	2
West Virginia	15,918	15,917	1
Wisconsin	14,844	14,808	36
Wyoming	620	620	0
United States	719,859	719,551	308
United States (across states)	N/A	707,000	N/A

Table A.7 Medicaid Enrollees who Received Hospice Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	3,687	3,687	0
Alaska	24	24	0
Arizona	0	0	0
Arkansas	1,624	1,624	0
California	13,725	13,725	0
Colorado	2,669	2,669	0
Connecticut	42	42	0
Delaware	428	428	0
District of Columbia	165	165	0
Florida	16,612	16,612	0
Georgia	5,854	5,854	0
Hawaii	122	122	0
Idaho	230	230	0
Illinois	6,939	6,938	1
Indiana	4,590	4,590	0
Iowa	0	0	0
Kansas	2,510	2,510	0
Kentucky	3,069	3,069	0
Louisiana	3,756	3,756	0
Maine	0	0	0
Maryland	1,604	1,604	0
Massachusetts	3,962	3,962	0
Michigan	828	828	0
Minnesota	2,621	2,620	1
Mississippi	2,339	2,339	0
Missouri	1,057	1,057	0
Montana	218	218	0
Nebraska	1,097	1,097	0
Nevada	779	779	0
New Hampshire	0	0	0
New Jersey	3,532	3,532	0
New Mexico	1,051	1,051	0
New York	6,872	6,870	2
North Carolina	5,132	5,132	0
North Dakota	328	328	0
Ohio	2,007	2,007	0
Oklahoma	50	50	0
Oregon	555	555	0
Pennsylvania	895	895	0
Rhode Island	99	99	0
South Carolina	1,821	1,821	0
South Dakota	259	259	0
Tennessee	3,542	3,542	0
Texas	15,769	15,768	1
Utah	1,030	1,030	0
Vermont	77	77	0
Virginia	1,762	1,762	0
Washington	2,279	2,279	0
West Virginia	644	644	0
Wisconsin	3,141	3,141	0
Wyoming	78	78	0
United States	131,474	131,469	5
United States (across states)	N/A	130,447	N/A

Table A.7 Medicaid Enrollees who Received Nurse Midwife Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	4,357	4,357	0
Alaska	2,434	2,434	0
Arizona	7,287	7,286	1
Arkansas	842	842	0
California	13,884	13,884	0
Colorado	539	539	0
Connecticut	1,136	1,136	0
Delaware	236	236	0
District of Columbia	0	0	0
Florida	1,136	1,136	0
Georgia	20,398	20,397	1
Hawaii	0	0	0
Idaho	0	0	0
Illinois	714	711	3
Indiana	925	925	0
Iowa	1,509	1,509	0
Kansas	579	579	0
Kentucky	0	0	0
Louisiana	76,297	76,297	0
Maine	0	0	0
Maryland	7,119	7,119	0
Massachusetts	2,190	2,190	0
Michigan	3,150	3,150	0
Minnesota	7,796	7,796	0
Mississippi	0	0	0
Missouri	1,208	1,208	0
Montana	0	0	0
Nebraska	0	0	0
Nevada	269	269	0
New Hampshire	0	0	0
New Jersey	1,221	1,221	0
New Mexico	10,561	10,561	0
New York	7,088	7,088	0
North Carolina	1,501	1,501	0
North Dakota	347	347	0
Ohio	0	0	0
Oklahoma	130	130	0
Oregon	1,597	1,597	0
Pennsylvania	2,265	2,265	0
Rhode Island	0	0	0
South Carolina	7,235	7,235	0
South Dakota	776	775	1
Tennessee	2,343	2,343	0
Texas	9,855	9,852	3
Utah	0	0	0
Vermont	0	0	0
Virginia	1,807	1,807	0
Washington	2,136	2,136	0
West Virginia	2,879	2,879	0
Wisconsin	415	415	0
Wyoming	0	0	0
United States	206,161	206,152	9
United States (across states)	N/A	200,646	N/A

Table A.7 Medicaid Enrollees who Received Nurse Practitioner Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	12,271	12,269	2
Arizona	105,222	105,218	4
Arkansas	6,432	6,432	0
California	52,060	52,059	1
Colorado	672	672	0
Connecticut	9,290	9,290	0
Delaware	1,214	1,214	0
District of Columbia	958	958	0
Florida	159,236	159,231	5
Georgia	183,898	183,889	9
Hawaii	11,768	11,766	2
Idaho	26,162	26,162	0
Illinois	12,012	12,010	2
Indiana	2,443	2,443	0
Iowa	23,327	23,322	5
Kansas	20,276	20,275	1
Kentucky	98,978	98,595	383
Louisiana	6,163	6,163	0
Maine	0	0	0
Maryland	33,841	33,841	0
Massachusetts	24,387	24,387	0
Michigan	19,488	19,488	0
Minnesota	101,669	101,663	6
Mississippi	116,620	116,602	18
Missouri	20,810	20,810	0
Montana	27,743	27,743	0
Nebraska	8,486	8,486	0
Nevada	19,387	19,387	0
New Hampshire	1,168	1,168	0
New Jersey	7,335	7,335	0
New Mexico	47,220	47,220	0
New York	106,548	106,519	29
North Carolina	0	0	0
North Dakota	5,367	5,367	0
Ohio	148,841	148,749	92
Oklahoma	13,062	13,061	1
Oregon	60,452	60,441	11
Pennsylvania	452	452	0
Rhode Island	365	365	0
South Carolina	20,920	20,920	0
South Dakota	0	0	0
Tennessee	93,055	93,052	3
Texas	108,142	108,115	27
Utah	13,462	13,462	0
Vermont	2,358	2,358	0
Virginia	16,344	16,343	1
Washington	11,323	11,323	0
West Virginia	31,907	31,907	0
Wisconsin	34,676	34,597	79
Wyoming	8,671	8,668	3
United States	1,836,481	1,835,797	684
United States (across states)	N/A	1,799,518	N/A

Table A.7 Medicaid Enrollees who Received Private Nursing Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	36	36	0
Alaska	144	144	0
Arizona	6	6	0
Arkansas	136	136	0
California	1,820	1,820	0
Colorado	195	195	0
Connecticut	0	0	0
Delaware	2,856	2,856	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	559	559	0
Hawaii	803	803	0
Idaho	1,203	1,203	0
Illinois	13,965	13,965	0
Indiana	0	0	0
Iowa	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	677	677	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	1,532	1,532	0
Mississippi	0	0	0
Missouri	53	53	0
Montana	0	0	0
Nebraska	233	233	0
Nevada	0	0	0
New Hampshire	136	136	0
New Jersey	234	234	0
New Mexico	3	3	0
New York	6,860	6,849	11
North Carolina	0	0	0
North Dakota	0	0	0
Ohio	16,679	16,644	35
Oklahoma	0	0	0
Oregon	254	254	0
Pennsylvania	287	287	0
Rhode Island	0	0	0
South Carolina	13	13	0
South Dakota	5	5	0
Tennessee	0	0	0
Texas	41	41	0
Utah	21	21	0
Vermont	0	0	0
Virginia	464	463	1
Washington	533	533	0
West Virginia	644	644	0
Wisconsin	349	347	2
Wyoming	0	0	0
United States	50,741	50,692	49
United States (across states)	N/A	49,878	N/A

Table A.7 Medicaid Enrollees who Received Religious Non-Medical Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	0	0	0
Arizona	0	0	0
Arkansas	0	0	0
California	0	0	0
Colorado	0	0	0
Connecticut	0	0	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	0	0	0
Idaho	0	0	0
Illinois	0	0	0
Indiana	0	0	0
Iowa	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	0	0	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	0	0	0
Mississippi	0	0	0
Missouri	0	0	0
Montana	0	0	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	0	0	0
New Jersey	0	0	0
New Mexico	0	0	0
New York	0	0	0
North Carolina	0	0	0
North Dakota	0	0	0
Ohio	0	0	0
Oklahoma	0	0	0
Oregon	0	0	0
Pennsylvania	0	0	0
Rhode Island	0	0	0
South Carolina	0	0	0
South Dakota	0	0	0
Tennessee	0	0	0
Texas	0	0	0
Utah	0	0	0
Vermont	0	0	0
Virginia	0	0	0
Washington	0	0	0
West Virginia	0	0	0
Wisconsin	0	0	0
Wyoming	0	0	0
United States	0	0	0
United States (across states)	N/A	0	N/A

Table A.7 Medicaid Enrollees who Received Durable Medical Equipment Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	145,628	145,609	19
Alaska	30,394	30,392	2
Arizona	259,774	259,766	8
Arkansas	140,940	140,918	22
California	3,465,836	3,465,814	22
Colorado	111,308	111,303	5
Connecticut	64,486	64,483	3
Delaware	26,119	26,119	0
District of Columbia	19,660	19,659	1
Florida	282,353	282,341	12
Georgia	488,240	488,220	20
Hawaii	43,764	43,761	3
Idaho	41,415	41,413	2
Illinois	397,705	397,498	207
Indiana	227,825	227,824	1
Iowa	132,611	132,588	23
Kansas	65,074	65,073	1
Kentucky	189,519	189,198	321
Louisiana	284,155	284,154	1
Maine	0	0	0
Maryland	152,442	152,442	0
Massachusetts	117,849	117,848	1
Michigan	137,297	137,296	1
Minnesota	184,937	184,926	11
Mississippi	224,834	224,803	31
Missouri	267,495	267,485	10
Montana	29,944	29,944	0
Nebraska	93,937	93,937	0
Nevada	33,531	33,531	0
New Hampshire	32,789	32,788	1
New Jersey	221,359	221,292	67
New Mexico	119,281	119,281	0
New York	633,627	633,149	478
North Carolina	451,068	450,997	71
North Dakota	21,190	21,188	2
Ohio	320,531	320,324	207
Oklahoma	167,905	167,834	71
Oregon	125,526	125,514	12
Pennsylvania	79,432	79,431	1
Rhode Island	31,154	31,154	0
South Carolina	187,780	187,778	2
South Dakota	30,016	29,937	79
Tennessee	204,848	204,842	6
Texas	698,347	698,218	129
Utah	40,663	40,663	0
Vermont	19,295	19,295	0
Virginia	81,860	81,854	6
Washington	282,802	282,793	9
West Virginia	55,895	55,895	0
Wisconsin	236,933	236,684	249
Wyoming	21,348	21,345	3
United States	11,722,721	11,720,601	2,120
United States (across states)	N/A	11,542,898	N/A

Table A.7 Medicaid Enrollees who Received Residential Care Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	2,828	2,828	0
Alaska	861	861	0
Arizona	11,177	11,177	0
Arkansas	0	0	0
California	61,088	61,087	1
Colorado	4,412	4,412	0
Connecticut	6,500	6,499	1
Delaware	309	309	0
District of Columbia	0	0	0
Florida	8,611	8,610	1
Georgia	4,266	4,266	0
Hawaii	244	244	0
Idaho	4,613	4,613	0
Illinois	9,015	9,007	8
Indiana	5,345	5,345	0
Iowa	11,580	11,574	6
Kansas	4,261	4,261	0
Kentucky	2,214	2,212	2
Louisiana	0	0	0
Maine	0	0	0
Maryland	54,493	54,493	0
Massachusetts	12,794	12,794	0
Michigan	5,356	5,356	0
Minnesota	9,158	9,157	1
Mississippi	100	100	0
Missouri	10,690	10,690	0
Montana	91	91	0
Nebraska	2,783	2,783	0
Nevada	1,536	1,536	0
New Hampshire	459	459	0
New Jersey	8,374	8,372	2
New Mexico	2,527	2,527	0
New York	47,061	47,003	58
North Carolina	31	31	0
North Dakota	659	659	0
Ohio	16,498	16,498	0
Oklahoma	3,863	3,860	3
Oregon	9,443	9,443	0
Pennsylvania	1,044	1,044	0
Rhode Island	3,070	3,070	0
South Carolina	383	383	0
South Dakota	1,268	1,258	10
Tennessee	3,841	3,841	0
Texas	3,173	3,173	0
Utah	1,053	1,053	0
Vermont	62	62	0
Virginia	0	0	0
Washington	18,516	18,516	0
West Virginia	3,468	3,468	0
Wisconsin	10,881	10,880	1
Wyoming	1,022	1,022	0
United States	371,021	370,927	94
United States (across states)	N/A	368,194	N/A

Table A.7 Medicaid Enrollees who Received Psychiatric Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	91,564	91,495	69
Alaska	17,398	17,398	0
Arizona	192,171	192,163	8
Arkansas	80,531	80,467	64
California	1,013,293	1,013,289	4
Colorado	29,365	29,365	0
Connecticut	30,348	30,347	1
Delaware	24,425	24,425	0
District of Columbia	17,139	17,138	1
Florida	240,513	240,508	5
Georgia	199,088	199,082	6
Hawaii	33,060	33,055	5
Idaho	30,788	30,784	4
Illinois	269,854	269,427	427
Indiana	142,649	142,648	1
Iowa	63,776	63,743	33
Kansas	66,385	66,382	3
Kentucky	148,427	147,793	634
Louisiana	69,918	69,918	0
Maine	0	0	0
Maryland	152,633	152,632	1
Massachusetts	137,688	137,687	1
Michigan	64,111	64,111	0
Minnesota	131,169	131,169	0
Mississippi	89,919	89,891	28
Missouri	139,028	139,021	7
Montana	17,824	17,824	0
Nebraska	48,217	48,217	0
Nevada	17,328	17,328	0
New Hampshire	27,904	27,903	1
New Jersey	114,797	114,743	54
New Mexico	57,142	57,142	0
New York	780,227	777,450	2,777
North Carolina	198,205	198,149	56
North Dakota	11,017	11,016	1
Ohio	340,653	338,617	2,036
Oklahoma	76,922	76,813	109
Oregon	82,404	82,376	28
Pennsylvania	143,525	143,521	4
Rhode Island	40,384	40,384	0
South Carolina	111,931	111,930	1
South Dakota	14,364	14,052	312
Tennessee	306,782	306,763	19
Texas	251,733	251,664	69
Utah	16,372	16,371	1
Vermont	34,562	34,562	0
Virginia	95,748	95,714	34
Washington	104,215	104,215	0
West Virginia	83,192	83,189	3
Wisconsin	109,035	108,997	38
Wyoming	9,895	9,895	0
United States	6,569,618	6,562,773	6,845
United States (across states)	N/A	6,442,839	N/A

Table A.7 Medicaid Enrollees who Received Adult Day Care Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	238	238	0
Alaska	439	439	0
Arizona	929	929	0
Arkansas	490	490	0
California	80,926	80,923	3
Colorado	1,200	1,200	0
Connecticut	4,809	4,808	1
Delaware	203	203	0
District of Columbia	0	0	0
Florida	12,869	12,868	1
Georgia	5,411	5,411	0
Hawaii	1,427	1,427	0
Idaho	445	445	0
Illinois	1,815	1,815	0
Indiana	209	209	0
Iowa	3,557	3,557	0
Kansas	88	88	0
Kentucky	3,296	3,295	1
Louisiana	0	0	0
Maine	0	0	0
Maryland	85,617	85,617	0
Massachusetts	6,513	6,513	0
Michigan	407	407	0
Minnesota	12,204	12,204	0
Mississippi	734	734	0
Missouri	1,449	1,449	0
Montana	281	281	0
Nebraska	371	371	0
Nevada	286	286	0
New Hampshire	480	480	0
New Jersey	14,692	14,689	3
New Mexico	31	31	0
New York	62,751	62,595	156
North Carolina	467	467	0
North Dakota	1,045	1,045	0
Ohio	2,894	2,894	0
Oklahoma	516	516	0
Oregon	204	204	0
Pennsylvania	2,222	2,222	0
Rhode Island	4,463	4,463	0
South Carolina	9,029	9,028	1
South Dakota	3	3	0
Tennessee	56	56	0
Texas	22,673	22,670	3
Utah	60	60	0
Vermont	0	0	0
Virginia	620	620	0
Washington	2,736	2,736	0
West Virginia	3	3	0
Wisconsin	2,953	2,953	0
Wyoming	52	52	0
United States	354,163	353,994	169
United States (across states)	N/A	350,615	N/A

Table A.7 Medicaid Enrollees who Received Unknown Services in Calendar Year 2005 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	144,893	144,819	74
Alaska	2,741	2,741	0
Arizona	215,309	215,299	10
Arkansas	104,071	104,065	6
California	934,387	934,364	23
Colorado	58,671	58,658	13
Connecticut	5,828	5,828	0
Delaware	63,812	63,810	2
District of Columbia	2,122	2,121	1
Florida	220,747	220,731	16
Georgia	359,987	359,964	23
Hawaii	17,549	17,548	1
Idaho	8,250	8,250	0
Illinois	130,999	130,941	58
Indiana	134,126	134,124	2
Iowa	37,323	37,322	1
Kansas	31,670	31,670	0
Kentucky	123,105	120,661	2,444
Louisiana	4,569	4,569	0
Maine	0	0	0
Maryland	16,098	16,098	0
Massachusetts	19,889	19,888	1
Michigan	16,625	16,625	0
Minnesota	103,948	103,947	1
Mississippi	19,353	19,352	1
Missouri	154,967	154,934	33
Montana	3,146	3,146	0
Nebraska	47,350	47,350	0
Nevada	16,996	16,996	0
New Hampshire	4,978	4,978	0
New Jersey	156,521	156,430	91
New Mexico	92,119	92,119	0
New York	498,890	498,453	437
North Carolina	27,809	27,809	0
North Dakota	2,540	2,540	0
Ohio	184,244	184,013	231
Oklahoma	31,446	31,437	9
Oregon	159,353	159,306	47
Pennsylvania	61,963	61,962	1
Rhode Island	16,803	16,803	0
South Carolina	19,289	19,289	0
South Dakota	13,675	13,659	16
Tennessee	168,420	168,418	2
Texas	47,800	47,791	9
Utah	7,930	7,930	0
Vermont	9,271	9,271	0
Virginia	139,927	139,904	23
Washington	336,595	336,584	11
West Virginia	8,106	8,106	0
Wisconsin	158,924	156,491	2,433
Wyoming	9,890	9,888	2
United States	5,155,024	5,149,002	6,022
United States (across states)	N/A	5,069,607	N/A

Table A.7 Medicaid Enrollees who Received Inpatient Hospital Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	115,408	115,391	17
Alaska	15,514	15,514	0
Arizona	191,536	191,530	6
Arkansas	88,379	88,365	14
California	586,236	586,236	0
Colorado	46,032	46,030	2
Connecticut	32,091	32,088	3
Delaware	10,158	10,158	0
District of Columbia	15,150	15,150	0
Florida	317,039	317,033	6
Georgia	193,389	193,388	1
Hawaii	22,355	22,354	1
Idaho	24,539	24,539	0
Illinois	191,439	191,287	152
Indiana	119,550	119,549	1
Iowa	59,769	59,769	0
Kansas	50,009	50,009	0
Kentucky	84,907	84,907	0
Louisiana	134,351	134,351	0
Maine	0	0	0
Maryland	117,194	117,194	0
Massachusetts	76,534	76,533	1
Michigan	94,486	94,485	1
Minnesota	72,569	72,568	1
Mississippi	97,155	97,107	48
Missouri	123,947	123,947	0
Montana	16,962	16,962	0
Nebraska	32,579	32,579	0
Nevada	36,614	36,614	0
New Hampshire	15,265	15,265	0
New Jersey	109,396	109,394	2
New Mexico	52,247	52,247	0
New York	650,867	649,429	1,438
North Carolina	211,929	211,928	1
North Dakota	8,860	8,860	0
Ohio	166,956	166,890	66
Oklahoma	114,230	114,202	28
Oregon	63,852	63,849	3
Pennsylvania	108,163	108,161	2
Rhode Island	31,343	31,343	0
South Carolina	107,042	107,041	1
South Dakota	16,600	16,584	16
Tennessee	116,583	116,581	2
Texas	518,183	518,076	107
Utah	31,515	31,515	0
Vermont	10,897	10,897	0
Virginia	157,855	157,847	8
Washington	89,891	89,888	3
West Virginia	23,985	23,985	0
Wisconsin	102,905	102,796	109
Wyoming	11,189	11,189	0
United States			2,040
United States (across states)	N/A	5,601,255	N/A

Table A.7 Medicaid Enrollees who Received Mental Hospital Services for the Aged in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	218	218	0
Alaska	2	2	0
Arizona	0	0	0
Arkansas	0	0	0
California	7	7	0
Colorado	11	11	0
Connecticut	1,101	1,101	0
Delaware	184	184	0
District of Columbia	151	151	0
Florida	174	174	0
Georgia	0	0	0
Hawaii	129	129	0
Idaho	838	838	0
Illinois	1,784	1,781	3
Indiana	316	316	0
Iowa	10	10	0
Kansas	166	166	0
Kentucky	338	338	0
Louisiana	6,117	6,117	0
Maine	0	0	0
Maryland	48	48	0
Massachusetts	21	21	0
Michigan	49	49	0
Minnesota	118	118	0
Mississippi	239	239	0
Missouri	5	5	0
Montana	54	54	0
Nebraska	1	1	0
Nevada	7	7	0
New Hampshire	0	0	0
New Jersey	359	359	0
New Mexico	73	73	0
New York	4,155	4,143	12
North Carolina	183	183	0
North Dakota	14	14	0
Ohio	12	12	0
Oklahoma	98	98	0
Oregon	87	87	0
Pennsylvania	6,999	6,999	0
Rhode Island	167	167	0
South Carolina	229	229	0
South Dakota	55	55	0
Tennessee	103	103	0
Texas	460	460	0
Utah	1	1	0
Vermont	164	164	0
Virginia	904	904	0
Washington	928	928	0
West Virginia	199	199	0
Wisconsin	158	158	0
Wyoming	11	11	0
United States			15
United States (across states)	N/A	26,839	N/A

Table A.7 Medicaid Enrollees who Received Inpatient Psychiatric Facility Services (under Age 21) in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	1,435	1,435	0
Arizona	740	740	0
Arkansas	6,085	6,083	2
California	631	631	0
Colorado	136	136	0
Connecticut	866	866	0
Delaware	36	36	0
District of Columbia	212	212	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	16	16	0
Idaho	948	948	0
Illinois	5,177	5,172	5
Indiana	2,798	2,798	0
Iowa	967	967	0
Kansas	333	333	0
Kentucky	3,324	3,324	0
Louisiana	3,349	3,349	0
Maine	0	0	0
Maryland	2,846	2,846	0
Massachusetts	3,840	3,840	0
Michigan	543	543	0
Minnesota	643	643	0
Mississippi	2,510	2,505	5
Missouri	399	399	0
Montana	422	422	0
Nebraska	1,683	1,683	0
Nevada	903	903	0
New Hampshire	283	283	0
New Jersey	1,794	1,792	2
New Mexico	4,742	4,742	0
New York	11,308	11,114	194
North Carolina	2,257	2,257	0
North Dakota	50	50	0
Ohio	1,677	1,666	11
Oklahoma	3,667	3,659	8
Oregon	450	450	0
Pennsylvania	5,213	5,213	0
Rhode Island	190	190	0
South Carolina	1,003	1,003	0
South Dakota	488	480	8
Tennessee	3,343	3,343	0
Texas	7,124	7,116	8
Utah	112	112	0
Vermont	0	0	0
Virginia	757	757	0
Washington	0	0	0
West Virginia	1,858	1,858	0
Wisconsin	2,801	2,801	0
Wyoming	497	497	0
United States			243
United States (across states)	N/A	87,684	N/A

Table A.7 Medicaid Enrollees who Received Intermediate Care Facility Services for the Mentally Retarded in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	254	254	0
Alaska	0	0	0
Arizona	0	0	0
Arkansas	1,717	1,717	0
California	9,856	9,856	0
Colorado	137	137	0
Connecticut	1,257	1,256	1
Delaware	150	150	0
District of Columbia	706	706	0
Florida	3,127	3,127	0
Georgia	1,097	1,097	0
Hawaii	88	88	0
Idaho	593	593	0
Illinois	9,504	9,502	2
Indiana	4,261	4,261	0
Iowa	2,316	2,316	0
Kansas	646	646	0
Kentucky	712	712	0
Louisiana	5,539	5,539	0
Maine	0	0	0
Maryland	346	346	0
Massachusetts	1,032	1,032	0
Michigan	160	160	0
Minnesota	2,823	2,823	0
Mississippi	2,865	2,865	0
Missouri	1,050	1,050	0
Montana	86	86	0
Nebraska	641	641	0
Nevada	162	162	0
New Hampshire	38	38	0
New Jersey	3,056	3,056	0
New Mexico	259	259	0
New York	8,678	8,655	23
North Carolina	4,158	4,158	0
North Dakota	636	636	0
Ohio	7,772	7,770	2
Oklahoma	1,829	1,829	0
Oregon	43	43	0
Pennsylvania	4,060	4,060	0
Rhode Island	45	45	0
South Carolina	1,736	1,736	0
South Dakota	191	191	0
Tennessee	1,292	1,292	0
Texas	12,513	12,512	1
Utah	826	826	0
Vermont	6	6	0
Virginia	1,923	1,923	0
Washington	59	59	0
West Virginia	547	547	0
Wisconsin	1,667	1,667	0
Wyoming	96	96	0
United States			29
United States (across states)	N/A	102,163	N/A

Table A.7 Medicaid Enrollees who Received Nursing Facility Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	26,100	26,085	15
Alaska	1,263	1,263	0
Arizona	15,244	15,244	0
Arkansas	18,434	18,424	10
California	127,512	127,501	11
Colorado	14,831	14,831	0
Connecticut	29,578	29,578	0
Delaware	3,647	3,647	0
District of Columbia	3,835	3,835	0
Florida	78,418	78,412	6
Georgia	38,255	38,255	0
Hawaii	4,711	4,711	0
Idaho	4,528	4,528	0
Illinois	73,913	73,887	26
Indiana	37,202	37,202	0
Iowa	18,969	18,969	0
Kansas	14,622	14,622	0
Kentucky	27,261	27,261	0
Louisiana	29,007	29,006	1
Maine	0	0	0
Maryland	24,150	24,150	0
Massachusetts	50,799	50,799	0
Michigan	43,828	43,824	4
Minnesota	30,400	30,392	8
Mississippi	21,705	21,703	2
Missouri	37,920	37,920	0
Montana	5,039	5,039	0
Nebraska	11,065	11,065	0
Nevada	4,564	4,564	0
New Hampshire	7,124	7,124	0
New Jersey	41,834	41,663	171
New Mexico	6,359	6,359	0
New York	148,004	147,897	107
North Carolina	41,335	41,335	0
North Dakota	5,156	5,156	0
Ohio	83,399	83,396	3
Oklahoma	21,545	21,532	13
Oregon	9,683	9,683	0
Pennsylvania	79,195	79,192	3
Rhode Island	10,284	10,284	0
South Carolina	16,229	16,228	1
South Dakota	5,736	5,736	0
Tennessee	32,893	32,892	1
Texas	95,602	95,578	24
Utah	5,381	5,381	0
Vermont	3,497	3,497	0
Virginia	28,035	28,034	1
Washington	21,068	21,068	0
West Virginia	10,799	10,791	8
Wisconsin	32,783	32,783	0
Wyoming	2,303	2,303	0
United States			415
United States (across states)	N/A	1,492,162	N/A

Table A.7 Medicaid Enrollees who Received Physician Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	561,111	560,864	247
Alaska	82,240	82,239	1
Arizona	843,459	843,427	32
Arkansas	494,326	494,076	250
California	4,507,908	4,507,897	11
Colorado	55,026	55,021	5
Connecticut	99,997	99,992	5
Delaware	124,673	124,669	4
District of Columbia	22,703	22,702	1
Florida	1,206,330	1,206,264	66
Georgia	1,089,426	1,089,422	4
Hawaii	158,203	158,178	25
Idaho	147,399	147,397	2
Illinois	1,319,532	1,316,572	2,960
Indiana	595,099	595,072	27
Iowa	289,194	289,096	98
Kansas	238,627	238,621	6
Kentucky	611,281	611,281	0
Louisiana	756,344	756,344	0
Maine	0	0	0
Maryland	557,765	557,759	6
Massachusetts	488,229	488,218	11
Michigan	495,199	495,182	17
Minnesota	539,843	539,834	9
Mississippi	445,413	444,963	450
Missouri	453,732	453,732	0
Montana	70,962	70,962	0
Nebraska	192,260	192,249	11
Nevada	134,459	134,458	1
New Hampshire	89,912	89,910	2
New Jersey	658,405	658,378	27
New Mexico	315,157	315,156	1
New York	2,779,270	2,770,393	8,877
North Carolina	1,229,813	1,229,812	1
North Dakota	45,236	45,202	34
Ohio	1,035,752	1,033,111	2,641
Oklahoma	464,418	463,994	424
Oregon	300,643	300,507	136
Pennsylvania	431,759	431,753	6
Rhode Island	92,199	92,199	0
South Carolina	532,146	532,125	21
South Dakota	73,335	72,927	408
Tennessee	836,556	836,509	47
Texas	2,231,742	2,230,533	1,209
Utah	81,535	81,533	2
Vermont	108,575	108,575	0
Virginia	625,876	625,743	133
Washington	371,532	371,518	14
West Virginia	168,158	168,152	6
Wisconsin	462,576	461,582	994
Wyoming	52,590	52,583	7
United States			19,239
United States (across states)	N/A	29,030,771	N/A

Table A.7 Medicaid Enrollees who Received Dental Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	173,815	173,788	27
Alaska	40,811	40,808	3
Arizona	472	472	0
Arkansas	127,844	127,833	11
California	2,063,131	2,063,130	1
Colorado	122,192	122,171	21
Connecticut	37,876	37,874	2
Delaware	25,954	25,952	2
District of Columbia	2,587	2,587	0
Florida	333,788	333,786	2
Georgia	382,862	382,862	0
Hawaii	59,444	59,439	5
Idaho	76,368	76,366	2
Illinois	605,146	604,717	429
Indiana	349,317	349,311	6
Iowa	131,483	131,432	51
Kansas	79,312	79,311	1
Kentucky	237,388	237,388	0
Louisiana	227,266	227,266	0
Maine	0	0	0
Maryland	140,875	140,875	0
Massachusetts	358,951	358,949	2
Michigan	396,869	396,863	6
Minnesota	225,159	225,156	3
Mississippi	149,336	149,311	25
Missouri	150,873	150,873	0
Montana	21,711	21,711	0
Nebraska	103,178	103,165	13
Nevada	43,391	43,391	0
New Hampshire	41,502	41,499	3
New Jersey	255,061	255,041	20
New Mexico	161,936	161,936	0
New York	1,301,431	1,299,850	1,581
North Carolina	493,488	493,486	2
North Dakota	18,742	18,742	0
Ohio	376,188	375,530	658
Oklahoma	201,496	201,434	62
Oregon	143,057	143,038	19
Pennsylvania	157,106	157,105	1
Rhode Island	59,011	59,011	0
South Carolina	264,556	264,551	5
South Dakota	16,878	16,846	32
Tennessee	288,768	288,751	17
Texas	1,243,760	1,243,470	290
Utah	86,032	86,030	2
Vermont	46,974	46,974	0
Virginia	179,229	179,203	26
Washington	386,072	386,065	7
West Virginia	96,074	96,072	2
Wisconsin	198,299	198,285	14
Wyoming	20,095	20,094	1
United States			3,354
United States (across states)	N/A	12,514,495	N/A

Table A.7 Medicaid Enrollees who Received Other Practitioner Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	110,025	110,018	7
Alaska	19,250	19,249	1
Arizona	157,241	157,241	0
Arkansas	116,043	116,029	14
California	676,826	676,824	2
Colorado	14,757	14,757	0
Connecticut	36,500	36,498	2
Delaware	48,464	48,464	0
District of Columbia	7,530	7,529	1
Florida	218,941	218,941	0
Georgia	252,191	252,191	0
Hawaii	18,872	18,872	0
Idaho	48,608	48,608	0
Illinois	219,406	219,373	33
Indiana	59,617	59,617	0
Iowa	121,934	121,920	14
Kansas	41,644	41,644	0
Kentucky	214,293	214,293	0
Louisiana	168,140	168,140	0
Maine	0	0	0
Maryland	21,928	21,928	0
Massachusetts	105,263	105,263	0
Michigan	91,112	91,112	0
Minnesota	166,579	166,574	5
Mississippi	200,945	200,869	76
Missouri	124,836	124,836	0
Montana	21,312	21,312	0
Nebraska	70,856	70,855	1
Nevada	14,854	14,854	0
New Hampshire	22,104	22,104	0
New Jersey	87,020	87,016	4
New Mexico	66,200	66,200	0
New York	291,979	291,832	147
North Carolina	231,911	231,911	0
North Dakota	19,685	19,682	3
Ohio	297,387	297,264	123
Oklahoma	66,253	66,247	6
Oregon	65,293	65,285	8
Pennsylvania	79,456	79,456	0
Rhode Island	44,921	44,921	0
South Carolina	145,401	145,401	0
South Dakota	46,325	46,182	143
Tennessee	227,459	227,455	4
Texas	429,190	429,145	45
Utah	21,434	21,433	1
Vermont	14,816	14,816	0
Virginia	43,120	43,120	0
Washington	123,770	123,770	0
West Virginia	36,189	36,189	0
Wisconsin	145,231	145,197	34
Wyoming	11,680	11,679	1
United States			675
United States (across states)	N/A	5,790,694	N/A

Table A.7 Medicaid Enrollees who Received Outpatient Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	233,014	232,962	52
Alaska	42,658	42,658	0
Arizona	501,354	501,348	6
Arkansas	248,599	248,523	76
California	2,021,747	2,021,744	3
Colorado	159,699	159,682	17
Connecticut	88,340	88,331	9
Delaware	18,527	18,527	0
District of Columbia	19,179	19,176	3
Florida	581,484	581,477	7
Georgia	560,260	560,259	1
Hawaii	59,243	59,240	3
Idaho	77,056	77,056	0
Illinois	696,268	695,224	1,044
Indiana	385,342	385,336	6
Iowa	173,109	173,070	39
Kansas	112,211	112,211	0
Kentucky	397,912	397,912	0
Louisiana	435,899	435,899	0
Maine	0	0	0
Maryland	286,375	286,371	4
Massachusetts	391,262	391,253	9
Michigan	289,214	289,209	5
Minnesota	280,175	280,172	3
Mississippi	322,114	321,873	241
Missouri	517,614	517,613	1
Montana	42,465	42,465	0
Nebraska	97,711	97,707	4
Nevada	41,021	41,021	0
New Hampshire	55,643	55,643	0
New Jersey	380,505	380,480	25
New Mexico	184,683	184,683	0
New York	1,913,229	1,906,686	6,543
North Carolina	665,175	665,175	0
North Dakota	24,884	24,873	11
Ohio	743,037	741,586	1,451
Oklahoma	308,363	308,161	202
Oregon	172,907	172,879	28
Pennsylvania	220,501	220,499	2
Rhode Island	90,177	90,176	1
South Carolina	284,059	284,054	5
South Dakota	38,233	38,187	46
Tennessee	404,770	404,764	6
Texas	918,456	918,156	300
Utah	48,687	48,686	1
Vermont	55,056	55,056	0
Virginia	17,076	17,075	1
Washington	209,692	209,689	3
West Virginia	111,961	111,959	2
Wisconsin	373,213	372,827	386
Wyoming	29,640	29,639	1
United States			10,547
United States (across states)	N/A	16,010,188	N/A

Table A.7 Medicaid Enrollees who Received Clinic Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	221,410	221,348	62
Alaska	35,530	35,530	0
Arizona	128,691	128,684	7
Arkansas	228,581	228,520	61
California	2,661,687	2,661,685	2
Colorado	364,481	364,411	70
Connecticut	42,746	42,739	7
Delaware	9,009	9,009	0
District of Columbia	17,970	17,967	3
Florida	276,752	276,751	1
Georgia	385,091	385,091	0
Hawaii	23,211	23,209	2
Idaho	57,464	57,463	1
Illinois	469,640	468,952	688
Indiana	312,715	312,707	8
Iowa	171,974	171,935	39
Kansas	93,841	93,839	2
Kentucky	221,827	221,827	0
Louisiana	157,527	157,527	0
Maine	0	0	0
Maryland	33,529	33,529	0
Massachusetts	95,769	95,767	2
Michigan	164,028	164,025	3
Minnesota	49,004	49,004	0
Mississippi	203,537	203,410	127
Missouri	508,068	508,064	4
Montana	16,806	16,806	0
Nebraska	41,198	41,193	5
Nevada	20,167	20,167	0
New Hampshire	37,294	37,293	1
New Jersey	68,928	68,923	5
New Mexico	45,611	45,611	0
New York	965,971	963,642	2,329
North Carolina	458,240	458,238	2
North Dakota	22,321	22,312	9
Ohio	232,578	232,336	242
Oklahoma	141,624	141,565	59
Oregon	70,970	70,961	9
Pennsylvania	79,125	79,125	0
Rhode Island	47,001	47,001	0
South Carolina	344,609	344,602	7
South Dakota	41,986	41,841	145
Tennessee	214,809	214,797	12
Texas	304,282	304,195	87
Utah	120,973	120,967	6
Vermont	31,318	31,318	0
Virginia	90,280	90,271	9
Washington	110,929	110,928	1
West Virginia	71,428	71,425	3
Wisconsin	404,368	404,035	333
Wyoming	16,101	16,099	2
United States			4,355
United States (across states)	N/A	10,740,336	N/A

Table A.7 Medicaid Enrollees who Received Home Health Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	51,213	51,203	10
Alaska	351	351	0
Arizona	9,798	9,798	0
Arkansas	6,491	6,490	1
California	38,604	38,604	0
Colorado	10,220	10,214	6
Connecticut	22,030	22,029	1
Delaware	1,321	1,321	0
District of Columbia	3,390	3,390	0
Florida	27,218	27,218	0
Georgia	7,259	7,259	0
Hawaii	5,286	5,286	0
Idaho	1,825	1,825	0
Illinois	13,393	13,365	28
Indiana	22,278	22,278	0
Iowa	27,860	27,855	5
Kansas	6,000	6,000	0
Kentucky	20,190	20,190	0
Louisiana	10,428	10,428	0
Maine	0	0	0
Maryland	19,663	19,663	0
Massachusetts	35,198	35,197	1
Michigan	7,068	7,068	0
Minnesota	74,579	74,578	1
Mississippi	7,687	7,683	4
Missouri	6,023	6,023	0
Montana	415	415	0
Nebraska	5,633	5,633	0
Nevada	825	825	0
New Hampshire	2,882	2,882	0
New Jersey	14,426	14,424	2
New Mexico	3,857	3,857	0
New York	267,084	266,650	434
North Carolina	38,229	38,229	0
North Dakota	1,393	1,391	2
Ohio	43,415	43,346	69
Oklahoma	7,293	7,290	3
Oregon	2,533	2,533	0
Pennsylvania	16,760	16,759	1
Rhode Island	9,377	9,377	0
South Carolina	3,232	3,232	0
South Dakota	457	455	2
Tennessee	20,621	20,620	1
Texas	23,388	23,383	5
Utah	1,970	1,970	0
Vermont	3,542	3,542	0
Virginia	5,709	5,709	0
Washington	18	18	0
West Virginia	1,988	1,988	0
Wisconsin	7,997	7,984	13
Wyoming	591	591	0
United States			589
United States (across states)	N/A	908,455	N/A

Table A.7 Medicaid Enrollees who Received Lab/Xray Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	490,566	490,394	172
Alaska	61,206	61,206	0
Arizona	668,591	668,575	16
Arkansas	375,854	375,699	155
California	4,538,162	4,538,159	3
Colorado	228,050	228,024	26
Connecticut	98,632	98,624	8
Delaware	92,320	92,319	1
District of Columbia	31,871	31,864	7
Florida	966,648	966,610	38
Georgia	797,856	797,852	4
Hawaii	110,958	110,945	13
Idaho	102,446	102,444	2
Illinois	1,096,952	1,094,462	2,490
Indiana	490,596	490,585	11
Iowa	247,933	247,886	47
Kansas	174,111	174,109	2
Kentucky	495,555	495,555	0
Louisiana	609,005	609,005	0
Maine	0	0	0
Maryland	315,915	315,914	1
Massachusetts	417,809	417,800	9
Michigan	273,450	273,445	5
Minnesota	425,800	425,795	5
Mississippi	403,028	402,639	389
Missouri	579,806	579,806	0
Montana	49,897	49,897	0
Nebraska	150,575	150,569	6
Nevada	91,183	91,183	0
New Hampshire	61,282	61,282	0
New Jersey	512,168	512,141	27
New Mexico	225,939	225,939	0
New York	2,210,127	2,204,618	5,509
North Carolina	971,587	971,587	0
North Dakota	34,695	34,684	11
Ohio	695,728	694,200	1,528
Oklahoma	367,171	366,938	233
Oregon	233,419	233,369	50
Pennsylvania	324,427	324,425	2
Rhode Island	131,373	131,373	0
South Carolina	413,996	413,990	6
South Dakota	59,072	58,770	302
Tennessee	744,703	744,676	27
Texas	1,807,844	1,807,017	827
Utah	100,425	100,419	6
Vermont	83,095	83,095	0
Virginia	432,415	432,320	95
Washington	506,543	506,532	11
West Virginia	138,475	138,468	7
Wisconsin	519,706	519,368	338
Wyoming	39,220	39,216	4
United States			12,393
United States (across states)	N/A	24,568,469	N/A

Table A.7 Medicaid Enrollees who Received Drug Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	531,227	530,982	245
Alaska	67,854	67,853	1
Arizona	729,327	729,299	28
Arkansas	457,535	457,408	127
California	5,188,379	5,188,363	16
Colorado	254,945	254,878	67
Connecticut	116,428	116,422	6
Delaware	112,897	112,894	3
District of Columbia	31,586	31,582	4
Florida	1,080,996	1,080,948	48
Georgia	1,038,665	1,038,663	2
Hawaii	152,102	152,080	22
Idaho	129,588	129,582	6
Illinois	1,467,608	1,463,976	3,632
Indiana	610,276	610,252	24
Iowa	278,239	278,067	172
Kansas	223,415	223,411	4
Kentucky	629,366	629,366	0
Louisiana	707,806	707,806	0
Maine	210,669	210,669	0
Maryland	463,974	463,969	5
Massachusetts	521,231	521,219	12
Michigan	589,121	589,103	18
Minnesota	493,560	493,559	1
Mississippi	428,193	427,733	460
Missouri	741,211	741,209	2
Montana	60,651	60,651	0
Nebraska	192,161	192,134	27
Nevada	81,851	81,850	1
New Hampshire	88,129	88,125	4
New Jersey	715,713	715,639	74
New Mexico	310,991	310,991	0
New York	3,053,643	3,041,074	12,569
North Carolina	1,034,092	1,034,091	1
North Dakota	41,858	41,858	0
Ohio	967,421	964,424	2,997
Oklahoma	431,938	431,487	451
Oregon	222,338	222,245	93
Pennsylvania	489,167	489,160	7
Rhode Island	154,845	154,844	1
South Carolina	519,461	519,440	21
South Dakota	71,137	70,598	539
Tennessee	847,233	847,176	57
Texas	2,625,505	2,624,001	1,504
Utah	184,247	184,234	13
Vermont	113,901	113,901	0
Virginia	538,699	538,569	130
Washington	739,279	739,249	30
West Virginia	269,610	269,594	16
Wisconsin	684,398	683,271	1,127
Wyoming	47,005	46,999	6
United States			24,573
United States (across states)	N/A	31,170,168	N/A

Table A.7 Medicaid Enrollees who Received Other Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	36,283	36,280	3
Alaska	7,611	7,611	0
Arizona	103,829	103,827	2
Arkansas	62,952	62,877	75
California	1,280,646	1,280,642	4
Colorado	29,309	29,305	4
Connecticut	30,306	30,295	11
Delaware	24,454	24,454	0
District of Columbia	20,851	20,844	7
Florida	573,225	573,213	12
Georgia	77,546	77,546	0
Hawaii	28,276	28,274	2
Idaho	26,395	26,394	1
Illinois	114,194	114,124	70
Indiana	187,358	187,353	5
Iowa	50,299	50,278	21
Kansas	53,864	53,863	1
Kentucky	243,598	243,598	0
Louisiana	429,126	429,126	0
Maine	0	0	0
Maryland	61,005	61,005	0
Massachusetts	111,543	111,542	1
Michigan	42,697	42,696	1
Minnesota	122,586	122,585	1
Mississippi	101,826	101,799	27
Missouri	272,867	272,867	0
Montana	97,518	97,518	0
Nebraska	32,818	32,818	0
Nevada	14,394	14,394	0
New Hampshire	11,366	11,365	1
New Jersey	183,640	183,625	15
New Mexico	89,720	89,720	0
New York	946,331	944,276	2,055
North Carolina	241,445	241,445	0
North Dakota	8,599	8,595	4
Ohio	127,719	127,685	34
Oklahoma	61,679	61,658	21
Oregon	34,847	34,844	3
Pennsylvania	119,550	119,544	6
Rhode Island	43,832	43,832	0
South Carolina	10,325	10,325	0
South Dakota	6,823	6,821	2
Tennessee	17,120	17,120	0
Texas	551,510	551,424	86
Utah	11,655	11,654	1
Vermont	21,424	21,424	0
Virginia	56,758	56,752	6
Washington	161,415	161,408	7
West Virginia	48,940	48,935	5
Wisconsin	153,014	152,958	56
Wyoming	19,896	19,892	4
United States			2,554
United States (across states)	N/A	7,061,097	N/A

Table A.7 Medicaid Enrollees who Received Sterilization Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	2,896	2,896	0
Alaska	386	386	0
Arizona	3,801	3,801	0
Arkansas	4,034	4,034	0
California	22,613	22,613	0
Colorado	1,948	1,948	0
Connecticut	278	278	0
Delaware	733	733	0
District of Columbia	50	50	0
Florida	7,258	7,258	0
Georgia	4,558	4,558	0
Hawaii	650	650	0
Idaho	1,095	1,095	0
Illinois	5,536	5,536	0
Indiana	1,796	1,796	0
Iowa	0	0	0
Kansas	1,158	1,158	0
Kentucky	4,881	4,881	0
Louisiana	6,233	6,233	0
Maine	0	0	0
Maryland	1,196	1,196	0
Massachusetts	1,246	1,246	0
Michigan	2,806	2,806	0
Minnesota	1,841	1,841	0
Mississippi	5,546	5,546	0
Missouri	1,920	1,920	0
Montana	3	3	0
Nebraska	1,518	1,518	0
Nevada	4,486	4,486	0
New Hampshire	688	688	0
New Jersey	413	413	0
New Mexico	804	804	0
New York	3,162	3,162	0
North Carolina	8,149	8,149	0
North Dakota	286	286	0
Ohio	5,333	5,333	0
Oklahoma	5,971	5,971	0
Oregon	1,993	1,993	0
Pennsylvania	1,810	1,810	0
Rhode Island	482	482	0
South Carolina	5,116	5,116	0
South Dakota	0	0	0
Tennessee	10,255	10,255	0
Texas	22,921	22,918	3
Utah	947	947	0
Vermont	683	683	0
Virginia	4,687	4,687	0
Washington	1,119	1,119	0
West Virginia	0	0	0
Wisconsin	3,772	3,772	0
Wyoming	480	480	0
United States			3
United States (across states)	N/A	166,669	N/A

Table A.7 Medicaid Enrollees who Received Abortion Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	1,421	1,421	0
Alaska	1	1	0
Arizona	4,182	4,182	0
Arkansas	1	1	0
California	0	0	0
Colorado	13	13	0
Connecticut	0	0	0
Delaware	61	61	0
District of Columbia	1	1	0
Florida	66	66	0
Georgia	131	131	0
Hawaii	1,538	1,538	0
Idaho	0	0	0
Illinois	328	328	0
Indiana	0	0	0
Iowa	0	0	0
Kansas	2	2	0
Kentucky	859	859	0
Louisiana	18	18	0
Maine	0	0	0
Maryland	3,351	3,351	0
Massachusetts	0	0	0
Michigan	20	20	0
Minnesota	23	23	0
Mississippi	0	0	0
Missouri	30	30	0
Montana	1,265	1,265	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	2	2	0
New Jersey	0	0	0
New Mexico	11	11	0
New York	9	9	0
North Carolina	15	15	0
North Dakota	75	75	0
Ohio	14	14	0
Oklahoma	175	175	0
Oregon	3,236	3,236	0
Pennsylvania	0	0	0
Rhode Island	402	402	0
South Carolina	5	5	0
South Dakota	0	0	0
Tennessee	8,451	8,451	0
Texas	6,081	6,081	0
Utah	0	0	0
Vermont	42	42	0
Virginia	115	115	0
Washington	140	140	0
West Virginia	1	1	0
Wisconsin	0	0	0
Wyoming	1	1	0
United States			0
United States (across states)	N/A	31,464	N/A

Table A.7 Medicaid Enrollees who Received Transportation Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	46,790	46,782	8
Alaska	22,958	22,958	0
Arizona	154,541	154,540	1
Arkansas	551,352	551,061	291
California	291,028	291,024	4
Colorado	17,618	17,618	0
Connecticut	34,074	34,073	1
Delaware	15,745	15,745	0
District of Columbia	13,394	13,392	2
Florida	173,938	173,930	8
Georgia	76,896	76,896	0
Hawaii	14,218	14,218	0
Idaho	15,611	15,611	0
Illinois	160,212	160,076	136
Indiana	73,698	73,698	0
Iowa	16,891	16,891	0
Kansas	22,105	22,105	0
Kentucky	76,200	76,200	0
Louisiana	96,301	96,301	0
Maine	0	0	0
Maryland	27,402	27,402	0
Massachusetts	92,805	92,804	1
Michigan	30,766	30,766	0
Minnesota	66,127	66,124	3
Mississippi	63,358	63,312	46
Missouri	80,506	80,506	0
Montana	5,211	5,211	0
Nebraska	22,950	22,950	0
Nevada	16,604	16,604	0
New Hampshire	7,287	7,287	0
New Jersey	90,358	90,307	51
New Mexico	30,122	30,122	0
New York	446,686	445,757	929
North Carolina	132,438	132,438	0
North Dakota	5,384	5,381	3
Ohio	157,435	157,387	48
Oklahoma	39,384	39,376	8
Oregon	51,890	51,884	6
Pennsylvania	29,171	29,170	1
Rhode Island	12,888	12,888	0
South Carolina	55,210	55,209	1
South Dakota	9,662	9,656	6
Tennessee	113,438	113,437	1
Texas	231,390	231,353	37
Utah	12,346	12,346	0
Vermont	15,718	15,717	1
Virginia	90,928	90,922	6
Washington	29,906	29,906	0
West Virginia	35,471	35,468	3
Wisconsin	70,214	70,202	12
Wyoming	3,010	3,010	0
United States			1,614
United States (across states)	N/A	3,864,848	N/A

Table A.7 Medicaid Enrollees who Received Personal Care Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	4,600	4,600	0
Arizona	8,656	8,656	0
Arkansas	14,816	14,814	2
California	392,778	392,770	8
Colorado	0	0	0
Connecticut	13,257	13,257	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	7,095	7,093	2
Georgia	0	0	0
Hawaii	0	0	0
Idaho	6,628	6,628	0
Illinois	22,261	22,257	4
Indiana	0	0	0
Iowa	0	0	0
Kansas	359	359	0
Kentucky	0	0	0
Louisiana	8,792	8,792	0
Maine	0	0	0
Maryland	4,727	4,727	0
Massachusetts	10,279	10,279	0
Michigan	0	0	0
Minnesota	44,441	44,438	3
Mississippi	356	356	0
Missouri	45,497	45,497	0
Montana	3,104	3,104	0
Nebraska	2,017	2,016	1
Nevada	5,441	5,441	0
New Hampshire	171	171	0
New Jersey	27,562	27,553	9
New Mexico	11,263	11,263	0
New York	97,568	97,467	101
North Carolina	78,675	78,675	0
North Dakota	1,445	1,445	0
Ohio	0	0	0
Oklahoma	4,016	4,016	0
Oregon	7,967	7,967	0
Pennsylvania	1	1	0
Rhode Island	1,418	1,418	0
South Carolina	17,721	17,721	0
South Dakota	2,326	2,326	0
Tennessee	0	0	0
Texas	1,603	1,603	0
Utah	473	473	0
Vermont	2,007	2,007	0
Virginia	12,537	12,537	0
Washington	25,342	25,342	0
West Virginia	5,528	5,527	1
Wisconsin	13,920	13,920	0
Wyoming	0	0	0
United States			131
United States (across states)	N/A	898,768	N/A

Table A.7 Medicaid Enrollees who Received Targeted Case Management Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	30,536	30,499	37
Alaska	5,150	5,150	0
Arizona	0	0	0
Arkansas	16,670	16,663	7
California	202,281	202,280	1
Colorado	0	0	0
Connecticut	15,004	15,002	2
Delaware	0	0	0
District of Columbia	0	0	0
Florida	73,607	73,605	2
Georgia	213,010	213,008	2
Hawaii	1,992	1,992	0
Idaho	8,476	8,476	0
Illinois	748,829	747,785	1,044
Indiana	12,056	12,056	0
Iowa	11,379	11,372	7
Kansas	18,926	18,924	2
Kentucky	16,115	16,115	0
Louisiana	11,878	11,878	0
Maine	0	0	0
Maryland	10,597	10,597	0
Massachusetts	33,346	33,346	0
Michigan	52,281	52,281	0
Minnesota	104,404	104,399	5
Mississippi	36,117	36,073	44
Missouri	38,211	38,210	1
Montana	10,557	10,557	0
Nebraska	0	0	0
Nevada	10,084	10,084	0
New Hampshire	0	0	0
New Jersey	4,105	4,104	1
New Mexico	21,938	21,938	0
New York	35,252	35,155	97
North Carolina	141,390	141,390	0
North Dakota	3,876	3,875	1
Ohio	1	1	0
Oklahoma	40,505	40,449	56
Oregon	45,430	45,393	37
Pennsylvania	72,592	72,590	2
Rhode Island	8,049	8,049	0
South Carolina	42,035	42,032	3
South Dakota	0	0	0
Tennessee	0	0	0
Texas	201,227	201,079	148
Utah	150	150	0
Vermont	6,354	6,354	0
Virginia	5,376	5,376	0
Washington	2,591	2,591	0
West Virginia	5,686	5,686	0
Wisconsin	36,920	36,889	31
Wyoming	2,307	2,307	0
United States			1,530
United States (across states)	N/A	2,312,953	N/A

Table A.7 Medicaid Enrollees who Received Rehabilitation Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	4,543	4,540	3
Alaska	162	162	0
Arizona	22,919	22,918	1
Arkansas	59	59	0
California	115,693	115,693	0
Colorado	0	0	0
Connecticut	6,665	6,664	1
Delaware	580	580	0
District of Columbia	144	144	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	170	170	0
Idaho	4,083	4,083	0
Illinois	13,344	13,338	6
Indiana	63,433	63,428	5
Iowa	2,482	2,477	5
Kansas	4,054	4,054	0
Kentucky	120	120	0
Louisiana	4,875	4,875	0
Maine	0	0	0
Maryland	3,415	3,415	0
Massachusetts	69,987	69,987	0
Michigan	24	24	0
Minnesota	10,677	10,676	1
Mississippi	125	125	0
Missouri	11,673	11,673	0
Montana	377	377	0
Nebraska	1	1	0
Nevada	7,108	7,108	0
New Hampshire	2,285	2,285	0
New Jersey	27,887	27,887	0
New Mexico	841	841	0
New York	119,090	118,799	291
North Carolina	0	0	0
North Dakota	9,453	9,453	0
Ohio	43,254	43,229	25
Oklahoma	0	0	0
Oregon	28,468	28,461	7
Pennsylvania	9,371	9,370	1
Rhode Island	6,711	6,711	0
South Carolina	7,095	7,093	2
South Dakota	767	765	2
Tennessee	8,165	8,165	0
Texas	44,431	44,423	8
Utah	478	478	0
Vermont	6	6	0
Virginia	3,694	3,694	0
Washington	4,986	4,986	0
West Virginia	20,966	20,965	1
Wisconsin	7,791	7,782	9
Wyoming	3,480	3,480	0
United States			368
United States (across states)	N/A	685,542	N/A

Table A.7 Medicaid Enrollees who Received PT/OT/Hearing/Speech Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	4,925	4,922	3
Alaska	5,973	5,973	0
Arizona	9,430	9,430	0
Arkansas	19,775	19,772	3
California	50,672	50,672	0
Colorado	1,896	1,891	5
Connecticut	3,043	3,043	0
Delaware	7,496	7,496	0
District of Columbia	0	0	0
Florida	72,857	72,854	3
Georgia	1,651	1,651	0
Hawaii	2,957	2,957	0
Idaho	9,625	9,625	0
Illinois	101,145	100,911	234
Indiana	23,720	23,720	0
Iowa	4,985	4,985	0
Kansas	1,927	1,927	0
Kentucky	3,524	3,524	0
Louisiana	68,729	68,729	0
Maine	0	0	0
Maryland	59,698	59,698	0
Massachusetts	8,072	8,072	0
Michigan	82	82	0
Minnesota	27,382	27,381	1
Mississippi	5,488	5,481	7
Missouri	3,994	3,994	0
Montana	9	9	0
Nebraska	14,058	14,056	2
Nevada	3,067	3,067	0
New Hampshire	1,849	1,849	0
New Jersey	0	0	0
New Mexico	23,762	23,762	0
New York	33,205	33,201	4
North Carolina	25,975	25,975	0
North Dakota	2,040	2,040	0
Ohio	16,307	16,306	1
Oklahoma	1,897	1,897	0
Oregon	6,612	6,606	6
Pennsylvania	9,362	9,362	0
Rhode Island	390	390	0
South Carolina	7,346	7,346	0
South Dakota	5,135	5,117	18
Tennessee	14,420	14,420	0
Texas	12,120	12,120	0
Utah	5,699	5,699	0
Vermont	4,192	4,192	0
Virginia	4,733	4,733	0
Washington	16,361	16,360	1
West Virginia	15,496	15,496	0
Wisconsin	15,745	15,736	9
Wyoming	499	499	0
United States			297
United States (across states)	N/A	727,875	N/A

Table A.7 Medicaid Enrollees who Received Hospice Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	3,850	3,850	0
Alaska	29	29	0
Arizona	0	0	0
Arkansas	1,893	1,893	0
California	14,307	14,307	0
Colorado	2,701	2,701	0
Connecticut	35	35	0
Delaware	495	495	0
District of Columbia	214	214	0
Florida	17,449	17,449	0
Georgia	5,449	5,449	0
Hawaii	120	120	0
Idaho	322	322	0
Illinois	7,528	7,528	0
Indiana	4,935	4,935	0
Iowa	0	0	0
Kansas	2,707	2,707	0
Kentucky	2,796	2,796	0
Louisiana	3,932	3,932	0
Maine	0	0	0
Maryland	2,142	2,142	0
Massachusetts	5,016	5,016	0
Michigan	875	875	0
Minnesota	2,771	2,771	0
Mississippi	2,211	2,211	0
Missouri	1,191	1,191	0
Montana	266	266	0
Nebraska	1,189	1,189	0
Nevada	741	741	0
New Hampshire	0	0	0
New Jersey	3,977	3,977	0
New Mexico	1,052	1,052	0
New York	7,176	7,175	1
North Carolina	5,701	5,701	0
North Dakota	377	377	0
Ohio	2,128	2,128	0
Oklahoma	79	79	0
Oregon	565	565	0
Pennsylvania	960	960	0
Rhode Island	1,014	1,014	0
South Carolina	2,647	2,647	0
South Dakota	304	304	0
Tennessee	6,700	6,700	0
Texas	16,697	16,696	1
Utah	997	997	0
Vermont	101	101	0
Virginia	2,418	2,418	0
Washington	2,395	2,394	1
West Virginia	780	780	0
Wisconsin	3,010	3,010	0
Wyoming	83	83	0
United States			3
United States (across states)	N/A	143,193	N/A

Table A.7 Medicaid Enrollees who Received Nurse Midwife Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	3,930	3,930	0
Alaska	2,208	2,208	0
Arizona	7,084	7,084	0
Arkansas	896	896	0
California	11,915	11,915	0
Colorado	588	588	0
Connecticut	1,360	1,360	0
Delaware	55	55	0
District of Columbia	0	0	0
Florida	1,207	1,207	0
Georgia	16,494	16,494	0
Hawaii	0	0	0
Idaho	0	0	0
Illinois	1,433	1,430	3
Indiana	784	784	0
Iowa	1,689	1,689	0
Kansas	704	704	0
Kentucky	0	0	0
Louisiana	29,923	29,923	0
Maine	0	0	0
Maryland	7,699	7,699	0
Massachusetts	2,405	2,405	0
Michigan	3,676	3,676	0
Minnesota	8,897	8,897	0
Mississippi	0	0	0
Missouri	1,273	1,273	0
Montana	0	0	0
Nebraska	0	0	0
Nevada	308	308	0
New Hampshire	0	0	0
New Jersey	744	744	0
New Mexico	10,454	10,454	0
New York	6,636	6,633	3
North Carolina	1,533	1,533	0
North Dakota	522	522	0
Ohio	0	0	0
Oklahoma	110	110	0
Oregon	2,466	2,466	0
Pennsylvania	2,496	2,496	0
Rhode Island	0	0	0
South Carolina	7,095	7,095	0
South Dakota	986	984	2
Tennessee	4,397	4,397	0
Texas	9,856	9,851	5
Utah	0	0	0
Vermont	0	0	0
Virginia	1,768	1,768	0
Washington	1,911	1,911	0
West Virginia	1,842	1,842	0
Wisconsin	650	650	0
Wyoming	0	0	0
United States			13
United States (across states)	N/A	154,655	N/A

Table A.7 Medicaid Enrollees who Received Nurse Practitioner Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	12,123	12,123	0
Arizona	112,270	112,270	0
Arkansas	5,433	5,429	4
California	56,069	56,069	0
Colorado	623	623	0
Connecticut	13,634	13,634	0
Delaware	66	66	0
District of Columbia	789	789	0
Florida	164,299	164,299	0
Georgia	143,039	143,039	0
Hawaii	10,143	10,143	0
Idaho	26,638	26,638	0
Illinois	38,292	38,277	15
Indiana	4,440	4,440	0
Iowa	28,288	28,282	6
Kansas	24,051	24,051	0
Kentucky	94,261	94,261	0
Louisiana	97,046	97,046	0
Maine	0	0	0
Maryland	37,156	37,156	0
Massachusetts	29,501	29,501	0
Michigan	22,001	22,001	0
Minnesota	113,919	113,916	3
Mississippi	127,567	127,518	49
Missouri	4,001	4,001	0
Montana	27,684	27,684	0
Nebraska	9,311	9,311	0
Nevada	17,067	17,067	0
New Hampshire	1,025	1,025	0
New Jersey	14,609	14,609	0
New Mexico	49,949	49,949	0
New York	113,286	113,243	43
North Carolina	1	1	0
North Dakota	6,668	6,667	1
Ohio	150,360	150,237	123
Oklahoma	13,498	13,495	3
Oregon	60,360	60,355	5
Pennsylvania	498	498	0
Rhode Island	11	11	0
South Carolina	20,285	20,285	0
South Dakota	0	0	0
Tennessee	149,554	149,552	2
Texas	129,800	129,773	27
Utah	13,428	13,428	0
Vermont	2,598	2,598	0
Virginia	20,523	20,522	1
Washington	11,983	11,983	0
West Virginia	28,982	28,981	1
Wisconsin	37,022	37,001	21
Wyoming	10,165	10,165	0
United States			304
United States (across states)	N/A	2,015,380	N/A

Table A.7 Medicaid Enrollees who Received Private Nursing Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	46	46	0
Alaska	74	74	0
Arizona	6	6	0
Arkansas	129	129	0
California	1,811	1,811	0
Colorado	184	183	1
Connecticut	0	0	0
Delaware	2,789	2,789	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	694	694	0
Hawaii	797	797	0
Idaho	1,584	1,584	0
Illinois	719	715	4
Indiana	0	0	0
Iowa	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	736	736	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	2,123	2,123	0
Mississippi	1	1	0
Missouri	51	51	0
Montana	0	0	0
Nebraska	176	176	0
Nevada	0	0	0
New Hampshire	129	129	0
New Jersey	426	426	0
New Mexico	5	5	0
New York	9,168	9,157	11
North Carolina	0	0	0
North Dakota	0	0	0
Ohio	15,304	15,261	43
Oklahoma	0	0	0
Oregon	0	0	0
Pennsylvania	241	241	0
Rhode Island	0	0	0
South Carolina	22	22	0
South Dakota	3	3	0
Tennessee	0	0	0
Texas	164	164	0
Utah	18	18	0
Vermont	0	0	0
Virginia	510	509	1
Washington	338	338	0
West Virginia	615	615	0
Wisconsin	519	518	1
Wyoming	0	0	0
United States			61
United States (across states)	N/A	38,752	N/A

Table A.7 Medicaid Enrollees who Received Religious Non-Medical Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	0	0	0
Arizona	0	0	0
Arkansas	0	0	0
California	0	0	0
Colorado	0	0	0
Connecticut	0	0	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	0	0	0
Hawaii	0	0	0
Idaho	0	0	0
Illinois	0	0	0
Indiana	0	0	0
Iowa	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	0	0	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	0	0	0
Mississippi	0	0	0
Missouri	0	0	0
Montana	0	0	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	0	0	0
New Jersey	0	0	0
New Mexico	0	0	0
New York	0	0	0
North Carolina	0	0	0
North Dakota	0	0	0
Ohio	0	0	0
Oklahoma	0	0	0
Oregon	0	0	0
Pennsylvania	0	0	0
Rhode Island	0	0	0
South Carolina	0	0	0
South Dakota	0	0	0
Tennessee	0	0	0
Texas	0	0	0
Utah	0	0	0
Vermont	0	0	0
Virginia	0	0	0
Washington	0	0	0
West Virginia	0	0	0
Wisconsin	0	0	0
Wyoming	0	0	0
United States			0
United States (across states)	N/A	0	N/A

Table A.7 Medicaid Enrollees who Received Durable Medical Equipment Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	146,099	146,085	14
Alaska	29,979	29,979	0
Arizona	253,312	253,308	4
Arkansas	150,296	150,270	26
California	2,956,977	2,956,969	8
Colorado	118,787	118,775	12
Connecticut	74,584	74,581	3
Delaware	30,782	30,782	0
District of Columbia	19,619	19,615	4
Florida	348,389	348,383	6
Georgia	398,791	398,790	1
Hawaii	38,088	38,087	1
Idaho	42,551	42,551	0
Illinois	405,091	404,823	268
Indiana	286,208	286,205	3
Iowa	152,197	152,173	24
Kansas	62,235	62,235	0
Kentucky	203,065	203,065	0
Louisiana	284,837	284,837	0
Maine	0	0	0
Maryland	151,885	151,885	0
Massachusetts	167,390	167,388	2
Michigan	169,199	169,197	2
Minnesota	198,542	198,537	5
Mississippi	213,264	213,184	80
Missouri	217,553	217,553	0
Montana	29,716	29,716	0
Nebraska	95,314	95,312	2
Nevada	33,228	33,228	0
New Hampshire	34,955	34,955	0
New Jersey	228,185	228,169	16
New Mexico	122,818	122,818	0
New York	613,928	613,456	472
North Carolina	461,172	461,172	0
North Dakota	20,019	20,014	5
Ohio	366,209	365,899	310
Oklahoma	192,797	192,732	65
Oregon	120,757	120,745	12
Pennsylvania	94,338	94,336	2
Rhode Island	31,724	31,724	0
South Carolina	182,637	182,634	3
South Dakota	30,611	30,535	76
Tennessee	191,815	191,813	2
Texas	879,246	879,103	143
Utah	39,126	39,126	0
Vermont	22,190	22,190	0
Virginia	81,092	81,082	10
Washington	271,598	271,596	2
West Virginia	50,664	50,659	5
Wisconsin	272,916	272,821	95
Wyoming	15,965	15,963	2
United States			1,685
United States (across states)	N/A	11,432,740	N/A

Table A.7 Medicaid Enrollees who Received Residential Care Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	2,964	2,964	0
Alaska	851	851	0
Arizona	5,656	5,656	0
Arkansas	0	0	0
California	67,362	67,362	0
Colorado	4,561	4,559	2
Connecticut	6,593	6,592	1
Delaware	357	357	0
District of Columbia	0	0	0
Florida	9,033	9,033	0
Georgia	2,319	2,319	0
Hawaii	858	858	0
Idaho	4,946	4,946	0
Illinois	8,989	8,980	9
Indiana	5,769	5,769	0
Iowa	12,151	12,147	4
Kansas	4,384	4,384	0
Kentucky	2,437	2,437	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	353,607	353,604	3
Massachusetts	12,884	12,884	0
Michigan	5,721	5,721	0
Minnesota	11,189	11,187	2
Mississippi	90	90	0
Missouri	11,197	11,197	0
Montana	99	99	0
Nebraska	3,264	3,263	1
Nevada	1,218	1,218	0
New Hampshire	528	528	0
New Jersey	8,693	8,692	1
New Mexico	2,560	2,560	0
New York	45,712	45,655	57
North Carolina	21	21	0
North Dakota	675	675	0
Ohio	11,418	11,417	1
Oklahoma	4,294	4,292	2
Oregon	9,227	9,227	0
Pennsylvania	758	758	0
Rhode Island	2,207	2,207	0
South Carolina	362	362	0
South Dakota	1,290	1,278	12
Tennessee	4,560	4,560	0
Texas	2,438	2,437	1
Utah	1,216	1,216	0
Vermont	67	67	0
Virginia	0	0	0
Washington	37,029	37,029	0
West Virginia	3,599	3,599	0
Wisconsin	10,871	10,871	0
Wyoming	1,084	1,084	0
United States			96
United States (across states)	N/A	677,915	N/A

Table A.7 Medicaid Enrollees who Received Psychiatric Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	95,464	95,417	47
Alaska	17,237	17,237	0
Arizona	193,340	193,333	7
Arkansas	94,991	94,902	89
California	918,062	918,062	0
Colorado	34,897	34,894	3
Connecticut	59,504	59,455	49
Delaware	26,026	26,026	0
District of Columbia	16,613	16,613	0
Florida	202,631	202,628	3
Georgia	171,509	171,509	0
Hawaii	31,990	31,988	2
Idaho	31,560	31,557	3
Illinois	288,389	287,943	446
Indiana	143,838	143,827	11
Iowa	92,093	91,995	98
Kansas	63,845	63,843	2
Kentucky	152,918	152,918	0
Louisiana	63,596	63,596	0
Maine	0	0	0
Maryland	276,352	276,351	1
Massachusetts	142,944	142,944	0
Michigan	64,942	64,939	3
Minnesota	143,896	143,896	0
Mississippi	81,831	81,756	75
Missouri	126,368	126,367	1
Montana	17,480	17,480	0
Nebraska	49,620	49,604	16
Nevada	17,880	17,880	0
New Hampshire	29,473	29,470	3
New Jersey	125,137	125,121	16
New Mexico	60,861	60,861	0
New York	794,701	792,071	2,630
North Carolina	211,895	211,895	0
North Dakota	12,594	12,586	8
Ohio	315,004	313,104	1,900
Oklahoma	83,490	83,427	63
Oregon	80,682	80,656	26
Pennsylvania	103,734	103,733	1
Rhode Island	42,870	42,870	0
South Carolina	105,548	105,546	2
South Dakota	15,686	15,387	299
Tennessee	311,838	311,810	28
Texas	280,762	280,604	158
Utah	17,164	17,158	6
Vermont	36,534	36,534	0
Virginia	103,899	103,872	27
Washington	105,019	105,019	0
West Virginia	77,341	77,340	1
Wisconsin	110,205	110,189	16
Wyoming	10,149	10,149	0
United States			6,040
United States (across states)	N/A	6,530,300	N/A

Table A.7 Medicaid Enrollees who Received Adult Day Care Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	248	248	0
Alaska	443	443	0
Arizona	764	764	0
Arkansas	506	505	1
California	80,290	80,287	3
Colorado	1,344	1,344	0
Connecticut	1,875	1,875	0
Delaware	220	220	0
District of Columbia	0	0	0
Florida	13,537	13,537	0
Georgia	3,114	3,114	0
Hawaii	1,535	1,535	0
Idaho	529	529	0
Illinois	1,943	1,942	1
Indiana	250	250	0
Iowa	4,079	4,079	0
Kansas	85	85	0
Kentucky	3,380	3,380	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	365,328	365,326	2
Massachusetts	6,913	6,913	0
Michigan	384	384	0
Minnesota	12,440	12,439	1
Mississippi	798	798	0
Missouri	1,448	1,448	0
Montana	265	265	0
Nebraska	3,212	3,212	0
Nevada	342	342	0
New Hampshire	460	460	0
New Jersey	14,399	14,395	4
New Mexico	21	21	0
New York	61,656	61,531	125
North Carolina	493	493	0
North Dakota	1,052	1,052	0
Ohio	14,659	14,659	0
Oklahoma	603	603	0
Oregon	139	139	0
Pennsylvania	2,120	2,120	0
Rhode Island	3,987	3,987	0
South Carolina	9,120	9,120	0
South Dakota	3	3	0
Tennessee	43	43	0
Texas	24,050	24,050	0
Utah	54	54	0
Vermont	0	0	0
Virginia	631	631	0
Washington	3,345	3,345	0
West Virginia	0	0	0
Wisconsin	3,335	3,335	0
Wyoming	48	48	0
United States			137
United States (across states)	N/A	636,296	N/A

Table A.7 Medicaid Enrollees who Received Unknown Services in Calendar Year 2006 Before and After Unduplication

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Duplicates
Alabama	0	0	0
Alaska	0	0	0
Arizona	1	1	0
Arkansas	2,883	2,881	2
California	14,478	14,478	0
Colorado	969	969	0
Connecticut	3,332	3,332	0
Delaware	53,771	53,770	1
District of Columbia	15	15	0
Florida	892	892	0
Georgia	38,947	38,947	0
Hawaii	0	0	0
Idaho	456	456	0
Illinois	0	0	0
Indiana	4	4	0
Iowa	6,452	6,452	0
Kansas	1,504	1,504	0
Kentucky	3,114	3,114	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	4,917	4,917	0
Massachusetts	2,751	2,751	0
Michigan	0	0	0
Minnesota	0	0	0
Mississippi	28	28	0
Missouri	188	188	0
Montana	203	203	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	0	0	0
New Jersey	0	0	0
New Mexico	24,608	24,607	1
New York	4	4	0
North Carolina	0	0	0
North Dakota	2	2	0
Ohio	201	201	0
Oklahoma	3,862	3,862	0
Oregon	32,180	32,177	3
Pennsylvania	26	26	0
Rhode Island	50	50	0
South Carolina	129	129	0
South Dakota	2,034	2,033	1
Tennessee	0	0	0
Texas	35	35	0
Utah	388	388	0
Vermont	56	56	0
Virginia	0	0	0
Washington	4	4	0
West Virginia	7	7	0
Wisconsin	29	29	0
Wyoming	2	2	0
United States			8
United States (across states)	N/A	194,370	N/A

Table A.8 Medicaid Enrollment Turnover Rate Before and After Unduplication, 2005-2006

State	Before Unduplication (MAX)	After Unduplication (MAXEM)	Percent Reduction
Alabama	1.1293	1.1285	0.0735
Alaska	1.1867	1.1865	0.0135
Arizona	1.2154	1.2141	0.1119
Arkansas	1.1455	1.1448	0.0620
California	1.2091	1.2091	0.0008
Colorado	1.1972	1.1971	0.0109
Connecticut	1.1547	1.1537	0.0823
Delaware	1.1693	1.1693	0.0077
District of Columbia	1.1236	1.1233	0.0276
Florida	1.2064	1.2063	0.0075
Georgia	1.1763	1.1756	0.0570
Hawaii	1.1483	1.1477	0.0514
Idaho	1.1929	1.1928	0.0059
Illinois	1.1775	1.1649	1.0675
Indiana	1.1699	1.1699	0.0034
Iowa	1.2099	1.2090	0.0736
Kansas	1.2063	1.2063	0.0050
Kentucky	1.1538	1.1560	-0.1924
Louisiana	1.1190	1.1190	0.0000
Maine	1.1432	1.1430	0.0192
Maryland	1.1555	1.1555	0.0009
Massachusetts	1.1467	1.1464	0.0253
Michigan	1.1640	1.1640	0.0009
Minnesota	1.1926	1.1925	0.0101
Mississippi	1.1484	1.1477	0.0592
Missouri	1.1743	1.1739	0.0400
Montana	1.2045	1.2045	0.0000
Nebraska	1.1864	1.1863	0.0118
Nevada	1.3012	1.3012	-0.0031
New Hampshire	1.1756	1.1755	0.0034
New Jersey	1.1608	1.1607	0.0086
New Mexico	1.1625	1.1625	0.0009
New York	1.1563	1.1486	0.6685
North Carolina	1.1639	1.1637	0.0155
North Dakota	1.2309	1.2081	1.8483
Ohio	1.1506	1.1485	0.1808
Oklahoma	1.1835	1.1807	0.2315
Oregon	1.2034	1.2027	0.0598
Pennsylvania	1.1462	1.1461	0.0035
Rhode Island	1.1346	1.1346	0.0000
South Carolina	1.1622	1.1621	0.0026
South Dakota	1.1779	1.1700	0.6665
Tennessee	1.1524	1.1523	0.0121
Texas	1.2059	1.2046	0.1070
Utah	1.2450	1.2450	0.0056
Vermont	1.1509	1.1509	0.0000
Virginia	1.1564	1.1560	0.0337
Washington	1.1740	1.1739	0.0068
West Virginia	1.1669	1.1665	0.0343
Wisconsin	1.1648	1.1576	0.6147
Wyoming	1.2197	1.2192	0.0410

Note: The turnover rate equals the number of people who were ever enrolled in Medicaid over a two-year period (in this case 2005 and 2006) divided by the average number of enrollees across the two years.

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