Q: How is age determined in the MAX data?

A: Age is computed using the data element "eligible birth date" (data element #8). Age is determined as of December 31 of the subject year. For example, any person born in 1999 is reported as age = 0 in the 1999 MAX data, because they have not yet attained age 1 as of December 31, 1999.

Q: I see that MAX contains data elements for age groups (including ages 65 and over) and eligibility group (including aged). How are these two data elements different?

A: These two data elements provide fundamentally different ways to examine enrollee characteristics, as follows:

Eligible Age Group Code

Enrollee age is computed from the data element "eligible birth date" (data element #8). Coding of enrollee age group is based on the computation of age using date of birth. Age is determined as of December 31 of the year of the SMRF or MAX data file in use. Each calculated age is subsequently assigned to one of the ten age groups (codes 0-9) in the data element "eligible age group" (data element #9). Please refer to the MAX Person Summary File data dictionary for the code definitions.

For example, a Medicaid enrollee in the 1999 MAX data file with a date of birth of April 2, 1970 would be assigned an age of 29 years (1999-1970) and Age Group Code = 4 (age 21-44). As a second example, any person born in 1999 is reported as age = 0 and Age Group Code = 0 (under age 1) in the 1999 MAX data, because they have not yet attained age 1 as of December 31, 1999.

SMRF Uniform Eligibility (Group) Code

This data element should be used to determine the legal basis on which the enrollee was granted Medicaid eligibility. Users should note that these determinations may be made either on a person or a "case" basis. A case may consist of one or more persons who are part of a family or an "economic unit". Therefore, application of case-based eligibility determinations to each person in the case may appear to be inconsistent to some users. For example, an enrollee's age and eligibility group may appear to be inconsistent. This data element is created using the MSIS Maintenance Assistance Status (MAS) and the MSIS Basis of Eligibility (BOE) codes. The resulting eligibility group codes are mutually exclusive in that an enrollee may be assigned to only one group in any given month. The SMRF eligibility group code identifies the basis on which Medicaid eligibility was determined, regardless of age. It is important to note that:

- Blind and Disabled groups include individuals of any age who were determined to be eligible because of disability. This may include children, adults and persons age 65 and over.

- It is important to note that, unlike Medicare, disabled Medicaid enrollees are not necessarily reclassified as aged enrollees when they attain age 65. This may vary by state.

- There may be individuals who are under age 65 who are correctly identified as aged enrollees according to the SMRF eligibility group. This is because a small number of SSI cases may include two or more individuals where the eligibility determination was made on the basis of an individual age 65 or over, but another member of the case is under age 65 (e.g. a 65 year-old individual with a 63 year-old spouse).

- As a result of differences in state approaches for classifying children into BOE groups, researchers wanting to study children should probably use an age sort, instead of the child BOE. Otherwise, some persons under age 21 (or whatever age cutoff is used) in some states will be missed, because they are reported in the adult BOE. This is because states vary in how they assign non-disabled, non-aged individuals to the child and adult BOEs. Some states assign the BOE of child and adult based on age. That is, they use an age sort, so that all non-disabled persons under age 19 (age 20 or age 21, depending on the state) are counted as children. Then, all the non-disabled persons under age 65 and over age 18 (age 19 or age 20, depending on the state) are counted as adults. In other states, the BOE of child or adult is based on an individual's position in the family unit applying for Medicaid. This generally means that children are reported in the child BOE and parents and caretaker relatives are reported in the adult BOE. With this approach, teenage parents will be reported in the adult BOE, not in the child BOE.

Q: How accurate is MAX in correctly identifying program enrollees in Medicaid, M-SCHIP and S-SCHIP?

A: This question generally asks if MAX is the "gold standard" for identifying and counting Medicaid, M-SCHIP and S-SCHIP program enrollees by various characteristics (e.g. age, gender, basis of eligibility, Medicaid/Medicare dual enrollee status, etc). While there are some flaws in MSIS and MAX data, we believe that these data are of very high quality in terms of correctly identifying Medicaid enrollees. We believe that the MSIS requirements, MAX enhancements and data quality reviews at several levels produce high quality MAX data. However, the MSIS and MAX data are derived from data in MMIS and other state systems and cannot be more complete and consistent than the data originating from those state systems.

MSIS requires states to submit data for all Medicaid enrollees and Medicaid expansion State Child Health Insurance Program (M-SCHIP) enrollees. As of October, 2004, most states that have M-SCHIP programs (37 states) have complied

with the requirement to provide data on M-SCHIP enrollees. Only 2-3 states (Connecticut, Mississippi, and possibly Hawaii) are not submitting data for M-SCHIP enrollees.

States are given the option to report eligibility data for stand-alone SCHIP enrollees (S-SCHIP) in MSIS. As of October, 2004, about half of the states (15 of 32) that have S-SCHIP programs have elected to provide enrollment data on at least some of their S-SCHIP enrollees in MSIS. Those states are: Georgia, Illinois, Indiana, Kentucky, Maine, Massachusetts, Montana, New Jersey, North Carolina, North Dakota, Oregon, South Dakota, Utah, Vermont and Virginia. However, states are instructed not to report any claims for non-Medicaid covered services (e.g. claims for services provided to S-SCHIP/non-Medicaid individuals). States also report aggregate statistics for S-SCHIP enrollees in the State Enrollment Data System (SEDS).

Unique Identifiers

MSIS requirements for state reporting are that each program enrollee should be assigned one and only one Medicaid Identifier (ID) that is permanent for the life of the enrollee. The state may choose to use either the person's Social Security Number (SSN) or a state assigned ID as the unique ID. If the state chooses to use a state assigned ID, SSN must still be reported. If the state chooses to use SSN as the unique ID, the state must report a temporary ID that is assigned by the state while application is being made to SSA for a permanent SSN. This is a recurring issue for newborns who do not receive SSNs immediately at birth. For newborns and any other enrollees who are assigned temporary IDs, the state must submit both temporary ID and SSN on a quarterly eligibility record for the person so that the temporary ID and the SSN can be cross-referenced for the same enrollee. In MAX, temporary IDs (from MSIS quarterly submissions) are replaced with permanent SSNs for all quarters of the calendar year.   This may be a problem if there is only a temporary ID for all quarters of the calendar year and a permanent SSN has not yet been reported in MSIS.

MSIS quarterly eligibility submissions include both correction records for prior quarters and retroactive eligibility determinations. These records are reported in MSIS for the quarters in which the transactions occurred. The MAX processing moves these records into the proper time sequence to show actual months of enrollment for each month in the calendar year.

Identifying Dual Enrollees

MSIS reporting of dual enrollment (Medicare and Medicaid) has been challenging for several reasons. Some states have identified a large percentage of dual enrollees as unknown by type of dual status (e.g. QMB +, QMB only, SLMB +, SLMB only, etc. – See MAX Person Summary File Data Element # 27). Also, a few states have reported no dual enrollees as having full Medicaid coverage. In contrast, it is expected that > 85% of dual enrollees in every state should have full Medicaid

coverage. One state did not identify any dual enrollees in Fiscal 1999. The Center for Medicaid and State Operations is working with states to improve the quality of these data for 2003 and later years. Beginning with 1996, SMRF (and MAX) enrollment data have been linked to the Medicare Enrollment Database (EDB) to verify and improve identification of dual enrollees.

Specific Issues

The reality of MSIS reporting does entail some inconsistencies in state reported data. To the extent possible these problems are addressed in MAX production, as follows:

- State assigned IDs may be unique within a single state, but, by chance, two different states could assign the same ID to different persons. Likewise, an individual may move from state to state, resulting in two different state assigned IDs for the same person. These problems are not currently resolved in MSIS or MAX because data files are created for individual states. However, the problems are easily resolved in MSIS and MAX for multi-state analyses for most enrollees by using the enrollee's SSN rather than the state assigned ID.

- Despite the requirements to assign a permanent ID to a person for life, some states that choose the option to use state assigned IDs do re-enumerate their enrollees on occasion. Whenever it is determined that such re-enumerations occur, a cross-reference file is requested from the state that is used in MAX to create a consistent ID for each unique enrollee over time. SSNs are used to assist in this process. Wherever possible, this problem is resolved in MAX. When it is not possible to resolve the problem in MAX, the MAX anomaly reports contain helpful information for data users.

- For some dual enrollees, some spouses incorrectly report the Medicare Claim Account Number (CAN) from an account on which they receive auxiliary benefits (as a spouse, widow, child, etc.) as their own SSN. For example, a spouse will report her husband's SSN as though it were her SSN. The MAX process of linking to the Medicare Enrollment Data Base (EDB) is a two-step process that resolves most of these errors.

- States generally report SSNs for a very high percentage of their program enrollees. For 1999, across all states, about 92.5 percent of enrollment records contain SSNs. Excluding California, 95.5 percent of enrollment records contain SSNs. For California, the percentage was about 78 percent of California's 7.3 million enrollees. There may be various reasons why SSN is not reported for some Medicaid enrollees in MSIS. The largest group without SSNs is probably undocumented aliens, many of whom may receive only emergency care from Medicaid. This is particularly the case for Medicaid in California. There is no reasonable way to resolve the problem of missing SSNs in either in MSIS or in MAX.

Q: How can I determine which Medicaid enrollees were also enrolled in Medicare (e.g. which Medicaid enrollees were dual enrollees)?

It is widely believed that neither the Medicaid nor the Medicare programs have historically identified all dual enrollees accurately. Medicare typically underreports the number of dual enrollees through its buy-in (TPEARTH) data because states may not buy-in for all dual enrollees. The accuracy of Medicaid reporting on Medicare eligibility status has also been questioned in both the eligibility and claims systems. One of the best approaches to identifying dual enrollees is a link between Medicaid and Medicare data from the two respective eligibility systems using the enrollee's own SSN, date of birth and gender. Such a link between the Medicaid SMRF eligibility data (Person Summary file) and the Medicare Enrollment Data Base (EDB) has been conducted for SMRF beginning with calendar 1996.

The MAX/EDB Linking Methodology

The MAX/EDB linking methodology is a methodologically sound technique that was feasible given the time and resources available for this process. The MAX/EDB linking methodology is accomplished in two steps:

- The first step has different criteria for aged versus disabled Medicaid enrollees. For aged Medicaid enrollees, SSN and gender must match exactly. For disabled Medicaid enrollees, either the enrollee's SSN and Date of Birth (DOB) must match exactly, or SSN and Sex must match exactly and two of the three elements in DOB (day, month and year) must match exactly.

- In the second step, there is an attempt to link the Medicaid SSN to a Claim Account Number (CAN) from the Health Insurance Claim (HIC) in the EDB for records that were not linked in the first step. This is done because some enrollees incorrectly report the CAN from an account on which they receive auxiliary benefits (as a spouse, widow, child, etc.) as their own SSN. For example, a spouse will report her husband's SSN as though it were her SSN. A check on gender and DOB assures that a correct link is made.

Once it is determined that the beneficiary appears in both the MSIS and EDB data sets, it is necessary to determine if the enrollee was eligible for both Medicare and Medicaid at the same time.

- For each MAX Eligibility record, month-by-month Medicaid enrollment is compared to repeating segments of Medicare enrollment. A dual indicator is set whenever an overlap occurs. An annual (calendar year) dual indicator is set if the dual indicator for any month is set. The result is an enhanced MAX enrollment data set that includes information about the results of the EDB link.

- For persons identified as dual enrollees, selected data elements from the EDB are

added to the Medicaid enrollment data. Because this is a Medicaid database, all MAX records are retained. However, information on dual enrollment status is not retained if the EDB contains an indication of dual enrollment status but there is no record in the MAX file for the Medicaid enrollee.

Limitations of the MAX/EDB Linking Methodology

Following the EDB link, the MAX data provides counts of confirmed dual enrollees, by state. There is the potential for bias both in terms of undercounting and over-counting. The potential for undercounting dual enrollees may be caused by one or more of several factors: (1) the dual eligible may have been missing from either the EDB or the MAX file, (2) SSN may have been missing in the MAX file, or (3) there may have been errors or number transpositions in the recorded SSN. The potential undercount is estimated to be less than 1 percent of confirmed dual enrollees in 1999.

The possibility of over-counting duals is likely to be even lower than the possibility of under-counting. Over-counting could result if an enrollee moved from one state to another during the year. This is because the MAX data are retained as state-specific data sets and there has been no attempt to "unduplicate" persons across states in MAX. Users of multi-state MAX data could "unduplicate" these persons using SSN, DOB and gender.

There is a possible step, not taken in the MAX/EDB linking process, that may further limit possible under-counting. For Medicaid enrollees in MAX who were not linked to the Medicare EDB in the steps described above, a link could be attempted between MAX and EDB using the Medicaid-reported HIC. It is recommended the only MAX enrollee records used in this process have "Eligible Medicare Crossover Code – Annual (Old Values)" (MAX Person Summary File data element #25) value 3 = indicating that the dual eligibility flag has a value of 1 (meaning that Medicaid has recorded that the person is covered by Medicare) AND Medicare co-payment of deductible or coinsurance was paid by Medicaid on at least one claim during the year. DOB and gender should be used to confirm that appropriate links are made. The extent to which this process may reduce undercounting is unknown and may depend on the degree to which reporting of HICs (by Medicaid) is accurate on a state-by-state basis.

Other Medicaid/Medicare Linking Methodologies

It is important to note that other types of links between Medicaid and Medicare may produce inconsistent results. Linking strategies that are NOT recommended include:

- Using Medicare beneficiaries in the TPEARTH or other Medicare buy-in data as a "finder" file for linking to MAX. This is not recommended because states may not choose to buy-in for all dual enrollees.

- Using Medicaid enrollees identified as dual enrollees as a "finder" file for linking to the Medicare EDB. This is not recommended because the Medicaid dual enrollee data element may be unreliable. In particular, it may fail to identify some dual enrollees.

- Using Medicare HIC, as reported in MAX, to link to the Medicare EDB. The Medicare HIC, as reported in MAX, may not be reported for all dual enrollees and it may not be accurate when it is reported.

Medicare Claims for MAX/EDB Linked Enrollees

MAX data users can uses the Medicare-reported HIC (Person Summary File data element #7) to request claims records from Medicare systems.

USING SMRF BEFORE 1996

Person Summary File (before 1996)

The SMRF Person Summary file has the data element, "Eligible Medicare Crossover Code" (data element #11), that identifies individuals who were dual enrollees during one or more months in the calendar year (persons who were "ever" dual enrollees in the year). This data element has four code values to indicate Medicare eligibility status:

- Code value = 0 indicates that the person was never covered by Medicare during the year,

- Code value = 1 indicates that the person was covered by Medicare at some time during the year, based on data in the MSIS Medicaid "Dual-Eligibility-Flag" for this enrollee,

- Code value = 2 indicates that Medicaid paid Medicare copayment and/or deductible amounts on at least one claim during the year for this person, and

- Code value = 3 indicates that both 1 and 2 apply.

Claims Files (before 1996)

The "Eligible Medicare Crossover Code" (claims data element #11), as defined above, is included in each SMRF claims record along with other eligibility data. It should be noted that the dual eligibility status reported in this data element is a measure of persons where were "ever" dually enrolled in the year. This definition may not match the dual eligibility status of the person for the month in which the service was delivered. For example, the person may have been identified as "ever" a dual enrollee based on a Medicaid paid Medicare deductible amount from a claim paid in March. That eligibility status is added to all claims paid in the year. In

particular, it is added to a claim paid in January whether or not Medicaid paid Medicare copayment and/or deductible amounts on the January claim.

In General (before 1996)

The defining criteria for dual eligibility depend solely on reporting in Medicaid eligibility and claims payment systems. There have been questions concerning accurate identification of dual eligibles in both of these Medicaid systems. Therefore, there may be some errors in correctly identifying dual enrollees in the MSIS and SMRF data for 1995 and earlier years.

It is possible that a data user could create a SMRF "finder" file containing all SSNs (not just SSNs for Medicaid enrollees identified as dual enrollees) and submit the file to CMS to be linked to the Medicare EDB, just as we have done for SMRF and MAX beginning in 1996.

For these years, it is not possible to identify type of dual eligibility (e.g. QMB plus, QMB only, SLMB, etc.) in MSIS and SMRF.

USING SMRF FROM 1996 TO 1998.

Person Summary File (1996-98)

The SMRF Person Summary file has two data elements that identify individuals who were dual enrollees during one or more months in the calendar year (persons who were "ever" dual enrollees in the year).

(1) "Eligible Medicare Crossover Code (old value)" (data element #23) identifies potential dual eligibles in the same way that they were identified for 1995 and earlier years, using code values = 1-3, as defined above, based solely on data from data reported in MSIS. Code values = 4-7 indicate that the Medicaid record for this person was also linked to an eligibility record in the Medicare EDB. **These code values = 4-7 are considered to be the most reliable way to identify dual eligibles**. This data element has been included in SMRF for data users that want consistency with the definitions that were in use for 1995 and earlier years. Please see the Person Summary File data dictionary for details.

(2) "Eligible Medicare Crossover Code (new value in 1999)" (data element #24) identifies dual eligibles according to the revised instructions to states that apply to MSIS data submissions beginning in FY1999. Therefore, this data element is blank-filled for 1996 and 1997 and it is populated for 1998 based only on the last quarter of Calendar year 1998 (first quarter of FY1999). This data element has been included in the 1998 SMRF data because of the intense interest in dual eligibility by type of dual. The code values for this data element identify the various types of dual eligibles (QMB only, QMB Plus, SLMB only, SLMB Plus, QDWI, QI1, QI2, Other duals and dual/type unknown) according to state reported

eligibility codes in MSIS. However, users should note that this data element does not have code values reflecting a link to the Medicare EDB to confirm dual eligibility status. Thus, users may find different counts of dual enrollees using data element #23 versus data element #24.

It should be noted that the quality of coding for "dual-eligibility-flag", which identifies the various types of dual eligibilities (as noted above) was questionable for many states. This is probably due to the fact that this data element was a new MSIS reporting requirement for Fiscal 1999. In calendar year 1999, the percentage records coded as dual enrollees with dual status unknown was relatively high for many states (e.g. 21 states reported greater than 20% unknown). In addition, five states reported no "full Medicaid benefit" dual enrollees (QMB Plus, SLMB Plus, etc) even though the expectation is that 80-90% of dual enrollees in all states should be identified as "full Medicaid benefit" dual enrollees. Finally, one state (Pennsylvania) did not report on dual enrollee status.

Claims Files (1996-98)

Data on dual enrollment is included with other eligibility data that is added to each SMRF claims record (data elements #12-14). Data element #12 "Eligible Medicare Crossover Code" is taken from the SMRF eligibility data (data element #23 of the SMRF Person Summary File), defined as in (1) above. Data element #13 "Eligible Medicare Crossover Code – Claim-Based" is based solely on the claim in which it occurs. Data Element #14 "Eligible Medicare Crossover Code – New" is taken from SMRF eligibility data (data element #24 of the SMRF Person Summary File), defined as in (2) above.

In General (1996-98)

As a result of the Medicare EDB link, several EDB data elements have been added to the SMRF Person Summary File: eligible Medicare Health Insurance Claim (HIC) number (data element #7), eligible Medicare death date (data element #14), eligible Medicare death day switch (data element #15), eligible Medicare beneficiary months count (data element #25), and eligible Medicare beneficiary – monthly (data element #30).

USING MAX AFTER 1998

Person Summary File (after 1998)

The MAX Person Summary file has four data elements: two identify dual enrollees, ever during the calendar year; and the other two identify dual enrollees ever during the calendar quarter, for each of the four quarters of the year. The four data elements are described below:

(A) "Eligible Medicare Crossover Code – Annual, Old Values" (data element #25) has code values as defined in (1) above (1996-1998 SMRF files).

(B) "Quarterly Eligible Medicare Crossover Code – Old Values" (data element #26) has code values as defined in (1) above (1996-1998 SMRF files). Code values indicating a link to the Medicare EDB are omitted. This also matches with the annual definitions used in SMRF for years before 1996.

(C) "Eligible Medicare Crossover Code – Annual, New Values" (data element #27) has code values as defined in (2) above (1996-1998 SMRF files). In addition, code values = 50-59 and 98 indicate that the Medicaid record for this person was linked to a eligibility record for this person in the Medicare EDB. **These code values = 50-59 and 98 are considered to be the most reliable way to identify dual eligibles.**

(D) "Quarterly Eligible Medicare Crossover Code – New Values" (data element #28) has code values as defined in (2) above (1996-98 SMRF files). Code values indicating a link to the Medicare EDB are omitted.

Claims Files (after 1998)

Data on dual enrollment is included with other eligibility data that is added to each SMRF claims record (data element #12-14). Data element #12 "Eligible Medicare Crossover Code – Annual Old Values" is taken from the SMRF eligibility data in the Person Summary file and is defined as in (A) above. Data element #13 "Eligible Medicare Crossover Code – Claim-Based" is based solely on the claim in which it occurs. Data Element #14 "Eligible Medicare Crossover Code – Annual New Values" is taken from MSIS and SMRF eligibility data and is defined as in (C) above.

In General (after 1998)

As a result of the Medicare EDB link, several EDB data elements have been added to the SMRF files: eligible Medicare Health Insurance Claim (HIC) number (data element #7), Medicare race/ethnicity (data element #12), eligible Medicare language code (data element #13), eligible Medicare death date (data element #16), eligible Medicare death day switch (data element #17), eligible Medicare beneficiary months count (data element #29), Medicare original entitlement reason code (data element #30), Medicare current entitlement reason code (data element #31) and eligible Medicare beneficiary – monthly (data element #35).

As discussed above, it should be noted that the quality of coding for "dual-eligibility-flag", which identifies the various types of dual eligibilities (as noted above) was questionable for many states. See the discussion above in the last paragraph of the

section "Using SMRF Data from 1996 to 1998, Person Summary File (19996-98)" for additional details. The quality of coding for this data element did improve somewhat for MSIS data submitted for Fiscal 2000 through Fiscal 2002. However, data reporting problems remained. A major effort is under way to resolve systematic coding problems for this data element in Fiscal 2003 submissions.

SERVICE UTILIZATION FOR DUAL ENROLLEES

Please see the question "Can I obtain a complete view of all health services delivered to Medicaid enrollees by using the MAX data?" for a discussion of service utilization issues for dual enrollees.

Q: How do I identify EPSDT or other preventive services delivered to children?

A: A feature of Medicaid that is different than many other health insurers is a major emphasis on preventive services for children. In Medicaid, this emphasis is reflected in a "package" of services for children known as Early and Periodic Screening Diagnosis and Treatment (EPSDT) services that must be provided by all state Medicaid programs. This group of services, for individuals under 21 years of age, consists of: a comprehensive health and development assessment; an unclothed physical exam; appropriate immunizations; laboratory tests (including blood lead levels); health education; vision services that, at a minimum, include diagnosis and treatment of defects in vision, including eyeglasses; dental services that, at a minimum, include relief of pain and infections, restoration of teeth, and maintenance of dental health; and hearing services that, at a minimum, include diagnosis and treatment of hearing defects, including hearing aids. Additional services must be provided for individuals under 21 years of age whether or not the services are covered in the state's Medicaid plan. These services encompass other health care, diagnostic services, treatment, and other measures that are coverable under Medicaid and medically necessary to correct or ameliorate defects and physical and mental illnesses and conditions discovered by the screening services. States must establish distinct periodicity schedules for screening, vision, dental and hearing services. In addition, interperiodic screens must be made available based on medical necessity.

While all of the services described above must be provided, users are warned that there is substantial variation across states in terms of exactly which services are identified as EPSDT services in MSIS reporting. At one extreme, some states report only screening services as EPSDT services. Referrals and treatments are included in MSIS and MAX, but they may not be identified as EPSDT services. At the other extreme, some states identify a wide array of services (including screening, referrals and treatments) as EPSDT services.

Prior to 1999, MSIS required states to identify EPSDT services by using code value = 17 in the data element "Type-of-Service". For SMRF 1995 and earlier data, EPSDT is found in either data element #15 "MSIS Type of Service code" or #30 "SMRF Type of Service code" by using code value = 17. For SMRF 1996-98, it is found in

either data element #15 "MSIS Type of Service code" or #16 "SMRF Type of Service code" by using code value = 17.

Beginning in 1999, MSIS required states to identify EPSDT services by using code value = 1 in the data element "Program-Type". In MAX, this is data element #16 "MSIS Type of Program code".

In general, data users should not fully rely on either "Type of Service" or "Program Type" data elements to identify EPSDT or other preventive services delivered to children. Instead, users should identify the list of preventive services they want to study by using procedure (service) codes.

Q: How can I identify program enrollees with specific illnesses or medical conditions in the MAX data?

A: Users must remember that the MSIS and MAX data are extracts from state Medicaid data systems used for eligibility and claims payment administrative systems. As such, these data do not directly identify persons with specific illnesses or medical conditions. Instead, users should develop a set of criteria to identify a catchment group of individuals who may have the illness or medical condition. The criteria may include specific diagnoses, procedures, prescription drugs or services that were provided to the person. Users should be careful to develop the criteria in a way that casts a "broad net" of possible individuals for the study population. The idea is to develop criteria that include all possible individuals, even those who may marginally meet the criteria. Once a set of initial criteria is developed and run against the data, users should examine profiles of the selected individuals to determine if the criteria should be refined to remove some individuals from the study population.

For criteria related to diagnosis codes, users should consider: ICD-9-CM

- With regard to diagnoses, users should consider whether they want to select persons based on all diagnoses reported or just on the principal diagnosis, given that states may vary in how they determine which diagnosis to report as the principal diagnosis.

- Users should be aware of the potential for under-reporting of some diagnoses.

- Users may want to use the MAX Validation Tables to examine the percent of records containing primary diagnosis codes of length 3, 4 or 5.

- Users should be aware that diagnosis codes for persons in nursing facilities and other institutions may not be up-to-date or complete.

For criteria related to inpatient hospital procedures, users should consider that states are not required to use a single standard coding system. Different systems (e.g. ICD-9-CM and CPT-4) may be in use even within a single state.

For criteria related to outpatient procedure (service) codes, users should know that some states are required to use standardized coding (Level 1 – CPT codes and Level 2 – HCPCS codes) for most ambulatory services. States also use Level 3 state-defined (state-specific) codes in both standard and non-standard formats. There are two standard formats: (1) ANNNN where A has an alpha value of W-Z and N is numeric or (2) AANNN where A is alpha and N is numeric. However, states sometimes use non-standard formats for state-specific codes. States also use UB-92 codes for services billed on UB-92 forms (e.g. hospital outpatient services). The procedure (service) code modifier may be useful to provide more information about services provided that relate to a procedure (e.g. assistance in surgery). However, users should exercise care not to over-count services delivered. For example, there may be a single surgery with more than one service record for the surgery (e.g. a physician record for the surgery and a second record for assistance in that surgery).

Using claims-based criteria to identify a catchment group in this way has some important limitations for some groups of Medicaid enrollees. For persons enrolled in prepaid managed care plans, reporting of "encounter" data reporting from most plans has been judged to lack the completeness and consistency to support a wide variety of research activities at this time. Also, claims data for dual Medicaid and Medicare enrollees may be missing diagnosis and/or procedure codes. This may result from Medicare's role as the primary payer of care for dual enrollees. In addition, details on service utilization may not be available for all women receiving prenatal care. Users should review the response to the Question "Can I obtain a complete view of all health services delivered to Medicaid enrollees by using the MAX data?" for more details.

Even with regard to the same illness or medical conditions, not all users may agree on the criteria. For example, not all researchers studying diabetes will want to select the exact same set of diagnosis codes. For some types of research, users may want to consider if they want to identify a study population by defining a sentinel event (e.g. diagnosis of asthma by a physician) and then identify a "window" of time before or after the event to examine services delivered. Users should also consider whether they simply want to examine services for only the illness or medical condition (e.g. diabetes care) or whether they want to examine all services provided to individuals who have the illness or medical condition (e.g. all services to persons who have diabetes). These considerations may result in different record selection criteria based on the user's specific research questions.

Users should be reminded that MSIS and MAX data contain records of services provided to Medicaid enrollees up to the amount, duration and scope of coverage provided by each State Medicaid agency. If the services were covered by another payer (e.g. Medicare, Veteran's Administration, out-of-pocket, block grants, or Ryan White coverage for HIV/AIDS patients), some services used by Medicaid enrollees with the target illness (or condition) may not be included in the MAX data.

Therefore, some Medicaid enrollees with the target illness (or condition) may not be identified as having the target illness (or condition) by using the MAX data.

Users should also be aware that identifying persons with some illnesses and medical conditions may be fairly direct and the catchment group may include nearly all of the target population. For others, such as persons with HIV/AIDS, identification of the entire population (or even a representative subpopulation) may be much more difficult.

Q: What are the types of records that are contained in each of the MAX files? How do the records in these files differ from the records in the MSIS files?

A: The MAX files are a research extract from the MSIS files. MAX files are oriented to the needs of researchers and policy analysts in the following ways:

- MSIS files are organized by federal fiscal year from October through September. For MSIS, there are four quarterly files for each fiscal year, covering October-December, January-March, April-June and July-September. In contrast, MAX files are organized by calendar year.

- Records in MSIS files are included based on transaction dates. These dates are the eligibility determination decisions for eligibility data and payment adjudication date for claims. Adjudication date is the date the state reviewed the claim and determined that it should be paid, which may be different from the date that payment was actually made to the provider. Records in MAX are included as they occurred chronologically in the calendar year (e.g. actual monthly eligibility for the 12 months in the calendar year, dates of service for Medicaid covered services – fee-for-service, and premium payments for the months they cover – prepaid plans).

- Records in the MSIS services files are interim claims (originals, voids, credits, debits, etc.). In MAX processing, a set of rules is developed for each state (called "business rules") that determine which MSIS interim claims should be grouped together and how they should be combined and/or adjusted to create final MAX records. The final records are intended to represent, as closely as possible, specific services provided by Medicaid (e.g. hospital stays, visits, prescriptions, laboratory tests, etc.). Both MSIS and MAX files include records for all claims that were adjudicated for payment by the Medicaid state agency, even if the adjudication process results in a zero dollar liability for Medicaid (because of a third-party payment). Denied claims are not included. Denial may occur for several reasons, such as: (1) the person was not enrolled in Medicaid, (2) the service was not covered by Medicaid, or (3) there was insufficient detail on the claim to adjudicate it for payment.

RECORDS IN THE MAX FILES

MAX files are created by state, calendar year and file type. The records included in MAX files, by file type, are as follows:

Person Summary File

- There is a record in this file for each person who was eligible for Medicaid or a Medicaid-expansion State Child Health Insurance Program (M-SCHIP) in the year. Medicaid enrollees covered by Section 1115 Demonstrations or other Medicaid waiver programs are included.

- Each record shows 12 monthly observations of enrollment in the year and a summary of service utilization. If an enrollee did not use any services during the year, only the section of the record on eligibility characteristics will contain data.

- States are also invited to submit records of enrollment for stand-alone (or separate) SCHIP program enrollees (S-SCHIP) in MSIS. Those records are included in MAX for states that choose to submit eligibility data on S-SCHIP enrollees. Persons enrolled in S-SCHIP will have no months of Medicaid enrollment for the months they are enrolled in S-SCHIP.

- For a variety of reasons, there may be no MSIS enrollment records for some Medicaid service recipients. This can occur because eligibility and services (claims) data may be captured in different state data systems. Different reporting and batching cycles may result in mismatches between the two types of data. The number and types of persons for whom these records are missing varies from state to state, but is usually a very small proportion of the total state enrollees. There is a MAX Person Summary File record for each of these persons that includes ONLY the Medicaid identification number for the person in the section of the record on eligibility characteristics. Other eligibility characteristics are missing for these persons. In MAX, these eligibility characteristics are unknown (e.g. gender, date of birth and basis of eligibility).   Enrollees with no MSIS enrollment records are identified by the data element "Missing Eligibility Data Switch".

General Information Concerning Services Files

These files include three major types of records: (1) fee-for service records, including utilization and payment information (2) premium payments for persons enrolled in prepaid plans, and (3) "encounter" records for persons enrolled in prepaid managed care plans, including utilization but not payment information (because premium was paid in advance for care provided by the plan). Most states do not submit encounter records to MSIS for all services provided to persons enrolled in prepaid managed care plans. The degree of completeness and consistency in reporting of encounter records is not fully documented at this time. The introductory page(s) of each MAX data dictionary, for each of the four file types, provide additional details about the specifications of the file. The four types of services files are discussed below in more detail.

Inpatient Hospital File - This file contains records of inpatient hospital stays (MSIS and SMRF Type of Service = 01), regardless of length of stay. Stays of greater than one day are included in a MAX file based on the last day of service for the stay. For example, the record for a stay that began on December 27, 1998 and ended on January 4, 1999 is reported in the 1999 MAX file. Not all stay records may show a patient status code indicating that the patient was discharged. Data users should exercise caution in examining stays for mothers and their newborns because there are alternative ways in which these types of stays appear in the MAX files:

- mother and newborn with different Medicaid identification numbers on different records,

- mother and newborn with the same Medicaid identification number on different records, and

- mother and newborn both included on a combined record where it is not possible to separate the services delivered to the mother from those delivered to the newborn, as reported on the MSIS record.

Long-Term Care File - The records in this file are typically weekly, biweekly or monthly records of long-term care services (MSIS and SMRF Types of Service = 02, 04, 05 or 07). Because long-term care stays may be quite long, often covering multiple years, it does not make sense to create a long-term care stay record file. Also, original admission date may be unreliable. For some states, there may be multiple records for the same person, dates of service and facility. In the case of these multiple records, some records may be for per-diem amounts and others for ancillary services, such as physical therapy. However, it is not possible to identify exactly which services were provided under each record.

This file contains records for services provided by long-term care facility (e.g. nursing facilities and intermediate care facilities for the mentally retarded). Other services provided to residents of these facilities, that were not provided by the long-term care facility, can be found in other files. For example, physician and podiatrist services are found in the other services (OT) file. For 1999, most states did not include prescribed drugs in their nursing facility payment rates. For this reason, prescribed drugs for nursing facility residents are usually found in the RX file. However, for 1999, three states (Delaware, New York and South Dakota) did include prescribed drugs in their nursing facility payment rates. So, for these three states, it is likely that neither the RX nor the LT file will contain a complete record of prescribed drugs for nursing facility residents. In contrast to prescribed drugs, most states included non-legend (over-the-counter) drugs in their nursing facility payment rates. For states that included non-legend drugs in their nursing facility payment rates, neither the RX nor the LT file will contain a complete record of non-legend drugs provided to nursing facility residents.

Prescription Drug File - The records in the RX file represent drugs and other services provided by a pharmacy and include all service records that contain a National Drug Code (NDC). Drug records in the RX file have MSIS and SMRF Types of Service (TOS) = 16. Other records in the RX file have MSIS TOS = 19 (other services) and SMRF TOS = 51 (Durable Medical Equipment – DME – and Supplies). Drug records include original filled prescriptions, refills, over-the-counter drugs, and other NDC-coded items. For example, DME and supplies are included if they contain NDCs. In contrast, DME and supplies that are billed by other types of providers and contain service codes (e. g. HCPCS or other state-specific procedure codes) are reported in the MAX Other Services File. Likewise, injectible drugs that patients may receive from non-pharmacy providers, such as physicians and clinics, that contain procedure (service) codes (known as j-codes) are also reported in the MAX Other Services File.

Other Services File - The MAX Other Services File contains all Medicaid records not reported in any of the other MAX services files. This file contains three types of records:

- Fee-for-service records for any types of services not reported in the other three MAX files (e.g. physician, outpatient hospital, clinic, laboratory, radiology, home health, transportation, etc),

- Managed care "encounter" records for persons enrolled in prepaid managed care plans, which can be identified using Type of Claim = 3, and

- Payment records for premiums paid to prepaid managed care plans, which can be identified using MSIS and SMRF Types of Service = 20, 21 and 22).

DME and supplies that are billed by non-pharmacy providers and contain service codes (i.e. HCPCS or other state-specific procedure codes rather than NDCs) are reported in the MAX Other Services File. Likewise, injectable drugs that patients receive from non-pharmacy providers, such as physicians and clinics, which contain procedure (service) codes (known as j-codes) are also reported in the MAX Other Services File. In contrast, DME and supplies are included in the RX file if they contain NDCs.

MAJOR DIFFERENCES BETWEEN MSIS AND MAX

The major differences between MSIS and MAX are identified below:

- MAX files are prepared for each state and calendar year. MSIS files are prepared for each state, quarter and fiscal year.

- MAX enrollment data are included for the twelve months of the calendar year, from January to December. In contrast, MSIS enrollment data are retained in quarterly files and represent enrollment "transactions" that occurred in the fiscal

quarter (current enrollment, retroactive enrollment and corrections for previous quarters).

- MAX services (claims) files combine interim MSIS claims are combined to create final action service "events", such as hospital stays, visits, and services. In contrast, MSIS claims data are retained as they were adjudicated by states in the fiscal quarter (original, void, credit and debit claims).

- Because MAX is an annual calendar year file and MSIS files are submitted quarterly for a fiscal year, the number of MAX enrollee records for the calendar year should typically be slightly greater than an unduplicated count of the enrollee records in MSIS for the four quarters of the FISCAL year (October-September), due to steady growth in the Medicaid enrolled population.

- There should be small variations between the number of MAX enrollee records for the calendar year and an unduplicated count of the enrollee records in MSIS for the four quarters of the CALENDAR year, because of the different orientation of the two files. MSIS eligibility transaction records to correct previously submitted records or to award enrollment retroactively are reported in MAX for the months in which the person was actually enrolled.

- The number of records in each MAX service file should be less than the number of MSIS claims records that correspond to the same services. This is because interim MSIS claims have been combined to produce MAX final action "event" records. The difference will vary by state and Type of Service. Creation of the final action "event" records requires a detailed knowledge of state claims payment processes. These processes vary across states and may vary within a state over time and for different types of service.

- Beginning with 1996, MAX and SMRF Person Summary File records have been linked to the Medicare Enrollment Data Base (EDB) to better identify Medicaid enrollees who are also enrolled in Medicare (the so called dual or crossover enrollees). Selected EDB data elements have been added to MAX enrollment records. Dual enrollees can be identified using "eligible Medicare crossover code" (data element #23) from 1996-98 and "eligible Medicare crossover code – new values" (data element #27) beginning in 1999.

- MAX Prescription Drug File records have been linked to data from two commercial vendors (First Data Bank and Medi-Span) to add therapeutic classification codes from several code systems to each record. According to license agreements with these vendors, access to these MAX data elements is restricted to users who are CMS employees or are working under a CMS contract.

- The MAX Person Summary File includes annual statistics on Medicaid utilization and payments, by SMRF Type of Service, summarized from claims files.

- MAX eligibility data from the MAX Person Summary File has been added to each MAX service record to facilitate use of these data by end users.

- MSIS service and eligibility coding is verified and improved in MAX. For eligibility, when errors or inconsistencies in state coding are identified in MSIS files, state-specific eligibility codes are remapped to appropriate eligibility groups (that can be corrected) in MAX. For services, when errors or inconsistencies in state coding are identified, HCPCS and state-specific service codes are remapped to appropriate Types of Service in MAX.

- The list of Types of Service (TOS) in MAX (MAX services files data element #17) have been expanded beyond those that are available in MSIS. The following are the additional MAX Type of Service codes:

  51 = Durable Medical Equipment (DME and supplies) – includes emergency response systems, home modifications and prosthetic devices);
  52 = Residential care;
  53 = Psychiatric services (excluding adult day care); and
  54 = Adult day care

  These code values are populated by members of the MAX project team who review national and state-specific procedure (service) code lists to develop the maps from those procedures to SMRF TOS codes 51-54. Most of the services that receive SMRF TOS codes 51-54 are coded as MSIS TOS = 19 (Other Services). Because of this, there are fewer MAX records with SMRF TOS = 19 than with MSIS TOS = 19.

  Members of the MAX project team validate SMRF TOS coding. To do this, they review the states' MSIS TOS code maps for reasonableness, but in general do not alter the states' coding because the MSIS TOS is intended to mirror the coverage documented by state plans. However, the team removes services from existing MSIS TOS codes to populate MAX TOS 51-54, as described above. For 2000 MAX files, the team is also creating consistent maps for lab and x-ray services.

- Claims that represent an aggregate group of services provided to more than one Medicaid enrollee are included in MSIS because they do represent actual Medicaid payments. However, they are excluded from MAX because they cannot be associated with individual enrollees. These claims are identified as follows:

  (1) Service tracking claims (Type of Claim = 4) or

  (2) Claims with an ampersand ("&") as the first character in the Medicaid identification number.

  Exclusion of these "& ID" claims from MAX also means that there are no "& ID" enrollment records in the MAX Person Summary File.

- Supplemental payment claims (Type of Claim = 5) are payments made to some providers that are higher than usual payment amounts. For example, a clinic operating as a Federally Qualified Health Center (FQHC) may receive the same basic payment as another clinic that has not been designated as a FQHC. Because the FQHC is eligible to receive a higher payment, the difference is paid to the FQHC through the use of a supplemental payment claim. Because there are relatively few of these claims in the Inpatient Hospital and Long-Term Care files, a decision was made to exclude them from the MAX IP and LT files for 1999. After reviewing the decision, it was determined that there is probably no good reason to exclude them. Therefore, these records are being included in MAX for 2000 and later years. Because of the ways that states make supplemental payments to some providers, there may be more than one MAX record for some services where supplemental payments have been made.

- For 1999, laboratory and x-ray records were reported in MAX based on their MSIS Type of Service (TOS). For example, a laboratory service that was provided through a physician practice and reported in MAX element #15 MSIS TOS Code = 08 (physician service) was reported the same way in data element #17 SMRF TOS = 08 (physician service). For 2000, improvements have been made to the accuracy of reporting of these laboratory services in MAX. Based on a review of procedure (service) codes, laboratory and x-ray record that are reported as MSIS TOS = 08 are remapped to MAX TOS = 15 (lab and x-ray). This may result in a large change in the percent of total claims for lab and x-ray between 1999 and 2000 for some states.

Q: Using MAX claims or enrollment data, can I determine who is living in a long-term care facility (either nursing facility or other type of long-term care facility)? How can I distinguish between enrollees who reside in a long-term care facility from enrollees who may have short "episodes" in a long-term care facility and then return to the community?

A: Neither the eligibility nor the claims data include a specific indicator to identify enrollees living in a nursing facility or other type of long-term care facility. Likewise, there is no specific indicator to identify enrollees living in the community who may have short "episodes" in a long-term care facility.

However, it is possible to make some inferences based on an examination of services received in long-term care institutions using service records that are reported in the MSIS and MAX long-term care (LT) files, for the following types of services (TOS):

TOS = 02 – mental hospital services for the aged,
TOS = 04 – inpatient psychiatric facility services for individuals under the age of 21,
TOS = 05 – inpatient care facility (ICF) for the mentally retarded, and
TOS = 07 – nursing facility (NF) services – all other.

Medicaid does not provide coverage of services for persons between 21 and 65 years of age who reside in mental institutions. These institutions are known as Institutions for Mental Disease (IMDs). However, states are required to provide short-term acute care for mental illnesses in general hospitals for all enrollees. The mentally ill between 21 and 65 years of age may receive Medicaid services that do not specialize in mental health care, such as nursing facilities. Because of this, many mentally ill enrollees reside in non-psychiatric facilities.

The following Q & A addresses how a data user might make those inferences for people who received services in one or more of these types of institutions, using MAX LT claims for the respective types of service(s).

Q: How can I determine if a Medicaid enrollee was served in a long-term facility during a given month (or year)?

A: We recommend that users infer service in a long-term care facility on a monthly basis (for one or more of the long-term care TOS values), as follows: (1) If there is one (or more) MAX records for long-term care services for the individual, covering any number of days in the month, assume that the individual resided in that type of institution in the month, and (2) If there were no MAX records for long-term care services for the individual, for any days in the month, assume that the individual did not reside in that type of institution in the month. For a user who plans to conduct analyses spanning several months or the entire year, we recommend that the users separate long-term care residents into two groups:

- The first group could be described as continuous or "fully" institutionalized persons. These are enrollees who had records for long-term care services covering every month of Medicaid enrollment during the year.

- The second group could be described as discontinuous or "intermittently" institutionalized persons. These are enrollees who had records for long-term care services covering at least one month but fewer than the total number of months of Medicaid enrollment during the year.

An alternative approach, to that presented above, might be to count the number of Medicaid covered days, for the type of institution(s), in a month (or year) and compare that day count to the number of days the individual was eligible for Medicaid in a month (or year). This approach is NOT valid. For example, a user might be inclined to say that an individual is: (1) "fully" institutionalized if the number of institutional days is greater than or equal to the number of days of eligibility, (2) "intermittently" institutionalized if the number of institutional days is greater than zero but less than the number of days of eligibility, or (3) "non-institutionalized" if the number of institutional days is less than or equal to zero. Medicaid long-term care records, as reported in the MAX data, CANNOT support this type of categorization for enrollees. Day counts may vary because an individual has leave days (days the person is not in the institutional facility for a variety of

reasons), acute days (days the person has an acute episode involving a hospital stay), or institutional days covered by other payers (e.g. Medicare, private pay, or long-term care insurance). In addition, institutions may submit bills in other ways that create problems in counting institutional days. A hypothetical example may illustrate the problem. Say that a patient was eligible for Medicaid from March 1 through March 31, was institutionalized in facility X from March 5 continuously through March 31 and received facility-based ancillary services (e.g. physical therapy) between March 10 and March 31. The facility may submit two bills: (1) For the per-diem amount, spanning 26 days, and (2) for the ancillary services, spanning 22 days. The total day count for the two claims would be 48, greater than the number of days in the month. If the day field were edited to be less than or equal to 31 days, a data user might assume (incorrectly) that the person was "fully" institutionalized for all of March. There is no sure way to determine which bill was for the per-diem and which bill was for ancillary services. Because of this, there is no reasonable way to resolve this dilemma. So, determining institutional status on the basis of day counts is not advised, because it may not produce valid and consistent results.

Q: How can I identify newborns in the MAX data?

A: Newborns under age 1 can be identified by using the data element "eligible age group code" (data element #9) and selecting the value = 0 (age under 1).

Identifying newborns more narrowly can be accomplished by using eligible birth date" to make an age calculation.

In some states, newborns use their mother's Medicaid ID for the first few months so they can't be separately identified in the file until they are assigned their own number. This can be a problem especially if they are born near the end of a calendar year and have not yet received their own number by year's end. In this instance, it may not be possible to track this newborn into the following year.

Some babies, born to mothers enrolled in Medicaid, may not retain Medicaid enrollment after they become 1 year of age if they are poverty-related enrollees above 133% of the Federal Poverty Level.

Q: How can I identify pregnant women in the MAX data?

A: Unfortunately, there is no reliable way to identify all pregnant women in either MSIS or MAX data. Pregnant women cannot be reliably identified from MSIS Basis of Eligibility (BOE) or Maintenance Assistance Status (MAS) groups that are used to create SMRF/MAX uniform eligibility codes. Also, there is no reliable way to identify all of these women in claims data because of alternative ways in which providers can bill for prenatal care (e.g. global billing). It is possible to identify some pregnant women using service codes in claims data and working backward from the date of birth of the newborn. There may be a number of problems with this approach, including the enrollment of mothers and newborns in prepaid plans. As noted

elsewhere, reporting of encounter records for persons in prepaid plans is incomplete at this time.

Q: How can I identify maternal deliveries in the MAX data?

A: Utilization and expenditure data for maternal deliveries and newborn care are included in MSIS and MAX data. However, it may be quite difficult to identify correctly all deliveries (whether or not they result in live births) because of the many ways states permit hospitals and other providers to bill for maternal delivery and newborn care. Initial review of the literature indicated that the best way to identify deliveries is through diagnosis coding in inpatient hospital records. Neither procedure coding in inpatient hospital records nor procedure (service) coding in physician records was determined to consistently identify maternal deliveries. In MAX, coding has been added to assist data users:

MAX Inpatient Hospital File

The MAX Inpatient Hospital file includes the data element "recipient delivery code" (data element #40). This data element is coded for each inpatient hospital record in the file. It has a code value, as follows:

Code value = 0 for all inpatient records that had no indication of a delivery. Hospital records that only have a newborn delivery code and are NOT billed under the mother's Medicaid ID are not counted as a 'delivery hospital stay'. Males should have this code value.

Code value = 1 for inpatient records with an indication of a maternal delivery - Both live and still births identified on the basis of any of the following MAX Inpatient Hospital diagnosis codes - 650.0, 640.0 -676.0 (with a 5th digit of '1' or '2'), or V27.1-V27.9 - appearing in claims for the stay. This value is assigned if any of the claims for this record have an indication of a maternal delivery. This value is set if there is either a combined mother/newborn delivery claim or a maternal only delivery claim.

Code value = 2 for inpatient records with an indication of a newborn delivery - . identified on the basis of any of the following MAX Inpatient Hospital diagnosis codes – V30.-V39. (plus a 4th position value of '0' and any value in the 5th position). This value is assigned only for separate newborn delivery records that are known to contain the mother's Medicaid identifier. Therefore, these records are a subset of all delivery records.

Coding is defined this way because the focus is on identifying women who delivered at least one baby during the year in the MAX Person Summary File. Often, separate

newborn claims without the mother's ID cannot be linked to the mother's record. It is also possible that Medicaid only paid for the infant's delivery.

If there are claims identified as a maternal delivery and as a newborn delivery in the set of claims used to produce the MAX record, there are two separate records created in the MAX inpatient hospital file – one for the mother and one for the newborn.

Inpatient hospital diagnosis and procedure codes can be used to determine other information concerning the delivery (e.g. live birth versus stillborn, delivery by caesarian section, normal birth weight versus pre-maturity).

In contrast, there may be some hospital delivery records for the mother only and some that include the newborn as well. For records that include services for the mother and the newborn, it may not be possible, in all cases, to separately identify services delivered to the mother from services delivered to the newborn. This problem may vary by state and hospital.

Users are warned that the total number of delivery records may produce imprecise count of actual deliveries due to both over- and under-reporting. Over-reporting may occur because there may be more than one stay record for the same maternal delivery (e.g. stays for false labor and/or stays for delivery-related complications). This can occur when maternal stays that do not result in a delivery are coded incorrectly. On the other hand, counts of newborn delivery stays (code value = 2 above) may undercount actual deliveries (or children born under Medicaid).

MAX Person Summary File

The MAX Person Summary file includes the data element "delivery code" (data element #82). This data element identifies all females for whom there was at least one inpatient hospital record for a stay during which a delivery occurred. It is set to value = 1 for an eligible woman if there was at least one inpatient hospital record in the year that contained a maternal delivery code, as defined above. This data element has value = 0 for an eligible woman if there was no inpatient hospital record in the year that contained a maternal delivery code. This data element should be set value = 0 for males. This data element is intended to identify those women who have had one or more deliveries in the year. Therefore, this data element does not necessarily count the number of deliveries during the year. For example, multiple births or deliveries following multiple pregnancies in the same year will be counted only once. Users may be able to identify multiple births and/or deliveries by using the MAX Inpatient Hospital file.

Caveats

It is important to note that the indicator identifies maternal deliveries in the mother's inpatient hospital and Person Summary File records. In some instances the mother may not be eligible for Medicaid. For example, an undocumented alien may receive

emergency care under Medicaid, but not be eligible otherwise. The indicator is set in a MAX Person Summary File record only if there is an inpatient hospital record for mother or for the mother and newborn combined. In these cases, there may be no Medicaid enrollment record for the mother, no inpatient hospital service record for the mother and consequently no MAX Person Summary File record with an indicator of a maternal delivery.

As noted in the response to the question "What are the records that are contained in each of the MAX files? How do the records in these files differ from the records in the MSIS files?", there are instances where there may be no MSIS enrollment records for some Medicaid service recipients. This may be true for some women who had deliveries. In these cases, there is a MAX Person Summary File for the woman that includes ONLY her Medicaid identification number and delivery indicator in the section of the record on eligibility characteristics.

The method of coding maternal deliveries is based on the predominant method of reporting deliveries in each state. Therefore, coding may be incorrect for claims that have been submitted according to alternative reporting methods that do not conform to the predominant reporting method. We did not have the resources to identify all possible reporting methods used in each state and to provide different coding criteria for each method.

Q: A stated benefit of MAX data (in the Power Point presentation on MAX that appears on the CMS external web site for MAX data – address: http://www.cms.hhs.gov/researchers/max/default.asp) is that the MAX has verified and improved coding in the SMRF uniform eligibility codes. What is verified and how?

A: States use eligibility information from their MMIS systems to assign MSIS uniform eligibility codes to each Medicaid enrollee. Two MSIS data elements are used for the uniform eligibility codes – the Maintenance Assistance Status (MAS) and the Basis of Eligibility (BOE). States are required to submit a comprehensive eligibility crosswalk or map from their state-specific MMIS codes to MSIS codes, showing what state specific eligibility group information or factors they use from their MMIS systems to decide which MAS and BOE codes enrollees are assigned. Since state MMIS systems are not uniform, states vary in the eligibility information or factors used to assign MAS/BOE code values. Examples include:
- State eligibility group or aid category
- Cash assistance status
- Dual eligibility status
- Waiver status
- Person code
- Scope of benefits code

Attachment 3 to the MSIS Tape Specifications and Data Dictionary provides guidance to states on the eligibility criteria appropriate for each MAS and BOE code.

Beginning with the FFY 1999 MSIS, CMS reviews the codes and definitions each state intended to use, as well as each state's eligibility crosswalk, to insure that the MAS/BOE codes are assigned appropriately and consistently. Each state's MSIS eligibility crosswalk has to be approved before MSIS files could be submitted. In addition, each quarter of MSIS eligibility data is reviewed by CMS to insure that states follow their eligibility crosswalks. Departures from the crosswalk may cause files to be rejected during MSIS intake review. States are required to update their eligibility crosswalks, as appropriate, and submit any new code values and definitions for review. States are also requested to report whatever state specific eligibility information they use to assign MAS/BOE codes in the 6 byte "Eligibility-Group" data element in MSIS.

Generally, the MAS/BOE values in MSIS correspond to the uniform eligibility groups in MAX. However, because errors sometimes occur in the MSIS MAS/BOE reporting, some recoding may be done as part of the conversion of MSIS data into MAX research files.

Q: If someone wanted the details of who was included in each SMRF Uniform Eligibility code (Person Summary File data elements #21 and #34), could they go to the MSIS Data Dictionary, Attachment 3 - Comprehensive Eligibility Crosswalk?

A: Yes. The MSIS Tape Specifications and Data Dictionary, Release 2, Version 4 is available on the CMS external web site at address: http://www.cms.hhs.gov/medicaid/msis/msisdd99.pdf.

Q: If a data user had access to MSIS data, could they distinguish between the people who were coded with value = 11 in the SMRF Uniform Eligibility code (Person Summary File data elements #21 and #34) because of item 1 versus items 2, 3, or 4 (as described in the MSIS Data Dictionary, Attachment 3 – Comprehensive Eligibility Crosswalk)?

A: It may be possible for users to identify the specific condition of eligibility for some states. The individual entries in the mapping instructions in Attachment 3 identify specific groups of persons who are eligible for Medicaid as outlined in specific citations from either the Code of Federal Regulations or the applicable public law. States vary in terms of the detail that is identified in their individual eligibility mapping factors reported in MSIS data element "Eligibility Group" and captured in the MAX data element "State Specific Eligibility Code" (data element #33). If a user had access to the state-supplied definitions for those factors and there was sufficient detail in the factors, the user could identify the specific condition (citation) that was behind the mapping to the MSIS MAS/BOE category. Users should be warned that this could be a complex, tedious task that may not produce the desired results for all states.

Q: What is the overall quality of MAX data beginning in 1999 and how does it differ from the quality of the SMRF data for 1998 and earlier years?

A: There are several dimensions in answering this question:

Data Quality in State Systems

First, it is important to recognize that the MAX data have their origins in state Medicaid Management Information Systems (MMISs) that have been designed to meet the specific requirements of each state. The purpose of each state MMIS system is to operate the Medicaid program in that state (e.g. enroll persons in Medicaid, pay claims for fee-for-service providers, enroll providers, etc.). The bulk of the standards for these systems are operational in nature and do not specify standard definitions of data element and standard code values in state MMIS systems. The source data for MSIS and MAX are a by-product of these operating systems. Quality is generally higher for data elements that are required for transactions or subject to audit. Examples include paid amounts for fee-for-service (FFS) claims and DRGs for hospital care when a state reimburses hospital care using a DRG-based payment system. Lower quality could be expected for other data elements that are not subject to audit, such as zip code of residence. Quality for a particular data element may vary from state to state and within a state over time (particularly when Fiscal Agent changes occur). In terms of service utilization, data quality is typically much higher for services delivered under FFS than for services delivered under prepaid plans (see Question 8 for more detail on this issue). It is true that HIPAA will result in changes to state systems, but those changes will take time and it is unlikely that they will result in complete standardization of data.

Data Quality Efforts in MSIS

CMS requires that states extract and recode data from their MMIS systems into standard MSIS definitions according to a document promulgated by CMSO known as the "Medicaid Statistical Information System – Tape Specifications and Data Dictionary". Copies of this document are available on the CMS web site at: http://www.cms.hhs.gov/medicaid/msis/msisdd99.pdf. The dictionary includes error tolerances for each data element. CMS intake processing activities set error condition codes for each data element. Based on the extent of errors found within each MSIS file submitted by a state, the file may either pass or fail CMS acceptance testing. If a file fails, the state must make corrections until the file passes acceptance testing.

Because state participation in MSIS was voluntary prior to FY 1999, only 38 states submitted the data for FY 1998. For data submissions prior to FY 1999, CMS resources were limited to answer questions from states or provide technical assistance as states attempted to comply with MSIS requirements.

Beginning with FY 1999, MSIS participation was mandated for all states. CMS increased resources for the MSIS intake effort, resulting in several enhancements:

(1) The MSIS Data Dictionary was expanded to add new data elements, revised definitions and expanded code values for existing data elements;

(2) All states were required to provide CMS with a detailed "application" package which provided CMS with a wealth of information about the unique features of each state's Medicaid system (e.g. hospital payment methods - DRGs, claims adjustments methods, managed care plan names linked to plan identifying numbers, explanations of state-defined service codes, crosswalks of state eligibility codes and type of service codes to MSIS standard codes and provider specialty codes);

(3) CMSO contracted with Mathematica Policy Research (MPR) to review the application packages, to determine the degree to which submitted data are consistent with information provided in the application, to review submitted data according to the tolerance criteria and other standards and to assist states to make corrections when data files fail acceptance testing; and

(4) Through CMSO's contract, MPR has also developed two types of products for CMS that document data quality on a state by state basis: MSIS state data validation reports and an MSIS data "anomalies" report.

Data Quality Efforts in SMRF and MAX

For SMRF data production (prior to CY 1998), there were significant activities to validate state mapping of their state-specific eligibility and TOS codes into standard MSIS codes. Remapping was done when errors and inconsistencies were discovered. Because the unit of observation for SMRF services is the "final action event" (e.g. hospital stay, visit, prescription, etc.), it was necessary to develop state-specific claims adjustment methods to combine interim claims (originals, voids and adjustments). A number of other data quality checks were also implemented. Finally, an overall assessment of the quality of SMRF data was conducted through a review of SMRF validation reports. Whenever possible, SMRF files were reprocessed to fix problems judged to be significant by the MAX development team.

Beginning with CY 1999 data, the MAX process has built upon and expanded the existing SMRF data quality effort. In addition, expanded review and validation of the MSIS data submitted by states, initiated for Fiscal 1999, has eliminated some problems that would previously have been discovered downstream in the SMRF validation process. In many instances, data are resubmitted by states to eliminate problems. However, it should be noted that there are some data problems in the data as it is submitted by states that cannot be fixed. In these instances, neither the state is unable to correct the problem nor the MAX development team can devise a reasonable fix to correct the problem. In these instances, MAX has begun production of data anomalies reports on an annual basis (similar to that developed for MSIS).

Q: In MSIS and MAX, what is the quality of encounter records for persons enrolled in prepaid plans (HMOs, HIOs, PHPs, etc.)?

A: First, enrollment data for persons in prepaid plans should be complete and should identify the months of enrollment in prepaid plans. In addition, "claim" records for premium payments should be complete and consistent. However, the same is not necessarily true for service utilization data. The record of services provided through fee-for-service providers should be reasonably complete. The same is not true for encounter records from prepaid plans. CMSO and it contractor have evaluated the FY 1999 and 2000 MSIS encounter data. Based on the findings of the analyses, there were no States where the consistency and quality of reporting for encounters is good enough to support research and other types of data analyses using encounter records.

Users should note that this same limitation does not apply for persons enrolled in Primary Care Case Management (PCCM) plans because care delivered to persons in these plans is usually delivered through fee-for-service systems.

Q: Why aren't standard sample files (e.g. 5% or 10%) available for MAX?

A: The MSIS instructions to State Medicaid agencies are that they are to report data for all Medicaid enrollees and all services in MSIS, whether provided under fee-for-service or prepaid managed care. However, full reporting of all enrollees and all services may not be a goal that is met for all States and all years, especially for "encounter" records of services provide by prepaid managed care plans. Nevertheless, the MAX data are a very rich data set that allows users to conduct research for a wide variety of Medicaid enrollee groups and Medicaid covered services. The possibilities are quite diverse, including: nursing home residents, dual enrollees with full Medicaid benefits, persons with HIV/AIDS, foster care children, Medicare ESRD enrollees in Medicaid, low birth-weight newborns, persons with injuries, Medicaid SCHIP (M-SCHIP) expansions, and more. A simple random sample would include a very small numbers of records for many important Medicaid population-based and service-based research questions, for many states. This is an extremely important issue in Medicaid because of the diversity across state programs. The small number of cases would not provide users with the estimating power they desire. For these reasons, CMS has decided not to create standard MAX sample files. Starting with the MAX "universe" files, users may want to devise a sampling strategy of their own to select a representative sample tailored to their specific research requirements. However, users should carefully determine sample selection criteria in view of the quality of data reporting for data elements that are key to their research. The MAX Validation Tables are an excellent tool for users in this process.

Q: Can I obtain a complete view of all health services delivered to all Medicaid enrollees by using the MAX data?

A: Stated simply, no, a complete view of all health services delivered to Medicaid enrollees cannot be obtained by using the MAX data. The MAX data are derived

from state data submitted to CMS under the MSIS reporting requirements.   States prepare the MSIS data using data from their individual state Medicaid Management Information Systems (MMIS) and other state data systems, some of which may be housed in other state agencies. MMIS systems perform a number of functions, including: beneficiary enrollment, provider enrollment, claims payment (fee-for-service), premium payment (prepaid plans), Management and Administrative Reporting System (MARS) and Surveillance and Utilization Review System (SURS).

General Exclusions

Not all services received by Medicaid enrollees are captured in these systems. Examples of excluded services are:

- Services beyond the amount, duration and scope of coverage specified in the individual state Medicaid plan.
- Services received during periods when the person is not eligible for Medicaid.
- Services paid by other payers (including Medicare, private insurance, self pay and block-granted programs). MSIS and MAX data may include services normally covered by other insurers when service use exceeds the amount, duration and scope of coverage by the other insurer.
- Services provided at no charge, such as free screenings or immunizations.

In addition, there are specific Medicaid subpopulations for which service information may be missing or incomplete. This is particularly important for two groups, individuals enrolled in both Medicaid and Medicare (dual enrollees) and persons enrolled in Medicaid prepaid plans (either comprehensive or partial plans), as discussed below.

Dual (Medicaid and Medicare) enrollees

For services that are covered only by Medicaid, the service record should reflect all services delivered and Medicaid payment amounts up to Medicaid payment limits. For services that are covered by both Medicaid and Medicare, Medicaid records may include all services delivered, but Medicaid payment amounts in these records may reflect only co-payment and deductible amounts paid by Medicaid after Medicare has made payments up to its coverage limits. For this reason, average payment amounts per service or per day, as calculated from these records, may substantially understate total payment amounts per service or per day. It is not uncommon that diagnosis and other data elements may be missing on Medicaid dual enrollee service records because of the way in which billing data is transferred between Medicare (carriers and/or intermediaries) and Medicaid. While a systematic analysis of missing code values for all data elements on crossover claims is not available, the SMRF (1996-98) and MAX validation reports and data anomalies reports may provide some insight into the completeness of reporting for many of the SMRF and MAX data elements. These reports contain specific findings for dual enrollees and are available at the MAX web site: http://www.cms.hhs.gov/researchers/max.

Incomplete reporting probably varies to some extent across Medicare carriers and intermediaries. This is NOT a typically a situation where state Medicaid agencies have the missing data elements and fail to provide them in MSIS reporting. Rather, these data elements may be missing when the bills are transferred from the Medicare carriers and/or intermediaries to the Medicaid state agency. Because states may not have these data elements, they may be unable to provide them to CMS in MSIS reporting. The extent of missing data in a dual enrollee service record probably varies among the Medicare carriers and intermediaries.

In cases where actual Medicare payment exceeds Medicaid payment schedules, Medicaid is not required to pay co-payment amounts. Also, prepaid plans may absorb co-payment amounts for their dual enrollees. Therefore, these Medicaid service records may be missing in MSIS reporting. This problem may vary across states and over time.

Persons Enrolled in Medicaid Prepaid Managed Care Plans

First, it is necessary to define the two major types of Medicaid prepaid plans, for which data may be missing or incomplete in the MSIS and MAX files:

- Comprehensive coverage as offered by plans such as Health Maintenance Organizations (HMOs) and Health Insuring Organizations (HIOs). These plans typically provide a full array of covered services under the plan. These plans are paid a "premium" before services are delivered. During periods of enrollment in these plans, there should be no fee-for-service claims data for plan enrollees, unless certain classes of services are carved out of plan coverage (e.g. behavioral health services).

- Less than comprehensive coverage as offered by Prepaid Health Plans (PHPs). These plans may offer prepaid coverage for selected groups of services, such as dental care, behavioral health services, prenatal/delivery services, and others. These plans are also paid a "premium" before services are delivered. An individual may be enrolled in more than one of these plans at any point in time. Services that are not covered by any of these plans should appear in the fee-for-service claim data. Even among similar types of plans, there may be substantial variation in the breadth and depth of service coverage across plans.

In addition to the two major types of plans described above, Primary Care Case Management (PCCM) is a form of managed care that usually involves a small per member per month payment (e.g. $3) to a primary care provider to manage patient care, under the authority of Section 1915(b). This PCCM payment usually covers only case management services and none of the other services that the patient receives. In most PCCM arrangements, all other services are billed through the fee-for-service system. Some states enroll beneficiaries in PCCM, but only pay the PCCM provider when case management services are delivered to the beneficiary. Other states may pay the PCCM provider whether or not the provider actually

performed case management services in the month. In either case, payment for PCCM services may be included with other fee-for-services claims and may not be easily identified as PCCM services. In summary, for PCCM enrollees, the MAX data should include records in the Other Services file for the PCCM case management service (either as a premium payment or fee-for-service record). Services other than case management will usually appear as fee-for-service records in any of the MAX files, according to the usual types of service that appear in each of the MAX services files.

The MSIS and MAX data may include two types of records for person enrolled in prepaid plans:

- The first type of record is for the premium payment amounts paid by Medicaid to the plan for each enrollee, usually on a monthly basis. This record does not have any direct relationship to services rendered. These types of records may be found in MAX/SMRF Other Services (OT) files. Prior to 1999, they can be identified by SMRF Type of Service code value = 20 (premium payment). After 1998 they are identified by using code values = 20-22. Type of Service = 20 identifies payments made to comprehensive plans (HMOs and HIOs). Type of Service = 21 identifies payments made to less than comprehensive plans (PHPs). Type of Service = 22 identifies payments made to PCCM plans.

- The second type of record is an "encounter" record for services delivered by the prepaid plan. As with administrative data from other payers, "encounter" data reporting from most plans currently lacks the completeness and consistency to support a wide variety of research activities at this time. This can be a greater or lesser problem for data users for several reasons. First, states vary greatly in the overall number and percent of their Medicaid enrollees who are covered by prepaid plans. Second, enrollment in prepaid plans also varies greatly by Medicaid eligibility group. Typically, the percent of adult and child enrollees in prepaid plans is much higher than the percent of aged and disabled enrollees in prepaid plans. This is an important issue that should be carefully considered in the design of many Medicaid research studies.

Users may want to refer to summary statistics that are contained in the *Medicaid Managed Care Enrollment Report*, published as of June 30 of each year. This report can be accessed on the Web at the following address: http://www.cms.gov/medicaid/mcaidsad.asp. When using these statistics, users should be careful to subtract counts of persons in PCCM plans from counts of managed care enrollees, reported in this volume, to estimate numbers of enrollees in prepaid plans. As noted above, this is because most PCCM enrollees receive care through the fee-for-service system, but PCCM enrollees are included in statistics published in this report.

Specific Services

Also, there are instances where data users will not have detail on all services provided. Illustrative examples include:

- Inpatient hospital services include an array of services related to the inpatient stay, such as prescribed drugs, oxygen, blood, etc. Beginning in 1999, MSIS and MAX include data for UB-92 revenue codes in each inpatient hospital record. It may be possible to use these codes to determine if certain types of services were delivered to the patient in a given inpatient hospital stay. However, it may not be possible for data users to identify the level of detail they may desire. For example, it is not possible to identify specific prescribed drugs, by NDC, that were provided to the patient during their inpatient stay. The general rule for inpatient stays is that services provided (and billed for) by the inpatient hospital will be included in billed amounts on the inpatient hospital claims. Other services, not included on the inpatient hospital claims, such as physician and anesthesiologist services, will be on separate records in the MAX Other Services (OT) file.

- Long-term (LT) care claims may include an array of ancillary services for the long-term care resident. This is known as service "bundling". Typically, Nursing Facility (NF) claims include over-the-counter drugs, in most states. However, most states do not "bundle" prescribed drugs into their NF claims. NFs may also "bundle" other services, such as physical therapy, into a NF claim if the service was provided by a member of the NF staff.

- Service detail for services provided to pregnant women may be missing from the services files if the women received prenatal care services from a provider when Medicaid made a single payment to the provider for a prenatal care service "package".

Q: How can I determine Medicaid utilization for dual enrollees for selected diagnoses, procedures and/or medical conditions if these data elements are not coded in MSIS and MAX records for dual enrollees?

A. First, a user should link MAX enrollment data with Medicare enrollment data for these enrollees, then access Medicare and Medicaid service (claims) records for the enrollee from both systems to identify completely selected diagnoses, procedures and/or medical conditions for the enrollee.

Q: How can I determine the completeness and accuracy of reporting for MAX data elements?

A: The SMRF (1996-98) and MAX (1999 and later) validation reports and data anomalies reports may provide insight into the completeness and accuracy of reporting for many of the MAX data elements. These reports are available on the MAX web site.

Q: Where can I find overview information on the various Medicaid waiver programs?

A: http://www.cms.gov/medicaid/waivers
This web page has links to descriptions of the 1115, 1915(b), 1915(c) (also known as 2176) and 1915(b)(c) combination waivers. In addition, information is available on Pharmacy Plus, Health Insurance Flexibility and Accountability (HIFA) and other demonstration programs.

http://www.cms.hhs.gov/medicaid/1932a
This web page provides information on the 1932a State Plan Option for Managed Care.

Q: Using SMRF or MAX Person Summary File data, can I identify persons who are enrolled in a Medicaid waiver program?

For years prior to 1999

In the SMRF files for CY 1996-1998, Person Summary file data elements #8 and #9 (State Specific Eligibility Code) contain non-standardized eligibility codes used by each state for eligibility, which may, in some cases, contain information about waiver eligibility. The meaning of these codes varies by state and would require contact with each state to identify the coding used during the time period of the eligibility file. Use of this variable is not recommended.

These SMRF files do not identify Section 1115 waiver demonstration expansion enrollees.

For these years, it is not possible to identify enrollees in home and community based care waivers using the MSIS eligibility file or the eligibility portion of the SMRF Person Summary File.

For years 1999-2004

In the MAX files for CY 1999-2004, Personal Summary file data elements known as State Specific Eligibility Code (data elements #20 and #33), contain non-standardized eligibility codes used by each state for eligibility, which may, in some cases, contain information about waiver eligibility. The meaning of these codes varies by state and would require contact with each state to identify the coding during the time period of the eligibility file. Use of this variable is not recommended.

In the MAX Personal Summary file for years 1999-2004, Uniform Eligibility Code (data elements #21 and #34) provide uniform eligibility codes, allowing comparison across states. Code values allow states to identify persons enrolled in Section 1115 demonstrations.

For these years, it is not possible to identify enrollees in home and community based care waivers using the MSIS eligibility file or the eligibility portion of the MAX Person Summary File.

For years 2005 forward

Beginning with MSIS reporting in the first quarter of FY05, states are supposed to report monthly waiver enrollment for each enrollee for up to three waivers per person per month in two new data elements: "Waiver Type" and "Waiver ID". For example, this will allow a state to show that a particular enrollee is: enrolled in a Section 1115 waiver demonstration expansion, is covered under a 1915(b) waiver of statewideness, and is enrolled in a 1915(c) home and community based waiver.

Q: Using SMRF or MAX service (claims) records, can I identify Medicaid beneficiaries who are eligible due to a waiver program?

Identifying waiver enrollees through service records has many potential pitfalls. In general, it should be noted that not all states correctly report claims for services provided under waivers. There are at least four major issues:

(1) Some states may not submit claims for all waiver services,
(2) Some waiver claims may be included and correctly identified as waiver claims,
(3) Some waiver claims may be included but not correctly identified as waiver claims, and
(4) At least one state has submitted waiver claims as service tracking claims where claims for more than one person are combined.

Also, not all persons enrolled in waiver programs use waiver services.

Using SMRF or MAX data, can I identify services provided to Medicaid beneficiaries under a waiver program?

For years prior to 1999

Identification of waiver services is difficult if not impossible to determine from the SMRF data during these years. For years prior to 1999, it is not clear how states were reporting waiver services. At one point in time, MSIS instructions were revised to add MSIS Type of Service = 40 for home and community based waivers, but the code was dropped beginning with FY99 reporting because of reporting inconsistencies and definitional problems. Waiver services also were reported in other MSIS types of service (e.g. TOS = 19 Other services). There are no SMRF Type of Service codes to reflect waiver services.

For 1999 and later

For MAX 1999 (and later) data, the claims data element "Program Type" has two code values to identify waiver services:

6 = Home and Community Based Care for Disabled Elderly and Individuals Age 65 and Older - Section 1915(d)

7 = Home and Community Based Care Waiver Services – Section 1915(c)

Attachment 5, Program Type Reference, to the MSIS instructions to states provides definitions for each of these code values: States are to code 1915(d) waivers as type 6 and 1915(c) as type 7 waivers. However, as a practical matter, most states did not differentiate between 1915(c) and 1915(d) waivers. To the extent that states actually reported waiver services in this way, most used only one of the two values (either 6 or 7, regardless of the types of home and community based waivers they had). So, when using the program type variable to identify waiver services, it is best to use both values 6 and 7.

As noted above, the reporting of waiver services has been incomplete. There has been some improvement, but not all states are reporting waiver services and many states may be including only some of their waiver services in MSIS or only identifying a subset of all waiver services as waiver services via the "Program Type" codes (as of August, 2004). For reasons that are unclear, some enrollees who are identified as waiver enrollees appear to never receive services through the waiver. There are several possible reasons: services are not reported, services are not identified as waiver services, some enrollees die before they receive any waiver services, or they did not actually use services.

It is possible that waiver services could be identified from state-specific procedure (service) codes that were in use prior to HIPAA implementation (in April, 2004) and sometimes in use after HIPAA implementation. However, this approach would be tedious, resource-intensive and would vary from state to state because codes may vary from state to state and perhaps across years within a state.

In particular, since some services provided through a waiver could also be provided to non-waiver enrollees under individual state plan provisions (e.g. personal care), using procedure or service codes may not precisely identify waiver recipients.

In summary, it may be very difficult to develop a consistent approach to identify either waiver enrollees or waiver services prior to 1999. Beginning in 1999, the expansion of eligibility codes to include Section 1115 waiver enrollees should improve reporting for these waiver enrollees. Also, addition of the "Program Type" data element should remove some of the ambiguity in MSIS reporting requirements. However, there may still be inconsistencies in the reporting of waiver services. The addition of Waiver Type and Waiver ID data elements in Fiscal 2005 should greatly improve identification of enrollees in Section 1115, 1915(b) and 1915(c) waivers.