Development of the Medicaid Analytic Extract Provider Characteristics (MAXPC) File

Final Implementation Report, 2006

September 27, 2010

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Julie Sykes
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ACKNOWLEDGMENTS

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ACRONYMS

ANSI	American National Standards Institute
CMS	Centers for Medicare & Medicaid Services
CY	Calendar year
FFS	Fee-for-service
DEA	Drug Enforcement Administration
FY	Federal fiscal year
HIPAA	Health Insurance Portability and Accountability Act
ICF/MR	Intermediate care facilities/mentally retarded
ID	Identification/identifier
IDR	Integrated Data Repository
IP	Inpatient
LPI	Legacy Provider ID
LT	Long-term care
MAXPC	MAX Provider Characteristics File
MAX	Medicaid Analytic Extract
MMIS	Medicaid Management Information Systems
MPIER	Medicare Physician Identification and Eligibility Registry
MSIS	Medicaid Statistical Information System
MSIS PLUS	Medicaid Statistical Information System PLUS
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration System
NSC	National Supplier Clearinghouse
OSCAR	Medicare Online Survey, Certification, and Reporting
OT	Other services

PACE	Program of All-inclusive Care for the Elderly
PECOS	Provider Enrollment, Chain and Ownership System
PIN	Provider Identification Number
RX	Drug
SSA	Social Security Administration
SSN	Social Security Number
UPEP	UNIFIED Medicare & Medicaid Provider Enrollment Project
UPIN	Unique Physician Identification Number
WEDI	Workgroup for Electronic Data Interchange
WPC	Washington Publishing Company

EXECUTIVE SUMMARY

The Medicaid Statistical Information System (MSIS) files, and the corresponding researcher-friendly Medicaid Analytic eXtract (MAX) files, support a wide range of studies on Medicaid enrollment, service use, and expenditures. There is currently considerable interest at the Centers for Medicare & Medicaid Services (CMS) in examining health reform proposals, program integrity, and access-to-care issues among certain types of Medicaid providers. However, it has not been possible to easily conduct provider-based research activities because the provider identification (ID) numbers collected in MSIS are largely unedited, undocumented, and state-specific.

Beginning in 2004,[1] the Health Insurance Portability and Accountability Act (HIPAA) mandated covered entities such as health care providers, health plans, and health care clearinghouses to obtain and use a National Provider Identifier (NPI) in all administrative and financial HIPAA transactions (CMS 2010). The NPI is a unique, 10-digit, sequentially assigned, national identification number, unstructured so as not to carry any information, such as the state or medical specialty of the health care provider, about who "owns" the identifier. Starting in February 2009, states were required to include NPIs on their MSIS claims.

The main limitation of NPIs on claims for Medicaid services is that certain classes of nonmedical providers are not required to obtain an NPI. For example, adult day health care, case management, personal care, nonemergency transportation, and many other services are excluded from the NPI requirement. Because these so-called "wrap-around" (e.g., nonmedical) services can represent a significant part of the Medicaid package of services, and are of particular interest to policymakers, this "hole" in the assignment of the NPI can be problematic for provider-related research. Nonetheless, the availability of the NPI on MSIS claims makes the development of a uniform provider characteristics file more feasible. Consequently, CMS contracted with Mathematica to design and implement a Medicaid Analytic eXtract Provider Characteristics (MAXPC) file.

In building the MAXPC file, our basic objective was to create a uniform provider file for each Medicaid provider in MAX, whether the provider is identified using an NPI or a state-defined provider ID (also referred to as a legacy provider ID). The following criteria and considerations drove Mathematica's design recommendations and implementation strategies.

- The MAXPC file should supplement or correspond to a set of MAX files.

- Every provider ID in MAX should be in the MAXPC file.

- A single, simple methodology should be used to link a provider in the MAX files to a provider in the MAXPC file.

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[1] NPIs were adopted by HIPAA as the standard, national, and unique identification system for health care providers in a January 2004 final ruling.

- The MAXPC file should *not* replicate any existing database of providers.

- The MAXPC file should include all providers in MAX, even the atypical, nonmedical providers.

- The MAXPC file should be state-specific to ensure that legacy provider IDs, which can have the same value across states, link to the appropriate provider in each state.

Based on these overarching criteria, analysis of MAXPC design issues, and potential sources of provider characteristics, Mathematica recommended the implementation of a design that uses MAX 2006 claims, MSIS 2009 claims, the National Plan and Provider Enumeration System (NPPES), and state-supplied provider files as input. We also recommended that MAXPC serve as a supplemental database to the MAX inpatient (IP), long-term care (LT), drug (RX), and other services (OT) claims files. MAXPC will contain provider characteristics for every provider ID on every claim in MAX, regardless of whether it is a fee-for-service (FFS) or managed care claim. It will contain one record for each unique provider ID that appears in any of the MAX provider fields, regardless of whether the provider ID is a legacy billing provider ID (IP, LT, RX, OT), a legacy servicing provider ID (OT only), a legacy prescribing provider ID (RX only) or an NPI (IP, LT, RX, OT, beginning in FY 2009 MSIS files). MAXPC will be an annual, state-specific file, rather than one large national database.

Before implementing our proposed design in all 50 states and the District of Columbia, we tested its robustness by implementing it as a prototype in three states. Because of the newness of NPIs, selection of states for the prototype became a rather simple issue of identifying which states had submitted closest to 100 percent of their quarterly MSIS claims to CMS and, of these states, which ones were closest to having 100 percent of their claims to have reported NPIs. States that were selected for the prototype work based on these criteria were Florida, Indiana, and North Carolina.[2]

To build the 2006 MAXPC file, we developed programs that:

- Extracted provider IDs from the MAX 2006 claims files

- Developed crosswalks from the MSIS 2009 claims files, NPPES, and state provider files

- Linked the extracted IDs with the crosswalks

- Attached provider characteristics from NPPES and state provider files

- Produced validation and anomaly tables

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[2] During this initial process, Virginia was selected as one of the three states for the prototype. However, Virginia was unable to provide a state provider file for use in MAXPC. We then substituted North Carolina in its place.

MAXPC's main source of provider characteristics is the NPPES file, supplemented by state provider files. Generally, the NPPES file provided a good source of provider characteristics information. In a small percentage of cases, when the NPPES did not link to the provider ID, we were able to obtain provider characteristics data from the state provider files. An exception to this is Florida, which was unable to provide a comprehensive provider file.

With some exceptions, linkages for IP, LT, OT, and RX billing provider IDs in MAX show good results when matched with the NPPES. In Indiana and North Carolina, over 94 percent of IP and OT billing provider IDs linked to NPPES. The LT billing provider IDs for all three states linked in over 90 percent. RX billing provider IDs also linked at least 89 percent in all three states with Indiana's matching at virtually 100 percent and North Carolina's at 97 percent. Two areas that showed deficiencies are the OT servicing provider IDs and RX prescribing provider IDs. For OT servicing provider IDs, only 50 percent of IDs linked to NPPES in Florida, 64 percent in Indiana, and over 94 percent in North Carolina. For RX prescribing provider IDs, there was an across-the-board shortfall on linkage with about one quarter of provider IDs in Florida, just under 20 percent in North Carolina, and a whopping 87 percent of Indiana. These results are shown in Table 1.

Table 1. Linkage Rates of MAX 2006 Provider ID Types with Sources of Provider Characteristics

Provider ID Type	Florida	Indiana	North Carolina
IP billing provider IDs	66.3	100.0	94.8
LT billing provider IDs	93.4	100.0	94.5
OT billing provider IDs	64.6	100.0	94.0
RX billing provider IDs	88.6	100.0	97.0
OT servicing provider IDs	49.6	63.5	94.1
RX prescribing provider IDs	75.3	12.8	80.8

Source: MAXPC file.

Note: Sources of provider characteristics data were the NPPES and state provider files. The linkage of MAX 2006 provider IDs with NPPES provider characteristics was accomplished using NPIs. NPIs were obtained by linking MAX 2006 provider IDs with the MSIS 2009 files, NPPES crosswalks, and state crosswalks.

Based on what we have learned from previous use of the RX file, the relatively low linkage rates for RX prescribing provider IDs were not unexpected. Historically, neither the MSIS nor MAX data validation software contained measures that validated the contents of this field. Our initial data quality review of the data for MAXPC showed that one state, Florida, nine-filled the field, and another, Indiana, inserted invalid IDs such as provider's names, in the field. However, it was our expectation that linkage rates for OT servicing IDs would be higher than the rates for OT billing provider IDs. We expect that MAXPC 2009 will shed some light on these issues further.

We believe that for the full implementation of the MAXPC design for MAX 2009, we would be able to achieve better linkage of MAX provider IDs with the NPPES provider characteristics file because of the "built-in" linkages between legacy provider IDs and NPIs in MSIS beginning in FY 2009 Q2. However, the prototype for these three states exposed some issues that need to be addressed prior to full implementation. Our recommendations include:

- Monitoring the RX prescribing provider ID field and if warranted, changing the design of MAXPC to exclude it

- Requesting that states provide a crosswalk of NPIs and their legacy provider IDs

- Requesting a revision of the current MSIS specification document to provide clearer instructions for NPIs and legacy provider IDs

- Monitoring the content of provider IDs and NPIs to ensure the correct type of ID is provided

- Providing technical assistance to states that ask for help

- Revising the MAXPC validation tables to provide separate measures for OT servicing and billing provider IDs, and to add additional measures

- Redesigning the anomaly tables to ensure more appropriate benchmarks are used to identify anomalies

I. INTRODUCTION

The Medicaid Statistical Information System (MSIS) files, and the corresponding researcher-friendly Medicaid Analytic eXtract (MAX) files, support a wide range of studies on Medicaid enrollment, service use, and expenditures. There is currently considerable interest at the Centers for Medicare & Medicaid Services (CMS) in also examining health reform proposals, program integrity, and access-to-care issues among certain types of Medicaid providers. However, it has not been possible to easily conduct provider-based research activities because the provider identification (ID) numbers collected in MSIS were largely unedited, undocumented, and state-specific. When the current MSIS reporting system was implemented in 1999, it was believed that all providers would soon be using Unique Physician Identification Numbers (UPIN), a numbering scheme intended to represent providers nationally, so it wasn't thought necessary to have the states submit uniform MSIS provider files. For a variety of reasons however, that system was never implemented in MSIS.

Beginning in 2004,[3] the Health Insurance Portability and Accountability Act (HIPAA) mandated covered entities such as health care providers, health plans, and health care clearinghouses to obtain and use a National Provider Identifier (NPI) in all administrative and financial HIPAA transactions (CMS 2010). The NPI is a unique, 10-digit, sequentially assigned, national identification number, unstructured so as not to carry in any way information such as the state or medical specialty of the health care provider who "owns" the identifier. Starting in February 2009, states were required to include NPIs on their MSIS claims. Most of the states are

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[3] NPIs were adopted by HIPAA as the standard, national, and unique identification system for health care providers in a January 2004 final ruling.

complying with this requirement, though some states have been slow to adopt either due to budget and system constraints or because they simply don't yet have good NPI data in place.

The main limitation of NPIs on claims for Medicaid services is that certain classes of nonmedical providers are not required to obtain an NPI.[4] For example, adult day health care, case management, personal care, nonemergency transportation and many other services are excluded from the NPI requirement. Because these so-called "wrap-around" (e.g., nonmedical) services can represent a significant part of the Medicaid package of services and are of particular interest to policymakers, this "hole" in the assignment of the NPI can be problematic for provider-related research. Nonetheless, the availability of the NPI on MSIS claims makes the development of a uniform provider characteristics file more feasible. Consequently, CMS contracted with Mathematica Policy Research to design and implement a Medicaid Analytic eXtract Provider Characteristics (MAXPC) file.

Mathematica is aware of two recent and ongoing efforts at CMS aimed at building a database containing integrated Medicare and Medicaid provider information. These two efforts are the Integrated Data Repository (IDR) project and the UNIFIED Medicare & Medicaid Provider Enrollment Project (UPEP). Both projects' aims are a worthwhile undertaking: improving and simplifying access to information for all providers of Medicare and Medicaid services, thereby benefitting all stakeholders in Medicare and Medicaid including states and the federal government, beneficiaries, and providers alike. While we are not fully aware of what processes are being undertaken by the IDR or UPEP teams to achieve their desired outcomes, or of the current progress of these projects, we do not foresee that the breadth of the MAXPC effort

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[4] Most of these providers could obtain an NPI but are not required by HIPAA to do so.

comes close to the efforts being expended on either project. Our intended design does not attempt to create a one-stop solution to obtaining provider characteristics information for all providers of service in Medicare and Medicaid, but rather to fill a current void in provider-based research involving Medicaid data, specifically, MAX data. Mathematica's approach likely does not result in a duplication of the efforts being expended in either of the above projects.

In building the MAXPC file, our basic objective is to create a uniform provider file for each Medicaid provider in MAX, whether the provider is identified using an NPI or a state-defined provider ID (also referred to as legacy provider IDs or LPIs). Before fully implementing the design of MAXPC in all states, we first created a prototype file using a small number of selected states. To accomplish the task, we reviewed a number of potential sources of provider characteristics information and selected and extracted relevant information from such data sources.

The following criteria and considerations drove Mathematica's design recommendations and implementation strategies.

- The MAXPC file should supplement or correspond to a set of MAX files.
- Every provider ID in MAX should be in the MAXPC file.
- A single, simple methodology should be used to link a provider in the MAX files to a provider in the MAXPC file.
- The MAXPC file should *not* replicate any existing database of providers.
- The MAXPC file should include all providers in MAX, even the atypical, nonmedical providers.
- The MAXPC file should be state-specific to ensure that legacy provider IDs, which can have the same value across states, link to the appropriate provider in each state.

Based on these overarching criteria, analysis of MAXPC design issues, and analysis of potential sources of provider characteristics, Mathematica recommended the implementation of a design that uses MAX 2006 claims, MSIS 2009 claims, the National Plan and Provider

Enumeration System (NPPES), and state-supplied provider files as input. The MAXPC file is state-specific and contains one record for each unique provider ID that appears in any of the MAX provider fields. Before implementing the proposed design in all 50 states and the District of Columbia (hereafter, referred to as "51 jurisdictions"), we tested its robustness by implementing it as a prototype in three states. The design evolved as we developed the prototype and learned more about strengths and limitations of various data sets as well as of individual fields used in the linkage. In this final report for the project, we fully document all the procedures we developed during the implementation of the prototype MAXPC file.

In Chapter II, we describe the issues and questions that were raised during the procurement process for MAXPC, as well as our solutions to them. In Chapter III, we describe the various data systems we investigated as potential sources of provider characteristics and identify the data sources selected for the project, along with the rationale for selecting them. In Chapter IV, we describe the methodology we implemented to produce the prototype MAXPC file. In Chapter V, we describe the process we undertook to implement the methodology described in Chapter IV. Finally, in Chapter VI, we present our recommendations for the full implementation of the MAXPC file design.

Mathematica generated and reviewed validation tables to determine whether the linkages are working in the expected manner. These validation tables are presented in Appendix A of this report. Mathematica also designed anomaly tables to highlight idiosyncrasies and egregious data problems in the MAXPC file. These tables are presented in Appendix B.

II. DESCRIPTION OF TASK

A. MAXPC Design Issues

The basis and rationale of Mathematica's design recommendation was built upon a detailed analysis of design issues as well as an understanding of the multiple potential sources of provider IDs and characteristics that can be used to yield a fruitful MAXPC database.

A number of important questions were raised in the technical proposal during the procurement process for MAXPC; additional issues came to light as we proceeded to work on the design of the file. These questions and issues and our design approach are summarized in Table II.1. Some of the more salient points are discussed further below.

The biggest questions focused on whether the NPI should be the unique ID for every provider in MAXPC or whether each provider ID—regardless of source—should be the unique ID. The main argument for making the file NPI-based is that this is generally the direction in which CMS wants to take the provider identification convention—toward a national, single identifier for all health care providers. The National Plan and Provider Enumeration System (NPPES); MSIS PLUS; and the Provider Enrollment, Chain and Ownership System (PECOS) are data sources that were recently designed by CMS to use the NPI as the standard, national provider ID. In addition, various mandates have been issued to wean states and providers from using legacy provider IDs (that is, any of the sets of provider IDs used prior to the development of NPIs) in favor of NPIs. However, at the current time, NPIs have not been widely used in MSIS (and therefore in MAX). It was only in fiscal year (FY) 2009 that NPIs appeared on MSIS claims, and they are not yet being reported in all states. Until all the files report NPIs for all provider IDs, legacy IDs will continue to play a big part in provider-based research. Moreover, as mentioned earlier, nonmedical providers will not have an NPI. Therefore, we recommended including all provider IDs in MAXPC.

Table II.1.   Key Design Issues Surrounding MAXPC and Mathematica's Design Approach

Design Issues	Design Approach
Should the files contain only providers that have submitted MSIS claims?	The files should include all providers with at least one claim in any of the four MAX claims files.
Should providers who work in managed care settings be included in the MAXPC file?	Yes. We will not exclude any provider based on type of claim. All providers with a valid NPI or legacy ID will be in MAXPC.
Should MAXPC be designed as a national or state-specific file?	State-specific. A state-specific file keeps identical but unrelated legacy IDs from multiple states from being treated as duplicates.
Should MAXPC be designed yearly or as an "ever-a-provider"/cross-year/longitudinal file?	Yearly. Only providers who provided a service within the given year will be included.
Is it better to create one record per provider with all associated NPI/state provider IDs or separate records for each ID?	Separate records for each provider ID. During the current transitional period when providers and states are switching from legacy IDs to NPIs, there must be some ability to identify both types of provider IDs. As NPIs become more mainstream, the design should be able to adapt automatically.
Do we include all or some of the nonmedical providers (for example, those who don't have, and might never get, an NPI)? What source files should be used? Would individual state provider files be the best sources? Would we augment state data with NPPES information?	All providers regardless of type. The main source of data should be any of the NPI-based provider files augmented by state-provider files or crosswalks, when available.
What year will be selected as the starting year—MAX 2006? Or, since NPI is being reported (in some states) starting with files submitted in 2009, should the system be designed for a starting year of MAX 2009 or 2010?	The most recently completed MAX files—2006.
What variables will be included? Do we include data elements available for some states/sources but not all?	Selected data elements in NPPES plus some claims-based information. When available, state provider files will be used to extract the equivalent data elements as would be found in NPPES.
Should there be a master file with links to records under all other NPIs or IDs used by the same individual or facility? If so, would only the master file include provider characteristics? Would cross-referencing be built into the database so users would automatically get all records matching an inquiry (as is done with the Medicare Enrollment Database?)	No.
How feasible is it to obtain and incorporate the various data sources into MAXPC?	NPPES is available on the web; MSIS PLUS is currently not available.
How does MAXPC relate to the other MAX data sets? Should MAXPC be run in the same production cycle as the rest of the MAX files?	MAXPC should be produced at the same periodicity as other MAX claims file for the same calendar year. The NPPES data source should be updated as CMS updates it (currently quarterly).
How much backward compatibility, if any, should be built into the design?	The goal is to find provider characteristics for the year in question.

We also considered whether the MAXPC file should contain all certified Medicaid providers, or perhaps all health care providers, and not be tied to MSIS or MAX claims. We think it is highly unlikely that the source data needed for such a large undertaking could be made available, especially during this environment of strained budgets and resources in the various state Medicaid departments—the very agencies from which this information would be collected.

Another question focused on which year to use in designing the MAXPC file. We thought it would be easiest to use the most recently completed MAX files—calendar year (CY) 2006. However, we also decided that the source of the provider characteristics must come from an NPI-based database, which means that, if at all possible, the MAXPC file must include the NPI on every record. Given that the MAX 2006 files do not have NPIs, we needed to bridge the gap between the MAX legacy provider ID and the NPI by linking to the FY 2009 MSIS claims, which contain both IDs for most providers.

We also considered whether MAXPC file should be constructed as a state-specific or a national file. While a national file would be easier to use, it could generate false positives because many legacy provider IDs are state-specific. For example, a legacy ID for a provider in Idaho could erroneously link to a provider in Illinois with the same number, even though it is not the same provider. Consequently, we recommended a state-specific MAXPC file.

B. Specific Recommendations for MAXPC Design

In summary, we recommended that MAXPC serve as a supplemental database to the MAX inpatient (IP), long-term care (LT), drug (RX), and other services (OT) claims files. MAXPC contains provider characteristics for every provider ID on every claim in MAX, regardless of whether it is a fee-for-service (FFS) or managed care claim. It contains one record for each unique provider ID that appears in any of the MAX provider fields, regardless of whether the provider ID is a legacy billing provider ID (IP, LT, OT, RX), a legacy servicing provider ID (OT

only), a legacy prescribing provider ID (RX only) or an NPI (IP, LT, OT, RX, beginning in FY 2009 MSIS files). MAXPC is an annual, state-specific file, rather than one large national database.

III. INVESTIGATION AND SELECTION OF DATA SOURCES

A. Potential Data Sources of Provider Characteristics

While we believed that a vast majority of claims in MAX contained state-specific Medicaid provider IDs, we looked into the possibility that there may also be other types of IDs in the files. This was driven in part by the assumption that we may not be able to get state provider files—the best source of Medicaid provider ID information—for all states. As a consequence, we identified a total of six potential sources of provider characteristics worthy of consideration: (1) Medicare Online Survey, Certification, and Reporting (OSCAR); (2) Medicare Physician Identification and Eligibility Registry (MPIER); (3) PECOS; (4) MSIS PLUS; (5) NPPES, and (6) state-specific provider files and/or crosswalks.

1. OSCAR

OSCAR is a repository of facility-level information collected and maintained by CMS (American Health Care Association 2010). It contains data elements of a survey, a snapshot of the facility's current state, conducted during inspection of long-term care facilities for use in the certification process needed by these institutions to participate in Medicare and Medicaid programs. These facilities include (CMS 2010):

- Intermediate care facilities/mentally retarded (ICF/MR)
- Long-term hospitals
- Nursing facilities (Title 19)
- Psychiatric hospitals
- Psychiatric units
- Rehabilitation hospitals
- Rehabilitation units
- Skilled nursing facilities (Title 18 and Title 18/19)
- Swing bed hospitals

The OSCAR database includes information on the operational characteristics, regulatory compliance, and patient census of each facility. Evaluations are conducted at least once every 15 months or whenever a complaint about the facility needs to be addressed. During the inspection period, facility administrators fill out required forms that report operations and the current census. Inspectors then review the information, but there is no formal auditing to ensure its accuracy.

In a recent examination of legacy provider IDs in MAX 2006 and MSIS FY 2009 data that we conducted for this task, we examined whether the OSCAR ID is mistakenly assigned as the Medicaid provider ID. In the three states that were chosen for the analysis, no IDs in these claims files matched an OSCAR ID. Thus, the utility of using the OSCAR database is quite small.

2. MPIER

MPIER, along with its offshoot, the UPIN directory, historically belonged to a set of CMS files referred to as "Provider of Services" files. MPIER files were maintained for CMS by Transamerica Occidental Life Insurance Company, with updates being produced on a quarterly basis. The source of information in the file is data provided by physicians on CMS forms 855I, 855B, and 855R when the physicians, practitioners, and groups apply for Medicare participation. The file is based on physicians' practice locations, such that a physician can have multiple records depending on the number of their locations. The files are kept on a comprehensive, "ever-enrolled" basis, though as physicians update their records in the system, they are designated to be either in an active or inactive file (ResDAC 2003).

Data elements in MPIER include:

- Physician's UPIN
- Physician's name, date of birth, date of death, and credentials
- Medical school information
- License information

- Business practice location information

- Provider specialties

The UPIN directory, a public-use version of the MPIER file that is updated quarterly, is distributed by CMS on a for-purchase basis. The UPIN directory contains an abbreviated set of data elements found in MPIER.

With the implementation of NPIs, however, CMS discontinued assigning UPINs and maintaining these files (CMS 2008). Thus, the utility of using the MPIER file or its associated UPIN directory file is quite small.

3. PECOS

PECOS is a web-based electronic system maintained by CMS and used by physicians and non-physician practitioners and contractors to enter their Medicare provider enrollment information (CMS 2010). In order to get paid, everyone who intends to provide services in Medicare is required to enroll in PECOS. Historically, information in PECOS is obtained from various CMS-855 forms. Service providers who enrolled in the Medicare program prior to 2003 are required to update their Medicare enrollment information, if necessary. Providers can easily add this information electronically into PECOS (CMS 2010). To ensure that service providers comply with the updating requirement, CMS had imposed deadlines to complete this information. However, the deadline had already been extended twice, from January 1, 2010, to April 5, 2010, and now to the current deadline of January 3, 2011 (Silva 2010). On that date, CMS will begin denying payments for services to non-PECOS enrolled providers. These delays, in part, allow doctors who had signed up to provide Medicare services prior to 2003 and who might not have known about the most recent requirement, to sign up.

To access PECOS, a physician or a service provider must have obtained an NPI, the unique key in this database. The information contained in PECOS is very similar to the NPPES file (described later). However, PECOS also includes these additional fields (CMS 2006):

- Provider's date of birth
- Medical school name and graduation year
- Provider specialty codes and types
- Information found in UPIN registry

The PECOS file is therefore a possible source of provider characteristics for the MAXPC file.

4. MSIS PLUS

MSIS PLUS is a pilot program funded by the CMS Medicaid Integrity Group. It builds upon the framework of the current MSIS system but includes many additional data elements. The structure of the files will remain relatively the same as MSIS for the claim and eligibility files, but the MSIS PLUS system will also include three new files—provider, reference, and third-party liability (Miller et al. 2009).

The MSIS PLUS provider file includes these data elements (Annadata 2009):

- Billing provider name and address
- NPI
- State-assigned provider identifier
- Medicare provider number
- Provider group number
- Provider specialty code
- Provider certification and certification dates
- Number of beds
- Provider ownership

While the data elements seem very promising as a source of provider characteristics data, the MSIS PLUS system is still in the pilot/testing phase. It is currently not known how complete the reporting of data elements has been or to what extent the MSIS PLUS system would be made accessible to external users. Nonetheless, the MSIS PLUS provider file is a possible source of provider characteristics for the MAXPC file sometime in the future.

5. NPPES

NPPES is a CMS-designed and -developed repository of provider-based information for all health care providers (CMS 2008). NPPES uses the NPI as the unique key, and it also contains data elements useful in provider-based research applications, including:

- NPI
- Provider name and credentials
- Organization type
- State of licensure and practice
- Provider taxonomy
- Other provider IDs and type of provider ID (e.g., Medicaid legacy ID, UPIN, OSCAR, etc.)

When the HIPAA took effect and established the NPI as the national standard provider identifier, the establishment of the NPPES file began in earnest. Providers were encouraged to apply for an NPI using a web-based application, a paper application, or through an organization that would submit electronic applications along with the information of other health care providers. As of May 2010, there were 3,104,787 unique NPIs in NPPES, 24 percent of which are organizations and 76 percent individual providers. We examined the suitability of NPPES as the primary data source of provider characteristics for MAXPC; this initial exploratory analysis suggested that there would be a good linkage rate to the NPPES.

One of the limitations of the NPPES file, however, is that it may not contain information on nonmedical providers since they were not required to obtain NPIs. However, our review also indicates there are a number of nonmedical providers in the NPPES file.

6.   State-Specific Provider Files and Crosswalks

It might be possible to supplement the NPPES as a data source with state-specific provider files. These files would ensure that all provider IDs reported in the various MSIS claims files are represented in MAXPC, particularly the nonmedical providers that may not have an NPI. The contents of each state's provider file, however, can vary tremendously from state to state. North Carolina, for example, as shown in Table III.1, can provide a comprehensive set of provider characteristics. Florida, on the other hand, as shown in Table III.2, can only provide a small set. Even though the Florida file contains fewer variables, it is still extremely useful because it can serve as a crosswalk (or cross-reference file) between the Medicaid legacy ID and the NPI, where possible. While the state-specific provider files and crosswalks are very promising, not all states have the resources to provide this information to CMS, so we cannot use the state provider files as the primary data source of provider characteristics.

B.   Issues Regarding Medicaid Legacy Provider IDs

Before FY 2009, MSIS claims included only state-specific legacy provider IDs. The MSIS data dictionary defines the source of the legacy provider ID (CMS 2009). It is supposed to be the Medicaid provider ID but it could be a Medicare UPIN, Medicare PIN, OSCAR or other ID, as no edit check is made to confirm the veracity of the information. Consequently, we examined the legacy IDs more closely, linking the legacy IDs to the NPPES file. The NPPES file is helpful in this regard because, in addition to providing the NPI for each provider, it also includes up to 50 alternate provider IDs for each provider, including Medicaid ID, Medicare UPIN, Medicare PIN, OSCAR ID, and Medicare National Supplier Clearinghouse (NSC) ID. Looking specifically at

facility claims, among the inpatient and long-term care legacy IDs that linked to NPPES, 98 percent were Medicaid IDs in Florida, 98 percent in Indiana, and 91 percent in Virginia. This high linkage rate gave us confidence that states were reporting the correct information in the legacy provider ID in MSIS.

Table III.1.   Partial List of Variables from North Carolina's Provider File

```
A1.PROVIDER_NUM
A1.NATIONAL_PROVIDER_ID_NUM
A1.NPI_ATYPICAL_IND
A1.NPI_VALIDATION_IND
A1.PROV_LICENSE_NUM
A1.PROV_UPIN_NUM
A1.BILLING_FORMATTED_NAME
A1.BILLING_ADDRESS_LINE1_NAME
A1.BILLING_ADDRESS_LINE2_NAME
A1.BILLING_CITY_NAME
A1.BILLING_STATE_CODE
A1.BILLING_ZIP_CODE
A1.SITE_FORMATTED_NAME
A1.SITE_ADDRESS_LINE1_NAME
A1.SITE_ADDRESS_LINE2_NAME
A1.SITE_CITY_NAME
A1.SITE_PHONE
A1.SITE_STATE_CODE
A1.SITE_ZIP_CODE
A1.PROV_BELONGS_TO_GROUP_NUM
A1.PROV_CLIA_NUM
A1.PROV_COUNTY_CODE
A1.PROV_ELIG_EFF_DATE
A1.PROV_ELIG_END_DATE
A1.PROV_IN_GROUP_NUM
A1.PROV_TYPE_DATE
A1.PROV_TYPE_CODE
A1.PROV_SPEC_DATE
A1.PROV_SPEC_CODE
A1.PROV_TYPE_DATE2
A1.PROV_TYPE_CODE2
A1.PROV_SPEC_DATE2
A1.PROV_SPEC_CODE2
A1.PROV_TYPE_DATE3
A1.PROV_TYPE_CODE3
A1.PROV_SPEC_DATE3
A1.PROV_SPEC_CODE3
```

Table III.2.   List of Variables from Florida's Provider File

Provider NPI and Name
Provider Medicaid ID and Name
Medicaid Agreement Effective Date
Medicaid Agreement End
Active Status

C. Selection of the Provider Characteristics Data Source

The development of NPIs began in July 1993, long before HIPAA became law in 1996. CMS undertook a project to develop a health care provider identification system to meet the needs of the Medicare and Medicaid programs, and ultimately, a national identification system for all health care providers (Federal Register 2004). The objective of the NPI was to assign a unique national identifier number to each and every provider of health care services—individuals, organizations, and groups, including physicians, nurses, nurse practitioners, dentists, pharmacists, physical therapists, physician group practices, acute care hospitals, long-term care facilities, outpatient facilities, nursing homes, hospices, home health care agencies, ambulance service providers, clinical laboratories, durable medical suppliers, health maintenance organizations, and pharmacies. The ID number would be used in standard transactions by all health plans, thus eliminating the current system of multiple numbers for a single provider. NPIs were meant to replace UPINs, PINs (for physicians and practitioners), OSCAR IDs (for institutional providers), and NSC IDs (for suppliers). In developing the national provider identifier, the various numbering systems that existed at the time were considered to become the one single standard, however, none of them met the criteria that the Workgroup for Electronic Data Interchange (WEDI) and the American National Standards Institute (ANSI) established for comprehensiveness, suitability, expandability, portability, and computer format (ResDAC 2003).

The government's emphasis on the NPI as the standard provider identifier and the subsequent discontinuation/elimination of UPINs, PINs, and OSCAR IDs made it very clear that

the source for the MAXPC file must contain the NPI as the unique key. Of the possible provider characteristics files described previously, only the files for MSIS PLUS providers PECOS, and the NPPES use the NPI as the unique key. As shown in Table III.3, these three files contain a number of data elements in common, namely:

- NPI
- Provider name and credentials
- Provider business addresses and locations
- Organization type
- State of licensure and practice
- Provider taxonomy and/or provider specialty
- Other legacy provider IDs and types

The PECOS and the MSIS PLUS provider files contain additional variables that are not in NPPES such as provider date of birth and medical school information. The PECOS file also includes a number of data fields from the UPIN registry, which could be useful. The MSIS PLUS provider file, the newest of these three data systems, also contains potentially useful provider information for both individual practitioners as well as facilities.

At the time of this analysis, however, it was unlikely that the MSIS PLUS provider files would be available in time to build a prototype MAXPC file because they were yet to be finalized and it was unclear when CMS would start receiving these files from the 51 jurisdictions. When they do become available, we may recommend expanding the design of MAXPC file to include the additional data elements from MSIS PLUS if the amount of missing data is small in those files.

Table III.3.   Summary of Potential MAXPC Data Elements

Data Element	MSIS PLUS	PECOS	NPPES
NPI	X	X	X
Provider name	X	X	X
Provider credentials	X	X	X
Provider organization name	X	X	X
Provider practice location	X	X	X
Provider mailing information	X	X	X
Provider billing information	X	X	X
Provider licensing information	X	X	X
Provider group information	X		
Provider SSN / EIN / TIN	X	X	
Medicaid provider number	X		X[a]
Medicare identification number / type	X	X	X[a]
Group / individual PIN		X	X[a]
PECOS IDs (provider, enrollment IDs)		X	
CLIA number / type / effective dates	X	X	X[a]
FDA mammography certificate number		X	X[a]
DEA number / effective dates	X		X[a]
NABP number / effective dates	X		X[a]
NCPDP number / effective dates	X		X[a]
Physician specialty	X	X	X[b]
Provider gender	X	X	X
Provider date of birth	X	X	
Provider date of death	X	X	
Provider taxonomy / indicators	X	X	X
Medical school name / number / graduation year	X	X	
Bed sizes	X	X	
Teaching indicator	X	X	
Provider type / supplier type	X	X	
Entity type, ownership	X		X
Urban / rural indicator	X	X	
Other UPIN registry fields (35+ fields)	X		

[a] Can be derivable from "Other Provider ID" 1–50 fields. Fields are optional, however, and may not have been reported by service provider

[b] Derivable from "Provider Taxonomy."

PECOS, on the other hand, contains many fields that describe characteristics of providers as reported in the UPIN Registry. While that information seemed promising, the demise of UPINs reduced the usefulness of information found in PECOS that originates from the UPIN Registry. We also noted that the PECOS file itself is meant as a system that reports providers of Medicare services and as such was not expected to carry information on providers who bill for Medicaid

services. Consequently, we did not believe that the PECOS file provides any comparative advantage over NPPES.

Given the availability, ease of use, and relative utility of the data elements in each of the files, we recommended that a prototype MAXPC file be constructed primarily from NPPES. This file would provide researchers with basic information on providers of Medicaid services, and it could be constructed to serve as a solid foundation for expansion if and when other databases, like MSIS PLUS, become available. As previously noted, NPPES is somewhat limited in the number of characteristics it contains. Additionally, it is not currently known how many nonmedical providers are missing from NPPES because providers are not required to obtain NPIs. Given that many providers of services in Medicaid belong to this group, we also recommended using the state-specific provider files as a secondary source of provider characteristics for the MAXPC file.

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IV. PROPOSED METHODOLOGY

In this chapter, we provide an overview of the MAXPC design, discuss some implementation challenges, and describe the selection process for the states in the MAXPC prototype. We also describe in detail how the various files were processed and linked together to obtain provider characteristics. We conclude this chapter by describing the contents of the MAXPC file, the contents of the MAXPC validation tables, and the intention of the MAXPC anomaly tables.

A. Overview of MAXPC Design

Figure IV.1 provides an overview of the MAXPC input and output files. The input files are the MAX 2006 claims, the MSIS 2009 claims, state-provided provider files, and the NPPES. The MAXPC file was built to be state-specific and contains one record for each unique provider ID that appears in any MAX provider fields. Before implementing the proposed design on all 51 jurisdictions, we tested its robustness by implementing it as a prototype in three states. We generated and reviewed validation tables to determine whether the linkages are working in the expected manner. We created anomaly tables to highlight idiosyncrasies and egregious data problems in the MAXPC file.

Figure IV.1.   Overview of MAXPC Input and Output Files
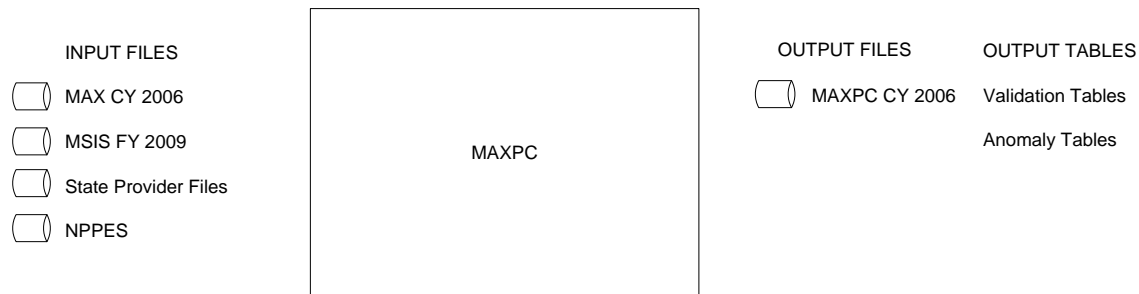
INPUT FILES

MAX CY 2006

MSIS FY 2009

State Provider Files

NPPES

MAXPC

OUTPUT FILES   OUTPUT TABLES

MAXPC CY 2006   Validation Tables

Anomaly Tables

Because of the newness of NPIs, selection of states for the prototype became a rather simple issue of identifying which states had submitted the closest to 100 percent of their quarterly MSIS

claims to CMS and of these states, which ones were closest to having 100 percent of their claims reported as NPIs. In Section IV.C, we describe in detail the selection process for the prototype states.

The development of the MAXPC file and its output tables required seven steps. The first three steps prepared the input data. Step four linked the input data to create the MAXPC file. Step five described the MAX PC file layout and the last two steps generated the output tables.

We fully document all the procedures we developed during the implementation of the prototype MAXPC file in Chapter V of this report. The steps are:

Prepare Lookup and Master List Files

- **Preparation of the NPPES Lookup Files.** The NPI is the primary key link to the NPPES file. However, we also wanted to be able to link to the NPPES using the alternate provider IDs. Therefore, before using the NPPES data, we converted it into a format that is more practical for our purposes. In Section IV.D, we describe this process in detail.

- **Create Master List of Provider IDs in MAX and Crosswalk of Legacy Provider IDs and NPIs in MSIS.** We extracted one record for each unique provider ID in any of the MAX 2006 provider fields on any of the claims. We recorded whether the provider ID is a legacy-billing provider ID (IP, LT, OT, RX), a legacy-servicing provider ID (OT only), a legacy-prescribing provider ID (RX only) and/or an NPI (IP, LT, OT, RX, beginning in FY 2009 MSIS files). We also created a crosswalk of legacy provider IDs and NPIs using MSIS FY 2009 files. In Section IV.E, we focus on this process in detail.

- **Creation of State Lookup Files.** Among the states that provide a provider file, we converted it into a format that was more usable for our purposes. If the state-provided file contained very few variables, it served as a crosswalk between the legacy provider ID and the NPI. If the file contained provider characteristics, similar to the NPPES contents, it served in the same way as the NPPES file but was supplementary. In Section IV.F, we present this process in detail.

Link Files

- **Linkage of Master List of Provider IDs to NPPES and State-Provided Files.** The most complicated part of the process was linking the files to form the MAXPC file. This was a two-step process. The first step focused on assigning an NPI to each provider ID in the master list of IDs. In MAX 2006, we primarily got the NPI via the MSIS 2009 files. If an NPI could not be obtained from the MSIS files, we linked to the state-provided crosswalk, if available. The second step focused on obtaining provider characteristics for each provider ID. If available, we used the NPI to link to

the NPPES. If a match is not found, we linked to the state-provided comprehensive characteristics file, if available, using the NPI. If the NPI was not available, we linked to the NPPES using the legacy provider ID. If a match was not found, we linked to the state-provided comprehensive characteristics file, if available, using the legacy provider ID. This process is described in detail in Section IV.G.

Generate Output Files

- **Design of MAXPC File Layout.** In Section IV.H, we present the MAXPC file layout. In addition to the linkage and provider characteristic variables, the file also contains other variables we used to monitor the provider ID source.

- **Validation Tables.** The data validation tables are described in Section IV.I. We used these tables to review and summarize the results of the linkage process.

- **Anomaly Tables.** The anomaly tables, which we used to inform users of data issues, are presented in Section IV.J.

B. Implementation Challenges of the MAXPC Design

As we implement the design of the MAXPC file, there are a number of challenges that must be addressed in order to create a file for provider-based research. Challenges include incomplete/inaccurate MSIS/MAX provider ID data, incomplete/inaccurate NPPES "Other Provider ID" data, and the inability to obtain state provider files/crosswalks.

1. Incomplete/Inaccurate MSIS/MAX Provider Identifier Data

Neither the legacy provider IDs (billing, servicing, and prescribing) nor the NPIs in the MSIS claims files go through any rigorous data quality or validation checks within CMS. Thus, there could be considerable variation in the linkage results within and across states as well as across years. Moreover, due to the relative newness of the NPI reporting mandate in MSIS, not all states are fully reporting NPIs. Furthermore, it is not known how many of the NPIs are valid. Except for the work that Mathematica did while reviewing the NPPES data, we are not aware of prior attempts at analyzing the contents of the NPI field in MSIS.

2. Incomplete/Inaccurate "Other Provider ID" Fields in NPPES

The "Other Provider ID" fields in NPPES are all optional, self-reported fields and are inherently incomplete. Thus, the reliability and usability of this information may be limited.

3.   Inability to Obtain State Provider Data/Crosswalks

State provider files and crosswalks are currently not available to CMS. To get these files, we need to contact state administrators and request the data, perhaps adding to the states' data reporting burden. CMS and Mathematica are very sensitive about the constraints and demands on state Medicaid agencies right now. Even though the state-provided files add tremendous value to the MAXPC file, we may be unable to obtain these files.

C.   Selection of States for the Prototype

Several states began to submit FY 2009 MSIS claims to CMS during the first few months of 2009. As the quarterly submissions trickled in, Mathematica, under a separate contract with CMS, kept a weekly tally (by quarter and file type) of which states had submitted claims. During the data quality and validation review of the claims, Mathematica kept a running record that tracked what percentage of records had an NPI in the latest file. The assumption was that, as the states get accustomed to providing NPIs, the reporting of the NPIs would get better and would eventually approach 100 percent. When we first began evaluating the feasibility of a MAXPC file, several states had submitted MSIS data through the third quarter of FY 2009 and had reported an NPI on 100 percent of their claims. These states were Florida, Indiana, and Virginia.

Since our initial evaluation, almost all states have submitted FY 2009 claims and most include NPIs, as shown in Table IV.1. In addition to a full set of NPIs, we also want the selected states to supply state-provided provider files so we can better understand the extent to which nonmedical providers are in the MAX data. Virginia was unable to supply a provider file at this time so we chose North Carolina because it had already submitted its FY 2009 claims files and reported an NPI on 100 percent of its claims. It was important to choose states close to 100 percent reporting of NPIs because we wanted our linkage rate to the NPPES to be a high as possible.

Table IV.1.   Percentage of 2009 Original FFS Non-Crossover Claims with an NPI

State	IP	LT	OT	RX	Comment
Alabama	100	100	100	100	
Alaska	100	100	100	100	
Arizona	100	100	NA	100	OT submission missing all 4 quarters.
Arkansas	97	100	58	100	
California	100	100	100	100	OT submission missing for Q4.
Colorado	100	100	84	90	
Connecticut	100	100	56	100	
Delaware	100	100	100	100	
District of Columbia	100	100	NA	100	OT missing all 4 quarters; RX missing for Q2, Q3, Q4.
Florida	100	100	86	100	
Georgia	100	100	96	99	Submission thru Q1.
Hawaii	NA	NA	NA	NA	Not available.
Idaho	100	100	72	100	
Illinois	100	94	100	100	
Indiana	100	100	85	100	
Iowa	100	100	96	84	
Kansas	100	100	90	100	
Kentucky	100	100	95	97	
Louisiana	100	100	97	100	
Maine	0	0	0	0	
Maryland	81	94	91	100	
Massachusetts	98	100	90	100	
Michigan	100	100	95	100	Submission thru Q3.
Minnesota	100	100	100	100	
Mississippi	100	100	100	100	
Missouri	99	100	99	100	
Montana	100	100	87	100	
Nebraska	0	0	0	0	
Nevada	NA	100	83	100	Submission thru Q1.
New Hampshire	0	0	1	100	
New Jersey	97	73	92	95	
New Mexico	100	100	84	100	
New York	100	100	66	100	
North Carolina	100	100	99	100	
North Dakota	100	99	81	99	Submission thru Q1.
Ohio	0	0	0	0	
Oklahoma	100	100	80	100	
Oregon	96	99	96	100	
Pennsylvania	99	100	NA	100	
Rhode Island	0	0	0	0	IP submission missing for Q4.
South Carolina	97	6	0	0	
South Dakota	100	100	97	1	
Tennessee	100	100	97	100	
Texas	93	100	96	100	OT submission missing for Q2, Q3, and Q4.
Utah	100	100	90	100	Submission thru Q1.
Vermont	100	100	86	99	

Table IV.1 *(continued)*

State	IP	LT	OT	RX	Comment
Virginia	100	100	100	100	
Washington	86	46	50	0	
West Virginia	100	100	98	100	
Wisconsin	100	100	91	100	Submission Thru Q1.
Wyoming	100	100	93	100	

Source: Medicaid Statistical Information System, FY 2009 claims files.

Note: Unless specified, the percentage of files with NPIs include submissions thru FY 2009 Q4.

D. Preparation of the NPPES Lookup Files

There were three steps in the preparation of NPPES as a source of data for MAXPC. First, we determined if a new version of NPPES was available for download from the CMS website. Second, we converted the NPPES into a format that was more usable for our purposes, and third, we uploaded the NPPES lookup files to the CMS mainframe.[5]

1.   Obtain Most Recent NPPES from the CMS Website

Currently, NPPES is updated approximately once a quarter, with the most current update having occurred in May 2010. New versions of NPPES include new providers, providers who got their NPI replaced, and providers who updated provider characteristics. Regularly checking for new versions of NPPES on the CMS website assured that MAXPC is built using the most currently available data.[6]

2.   Convert NPPES into a Usable Format

As is shown in Figure IV.2, the creation of the NPPES lookup files was straightforward. Perhaps the most important aspect of this step was to determine which data elements in NPPES belonged in which lookup file. This task is now easier to accomplish because CMS has organized the fields. The NPPES data dictionary identifies three basic data element types: (1) data elements that occur only once in the file, such as provider names, addresses, gender, etc.; (2) sets of data elements that occur 15 times; and (3) sets of data elements that occur 50 times. Consequently, for MAXPC data processing efficiency, we converted the NPPES file into two separate lookup files.

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[5] All the data processing activities related to the implementation of the prototype MAXPC file were performed using SAS.

[6] Once the MAXPC file is built for a state for a given year, no reruns using newer updates of NPPES will be attempted.

Figure IV.2.   Preparation of the NPPES Lookup File

NPPES

Create NPPES
Lookup Files

NPI Header

(one record per NPI)

- NPI
- Provider name
- Business address
- Gender
- Credential
- Primary taxonomy
- Entity type
- Sole proprietorship
- Organization subpart

Provider ID–NPI Crosswalk

(one record per Provider ID-NPI combination)

- Provider ID
- NPI
- Provider state
- Provider ID type (Medicaid ID, Medicare UPIN)
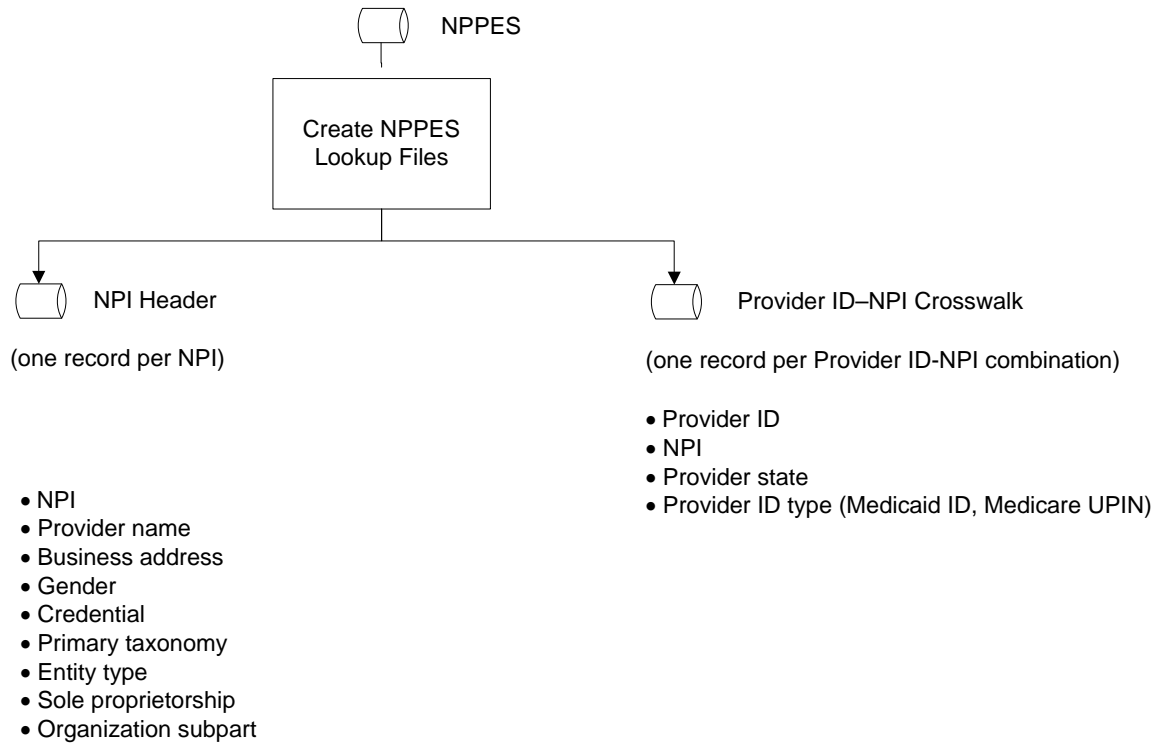
The first lookup file, the "NPI-Header" file, contains one record per NPI, which contains the NPI (as the primary key), provider name, business practice location, gender, credentials, and organization characteristics. We also included the primary taxonomy on the "NPI-Header" file. Because the primary taxonomy is contained within 15 variables, we loop over them and extract the one that is flagged as the primary taxonomy.

The second lookup file, the "Provider ID-NPI Crosswalk," contains one record for each provider ID listed in the 50 "Other Provider ID" variables. However, as we looped over the 50 variables, we restricted our selection to only Medicaid IDs and Medicare UPINs. We included the Medicare UPINs because the structure of these national IDs is so specialized that when matches occur via UPINs, we are reasonably assured that they are for the same provider and not by random chance. We also extracted the provider ID type (Medicaid ID or Medicare UPIN), state, and NPI.

If the MAX record had an NPI, we used the first NPPES lookup file to obtain the provider characteristics. If the NPI was not known, we merged the MAX record to the second NPPES lookup file using the legacy provider ID. When there was a match, we obtained the NPI and then used it to link to the first NPPES file and obtained the provider characteristics.

3.   Upload NPPES Lookup Files to the CMS Mainframe

Once NPPES had been converted, the lookup files were uploaded onto the CMS mainframe.

E.   Creation of the Master List of Provider IDs

NPIs, the future of provider IDs and the linchpin to NPPES, are only now being reported in FY 2009 MSIS claims files. The MAX 2006 claims files, however, contains only legacy provider IDs. The MAXPC design needs to bridge the gap between the MAX legacy provider ID and the NPI. The FY 2009 MSIS claims contain both the legacy provider ID and the NPI for most providers. Consequently, we used the FY 2009 MSIS files to link the legacy provider ID in MAX 2006 to the NPI, which was needed to link to the NPPES and state provider files. Before we could do this, however, we had to create a master list of provider IDs in MAX and a crosswalk between the legacy provider IDs and the NPIs in MSIS, as shown in Figure IV.3.

Figure IV.3. Creation of the Master List of Provider IDs
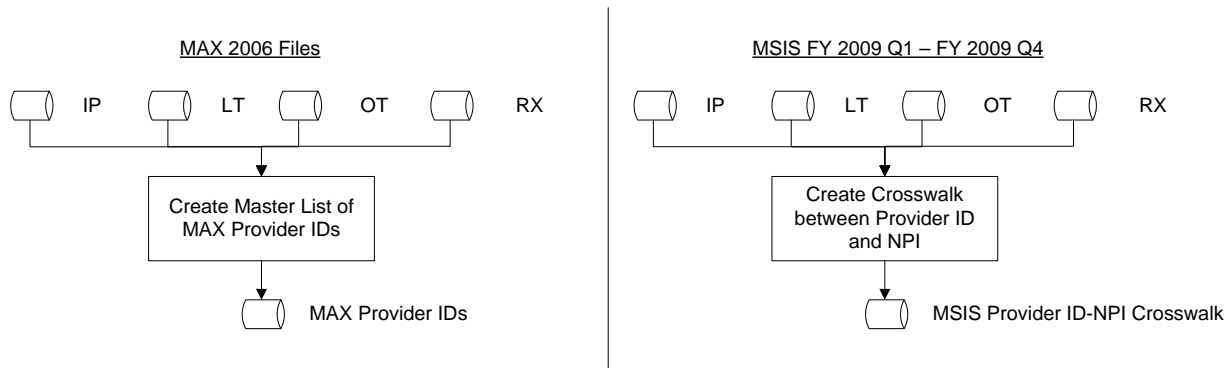
1. Master List of Provider IDs in MAX

To create the master list of provider IDs in MAX, we began by extracting each provider ID from each provider field on each claim. Specifically, there was one record for each legacy *billing* provider ID contained in each of the IP, LT, OT, and RX files. There was one record for each legacy *servicing* provider ID contained in the OT file (only available on the OT file). There was one record for each legacy *prescribing* provider ID in the RX file (only available on the RX file).

We wanted to know how well each type of provider ID from each type of claim file linked to NPPES and the state provider files. Consequently, we created a series of flags indicating the source of the MAXPC provider ID:

- IP claim *billing* provider ID
- LT claim *billing* provider ID
- OT claim *billing* provider ID
- OT claim *servicing* provider ID
- RX claim *billing* provider ID
- RX claim *prescribing* provider ID

When a provider ID is located on more than one type of claim (e.g., IP and LT), the corresponding flags are set accordingly.

We also created a series of flags indicating whether the provider ID number originated from the NPI fields:

- IP claim *billing* NPI
- LT claim *billing* NPI
- OT claim *servicing* NPI
- RX claim *billing* NPI

However, in the MAX 2006 prototype, the NPI flags were set to zero for all records, because they are not applicable until MAX 2009, by definition.

As we created unique records for each provider ID number in the file, we also tracked service utilization attributable for each provider ID by calculating the following measures:

- Number of IP claims
- Number of beneficiaries with IP claims
- Number of LT claims
- Number of beneficiaries with LT claims
- Number of OT claims
- Number of beneficiaries with OT claims
- Number of RX claims
- Number of beneficiaries with RX claims
- Total number of claims
- Total number of beneficiaries with any claim

2. Crosswalk of Legacy Provider ID and NPI in MSIS

We used the FY 2009 MSIS files to create the MSIS crosswalk between the legacy provider ID and the NPI. The crosswalk is formed directly from the claim—no linking is involved. Specifically, there is one record for each legacy provider ID-NPI combination:

- IP claim *billing* provider ID and its corresponding IP *billing* NPI
- LT claim *billing* provider ID and its corresponding LT *billing* NPI
- OT claim *servicing* provider ID and its corresponding OT *servicing* NPI
- RX claim *billing* provider ID and its corresponding RX *billing* NPI

Notice, however, that the MSIS claims *do not* include a direct connection between NPI and the OT *billing* provider ID and the RX *prescribing* provider ID. This connection is only made via the other crosswalk records. Many of these providers do not obtain an NPI via the MSIS crosswalk.

Within a given file type, legacy provider IDs could correspond with more than one NPI, but only infrequently. We tabulated how often a legacy provider ID occurs across file types as well, counting the number of NPIs associated with each legacy provider ID. When a legacy provider

ID corresponds to more than one NPI, we will not know which NPI is the right one. Consequently, we did not assign an NPI to that legacy ID.

3. Evolution of MAXPC Design over Time

The MAXPC prototype was developed to supplement MAX 2006 with provider-related information. The first fully functional MAXPC file, however, will be based on MAX 2009, which will contain a much broader master list of provider IDs. In addition to one record for each legacy provider ID, as described above, the MAXPC 2009 file will also contain one record for each *billing* NPI contained in the IP, LT, and RX files and one record for each *servicing* NPI contained in the OT file. The OT *billing* provider ID and the RX *prescribing* provider ID will not be explicitly connected to an NPI via the MSIS claim.

This design, one record per provider ID (even in MAXPC 2009), may seem strange given that most records will have a readily associated NPI. But remember, not all of the provider IDs will be associated with an NPI—either because there is no direct connection between the legacy ID and the NPI on the claim itself (as is the case with the OT *billing* provider and the RX *prescribing* provider) or because the provider ID belongs to an atypical, nonmedical legacy provider who did not obtain an NPI.

Moreover, we want the researcher to link to the MAXPC file using any of the provider ID fields in MAX, without regard to the type of provider ID. In this way, the link to the MAXPC file is a very simple, straightforward process: researchers will merge the provider ID on the claim (regardless of the source) to the provider ID in MAXPC.

F. Creation of State Lookup Files

State-specific provider files are instrumental in the identification and assignment of provider characteristics to atypical, nonmedical providers or others who may not have an NPI. The contents of each state's provider file, however, can vary tremendously from state to state. North

Carolina, for example, provided a comprehensive set of provider characteristics, whereas Florida could only provide a small set. The contents of a state's file control which state lookup file is created. Regardless of which lookup file is created, the structure of the state lookup files are converted into a consistent format before they are used in the MAXPC process.

As shown in option 1 of Figure IV.4, if the state-provided file contained very few variables, we converted the file into a "Provider ID-NPI Crosswalk" file, which contained one record for each legacy provider ID and NPI combination. As shown in option 2, if the state-provided file contained comprehensive provider characteristics, similar in scope to the NPPES contents, we converted the file into two lookup files, which is similar in design to the NPPES lookup files. The first file, the "Provider ID Header" file, contained one record per NPI, if available. If the NPI was not available, it included one record per legacy provider ID. The record contained the provider ID (as the primary key), provider name, business practice location, gender, and other characteristics needed for the MAXPC file. The second lookup file, the "Provider ID-NPI Crosswalk," contained one record for each legacy provider ID and NPI combination.

Figure IV.4. Creation of State Lookup Files

Option 1: State Provides Crosswalk   Option 2: State Provides Full Provider Characteristic File
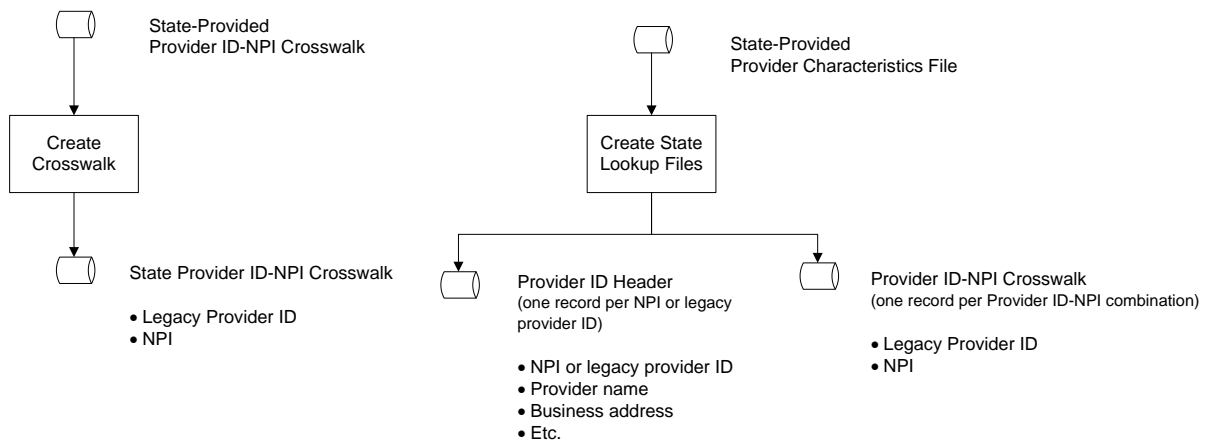
If the MAX record has an NPI, we used the "Provider ID Header" file to obtain provider characteristics. If the NPI was not known, we merged the MAX record to the "Provider ID-NPI

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Crosswalk" using the legacy provider ID. When there was a match, we obtained the NPI and then used it to link to the "Provider ID Header" file to obtain the provider characteristics. There were situations in which the legacy provider ID did not get mapped to an NPI. In that case we merged to the "Provider ID Header" file using the legacy provider ID.

G. Linkage of Master List of 2006 Providers to Lookup Files

In this section, we describe the design of the algorithm used to link the master list of MAX 2006 providers to the NPPES and state provider files. The ultimate goal of this process was to attach provider characteristics information found in NPPES or in the absence of a link to NPPES, from state provider files for all providers who performed at least one service in CY 2006.

There were two major phases to the design of MAXPC: the first phase was the creation of the master list of providers depicted in Figure IV.5, and the second was the linkage of that list with the lookup files, the logic of which is shown in Figure IV.6.

1. Phase I—Creation of the Master List of Providers

In the first phase of the creation of the master list, we needed to find and attach NPIs to legacy IDs in the MAX files. As shown in Figure IV.5, the logic requires the algorithm to continually question if the record being processed had an NPI. Starting from the top of this flowchart, we checked the MAX files to see if the provider ID is either an NPI or if there was an associated NPI in the record. If TRUE,[7] the record is written to the master list, with the paired values both being written. Otherwise, the provider ID is then linked with the subset of MSIS FY

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[7] The condition will never be TRUE in MAX 2006 and MAX 2007 because NPIs are not reported in those files. For MAX 2008, claims with service dates in 2008 but submitted to MSIS after February 15, 2009, could have NPIs included.

Figure IV.5.   Phase I: Creation of Master List of Providers
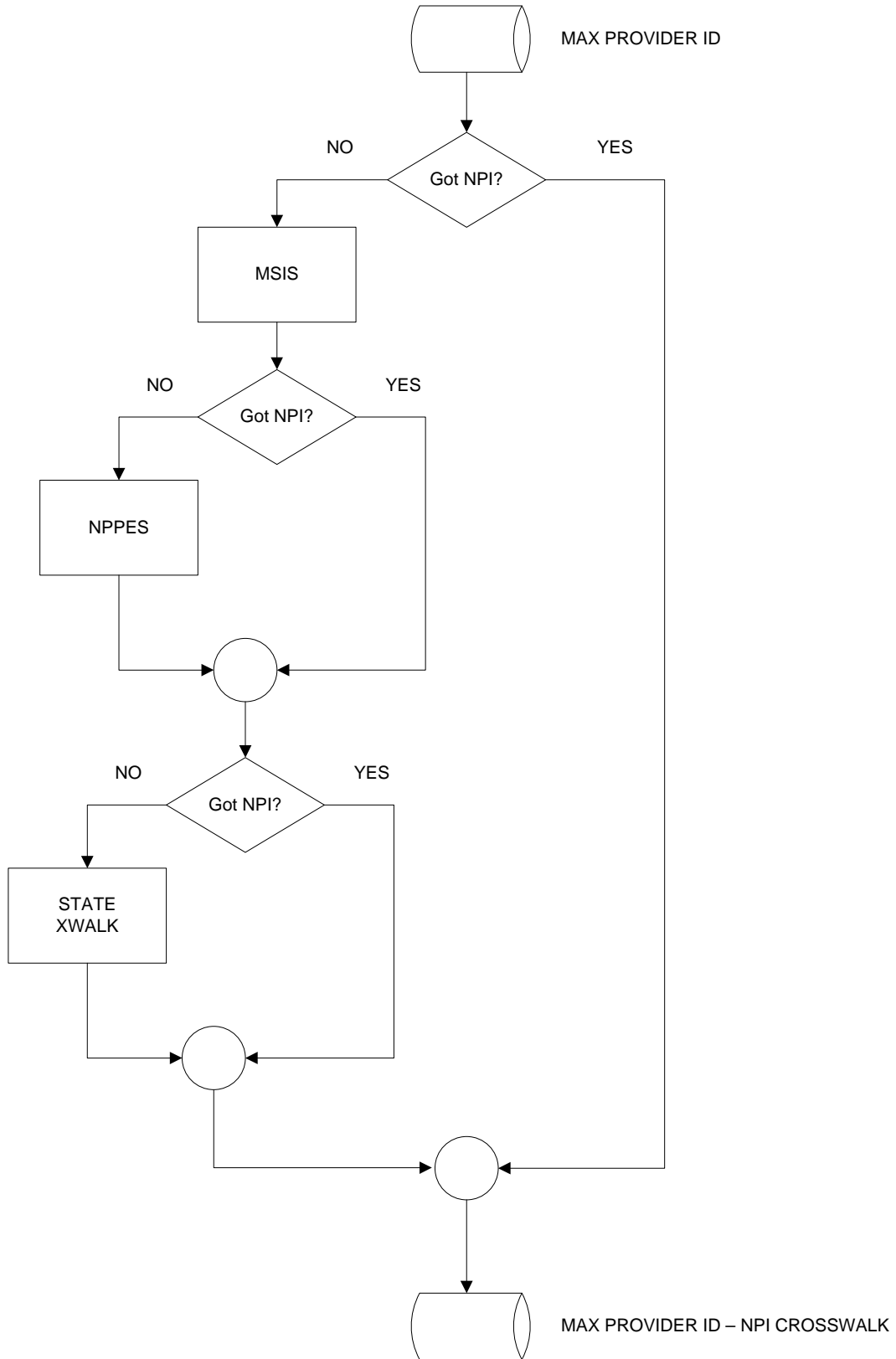
Figure IV.6.   Phase II: Linkage of Master List with Lookup Files

MAX PROVIDER ID – NPI CROSSWALK

Got NPI?

NO

YES

NPPES
USING NPI

Match?

NO

YES

STATE
PROVIDER FILE
USING LEGACY
PROVIDER ID

STATE
PROVIDER FILE
USING NPI

MAXPC PROVIDER CHARACTERISTICS
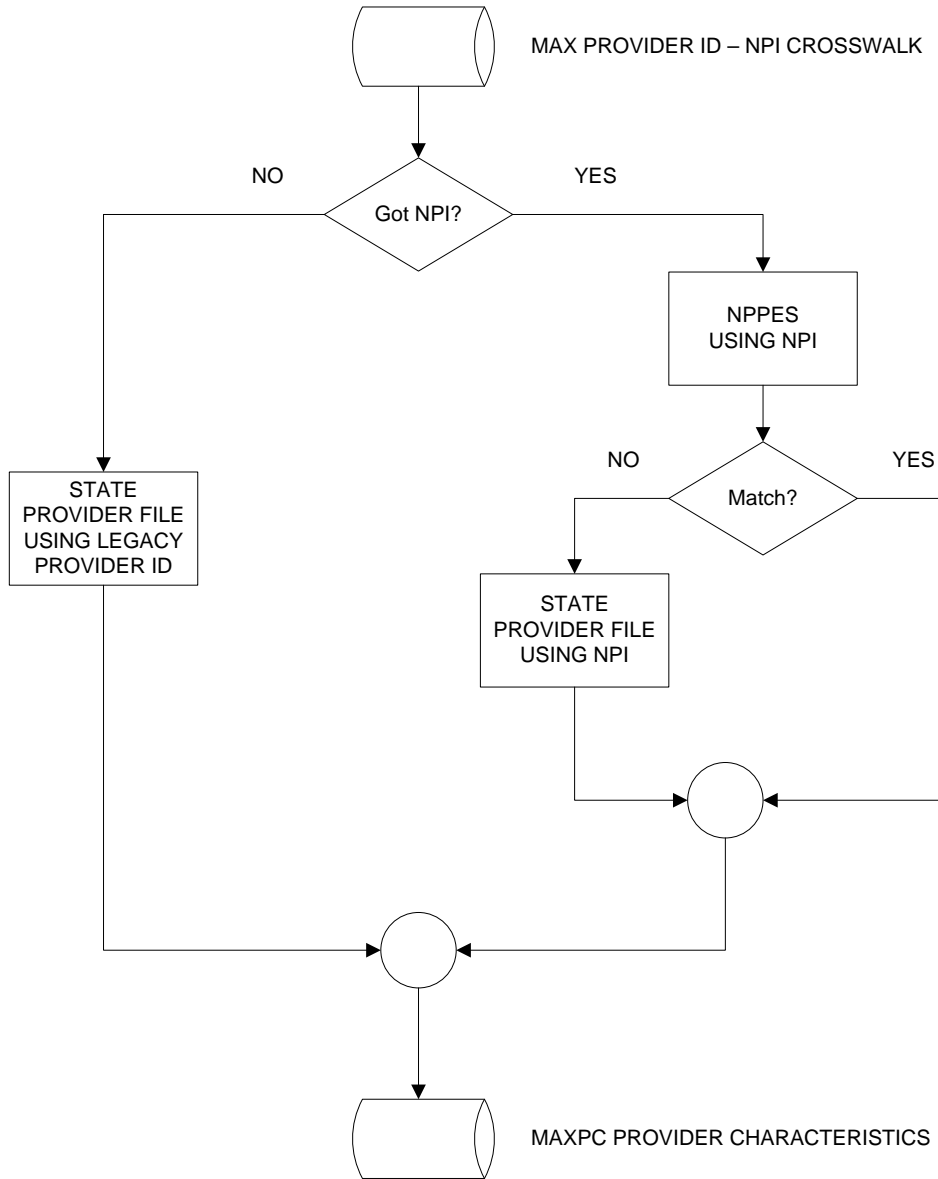
2009 claims, prepared as described in Section IV.E. If the provider ID linked with a corresponding provider ID in MSIS, we again checked for an NPI in that linked record. If TRUE, the record is again written to the master list. If an NPI was still not found after matching with MSIS, the algorithm attempted to link the provider ID with the NPPES "Provider ID-NPI Crosswalk." If the record links, then an NPI is found and the record is written to the master list; otherwise, one last matching attempt was done using state provider crosswalks, if supplied by the state either directly or as derived from the state provider file. If an NPI was found after linking with the state crosswalk, then the record was written to the master list. All unmatched provider IDs at this stage were also written to the master list. Note that records written to this list after linking with MSIS, NPPES, and state crosswalks produces records of provider IDs (legacy IDs in MAX 2006) linked to NPIs; unmatched provider IDs added to the master list at the end of processing would not have matched with any NPIs, thus the field will be set to missing or spaces. Finally, the master list was sorted by provider ID and was ready for linkage with the lookup files.

2. Phase II—Linkage of the Master List with Lookup Files

Once the master list was complete, we then attempted linkage with the lookup files. There can be two types of lookup files holding provider characteristics information for use in MAXPC: the first is derived from NPPES and contains the fields that we deemed appropriate for inclusion in MAXPC and described in Section IV.D. The second is derived from provider files supplied by the state, if any, as described in Section IV.F. As shown in Figure IV.6, the logic regarding which lookup file was used in the linkage with the master list is again dependent on whether the list contained an NPI.

First, we checked the master list to see if the NPI field is non-missing. If there is an NPI, we go down the right branch of the flowchart and the record is merged with the NPPES "NPI_Header" file. If that linkage produced a match, a MAXPC record with all provider

characteristics was written. If the linkage did not produce a match (meaning that there is an NPI in the master list but not found in NPPES), then an attempt was made to link that record with the state's "Provider ID Header" file using the NPI. If this linkage produced a match, then the provider characteristics associated with that NPI were written to MAXPC. At this juncture, if the NPIs still did not match, we wrote a record to MAXPC; however, for these records, the provider characteristics fields were set to spaces.

For the alternate condition, where the master list contained a missing NPI field, we went from the top to the left branch of the flowchart. Records with missing NPIs were merged with the "State Provider ID Header" file using the legacy IDs. If a match was found, then the record was written to MAXPC with provider characteristics found in the state provider files. Non-matches were still written to MAXPC; however, for these records, the provider characteristics fields were set to spaces.

H.   Design of MAXPC File

As described throughout this report, the design of MAXPC file could not be based solely on the NPI; it also had to have some capacity to generate provider characteristics for legacy provider IDs. We therefore designed MAXPC so that a researcher doing a provider-based study, armed with a finder file of provider IDs, whether it be an NPI or a legacy provider ID, can go to the MAXPC file for a specific year and be able to find information about that provider without worrying about the type of provider ID.

The data elements in the MAXPC file were explicitly selected to support the linkage to the

NPPES, the validation of the linkages, and the provider characteristics contained in NPPES.[8] The

data element list for the MAXPC 2006 file, contains the following fields:

- Provider identifier—unique provider ID originating from each provider ID field on each IP, LT, OT, RX claim

- State code

- Flags indicating the source of the provider ID (which claim file[s] and which provider ID field[s])

- NPI—derived from either MSIS, the NPPES, or state provider files

- NPI source

- NPPES type of provider ID

- Provider name—first, middle, last, prefix, and suffix

- Gender

- Credential

- Business name

- Business practice address—line 1, line 2, city, state, zip

- Primary taxonomy code

- Primary taxonomy classification—reclassification of the taxonomy codes into 28 categories

- Nonmedical provider indicator—indicator of atypical vs. medical providers

- Provider entity type—individual or organization

- Sole proprietor code—indicator for individual providers

- Subpart code—indicator for organizational providers

- Number of IP claims for provider

- Number of beneficiaries with IP claims for provider

- Number of LT claims for provider

- Number of beneficiaries with LT claims for provider

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[8] As the MSIS PLUS provider files become more fully developed, there is some possibility that the source of the provider characteristics in the MAXPC file will shift to MSIS PLUS. When that occurs, the MAXPC file layout will change accordingly.

- Number of OT claims for provider
- Number of beneficiaries with OT claims for provider
- Number of RX claims for provider
- Number of beneficiaries with RX claims for provider
- Number of any claims for provider
- Number of beneficiaries with any claims for provider

The MAXPC file layout and the data element dictionary were submitted to CMS as a separate report along with the MAXPC system documentation.

I. Validation Tables

Once the MAXPC file was created for a state, we produced validation tables. They are designed as a diagnostic tool to determine whether the linkages are working in the expected manner. There are two sets of validation tables: state specific and cross-state. Both tables contain the exact same measures (the rows). The state-specific tables focus on one state and, as more MAXPC files are created over time, the focus is expanded to monitor the change in the state's measures over time (the columns). The cross-state tables, however, focus on one year but include a column for each of the 51 jurisdictions. The cross-state tables are invaluable for detecting linkage issues that are peculiar to a given state or set of states.

Tables IV.2–IV.6 display the specifications for each of the state-specific validation tables. The first four tables focus on provider IDs in the IP, LT, OT, and RX files, respectively. The fifth table examines all provider IDs in all of the files. We used the file-specific validation tables to detect linkage issues that are peculiar to a given file type. We used the all-providers table to monitor the overall quality of the linkages of all provider IDs. The design of the validation tables is very similar across file types. With the exception of a few measures at the beginning of the tables, which were tailored specifically to that file type, the rest of the measures were the same.

The measures are grouped into seven sections, as denoted by the shaded rows. The first section describes the number of unique provider IDs, its location in the claim file (billing provider variable, NPI billing provider variable, or both), whether the ID appears in other claim files, whether the ID was linked to an NPI, NPPES, or to state provider files, the average number of claims from that file type for the provider ID, and the average number of beneficiaries with claims from that file type for the provider ID. The second section focuses on the source of the NPI (MSIS, NPPES, or the state cross-reference file). The third section focuses on provider IDs that linked to NPPES. It conveys how it is linked and documents the extent to which NPPES data are non-missing. It also describes the provider entity type (individual or organization). The fourth section focuses on provider IDs that linked to state provider files. The fifth section focuses on the primary taxonomy of the provider IDs that link to NPPES. Among providers, we classified the taxonomy into two groups: (1) individuals or groups of individuals, and (2) non-individuals using Washington Publishing Company's (WPC) taxonomy groupings (WPC 2010). We also added an additional category that measures the prevalence of atypical nonmedical providers in NPPES. The sixth section focuses on individual providers—whether or not they are a sole proprietorship. And finally, the last section focuses on provider organizations and whether or not the provider is a subpart of the organization.

The specification for each measure is described in the tables. In the actual validation tables, the columns in the state-specific tables describe the annual statistics and, when available, expected ranges of values for up to three years, followed by a column describing the percentage change between year one and year two, and finally, a column describing the percentage change between year two and year three. These latter columns will be fully functional as more MAXPC files are created across time. The columns in the cross-state tables are the state-specific statistics.

The actual validation tables for the MAXPC prototype are included in Appendix A.

Table IV.2.   Validation Table with Specifications for MAXPC IP Providers

Measure	Measure Description
IP Providers	**This section includes records with IP claim billing provider equal to 1 or IP claim NPI billing provider equal to 1.**
Number of provider IDs	Count records
% billing provider on IP claim	Count records with IP claim legacy billing provider equal to 1, divide by total record count, *100
% NPI billing provider on IP claim	Count records with IP claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on LT claim	Count records with LT claim legacy billing provider equal to 1 or LT claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on OT claim	Count records with OT claim legacy billing provider equal to 1, OT claim legacy servicing provider ID equal to 1, or OT claim NPI servicing provider equal to 1, or divide by total record count, *100
% also a provider on RX claim	Count records with RX claim legacy billing provider equal to 1, RX claim legacy prescribing provider ID equal to 1, or RX claim NPI billing provider equal to 1, divide by total record count, *100
% provider IDs with NPI	Count records with NPI not equal to spaces, divide by total record count, *100
% provider IDs linked to NPPES	Count records with NPPES type of provider equal to 1, 2 or 3, divide by total record count, *100
% provider IDs with or without NPI but linked to state provider file	Count records with NPPES type of provider ID equal to 4, divide by total record count, *100
Average number of IP claims	Count records from IP claim file for each provider ID, divide by total record count
Average number of beneficiaries with IP claims	Count unique beneficiary IDs in IP claim file for each provider ID, divide by total record count
Provider IDs with NPI	
Number of provider IDs with NPI	Count records with NPI not equal to spaces
% NPI source = MSIS	Among records with NPI not equal to spaces, count records with NPI source equal to 1, divide by total record count, *100
% NPI source = NPPES	Among records with NPI not equal to spaces, count records with NPI source equal to 2, divide by total record count, *100
% NPI source = state cross-reference file	Among records with NPI not equal to spaces, count records with NPI source equal to 3, divide by total record count, *100
Provider IDs Linked to NPPES	
Number of provider IDs linked to NPPES	Count records with NPPES type of provider ID equal 1, 2, or 3
% linked via NPI	Count records with NPPES type of provider ID equal to 1, divide by total record count, *100
% linked via Medicaid legacy provider ID	Count records with NPPES type of provider ID equal to 2, divide by total record count, *100
% linked via Medicare UPIN	Count records with NPPES type of provider ID equal to 3, divide by total record count, *100
% with name prefix	Count records with name prefix not equal to spaces, divide by total record count, *100
% with first name	Count records with first name not equal to spaces, divide by total record count, *100
% with middle name	Count records with middle name not equal to spaces, divide by total record count, *100
% with last name	Count records with last name not equal to spaces, divide by total record count, *100
% with name suffix	Count records with name suffix not equal to spaces, divide by total record count, *100
% male	Count records with gender = "M," divide by total record count, *100
% female	Count records with gender = "F," divide by total record count, *100
% with credential	Count records with credential not equal to spaces, divide by total record count, *100
% with business name	Count records with business name not equal to spaces, divide by total record count, *100

Table IV.2 *(continued)*

Measure	Measure Description
% with address line 1	Count records with address line 1 not equal to spaces, divide by total record count, *100
% with city	Count records with city not equal to spaces, divide by total record count, *100
% with state	Count records with state not equal to spaces, divide by total record count, *100
% state = IP state code	Count records with state = IP state code, divide by total record count, *100
% with zip code	Count records with zip code not equal to spaces, divide by total record count, *100
% with primary taxonomy	Count records with primary taxonomy > 0, divide by total record count, *100
% with provider entity type = individual	Count records with provider entity type = 1, divide by total record count, *100
% with provider entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
Provider IDs with or Without NPI but Linked to State Provider File	
Number of provider IDs with or without NPI linked to state provider file	Count records with NPPES type of provider ID equal to 4
Provider IDs with NPPES Primary Taxonomy	
Number of provider IDs with NPPES primary taxonomy	Count records with primary taxonomy > 0
% individual or group of individuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01 through 17, divide by total record count, *100
% allopathic and osteopathic physicians	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01, divide by total record count, *100
% behavioral health and social service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 02, divide by total record count, *100
% chiropractic providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 03, divide by total record count, *100
% dental providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 04, divide by total record count, *100
% dietary and nutritional service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 05, divide by total record count, *100
% emergency medical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 06, divide by total record count, *100
% eye and vision service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 07, divide by total record count, *100
% nursing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 08, divide by total record count, *100
% nursing service-related providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 09, divide by total record count, *100
% other service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 10, divide by total record count, *100
% pharmacy service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 11, divide by total record count, *100

Table IV.2 *(continued)*

Measure	Measure Description
% physician assistants and advanced practice nursing providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 12, divide by total record count, *100
% podiatric medicine and surgery service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 13, divide by total record count, *100
% respiratory, developmental, rehabilitative, and restorative service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 14, divide by total record count, *100
% speech, language, and hearing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 15, divide by total record count, *100
% student health care	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 16, divide by total record count, *100
% technologists, technicians, and other technical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 17, divide by total record count, *100
% nonindividuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18-28, divide by total record count, *100
% agencies	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18, divide by total record count, *100
% ambulatory health care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 19, divide by total record count, *100
% hospital units	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 20, divide by total record count, *100
% hospitals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 21, divide by total record count, *100
% laboratories	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 22, divide by total record count, *100
% managed care organizations	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 23, divide by total record count, *100
% nursing and custodial care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 24, divide by total record count, *100
% residential treatment facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 25, divide by total record count, *100
% respite care facility	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 26, divide by total record count, *100
% suppliers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 27, divide by total record count, *100
% transportation services	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 28, divide by total record count, *100
% nonmedical	Among records with primary taxonomy > 0, count records with nonmedical provider = 1, divide by total record count, *100
Provider IDs with Entity Type = Individual	
Number of provider IDs with entity type = individual	Count records with provider entity type = 1
% a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 1, divide by total record count, *100
% not a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 2, divide by total record count, *100

Table IV.2 *(continued)*

Measure	Measure Description
% not answered	Among records with provider entity type = 1, count records with sole proprietorship = 3, divide by total record count, *100
Provider IDs with Entity Type = Organization	
Number of provider IDs with entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
% organization is a subpart	Among records with provider entity type = 2, count records with subpart code = 1, divide by total record count, *100
% organization is not a subpart	Among records with provider entity type = 2, count records with subpart code = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 2, count records with subpart code = 3, divide by total record count, *100

Table IV.3. Validation Table with Specifications for MAXPC LT Providers

Measure	Measure Description
LT Providers	**This section includes records with LT claim legacy billing provider equal to 1 or LT claim NPI billing provider equal to 1.**
Number of provider IDs	Count records
% billing provider on LT claim	Count records with LT claim legacy billing provider equal to 1, divide by total record count, *100
% NPI billing provider on LT claim	Count records with LT claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on IP claim	Count records with IP claim legacy billing provider equal to 1 or IP claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on OT claim	Count records with OT claim legacy billing provider equal to 1, OT claim legacy servicing provider ID equal to 1, or OT claim NPI servicing provider equal to 1, or divide by total record count, *100
% also a provider on RX claim	Count records with RX claim legacy billing provider equal to 1, RX claim legacy prescribing provider ID equal to 1, or RX claim NPI billing provider equal to 1, divide by total record count, *100
% provider IDs with NPI	Count records with NPI not equal to spaces, divide by total record count, *100
% provider IDs linked to NPPES	Count records with NPPES type of provider equal to 1, 2 or 3, divide by total record count, *100
% provider IDs with or without NPI but linked to state provider file	Count records with NPPES type of provider ID equal to 4, divide by total record count, *100
Average number of LT claims	Count records from LT claim file for each provider ID, divide by total record count
Average number of beneficiaries with LT claims	Count unique beneficiary IDs in LT claim file for each provider ID, divide by total record count
Provider IDs with NPI	
Number of provider IDs with NPI	Count records with NPI not equal to spaces
% NPI source = MSIS	Among records with NPI not equal to spaces, count records with NPI source equal to 1, divide by total record count, *100
% NPI source = NPPES	Among records with NPI not equal to spaces, count records with NPI source equal to 2, divide by total record count, *100
% NPI source = state cross-reference file	Among records with NPI not equal to spaces, count records with NPI source equal to 3, divide by total record count, *100
Provider IDs Linked to NPPES	
Number of provider IDs linked to NPPES	Count records with NPPES type of provider ID equal 1, 2, or 3
% linked via NPI	Count records with NPPES type of provider ID equal to 1, divide by total record count, *100
% linked via Medicaid legacy provider ID	Count records with NPPES type of provider ID equal to 2, divide by total record count, *100
% linked via Medicare UPIN	Count records with NPPES type of provider ID equal to 3, divide by total record count, *100
% with name prefix	Count records with name prefix not equal to spaces, divide by total record count, *100
% with first name	Count records with first name not equal to spaces, divide by total record count, *100
% with middle name	Count records with middle name not equal to spaces, divide by total record count, *100
% with last name	Count records with last name not equal to spaces, divide by total record count, *100
% with name suffix	Count records with name suffix not equal to spaces, divide by total record count, *100
% male	Count records with gender = "M," divide by total record count, *100
% female	Count records with gender = "F," divide by total record count, *100
% with credential	Count records with credential not equal to spaces, divide by total record count, *100
% with business name	Count records with business name not equal to spaces, divide by total record count, *100

Table IV.3 *(continued)*

Measure	Measure Description
% with address line 1	Count records with address line 1 not equal to spaces, divide by total record count, *100
% with city	Count records with city not equal to spaces, divide by total record count, *100
% with state	Count records with state not equal to spaces, divide by total record count, *100
% state = LT state code	Count records with state = LT state code, divide by total record count, *100
% with zip code	Count records with zip code not equal to spaces, divide by total record count, *100
% with primary taxonomy	Count records with primary taxonomy > 0, divide by total record count, *100
% with provider entity type = individual	Count records with provider entity type = 1, divide by total record count, *100
% with provider entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
Provider IDs with or Without NPI but Linked to State Provider File	
Number of provider IDs with or without NPI linked to state provider file	Count records with NPPES type of provider ID equal to 4
Provider IDs with NPPES Primary Taxonomy	
Number of provider IDs with NPPES primary taxonomy	Count records with primary taxonomy > 0
% individual or group of individuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01 through 17, divide by total record count, *100
% allopathic and osteopathic physicians	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01, divide by total record count, *100
% behavioral health and social service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 02, divide by total record count, *100
% chiropractic providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 03, divide by total record count, *100
% dental providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 04, divide by total record count, *100
% dietary and nutritional service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 05, divide by total record count, *100
% emergency medical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 06, divide by total record count, *100
% eye and vision service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 07, divide by total record count, *100
% nursing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 08, divide by total record count, *100
% nursing service-related providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 09, divide by total record count, *100
% other service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 10, divide by total record count, *100
% pharmacy service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 11, divide by total record count, *100
% physician assistants and advanced practice nursing providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 12, divide by total record count, *100
% podiatric medicine and surgery service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 13, divide by total record count, *100
% respiratory, developmental, rehabilitative, and restorative service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 14, divide by total record count, *100
% speech, language, and hearing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 15, divide by total record count, *100
% student health care	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 16, divide by total record count, *100

Table IV.3 *(continued)*

Measure	Measure Description
% technologists, technicians, and other technical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 17, divide by total record count, *100
% nonindividuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18-28, divide by total record count, *100
% agencies	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18, divide by total record count, *100
% ambulatory health care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 19, divide by total record count, *100
% hospital units	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 20, divide by total record count, *100
% hospitals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 21, divide by total record count, *100
% laboratories	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 22, divide by total record count, *100
% managed care organizations	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 23, divide by total record count, *100
% nursing and custodial care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 24, divide by total record count, *100
% residential treatment facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 25, divide by total record count, *100
% respite care facility	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 26, divide by total record count, *100
% suppliers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 27, divide by total record count, *100
% transportation services	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 28, divide by total record count, *100
% nonmedical	Among records with primary taxonomy > 0, count records with nonmedical provider = 1, divide by total record count, *100
Provider IDs with Entity Type = Individual	
Number of provider IDs with entity type = individual	Count records with provider entity type = 1
% a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 1, divide by total record count, *100
% not a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 1, count records with sole proprietorship = 3, divide by total record count, *100
Provider IDs with Entity Type = Organization	
Number of provider IDs with entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
% organization is a subpart	Among records with provider entity type = 2, count records with subpart code = 1, divide by total record count, *100
% organization is not a subpart	Among records with provider entity type = 2, count records with subpart code = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 2, count records with subpart code = 3, divide by total record count, *100

Table IV.4.   Validation Table with Specifications for MAXPC OT Providers

Measure	Measure Description
OT Providers	**This section includes records with OT claim legacy billing provider equal to 1, OT claim legacy servicing provider equal to 1, or OT claim NPI servicing provider equal to 1.**
Number of provider IDs	Count records
% billing provider on OT claim	Count records with OT claim legacy billing provider equal to 1, divide by total record count, *100
% servicing provider on OT claim	Count records with OT claim legacy servicing provider equal to 1, divide by total record count, *100
% NPI servicing provider on OT claim	Count records with OT claim NPI servicing provider equal to 1, divide by total record count, *100
% also a provider on IP claim	Count records with IP claim legacy billing provider equal to 1 or IP claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on LT claim	Count records with LT claim legacy billing provider equal to 1 or LT claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on RX claim	Count records with RX claim legacy billing provider equal to 1, RX claim legacy prescribing provider ID equal to 1, or RX claim NPI billing provider equal to 1, divide by total record count, *100
% provider IDs with NPI	Count records with NPI not equal to spaces, divide by total record count, *100
% provider IDs linked to NPPES	Count records with NPPES type of provider equal to 1, 2 or 3, divide by total record count, *100
% provider IDs with or without NPI but linked to state provider file	Count records with NPPES type of provider ID equal to 4, divide by total record count, *100
Average number of OT claims	Count records from OT claim file for each provider ID, divide by total record count
Average number of beneficiaries with OT claims	Count unique beneficiary IDs in OT claim file for each provider ID, divide by total record count
Provider IDs with NPI	
Number of provider IDs with NPI	Count records with NPI not equal to spaces
% NPI source = MSIS	Among records with NPI not equal to spaces, count records with NPI source equal to 1, divide by total record count, *100
% NPI source = NPPES	Among records with NPI not equal to spaces, count records with NPI source equal to 2, divide by total record count, *100
% NPI source = state cross-reference file	Among records with NPI not equal to spaces, count records with NPI source equal to 3, divide by total record count, *100
Provider IDs Linked to NPPES	
Number of provider IDs linked to NPPES	Count records with NPPES type of provider ID equal 1, 2, or 3
% linked via NPI	Count records with NPPES type of provider ID equal to 1, divide by total record count, *100
% linked via Medicaid legacy provider ID	Count records with NPPES type of provider ID equal to 2, divide by total record count, *100
% linked via Medicare UPIN	Count records with NPPES type of provider ID equal to 3, divide by total record count, *100
% with name prefix	Count records with name prefix not equal to spaces, divide by total record count, *100
% with first name	Count records with first name not equal to spaces, divide by total record count, *100
% with middle name	Count records with middle name not equal to spaces, divide by total record count, *100
% with last name	Count records with last name not equal to spaces, divide by total record count, *100
% with name suffix	Count records with name suffix not equal to spaces, divide by total record count, *100
% male	Count records with gender = "M," divide by total record count, *100
% female	Count records with gender = "F," divide by total record count, *100

Table IV.4 *(continued)*

Measure	Measure Description
% with credential	Count records with credential not equal to spaces, divide by total record count, *100
% with business name	Count records with business name not equal to spaces, divide by total record count, *100
% with address line 1	Count records with address line 1 not equal to spaces, divide by total record count, *100
% with city	Count records with city not equal to spaces, divide by total record count, *100
% with state	Count records with state not equal to spaces, divide by total record count, *100
% state = OT state code	Count records with state = OT state code, divide by total record count, *100
% with zip code	Count records with zip code not equal to spaces, divide by total record count, *100
% with primary taxonomy	Count records with primary taxonomy > 0, divide by total record count, *100
% with provider entity type = individual	Count records with provider entity type = 1, divide by total record count, *100
% with provider entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
Provider IDs with or Without NPI but Linked to State Provider File	
Number of provider IDs with or without NPI linked to state provider file	Count records with NPPES type of provider ID equal to 4
Provider IDs with NPPES Primary Taxonomy	
Number of provider IDs with NPPES primary taxonomy	Count records with primary taxonomy > 0
% individual or group of individuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01 through 17, divide by total record count, *100
% allopathic and osteopathic physicians	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01, divide by total record count, *100
% behavioral health and social service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 02, divide by total record count, *100
% chiropractic providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 03, divide by total record count, *100
% dental providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 04, divide by total record count, *100
% dietary and nutritional service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 05, divide by total record count, *100
% emergency medical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 06, divide by total record count, *100
% eye and vision service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 07, divide by total record count, *100
% nursing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 08, divide by total record count, *100
% nursing service-related providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 09, divide by total record count, *100
% other service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 10, divide by total record count, *100
% pharmacy service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 11, divide by total record count, *100
% physician assistants and advanced practice nursing providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 12, divide by total record count, *100
% podiatric medicine and surgery service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 13, divide by total record count, *100
% respiratory, developmental, rehabilitative, and restorative service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 14, divide by total record count, *100

Table IV.4 *(continued)*

Measure	Measure Description
% speech, language, and hearing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 15, divide by total record count, *100
% student health care	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 16, divide by total record count, *100
% technologists, technicians, and other technical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 17, divide by total record count, *100
% nonindividuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18-28, divide by total record count, *100
% agencies	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18, divide by total record count, *100
% ambulatory health care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 19, divide by total record count, *100
% hospital units	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 20, divide by total record count, *100
% hospitals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 21, divide by total record count, *100
% laboratories	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 22, divide by total record count, *100
% managed care organizations	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 23, divide by total record count, *100
% nursing and custodial care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 24, divide by total record count, *100
% residential treatment facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 25, divide by total record count, *100
% respite care facility	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 26, divide by total record count, *100
% suppliers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 27, divide by total record count, *100
% transportation services	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 28, divide by total record count, *100
% nonmedical	Among records with primary taxonomy > 0, count records with nonmedical provider = 1, divide by total record count, *100
Provider IDs with Entity Type = Individual	
Number of provider IDs with entity type = individual	Count records with provider entity type = 1
% a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 1, divide by total record count, *100
% not a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 1, count records with sole proprietorship = 3, divide by total record count, *100
Provider IDs with Entity Type = Organization	
Number of provider IDs with entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
% organization is a subpart	Among records with provider entity type = 2, count records with subpart code = 1, divide by total record count, *100
% organization is not a subpart	Among records with provider entity type = 2, count records with subpart code = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 2, count records with subpart code = 3, divide by total record count, *100

Table IV.5. Validation Table with Specifications for MAXPC RX Providers

Measure	Measure Description
RX Providers	**This section includes records with RX claim legacy billing provider equal to 1, RX claim legacy prescribing provider equal to 1, or RX claim NPI billing provider equal to 1.**
Number of provider IDs	Count records
% billing provider on RX claim	Count records with RX claim legacy billing provider equal to 1, divide by total record count, *100
% prescribing provider on RX claim	Count records with RX claim legacy prescribing provider equal to 1, divide by total record count, *100
% NPI billing provider on RX claim	Count records with RX claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on IP claim	Count records with IP claim legacy billing provider equal to 1 or IP claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on LT claim	Count records with LT claim legacy billing provider equal to 1 or LT claim NPI billing provider equal to 1, divide by total record count, *100
% also a provider on OT claim	Count records with OT claim legacy billing provider equal to 1, OT claim legacy servicing provider ID equal to 1, or OT claim NPI servicing provider equal to 1, or divide by total record count, *100
% provider IDs with NPI	Count records with NPI not equal to spaces, divide by total record count, *100
% provider IDs linked to NPPES	Count records with NPPES type of provider equal to 1, 2 or 3, divide by total record count, *100
% provider IDs with or without NPI but linked to state provider file	Count records with NPPES type of provider ID equal to 4, divide by total record count, *100
Average number of RX claims	Count records from RX claim file for each provider ID, divide by total record count
Average number of beneficiaries with RX claims	Count unique beneficiary IDs in RX claim file for each provider ID, divide by total record count
Provider IDs with NPI	
Number of provider IDs with NPI	Count records with NPI not equal to spaces
% NPI source = MSIS	Among records with NPI not equal to spaces, count records with NPI source equal to 1, divide by total record count, *100
% NPI source = NPPES	Among records with NPI not equal to spaces, count records with NPI source equal to 2, divide by total record count, *100
% NPI source = state cross-reference file	Among records with NPI not equal to spaces, count records with NPI source equal to 3, divide by total record count, *100
Provider IDs Linked to NPPES	
Number of provider IDs linked to NPPES	Count records with NPPES type of provider ID equal 1, 2, or 3
% linked via NPI	Count records with NPPES type of provider ID equal to 1, divide by total record count, *100
% linked via Medicaid legacy provider ID	Count records with NPPES type of provider ID equal to 2, divide by total record count, *100
% linked via Medicare UPIN	Count records with NPPES type of provider ID equal to 3, divide by total record count, *100
% with name prefix	Count records with name prefix not equal to spaces, divide by total record count, *100
% with first name	Count records with first name not equal to spaces, divide by total record count, *100
% with middle name	Count records with middle name not equal to spaces, divide by total record count, *100
% with last name	Count records with last name not equal to spaces, divide by total record count, *100
% with name suffix	Count records with name suffix not equal to spaces, divide by total record count, *100
% male	Count records with gender = "M," divide by total record count, *100
% female	Count records with gender = "F," divide by total record count, *100

Table IV.5 *(continued)*

Measure	Measure Description
% with credential	Count records with credential not equal to spaces, divide by total record count, *100
% with business name	Count records with business name not equal to spaces, divide by total record count, *100
% with address line 1	Count records with address line 1 not equal to spaces, divide by total record count, *100
% with city	Count records with city not equal to spaces, divide by total record count, *100
% with state	Count records with state not equal to spaces, divide by total record count, *100
% state = RX state code	Count records with state = RX state code, divide by total record count, *100
% with zip code	Count records with zip code not equal to spaces, divide by total record count, *100
% with primary taxonomy	Count records with primary taxonomy > 0, divide by total record count, *100
% with provider entity type = individual	Count records with provider entity type = 1, divide by total record count, *100
% with provider entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
Provider IDs with or Without NPI but Linked to State Provider File	
Number of provider IDs with or without NPI linked to state provider file	Count records with NPPES type of provider ID equal to 4
Provider IDs with NPPES Primary Taxonomy	
Number of provider IDs with NPPES primary taxonomy	Count records with primary taxonomy > 0
% individual or group of individuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01 through 17, divide by total record count, *100
% allopathic and osteopathic physicians	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01, divide by total record count, *100
% behavioral health and social service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 02, divide by total record count, *100
% chiropractic providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 03, divide by total record count, *100
% dental providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 04, divide by total record count, *100
% dietary and nutritional service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 05, divide by total record count, *100
% emergency medical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 06, divide by total record count, *100
% eye and vision service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 07, divide by total record count, *100
% nursing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 08, divide by total record count, *100
% nursing service-related providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 09, divide by total record count, *100
% other service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 10, divide by total record count, *100
% pharmacy service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 11, divide by total record count, *100
% physician assistants and advanced practice nursing providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 12, divide by total record count, *100
% podiatric medicine and surgery service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 13, divide by total record count, *100
% respiratory, developmental, rehabilitative, and restorative service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 14, divide by total record count, *100

Table IV.5 *(continued)*

Measure	Measure Description
% speech, language, and hearing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 15, divide by total record count, *100
% student health care	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 16, divide by total record count, *100
% technologists, technicians, and other technical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 17, divide by total record count, *100
% nonindividuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18-28, divide by total record count, *100
% agencies	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18, divide by total record count, *100
% ambulatory health care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 19, divide by total record count, *100
% hospital units	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 20, divide by total record count, *100
% hospitals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 21, divide by total record count, *100
% laboratories	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 22, divide by total record count, *100
% managed care organizations	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 23, divide by total record count, *100
% nursing and custodial care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 24, divide by total record count, *100
% residential treatment facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 25, divide by total record count, *100
% respite care facility	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 26, divide by total record count, *100
% suppliers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 27, divide by total record count, *100
% transportation services	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 28, divide by total record count, *100
% nonmedical	Among records with primary taxonomy > 0, count records with nonmedical provider = 1, divide by total record count, *100
Provider IDs with Entity Type = Individual	
Number of provider IDs with entity type = individual	Count records with provider entity type = 1
% a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 1, divide by total record count, *100
% not a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 1, count records with sole proprietorship = 3, divide by total record count, *100
Provider IDs with Entity Type = Organization	
Number of provider IDs with entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
% organization is a subpart	Among records with provider entity type = 2, count records with subpart code = 1, divide by total record count, *100
% organization is not a subpart	Among records with provider entity type = 2, count records with subpart code = 2, divide by total record count, *100
% not answered	Among records with provider entity type = 2, count records with subpart code = 3, divide by total record count, *100

Table IV.6.   Validation Table with Specifications for All MAXPC Providers

Measure	Measure Description
All Providers	
Number of provider IDs	Count records
% billing provider on IP claim	Count records with IP claim legacy billing provider equal to 1, divide by total record count, *100
% NPI billing provider on IP claim	Count records with IP claim NPI billing provider equal to 1, divide by total record count, *100
% billing provider on LT claim	Count records with LT claim legacy billing provider equal to 1, divide by total record count, *100
% NPI billing provider on LT claim	Count records with LT claim NPI billing provider equal to 1, divide by total record count, *100
% billing provider on OT claim	Count records with OT claim legacy billing provider equal to 1, divide by total record count, *100
% servicing provider on OT claim	Count records with OT claim legacy servicing provider equal to 1, divide by total record count, *100
% NPI servicing provider on OT claim	Count records with OT claim NPI servicing provider equal to 1, divide by total record count, *100
% billing provider on RX claim	Count records with RX claim legacy billing provider equal to 1, divide by total record count, *100
% prescribing provider on RX claim	Count records with RX claim legacy prescribing provider equal to 1, divide by total record count, *100
% NPI billing provider on RX claim	Count records with RX claim NPI billing provider equal to 1, divide by total record count, *100
% billing provider	Count records with IP claim legacy billing provider equal to 1, LT claim legacy billing provider equal to 1, OT claim legacy billing provider equal to 1, or RX claim legacy billing provider equal to 1, divide by total record count, *100
% NPI billing provider	Count records with IP claim NPI billing provider equal to 1, LT claim NPI billing provider equal to 1, or RX claim NPI billing provider equal to 1, divide by total record count, *100
% servicing provider	Count records with OT claim legacy servicing provider equal to 1, divide by total record count, *100
% NPI servicing provider	Count records with OT claim NPI servicing provider equal to 1, divide by total record count, *100
% prescribing provider	Count records with RX claim legacy prescribing provider equal to 1, divide by total record count, *100
% provider IDs with NPI	Count records with NPI not equal to spaces, divide by total record count, *100
% provider IDs linked to NPPES	Count records with NPPES type of provider equal to 1, 2 or 3, divide by total record count, *100
% provider IDs with or without NPI but linked to state provider file	Count records with NPPES type of provider ID equal to 4, divide by total record count, *100
Average number of claims	Count records from any claim file for each provider ID, divide by total record count
Average number of beneficiaries with claims	Count unique beneficiary IDs in any claim file for each provider ID, divide by total record count
Provider IDs with NPI	
Number of provider IDs with NPI	Count records with NPI not equal to spaces
% NPI source = MSIS	Among records with NPI not equal to spaces, count records with NPI source equal to 1, divide by total record count, *100
% NPI source = NPPES	Among records with NPI not equal to spaces, count records with NPI source equal to 2, divide by total record count, *100
% NPI source = state cross-reference file	Among records with NPI not equal to spaces, count records with NPI source equal to 3, divide by total record count, *100
Provider IDs Linked to NPPES	
Number of provider IDs linked to NPPES	Count records with NPPES type of provider ID equal 1, 2, or 3
% linked via NPI	Count records with NPPES type of provider ID equal to 1, divide by total record count, *100
% linked via Medicaid legacy provider ID	Count records with NPPES type of provider ID equal to 2, divide by total record count, *100

Table IV.6 *(continued)*

Measure	Measure Description
% linked via Medicare UPIN	Count records with NPPES type of provider ID equal to 3, divide by total record count, *100
% with name prefix	Count records with name prefix not equal to spaces, divide by total record count, *100
% with first name	Count records with first name not equal to spaces, divide by total record count, *100
% with middle name	Count records with middle name not equal to spaces, divide by total record count, *100
% with last name	Count records with last name not equal to spaces, divide by total record count, *100
% with name suffix	Count records with name suffix not equal to spaces, divide by total record count, *100
% male	Count records with gender = "M," divide by total record count, *100
% female	Count records with gender = "F," divide by total record count, *100
% with credential	Count records with credential not equal to spaces, divide by total record count, *100
% with business name	Count records with business name not equal to spaces, divide by total record count, *100
% with address line 1	Count records with address line 1 not equal to spaces, divide by total record count, *100
% with city	Count records with city not equal to spaces, divide by total record count, *100
% with state	Count records with state not equal to spaces, divide by total record count, *100
% state = any state code	Count records with state = any state code, divide by total record count, *100
% with zip code	Count records with zip code not equal to spaces, divide by total record count, *100
% with primary taxonomy	Count records with primary taxonomy > 0, divide by total record count, *100
% with provider entity type = individual	Count records with provider entity type = 1, divide by total record count, *100
% with provider entity type = organization	Count records with provider entity type = 2, divide by total record count, *100

Provider IDs with or Without NPI but Linked to State Provider File

Number of provider IDs with or without NPI linked to state provider file	Count records with NPPES type of provider ID equal to 4

Provider IDs with NPPES Primary Taxonomy

Number of provider IDs with NPPES primary taxonomy	Count records with primary taxonomy > 0
% individual or group of individuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01 through 17, divide by total record count, *100
% allopathic and osteopathic physicians	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 01, divide by total record count, *100
% behavioral health and social service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 02, divide by total record count, *100
% chiropractic providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 03, divide by total record count, *100
% dental providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 04, divide by total record count, *100
% dietary and nutritional service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 05, divide by total record count, *100
% emergency medical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 06, divide by total record count, *100
% eye and vision service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 07, divide by total record count, *100
% nursing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 08, divide by total record count, *100
% nursing service-related providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 09, divide by total record count, *100

Table IV.6 *(continued)*

Measure	Measure Description
% other service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 10, divide by total record count, *100
% pharmacy service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 11, divide by total record count, *100
% physician assistants and advanced practice nursing providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 12, divide by total record count, *100
% podiatric medicine and surgery service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 13, divide by total record count, *100
% respiratory, developmental, rehabilitative, and restorative service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 14, divide by total record count, *100
% speech, language, and hearing service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 15, divide by total record count, *100
% student health care	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 16, divide by total record count, *100
% technologists, technicians, and other technical service providers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 17, divide by total record count, *100
% nonindividuals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18-28, divide by total record count, *100
% agencies	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 18, divide by total record count, *100
% ambulatory health care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 19, divide by total record count, *100
% hospital units	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 20, divide by total record count, *100
% hospitals	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 21, divide by total record count, *100
% laboratories	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 22, divide by total record count, *100
% managed care organizations	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 23, divide by total record count, *100
% nursing and custodial care facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 24, divide by total record count, *100
% residential treatment facilities	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 25, divide by total record count, *100
% respite care facility	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 26, divide by total record count, *100
% suppliers	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 27, divide by total record count, *100
% transportation services	Among records with primary taxonomy > 0, count records with NPPES primary taxonomy = 28, divide by total record count, *100
% nonmedical	Among records with primary taxonomy > 0, count records with nonmedical provider = 1, divide by total record count, *100
Provider IDs with Entity Type = Individual	
Number of provider IDs with entity type = individual	Count records with provider entity type = 1
% a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = Y, divide by total record count, *100
% not a sole proprietorship	Among records with provider entity type = 1, count records with sole proprietorship = N, divide by total record count, *100
% not answered	Among records with provider entity type = 1, count records with sole proprietorship = X, divide by total record count, *100
Provider IDs with Entity Type = Organization	
Number of provider IDs with entity type = organization	Count records with provider entity type = 2, divide by total record count, *100
% organization is a subpart	Among records with provider entity type = 2, count records with subpart code = Y, divide by total record count, *100

Table IV.6 *(continued)*

Measure	Measure Description
% organization is not a subpart	Among records with provider entity type = 2, count records with subpart code = N, divide by total record count, *100
% not answered	Among records with provider entity type = 2, count records with subpart code = X, divide by total record count, *100

J.　Anomaly Tables

Anomaly tables are a very useful tool for understanding idiosyncrasies and egregious data problems. Given that there are 51 jurisdictions, the challenge lies in how best to convey the anomalies without overwhelming researchers. Rather than generating 51 state-specific anomaly tables, we created a tabular report; the rows contain the state names, and the columns contain issues that could be anomalous within each file type. When benchmarks were known for a particular issue, we provided that measure in the bottom row of each table. We compared each state's measure against the benchmark, and when a measure fell outside the range of the benchmark, we highlighted it to indicate an anomalous condition. In many instances, benchmarks did not exist or were unknown for certain measures. In these cases, we compared measures between states to find any unusual patterns and highlighted those measures as well.

The anomaly tables are driven by the information in the validation tables. Each year, when we spot data issues in the validation tables, we create or add entries to the corresponding anomaly table. These tables vary from year to year, depending on the data.

Initially, some of the measures that could be the source of anomalies include:

- Number of provider IDs
- Percentage of provider IDs with NPI
- Percentage of provider IDs that link to NPPES
- Percentage of provider IDs that link to state provider files
- Average number of claims per provider ID
- Average number of beneficiaries with claims per provider ID
- Percentage of billing provider IDs found in IP/LT/OT/RX claims
- Percentage of servicing provider IDs found in OT claims
- Percentage of prescribing provider IDs found in RX claims
- Percentage of NPIs found in IP/LT/OT/RX claims
- Percentage of providers for which the NPI source was MSIS, NPPES, or state provider file

- Percentage of providers linked to NPPES via the NPI

- Percentage of providers who are in-state providers

- Percentage with primary taxonomy

- Percentage with provider entity type = individual/organization

We submit anomaly tables to CMS annually as part of the MAXPC system documentation.

The anomaly tables for the prototype are included in Appendix B.

V. IMPLEMENTATION OF THE MAXPC DESIGN

In this chapter, we describe the implementation of the MAXPC design. The structure and content of this chapter is similar to the previous chapter, but here we focus on the results.

It is important to remember that the goal of the MAXPC design and implementation task was to develop a supplemental data set that will allow researchers using MAX data to obtain provider characteristics information for their study populations. Historically, this has been difficult to do because of the myriad number of provider identification schemes in use, along with the minimal amount of effort expended in monitoring state reporting of provider IDs in MSIS. Making a thorough study of the validity of provider IDs contained in the files or identify what type of provider IDs are reported was not part of the MAXPC design. Only as a consequence of finding a match in either the NPPES or state provider files for a provider ID is the ID's validity confirmed. However, non-matches may not necessarily indicate that a given provider ID is inaccurately reported in the MAX files. Issues that could also cause non-matches include atypical providers not required by CMS to obtain NPIs and that the elapsed time between the study's time frame (CY 2006) and the cross-reference sources for NPI information (FY 2009) are too wide apart. In the span of two years, a number of events could have occurred that would cause a provider's ID to be excluded from the FY 2009 file including retirement, updated provider ID numbers, or death. We did not cross-reference IDs for MAXPC to determine whether certain providers use one or multiple provider IDs.

To build the 2006 MAXPC file, we developed a set of 20 SAS programs driven by a set of 11 JCL programs. Except for two programs that are designed to read and prepare the NPPES data for use on the mainframe, and another program that produces Excel worksheets comprising the validation and anomaly tables for this project, all programs were written to be executed at the

CMS Data Center. Whereas all the MAX and MSIS data sets used as input to the process are housed at the CMS Data Center, the version of NPPES that is used for MAXPC is a database downloadable from the CMS website. After downloading the NPPES data to our servers, we performed a number of pre-processing steps to reduce the footprint of NPPES before uploading the file to the Data Center for merging with MAX- and MSIS-derived data. Although we are able to employ a secure, high-speed connection to transmit data to the CMS Data Center, we wanted to reduce the amount of resources that an unprocessed NPPES file would have required. We estimate a 75 percent reduction in space requirements by executing these pre-processing steps.

As planned, we chose three prototype states for MAXPC: Florida, Indiana, and North Carolina. They provided us with state provider files, albeit with varying amounts of information, for use in the implementation of the prototype processing algorithm. These provider files were transmitted to our workstations either as encrypted files or through a secure connection to the state's repositories. State provider files were also uploaded to the CMS Data Center, using our high-speed connection, and stored for future use. The states sent provider files that were current as of May 2010, thus making this information usable throughout the MAXPC 2009 processing year as well.

In the next section, we describe the preparation of the files for linkage. We conclude the chapter by assessing the NPPES linkage results and provider characteristics obtained from the NPPES linkage.

A. Preparation of Files

The design of MAXPC calls for the creation of one record in the file for every provider ID found in any of the MAX claim files for a given year. To do this for MAX 2006, we first extracted the billing provider ID fields in the IP, LT, RX, and OT files; the servicing provider ID field in the OT file; and the prescribing provider ID field in the RX file. In future production, we

will also extract the NPI billing provider ID fields in the IP, LT, and RX files, as well as the NPI servicing provider ID field in the OT file. The 2006 MAX files do not include NPIs; they will be added starting with the 2009 MAX. As described in Chapter IV, to link each provider ID identified in the MAX 2006 claims files with the provider characteristics in the NPPES, we must first crosswalk these provider IDs to NPIs. This prototype uses the FY 2009 MSIS quarterly claims files as the main source for identifying the NPI associated with each legacy provider ID. When linkage with the FY 2009 MSIS files does not produce a corresponding NPI for a given provider ID, the process calls for a second attempt using NPPES, which contains up to 50 legacy provider IDs associated with a particular NPI. This information, however, is voluntarily reported when a provider applies for an NPI. These legacy provider IDs include Medicaid ID, Medicare UPIN/OSCAR/NSC/PIN/unspecified type, as well as commercial insurance ID numbers. To try to reduce false positive matches inherent in the blind matching of records, we limited the NPPES "Provider ID Crosswalk" to those that are reported to be Medicaid IDs and Medicare UPIN codes, the latter because of the uniqueness of the ID's format. If that process failed to find an NPI, we finally searched for a match of the legacy provider ID from the state provider files. As can be seen later, for Indiana and North Carolina, a state's willingness to provide us with their provider file turned out to be crucial in finding a large portion of their NPIs.

The search for an NPI ends when a match is found. When the search was completed, we attached the characteristics for each provider in the file. Provider IDs for which we found no characteristics remained in MAXPC, containing only information derived from the MAX claims. Validation tables and the MAXPC flat file were then produced, completing the process. Additional details for each step in the process are described below along with tables showing results of the work.

1.   Preparation of NPPES Lookup Files

The May 2010 version of the NPPES file contained 3,104,787 unique NPIs representing a 5.2 percent increase of records from the prior version. The NPPES file is recreated once per quarter, with the last four updates having occurred in September and November 2009 and in February and May 2010. It is important as MAXPC moves forward that the most recent version of NPPES be used whenever a state file is processed. However, once a state's MAXPC file is built, it will not be rebuilt to take advantage of the arrival of newer versions of NPPES—the reprocessing time would detract resources from other tasks typically running concurrently.

Table V.1 shows the number of each type of legacy provider IDs reported by providers in NPPES. The May 2010 version shows more than 4.2 million legacy provider IDs for the more than 3.1 million NPIs in the file, an average number of 1.37 legacy provider IDs per NPI. In preparing the NPPES "Provider ID-NPI Crosswalk" file as a source of NPIs, while trying to avoid too many false positive matches, we restricted the pool of possible matches to records with legacy provider IDs that were Medicaid provider IDs and Medicare UPINs. No in-depth analysis was done to validate any of the legacy provider IDs reported. We did, however, conduct a cursory assessment of Medicaid IDs to verify that each character had the appropriate format. As shown in Table V.2, 1.4 percent of the legacy provider IDs reported to be Medicaid IDs appeared to contain an invalid character in the first position of the ID. However, a 1.4 percent error rate seems well below the threshold that is currently used in MSIS data quality and validation reporting, making these rates acceptable for matching purposes. We further restricted this pool by including only Medicaid provider IDs with a provider billing state equal to the state being studied. While this restriction is important in reducing the number of false positive matches, the drawback is that out-of-state providers serving a Medicaid beneficiary will not be matched and these providers are a component of the delivery system that researchers will be interested in

studying. Medicare UPINs were included because the structure of these national IDs is such that when matches occur, we are reasonably assured they match the same provider. The implication in Table V.1 is that only 40.7 percent (19.1 percent Medicare UPINs and 21.6 percent Medicaid IDs) of the legacy provider IDs reported in the NPPES was used in our matching process. However, given that the structure of the other legacy provider IDs is so similar that their inclusion could lead to a high number of false positive matches, we decided on the conservative approach and excluded them from selection. With regard to Medicare OSCAR IDs, which can be found on long-term care claims, we found that none were used in our prototype states.

Table V.1. Number of Each Type of Legacy Provider IDs Self-Reported by Providers in NPPES

NPPES	Number	Percent
Number of Unique NPIs in NPPES, May 2010	3,104,787	-
Total Number of Self-Reported Legacy Provider IDs in NPPES, May 2010	4,248,936	100.0
Medicare UPIN	812,364	19.1
Medicare ID-Type, Unspecified	649,273	15.3
Medicaid	915,705	21.6
Medicare OSCAR/Certification	43,489	1.0
Medicare NSC	121,018	2.9
Medicare PIN	563,576	13.3
Other	1,143,511	26.9

Source: National Plan and Provider Enumeration System (NPPES), May 2010.

Table V.2. An Examination of the First Position of Medicaid Legacy Provider IDs in NPPES

	Number	Percent
Number of Medicaid Legacy Provider IDs in NPPES	915,705	100.0
Invalid	13,260	1.4
0-9	837,901	91.5
A-Z	64,544	7.0

Source: National Plan and Provider Enumeration System (NPPES), May 2010.

Table V.3a shows some characteristics of individual entity providers in NPPES. The file contains over 2.3 million individual entities, with 51.8 percent female providers and 48.2 percent male. Of these, 30.0 percent were listed as sole proprietors. Almost one third (32.2 percent) were allopathic and osteopathic physicians, while another 15.9 percent were behavioral health and social service providers.

Table V.3b shows characteristics of organizational entity providers in NPPES. The file contains 752,089 organizations, or 24.2 percent of all records. The most common provider types were allopathic and osteopathic physicians, suppliers, ambulatory health care facilities, and agencies. Almost one-third (31.8 percent) of organizations did not indicate whether they were a subpart of another organization. Among those who did respond to this question, 10.9 percent reported to be a subpart of a larger organization.

2. Creation of the Master List of Provider IDs

The prototype MAXPC file we created uses the 2006 MAX claims files as the only source of provider IDs. The nature of the work, however, calls for the use of NPIs as the key field in algorithms as we attempted linkage with reference files containing the provider characteristics of interest. To obtain NPIs, we designed the process to link 2006 MAX provider IDs with the 2009 MSIS claim file NPIs. During the full production of MAXPC——the first of which will use MAX 2009 data—linkage to MSIS claims data will be unnecessary because the NPI will be included on the MAX 2009 claims record.

a. Master List of Provider IDs in MAX

Table V.4 shows the total number of unique legacy provider IDs with one or more claims from the 2006 MAX claims files. The first step in creating this list was to extract the various provider ID fields in each of the MAX claims files—IP, LT, RX, and OT. For MAX 2006, there

Table V.3a. Primary Taxonomy of Individual Entity Providers in NPPES

Primary Taxonomy	Total Number	Total Per-cent	Gender Female Number	Female Per-cent	Male Number	Male Per-cent	Sole Proprietor Yes Number	Yes Per-cent	No Number	No Per-cent	Not Answered Number	Not Answered Per-cent
All Individual Entity Providers	2,352,698	100.0	1,219,504	51.8	1,133,194	48.2	705,124	30.0	1,425,856	60.6	221,718	9.4
Allopathic and Osteopathic Physicians	758,094	32.2	236,430	19.4	521,664	46.0	154,086	21.9	503,781	35.3	100,227	45.2
Behavioral Health and Social Service	373,398	15.9	271,110	22.2	102,288	9.0	156,527	22.2	197,910	13.9	18,961	8.6
Chiropractic	70,130	3.0	16,711	1.4	53,419	4.7	32,019	4.5	30,970	2.2	7,141	3.2
Dental	181,954	7.7	46,701	3.8	135,253	11.9	72,191	10.2	94,316	6.6	15,447	7.0
Dietary and Nutritional Service	18,898	0.8	18,167	1.5	731	0.1	6,228	0.9	11,358	0.8	1,312	0.6
Emergency Medical Service	2,111	0.1	575	0.0	1,536	0.1	466	0.1	1,470	0.1	175	0.1
Eye and Vision Services	44,792	1.9	16,359	1.3	28,433	2.5	16,581	2.4	23,850	1.7	4,361	2.0
Nursing Service	69,172	2.9	62,459	5.1	6,713	0.6	28,442	4.0	37,610	2.6	3,120	1.4
Nursing Service-Related	7,744	0.3	6,685	0.5	1,059	0.1	3,925	0.6	3,671	0.3	148	0.1
Other Service	105,203	4.5	55,584	4.6	49,619	4.4	41,181	5.8	51,447	3.6	12,575	5.7
Pharmacy Service	71,163	3.0	37,170	3.0	33,993	3.0	23,666	3.4	41,485	2.9	6,012	2.7
Physician Assistant and Advanced Practice Nursing	220,280	9.4	169,839	13.9	50,441	4.5	27,450	3.9	169,614	11.9	23,216	10.5
Podiatric Medicine and Surgery Service	16,172	0.7	3,329	0.3	12,843	1.1	6,630	0.9	7,931	0.6	1,611	0.7
Respiratory, Developmental, Rehab, Restorative	199,005	8.5	145,271	11.9	53,734	4.7	58,486	8.3	127,214	8.9	13,305	6.0
Speech, Language, and Hearing Service	65,072	2.8	58,903	4.8	6,169	0.5	24,732	3.5	37,792	2.7	2,548	1.1
Student, Health Care	74,816	3.2	37,350	3.1	37,466	3.3	22,490	3.2	52,169	3.7	157	0.1
Technologists, Technicians, and Other Technical	7,226	0.3	3,754	0.3	3,472	0.3	2,547	0.4	4,206	0.3	473	0.2
Agencies	2,567	0.1	1,929	0.2	638	0.1	2,567	0.4	0	0.0	0	0.0
Ambulatory Health Care Facilities	2,084	0.1	1,074	0.1	1,010	0.1	2,084	0.3	0	0.0	0	0.0
Hospital Units	98	0.0	42	0.0	56	0.0	98	0.0	0	0.0	0	0.0
Hospitals	2,709	0.1	1,269	0.1	1,440	0.1	2,709	0.4	0	0.0	0	0.0
Laboratories	244	0.0	124	0.0	120	0.0	244	0.0	0	0.0	0	0.0
Managed Care Organizations	346	0.0	178	0.0	168	0.0	346	0.0	0	0.0	0	0.0
Nursing and Custodial Care	746	0.0	572	0.0	174	0.0	746	0.1	0	0.0	0	0.0

Table V.3a *(continued)*

| Primary Taxonomy | Total | | Gender | | | | Sole Proprietor | | | | | |
| | | | Female | | Male | | Yes | | No | | Not Answered | |
	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent
Facilities												
Residential Treatment Facilities	842	0.0	588	0.0	254	0.0	842	0.1	0	0.0	0	0.0
Respite Care Facility	444	0.0	326	0.0	118	0.0	444	0.1	0	0.0	0	0.0
Suppliers	1,563	0.1	617	0.1	946	0.1	1,563	0.2	0	0.0	0	0.0
Transportation Services	573	0.0	202	0.0	371	0.0	573	0.1	0	0.0	0	0.0
No Primary Taxonomy Given	55,252	2.3	26,186	2.1	29,066	2.6	15,261	2.2	29,062	2.0	10,929	4.9

Source: National Plan and Provider Enumeration System (NPPES), May 2010.

Table V.3b. Primary Taxonomy of Organization Entity Providers in NPPES

| Primary Taxonomy | Total | | Subpart | | | | | |
| | | | Yes | | No | | Not Answered | |
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All Organization Entity Providers	752,089	100.0	55,777	7.4	457,371	60.8	238,941	31.8
Allopathic and Osteopathic Physicians	157,642	21.0	9,212	16.5	108,749	23.8	39,681	16.6
Behavioral Health and Social Service	22,551	3.0	659	1.2	14,017	3.1	7,875	3.3
Chiropractic	29,743	4.0	281	0.5	20,251	4.4	9,211	3.9
Dental	42,132	5.6	1,048	1.9	19,746	4.3	21,338	8.9
Dietary and Nutritional Service	837	0.1	67	0.1	538	0.1	232	0.1
Emergency Medical Service	499	0.1	21	0.0	239	0.1	239	0.1
Eye and Vision Services	19,519	2.6	902	1.6	14,422	3.2	4,195	1.8
Nursing Service	1,188	0.2	48	0.1	656	0.1	484	0.2
Nursing Service-Related	1,114	0.1	30	0.1	681	0.1	403	0.2
Other Service	27,149	3.6	589	1.1	17,244	3.8	9,316	3.9
Pharmacy Service	3,288	0.4	52	0.1	1,423	0.3	1,813	0.8
Physician Assistant and Advanced Practice Nursing	5,629	0.7	417	0.7	3,759	0.8	1,453	0.6
Podiatric Medicine and Surgery Service	8,353	1.1	274	0.5	7,083	1.5	996	0.4
Respiratory, Developmental, Rehab, Restorative	15,745	2.1	556	1.0	9,989	2.2	5,200	2.2
Speech, Language, and Hearing Service	6,043	0.8	443	0.8	3,645	0.8	1,955	0.8
Student, Health Care	169	0.0	2	0.0	94	0.0	73	0.0
Technologists, Technicians, and Other Technical	1,830	0.2	63	0.1	1,140	0.2	627	0.3
Agencies	81,525	10.8	5,047	9.0	47,711	10.4	28,767	12.0
Ambulatory Health Care Facilities	84,753	11.3	8,778	15.7	52,708	11.5	23,267	9.7
Hospital Units	4,366	0.6	1,218	2.2	1,766	0.4	1,382	0.6
Hospitals	16,385	2.2	1,306	2.3	10,032	2.2	5,047	2.1
Laboratories	7,395	1.0	902	1.6	4,285	0.9	2,208	0.9
Managed Care Organizations	4,820	0.6	227	0.4	3,151	0.7	1,442	0.6
Nursing and Custodial Care Facilities	35,332	4.7	2,858	5.1	18,515	4.0	13,959	5.8

Table V.3b *(continued)*

| Primary Taxonomy | Total | | Subpart | | | | | |
| | | | Yes | | No | | Not Answered | |
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Residential Treatment Facilities	12,336	1.6	712	1.3	5,741	1.3	5,883	2.5
Respite Care Facility	779	0.1	29	0.1	456	0.1	294	0.1
Suppliers	118,329	15.7	19,433	34.8	79,480	17.4	19,416	8.1
Transportation Services	15,897	2.1	603	1.1	9,849	2.2	5,445	2.3
No Primary Taxonomy Given	26,741	3.6	0	0.0	1	0.0	26,740	11.2

Source: National Plan and Provider Enumeration System (NPPES), May 2010.

were a total of six fields that are the source of provider IDs. The IP and LT files each contain one

billing provider ID field. The OT file contains one billing and one servicing provider ID field,

and the RX file contains one billing and one prescribing provider ID field.[9] As we identified

provider IDs, we developed flags for each of the IDs collected to indicate from which file(s) and

which provider ID field(s) the ID originated. For providers from the OT claims, we determined

whether the ID was found in both the billing provider field and/or servicing provider field.

Likewise, for providers from the RX claims, we examined whether the ID was found in both the

billing provider field and/or prescribing provider field. We then collected some provider ID-level

statistics, such as the number of claims and unique beneficiaries, for each provider in each claims

file, as well as across-claims files. Then we sorted and unduplicated the provider IDs collected in

the data set.

Table V.4. Number of Unique Legacy Provider IDs with One or More Claims in MAX 2006

State	Any Claim	IP	LT	OT	RX
Florida	124,732	813	817	119,992	5,219
Indiana	66,596	322	1,040	53,450	23,982
North Carolina	47,342	426	1,232	28,760	24,909

Source: Medicaid Analytic eXtract (MAX) Claims Files, CY 2006.

Note: Numbers shown are unduplicated counts of provider IDs. Provider ID fields used in the search include the inpatient file's billing provider, the long-term care file's billing provider, the other claims files' servicing and billing providers, and the drug file's billing and prescribing provider ID fields.

In Florida, there were a total of 124,732 provider IDs with at least one claim in any the four

MAX claims files. Of this total, 813 were found in the IP file, 817 in the LT file, 5,219 in the RX

file, and 119,992 in the OT file. For Indiana, there were a total of 66,596 provider IDs including

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[9] In future versions of claims for MAX data sets, four additional fields will be used as sources of provider ID data: IP claim billing NPI, LT claim billing NPI, OT claim servicing NPI, and RX claim billing NPI.

322 from the IP file, 1,040 from LT, 23,982 from RX, and 53,450 from OT. Corresponding numbers in North Carolina are 47,342 total, 426 IP, 1,232 LT, 24,909 RX and 28,760 OT.[10]

Table V.5 displays the number of providers and the average number of claims and beneficiaries with claims per provider, by claim type and overall, by state. The denominator used in calculating this table is the total number of unique provider IDs in the state's MAX files, overall, and by claim type. Overall, the average number of claims and beneficiaries per provider appears to approximate each other for Florida and Indiana. In contrast, North Carolina's corresponding numbers are almost twice or more than the average for the Florida and Indiana. Florida's average number of claims per provider ID is 915.7, while the number of beneficiaries per provider ID is 160.9. Indiana's respective averages are 1,035.5 and 147.8. North Carolina's averages, however, are 2,309.1 and 278.1, respectively. With regard to providers from the IP and LT claims files, the average per provider appears to be stable across the three states. Averages from providers from the IP file are as follows: Florida averages 509.8 claims and 424.7 beneficiaries, Indiana has 453.3 claims and 394.6 beneficiaries, and North Carolina has 633.6 claims and 540.0 beneficiaries. In LT claims, Florida averages 919.5 claims and 109.4 beneficiaries, Indiana has 866.7 claims and 44.8 beneficiaries, and North Carolina has 722.3 claims and 44.7 beneficiaries. Florida's beneficiary count is more than twice that of the other two states—reasonable due to the fact that among the 51 jurisdictions in the United States, Florida has the highest percentage of senior citizens in its population (U.S. Census Bureau 2010). Senior citizens are the more likely beneficiaries of services in long-term care facilities.

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[10] Counts of provider IDs in individual files do not add up to the totals for each state because some provider IDs appear in more than one file. Total counts are for unique provider IDs for each state regardless of file type, while counts for each file type are unique only for that file type.

Table V.5. Number of Unique Legacy Provider IDs, Average Number of Claims and Beneficiaries with Claims per Provider ID, by State

Average Number of Claims and Beneficiaries per Legacy Provider ID	Florida	Indiana	North Carolina
Total Number of Unique Legacy Provider IDs in 2006 MAX files	124,732	66,596	47,342
Average number of claims per legacy provider ID	915.7	1,035.5	2,309.1
Average number of beneficiaries with claims per legacy provider ID	160.9	147.8	278.1
IP Claims			
Number of unique legacy provider IDs	813	322	426
Average number of IP claims per legacy provider ID	509.8	453.3	633.6
Average number of beneficiaries with IP claims per legacy provider ID	424.7	394.6	540.0
LT Claims			
Number of unique legacy provider IDs	817	1,040	1,232
Average number of LT claims per legacy provider ID	919.5	866.7	722.3
Average number of beneficiaries with LT claims per legacy provider ID	109.4	44.8	44.7
OT Claims			
Number of unique legacy provider IDs	119,992	53,450	28,760
Average number of OT claims per legacy provider ID	824.6	978.3	2,944.6
Average number of beneficiaries with OT claims per legacy provider ID	151.4	144.8	337.5
RX Claims			
Number of unique legacy provider IDs	5,219	23,982	24,909
Average number of RX claims per legacy provider ID	2,702.8	651.5	942.3
Average number of beneficiaries with RX claims per legacy provider ID	319.8	89.1	142.0

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics Files, 2006.

In terms of other services, the bulk of the provider IDs in the claims files are found in the OT, as expected. In Florida, 96.2 percent (119,992/124,732) of the state's provider IDs are found in OT, compared with Indiana with 80.2 percent (53,450/66,596).

North Carolina's OT numbers come in somewhat lower at 60.7 percent (28,760/47,342) mainly because the state reported an unusually high number of cases where the billing provider ID is the same as the servicing provider ID. Additionally, the state's OT provider IDs have three

times the average number of claims per provider ID than either Florida or Indiana, and more than twice the average number of beneficiaries. This phenomenon is due to the fact that the denominator—OT legacy provider IDs—used in this calculation is low.

As shown in Table V.6, North Carolina's OT billing and servicing provider IDs are the same in 95.8 percent of cases. This is in contrast with the 22.9 percent and 23.4 percent of cases in Florida and Indiana, respectively. MAXPC's design calls for the tallying of unique legacy provider IDs. In cases when the servicing provider ID and the billing provider ID are the same, each claim contributes one, and only one, provider ID to the OT numerator, where it otherwise would have contributed two. Since the results looked unusual, we contacted North Carolina about these findings. Reportedly, North Carolina uses an algorithm that inserts the attending physician's ID into the servicing provider ID field. In cases when the attending physician's ID is missing from their files, the state inserts the billing provider ID into the servicing provider ID field.

Table V.6.   Types of Providers in the MAX OT File

	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of OT Legacy Provider IDs	119,992	53,450	28,760	100.0	100.0	100.0
Billing Provider ID Only	9,031	3,393	1,210	7.5	6.3	4.2
Servicing Provider ID Only	83,445	37,537	1	69.5	70.2	0.0
Same Billing and Servicing Provider ID	27,516	12,520	27,549	22.9	23.4	95.8

Source: Medicaid Analytic eXtract (MAX) Claims Files, CY 2006.

Florida's average number of RX claims per legacy provider ID, and the average number of beneficiaries with RX claims per legacy provider ID appear to have the same issues as North Carolina's OT averages. A closer look at the data, however, reveals a completely different story.

Florida's RX claims files contained a high number of nine-filled prescribing provider IDs, excluding them from being counted in the denominator for the averages. This caused the averages to appear comparatively higher than the two other states.

As shown in Table V.7, only 1,185 of Florida's prescribing provider IDs are reported in the RX claims files compared with 22,539 in Indiana, and 22,891 in North Carolina. The low count is due to nine-filling, which means that the state did not report the data element in their files. Since prescribing provider ID is not a required field in MSIS, many states choose not to provide it. Indiana, on the other hand, did not nine-fill the field when the provider ID was not available but instead entered the provider's name and other non-alphanumeric characters. Thus, as will be shown later in this chapter, just because the information is provided, it doesn't necessarily mean it is usable or linkable to NPPES.

Table V.7. Types of Providers in the MAX RX File

	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of RX Legacy Provider IDs	5,219	23,982	24,909	100.0	100.0	100.0
Billing Provider ID Only	4,034	1,443	1,964	77.3	6.0	7.9
Prescribing Provider ID Only	1,185	22,539	22,891	22.7	94.0	91.9
Same Billing and Prescribing Provider ID	0	0	54	0.0	0.0	0.2

Source: Medicaid Analytic eXtract (MAX) Claims Files, CY 2006.

b.   Crosswalk of Legacy Provider ID and NPI in MSIS

Similar to the process involved in extracting legacy provider IDs from MAX CY 2006, we created a second file—a crosswalk of legacy provider IDs and their corresponding NPIs—using the quarterly MSIS FY 2009 claims files. Each combination of the following provider ID pairs were extracted:

- IP claim billing provider ID and its corresponding IP billing NPI

- LT claim billing provider ID and its corresponding LT billing NPI

- OT claim servicing provider ID and its corresponding OT servicing NPI

- RX claim billing provider ID and its corresponding RX billing NPI

Two additional provider ID fields in MSIS—the billing provider ID field in the OT file, and the prescribing provider ID field in the RX file—are not extracted because there are no corresponding NPI fields. Table V.8 shows how effectively the legacy provider IDs in MSIS linked with NPIs, by file type and state. In general, Florida's legacy provider IDs linked well with NPIs, where virtually 100 percent of the legacy provider IDs in IP, LT, and RX, and 99.5 percent in OT linked with one and only one NPI. Indiana's legacy provider IDs linked well with NPIs in the LT and RX files at 95.2 percent for LT and 97.6 percent for RX, while the IP showed good linkage at 83.6 percent. The linkage in the OT file is troubling, however, with only 49.8 percent of legacy provider IDs that linked with a single NPI. The results in North Carolina are mixed. For the RX file, the IDs linked with one NPI in 99.7 percent of cases, but in the IP, LT, and OT, only 59.1 percent, 77.0 percent, and 71.9 percent of provider IDs, respectively, linked with one and only one NPI.

The file specific crosswalks are then pooled together creating the MSIS Crosswalk of Providers.

c.   Matching of Master List of Providers with MSIS Crosswalk of Providers

Going a step further, the 2006 master list of providers was then matched with the 2009 MSIS crosswalk of providers. In building the prototype MAXPC, we did not assign an NPI to that legacy ID when a legacy provider ID corresponded to more than one NPI because we did not know the correct one to use. This was an added measure to avoid false positive linkages. As Table V.9 shows only 0.1 percent of IDs in Florida, 10.7 percent in Indiana, and 6.3 percent in North Carolina linked to more than one NPI. Overall, we were unsuccessful in finding NPIs in

64.2 percent, 62.9 percent, and 53.8 percent of legacy providers in Florida, Indiana, and North Carolina, respectively, using the MSIS crosswalk. For these cases to obtain provider characteristics information, it is imperative that they be matched with the state-supplied provider file or with the NPPES using Medicaid IDs or Medicare UPINs.

Table V.8.   Distribution Showing Legacy Provider IDs by Number of NPIs in MSIS 2009, by File Type, and by State

	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
IP Claims						
Number of Legacy Provider IDs in MSIS	1,651	452	523	100.0	100.0	100.0
Legacy IDs With Only One NPI	1,647	378	309	99.8	83.6	59.1
Legacy IDs With Multiple NPIs	4	74	214	0.2	16.4	40.9
LT Claims						
Number of Legacy Provider IDs in MSIS	812	1,085	1,203	100.0	100.0	100.0
Legacy IDs With Only One NPI	812	1,033	926	100.0	95.2	77.0
Legacy IDs With Multiple NPIs	0	52	277	0.0	4.8	23.0
OT Claims						
Number of Legacy Provider IDs in MSIS	55,938	49,081	32,062	100.0	100.0	100.0
Legacy IDs With Only One NPI	55,650	24,432	23,059	99.5	49.8	71.9
Legacy IDs With Multiple NPIs	288	24,649	9,003	0.5	50.2	28.1
RX Claims						
Number of Legacy Provider IDs in MSIS	3,969	1,386	2,108	100.0	100.0	100.0
Legacy IDs With Only One NPI	3,969	1,353	2,102	100.0	97.6	99.7
Legacy IDs With Multiple NPIs	0	33	6	0.0	2.4	0.3

Source: Medicaid Statistical Information System (MSIS) claims files, FY 2009.

Table V.9. Linkage of 2006 MAX Legacy Provider IDs to NPIs in MSIS FY 2009

	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Legacy Provider IDs in MAX 2006	124,732	66,596	47,342	100.0	100.0	100.0
One NPI per Legacy ID	44,509	17,570	18,879	35.7	26.4	39.9
Multiple NPIs per Legacy ID[1]	110	7,108	2,982	0.1	10.7	6.3
No Matching NPI	80,113	41,918	25,481	64.2	62.9	53.8

Source:　Medicaid Analytic eXtract (MAX), CY 2006 and Medicaid Statistical Information System (MSIS) Files, FY 2009.

Note:　Where a MAX legacy provider ID (LPI) is associated with more than one NPI, we inserted a space into the NPI field to prevent the provider ID from being linked with NPPES. Where a MAX LPI appears in the state provider file with more than one NPI, we selected the first NPI associated with that LPI.

3. Creation of State Lookup Files

Preparing state lookup files is the most resource intensive and time consuming of the various steps needed to build MAXPC files. Unlike the other steps in the system which use standardized input data, programs to create state lookup files need to be tailored for each state because the input files differ in structure and content. This was true for the three prototype states. For example, time constraints meant Florida could only provide a small subset of what an ideal provider characteristics data set should have—the provider file only contained a legacy provider ID, corresponding NPI when available, provider name, and a sequence of start/stop dates. North Carolina and Indiana provided a more comprehensive set of provider characteristics files, albeit with different structures. Regardless of the structure and content of files received from states, state provider files are converted into standardized format before they are used in the MAXPC process. Depending on content, one or two files are built using state provider files: a crosswalk (Provider ID-NPI Crosswalk) that is used to link legacy provider IDs with NPIs, and a header file containing any and all provider characteristics derived from the state files.

We used a different selection method for the state crosswalk than we used for the MSIS crosswalk (where we chose not to assign an NPI to legacy IDs that link to multiple NPIs). For the state crosswalk, in cases when a legacy provider ID links to multiple NPIs, we selected the NPI with the most recent date. Since NPPES is updated fairly regularly, we believe that NPPES contains a provider's most recent NPI in instances when a provider does change his/her NPI. By selecting the NPI with the most recent date for the state crosswalk, we allow the most recent NPIs to link with each other when appropriate.

Table V.10 summarizes the contents of the prototype state provider files and the associated caveats.

a.   Florida

Florida was the first of the three prototype states to supply its provider file—an encrypted Excel file containing 61,936 records. The file had minimal amount of information on provider characteristics containing only the business name, legacy provider ID, NPI, and start and end dates. Importantly, however, the file did provide us the means to link NPIs to LPIs, in case the link is not obtained from either MSIS or NPPES. Fourteen percent of the LPIs in the file had a corresponding NPI. The file contained no duplicate records and we were thus able to directly create crosswalks and header files: the crosswalk file using records with both the LPIs and corresponding NPIs (8,360 records) and the header file contained all 61,936 provider records.

Table V.10.   Contents and Caveats of State Provider Files

Florida

Number of files sent	1
File format	Excel
Number of input records	61,936
File contents	LPI, NPI, Business Name, Start Date, End Date
Comments	Only 14% of LPIs have a corresponding NPI.
	Business Name is the only characteristic available.
	No duplicate records.
	Create crosswalk of LPIs with NPIs.
	Create header file containing LPI, NPI, and business name.
Number of output records	
- Crosswalk	8,360
- Header file	61,936

Indiana

Number of files sent	2
File format	ASCII
Number of input records	
- Provider file (PRD)	171,259
- Address file (MDS)	92,913
File contents	LPI, NPI, Group LPI, Service Location Code (LOC), Start Date, End Date, Zip, NPI Status Code, Provider Classification, Provider Type of LPI, Provider Taxonomy Codes, Provider Name, Address, City, State, Phone, Specialty Code, License
Comments	Files are indexed by LPI and Service Location Code.
	Provider file contains repeat values of LPI. Retain LPI and LOC with the most recent date.
	If the LPI with that specific LOC is not on the address file, take the characteristics for that LPI, disregarding the LOC code. If the LPI has multiple locations with different characteristics, set all characteristics to missing.
	Take the first taxonomy code from the provider file as primary taxonomy.
	There are some LPIs on the PRD file but not on MDS; include these LPIs in the characteristics file.
Number of output records	
- Crosswalk	46,926
- Header file	94,649

North Carolina

Number of files sent	2
File format	SAS data sets
Number of input records	
- Provider file (NCPROVS)	84,740
- History file (NPIHIST)	6,274
File contents	LPI, NPI, Start Date, End Date, Business Name, Address, City, State, Zip, Non Medical Provider Indicator, Provider Specialty, Provider Type.

Table V.10 (*continued*)

Comments	None of the LPI records on NCPROVS has more than one NPI. NPIHIST is the history file with NPI and start and end dates. Take the most current record. 393 unique LPI/NPI records on history file but not in provider file. Records are added to the crosswalk and header files with data from NCPROVS. The 393 records will not have provider characteristics but provide the LPI/NPI linkage.
Number of output records	
- Crosswalk	85,133
- Header file	84,740

b. Indiana

Indiana provided a fairly comprehensive set of data elements, at our request. To obtain the data, Mathematica was required by the state to apply for and get approval to use their secure server, File Exchange, which we then accessed and downloaded the needed files. Indiana's provider files consisted of two ASCII data sets: a provider crosswalk file containing 171,259 records, and an address file with 92,913. Tables V.11 and V.12 shows the contents of Indiana's provider crosswalk file and provider address file, respectively. The files are indexed by LPI and service location code (LOC). The provider crosswalk file contains repeated values of LPIs. For MAXPC purposes, when there was more than one record per LPI, we retained LPIs and LOCs with the most recent date. As a rule, in attempting to match provider crosswalk data with corresponding provider addresses, when a LPI/LOC combination is not on the address file, we linked the two files using only the LPI as a linking key. If the LPI has multiple locations with different characteristics, we did not extract characteristics for those providers but instead set the state provider characteristics to missing to avoid getting false positives. Finally, as we attempted to create a state lookup file with a structure similar to that of NPPES, we took the first taxonomy code from the provider crosswalk file as the primary taxonomy for that provider. In cases where LPIs are on the provider crosswalk file but not on the provider address file, we included those

LPIs on the state provider crosswalk file. After initial processing, Indiana's state provider files contained 46,926 records in the provider crosswalk and 94,649 records in the provider header file.

Table V.11. Contents of Indiana's Provider Crosswalk File

Field Name	Description
Legacy Provider Number (LPI)	Original Medicaid Provider ID
Group LPI	Original Medicaid Group Provider ID
Service Location	Service Location Code
NPI	National Provider ID reported by the provider.
Start Date	Effective Date for the NPI as reported to EDS
End Date	End Date for the NPI as reported to EDS
Zip + 4	Zip Code reported by provider to NPI
NPI Status Code	Status of the NPI for this provider
Provider Class	Provider Classification
Provider Type	Provider Type of the LPI
Taxonomy 1	First Taxonomy code reported by the provider to EDS
Taxonomy 2	Second Taxonomy code reported by the provider to EDS
Taxonomy 3	Third Taxonomy code reported by the provider to EDS
Taxonomy 4	Fourth Taxonomy code reported by the provider to EDS
Taxonomy 5	Fifth Taxonomy code reported by the provider to EDS
Taxonomy 6	Sixth Taxonomy code reported by the provider to EDS
Taxonomy 7	Seventh Taxonomy code reported by the provider to EDS
Taxonomy 8	Eighth Taxonomy code reported by the provider to EDS
Taxonomy 9	Ninth Taxonomy code reported by the provider to EDS
Taxonomy 10	Tenth Taxonomy code reported by the provider to EDS
Taxonomy 11	Eleventh Taxonomy code reported by the provider to EDS
Taxonomy 12	Twelfth Taxonomy code reported by the provider to EDS
Taxonomy 13	Thirteenth Taxonomy code reported by the provider to EDS
Taxonomy 14	Fourteenth Taxonomy code reported by the provider to EDS
Taxonomy 15	Fifteenth Taxonomy code reported by the provider to EDS

Table V.12.   Contents of Indiana's Provider Address File

Field Name	Description
Provider ID	The provider identification number used by the provider
Service Location	Suffix added to the provider number to identify the various locations where a provider does business
Provider County	Numeric representation of county in the state of Indiana
Provider Name	The name associated with an organization or person
Provider Address1	Mailing address—street 1. This is a street address for a provider
Provider Address2	Mailing address—street 2. This is a street address for a provider
Provider City	Mailing address—city. This is the city where a provider would receive business mail
Provider State	Mailing address—state. This is the state where a provider would receive business mail
Provider Zip Code	Mailing address zip code. This is the first five digits of the zip code for a business mailing zip code
Provider Zip Code Ext.	Mailing address zip code + 4. This is the last four digits of a zip code
Provider Phone Number	This is a phone number in the format of area code + prefix + suffix
Provider Primary Specialty	This field contains the provider specialty which is the main focus of the provider's practice. Each provider type must have a primary specialty, and the primary specialty must be one of the provider's existing specialties
License Number	A provider license number

c.   North Carolina

At the time of our initial selection of prototype states, the third state selected was Virginia, not North Carolina. Virginia, however, was undergoing a change in its MMIS system and was unable to provide us with a provider file that could be used for MAXPC purposes. In its place, we selected North Carolina because it had met the MSIS file submission requirements. We requested a state provider file to be used for MAXPC, and the state was able to comply a short time later.

North Carolina's provider file has information that comes close the NPPES file. To obtain the data, Mathematica was requested to set up an account with Zixmail, the state's email encryption service, where the state then sent two encrypted SAS data sets for us to download. The two files contained the state's current provider information database with a select set of data elements that we requested, and a historical file containing terminated NPIs. Despite being

"terminated," records from the historical file could be used for MAXPC's purposes because they were likely to contain the earliest LPIs and NPIs that corresponded to dates of service being used in the prototype work—2006. The provider file contained 84,740 records with data elements, shown in Table V.10, such as LPI, NPI, start and end dates, business name, and other provider characteristics. The historical file of 6,274 LPI/NPI combinations contained 393 cases that were not in the provider file. This file contained no information on provider characteristics but was useful because it provided linkages for LPIs and NPIs, which enabled us to attempt a linkage with NPPES. One important data element that we found from North Carolina's provider file is the "Nonmedical Provider Indicator," a field that has been difficult to obtain from other states and from NPPES. A number of providers of Medicaid-related services are not required by HIPAA to obtain NPIs and are thus not in NPPES. (Provider characteristics information for these providers can only be obtained from state provided files.) Also, the LPIs and NPIs in the provider file contained no duplicates. This is important because there was no ambiguity as to which NPI should be used for a particular LPI.

After processing North Carolina's provider files, we ended up with a state provider crosswalk file with 85,133 records, and a state header file containing 84,740 provider IDs.

4. Linkage of Master List of 2006 MAX Provider IDs to Crosswalk Files to Obtain NPIs

The next step in creating the MAXPC file was to link the master list of MAX providers with the above mentioned crosswalks as well as complete the task of finding matching NPIs for provider IDs in the master list that had not yet been linked. As discussed in Section V.2.c and shown in Table V.9, the initial linkage of MAX LPIs with the MSIS crosswalk left the file with a large hole in the matching rate, having left unlinked 64.2 percent, 62.9 percent, and 53.8 percent of legacy provider IDs in Florida, Indiana, and North Carolina, respectively. The next attempt to augment this linkage was to use the NPPES crosswalk containing legacy provider IDs in the file.

To minimize the possibility of finding false positive matches, given that legacy provider IDs in NPPES are self-reported and thus subject to various errors, we developed rules to only include IDs that have a provider type of "Medicaid" or "Medicare UPIN." We further narrowed the definition for Medicaid provider type by requiring the provider state to match the MAXPC state being processed.

To do this linkage, we split the master list of provider IDs into two buckets: one contained IDs for whom an NPI had been found and the other for IDs that did not yet have NPIs. The latter file was then linked with the NPPES crosswalk containing Medicaid and Medicare UPINs. If a link was found, the NPI was added to the master list, ending the matching process for that provider ID. If not, the unlinked provider IDs were matched with the state crosswalk file. Regardless of whether a provider ID was linked during this last attempt, the ID was added back to the master list. At the end of the matching process, unmatched records had the NPI field set to missing.

Table V.13 shows the various sources of NPIs attached to legacy provider IDs in the master list. In Florida, of the 124,732 LPIs obtained from the 2006 MAX claims files, the linkage with the 2009 MSIS files found matching NPIs for 35.7 percent of the IDs, the linkage with the NPPES crosswalk using Medicaid IDs and Medicare UPINs linked 2.3 and 10.0 percent, respectively, and the state provider crosswalk linked an additional 1.0 percent. All told, 49.0 percent of the MAX LPIs in the master list were matched with an NPI while the other 51.0 percent ended with no NPI. For Indiana, of the 66,596 MAX LPIs, 26.4 percent found NPIs in MSIS, 3.9 percent in NPPES using Medicaid IDs, 5.1 percent using Medicare UPINs, and 16.1 percent using the state provider crosswalk for a total of 51.4 percent matched while 48.6 percent remained without an NPI. In North Carolina, of the 47,342 MAX LPIs, 39.9 percent found NPIs in MSIS, 28.0 percent from NPPES using Medicaid IDs, and 19.5 percent from the

state provider file, for an aggregate match rate of 87.4 percent. No matching NPIs were found in 12.6 percent of cases.

Table V.13. Source of NPIs Attached to Legacy Provider IDs Found in 2006 MAX Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Legacy Provider IDs in MAX 2006	124,732	66,596	47,342	100.0	100.0	100.0
MSIS	44,509	17,570	18,879	35.7	26.4	39.9
NPPES-Medicaid Legacy Provider ID	2,930	2,567	13,258	2.3	3.9	28.0
NPPES-Medicare UPIN	12,463	3,379	2	10.0	5.1	0.0
State Provider File	1,197	10,689	9,254	1.0	16.1	19.5
Total NPIs Found	61,099	34,205	41,393	49.0	51.4	87.4
No NPI Found	63,633	32,391	5,949	51.0	48.6	12.6

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

The match rates by file type, when looking only at legacy provider IDs found in the MAX IP billing provider ID field, are shown in Table V.14. In Florida, we found NPIs from MSIS, NPPES using Medicaid LPIs, and state provider files in 64.3 percent, 1.4 percent, and 0.6 percent, respectively. No NPIs were found in 33.7 percent of cases. The corresponding numbers in Indiana were 65.8 percent, 0.6 percent, and 28.0 percent for a total match rate of 94.4 percent, with 5.6 percent remaining without NPIs. North Carolina showed corresponding match rates of 44.1, 12.7, and 38.0 percent for a total rate of 94.8 percent, with 5.2 percent remaining without NPIs.

Table V.14 shows the various sources of NPIs attached to legacy provider IDs in the master list for providers in the IP file. Looking at the information across states, this table shows how

important it was to obtain state provider files for MAXPC—state provider file matching accounted for 28 percent of the linked IDs in Indiana and 38 percent linked for North Carolina.

Table V.14. Source of NPIs Attached to Legacy Provider IDs Found in 2006 MAX IP Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
IP Legacy Billing Provider IDs in MAX 2006	813	322	426	100.0	100.0	100.0
MSIS	523	212	188	64.3	65.8	44.1
NPPES-Medicaid Legacy Provider ID	11	2	54	1.4	0.6	12.7
NPPES-Medicare UPIN	0	0	0	0.0	0.0	0.0
State Provider File	5	90	162	0.6	28.0	38.0
Total NPIs Found	539	304	404	66.3	94.4	94.8
No NPI Found	274	18	22	33.7	5.6	5.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

The next five tables show the match rates by file type for legacy provider IDs in the following MAX fields: LT billing provider ID, OT billing provider ID, OT servicing provider ID, RX billing provider ID, and RX prescribing provider ID, respectively. With respect to the LT, matching NPIs were usually found for LPIs in all three states, with a matching rate over 90 percent, as shown in Table V.15.

Unlike the LT, linkage for LPIs found in the two provider ID fields in OT showed decidedly mixed results across the three states, and across the sources of NPIs. Table V.16 shows that for the MAX OT billing provider ID field, 51.6 percent, 43.0 percent, and 58.5 percent of the IDs matched to MSIS, 5.9, 6.9 and 19.0 percent matched with NPPES using Medicaid IDs, and 2.2, 38.8, and 16.5 percent matched with the state provider crosswalk in Florida, Indiana, and North

Carolina, respectively. The bulk of the unmatched IDs (40.4 percent) are from Florida, with

Indiana having 11.2 percent unmatched and North Carolina 5.9 percent.

Table V.15.   Source of NPIs Attached to Legacy Billing Provider IDs Found in 2006 MAX LT Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
LT Legacy Billing Provider IDs in MAX 2006	817	1,040	1,232	100.0	100.0	100.0
MSIS	680	988	878	83.2	95.0	71.3
NPPES-Medicaid Legacy Provider ID	13	11	157	1.6	1.1	12.7
NPPES-Medicare UPIN	0	0	0	0.0	0.0	0.0
State Provider File	45	30	129	5.5	2.9	10.5
Total NPIs Found	738	1,029	1,164	90.3	98.9	94.5
No NPI Found	79	11	68	9.7	1.1	5.5

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

Table V.16.   Source of NPIs Attached to Legacy Billing Provider IDs Found in 2006 MAX OT Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Billing Provider IDs in MAX 2006	36,547	15,913	28,759	100.0	100.0	100.0
MSIS	18,847	6,848	16,830	51.6	43.0	58.5
NPPES-Medicaid Legacy Provider ID	2,157	1,098	5,470	5.9	6.9	19.0
NPPES-Medicare UPIN	2	1	1	0.0	0.0	0.0
State Provider File	793	6,178	4,757	2.2	38.8	16.5
Total NPIs Found	21,799	14,125	27,058	59.6	88.8	94.1
No NPI Found	14,748	1,788	1,701	40.4	11.2	5.9

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

With regard to matching of MAX OT servicing provider IDs in Florida, Indiana, and North

Carolina, 34.3, 31.5, and 60.1 percent respectively were linked to an NPI using MSIS, 1.6, 4.7,

and 18.8 percent were linked using the Medicaid ID, 11.2, 6.7, and 0.0 percent matched using

Medicare UPIN, and 0.6, 16.9, and 15.3 percent linked to the state provider crosswalk. These

results show a decidedly higher match rate in North Carolina than Florida or Indiana, with over

94.2 percent matching compared to 47.7 percent in Florida and 59.8 percent in Indiana. These

results are shown in Table V.17.

Table V.17.   Source of NPIs Attached to Legacy Servicing Provider IDs Found in 2006 MAX OT Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Servicing Provider IDs in MAX 2006	110,961	50,057	27,550	100.0	100.0	100.0
MSIS	38,007	15,761	16,571	34.3	31.5	60.1
NPPES-Medicaid Legacy Provider ID	1,741	2,338	5,167	1.6	4.7	18.8
NPPES-Medicare UPIN	12,462	3,376	1	11.2	6.7	0.0
State Provider File	665	8,442	4,216	0.6	16.9	15.3
Total NPIs Found	52,875	29,917	25,955	47.7	59.8	94.2
No NPI Found	58,086	20,140	1,595	52.3	40.2	5.8

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

One issue to note, as shown in Tables V.16 and V.17, is the great disparity in the number of

provider IDs being reported in the OT billing provider ID and OT servicing provider ID fields. In

Florida, there were 110,961 servicing provider IDs and 36,547 billing; Indiana had 50,057

servicing and 15,913 billing; and North Carolina 27,550 servicing and 28,759 billing. These

results show a 3:1 ratio of servicing versus billing providers in Florida and Indiana and a

1:1 ratio in North Carolina. We presume that the 3:1 ratio in Florida and Indiana essentially

represents practices consisting of three providers with separate NPIs belonging to a group who then bill their services under the group's NPI. For North Carolina, however, the 1:1 ratio was an artifact of how the state reports their claims to MSIS. As previously mentioned, North Carolina, uses a special algorithm to report their OT servicing provider IDs—when the attending physician field on the claim is filled in, the servicing provider ID, attending physician's NPI, and taxonomy are supplied to MSIS. However, if the attending physician field is missing, the *billing* provider's ID, NPI, and taxonomy are automatically inserted into the corresponding fields for the servicing provider.

Looking at the matching of MAX RX billing provider IDs, all three states showed good match rates that found NPIs by using MSIS crosswalks with 84.5, 80.9, and 89.4 percent in Florida, Indiana, and North Carolina. Combined with other sources of NPIs, Florida and Indiana had 86.5 and 87.7 percent matches, respectively, while North Carolina matched 97.0 percent. These results are shown in Table V.18.

Table V.18.   Source of NPIs Attached to Legacy Billing Provider IDs Found in 2006 MAX RX Files

	Number			Percent		
NPI Source	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Billing Provider IDs in MAX 2006	4,034	1,443	2,018	100.0	100.0	100.0
MSIS	3,408	1,168	1,804	84.5	80.9	89.4
NPPES-Medicaid Legacy Provider ID	32	8	90	0.8	0.6	4.5
NPPES-Medicare UPIN	0	0	0	0.0	0.0	0.0
State Provider File	51	89	63	1.3	6.2	3.1
Total NPIs Found	3,491	1,265	1,957	86.5	87.7	97.0
No NPI Found	543	178	61	13.5	12.3	3.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

Finally, the matching of MAX RX prescribing provider IDs showed that 70.5 percent of Florida's legacy IDs were matched with MSIS, while 12.8 and 15.2 percent matched in Indiana and North Carolina, respectively. Unlike Florida and Indiana, which matched 3.6 and zero percent, respectively, 41.5 percent of North Carolina's IDs matched with NPPES using the Medicaid legacy ID, and an additional 24.6 percent matched the state provider crosswalk. All told, Florida and North Carolina matched 75.4 percent and 81.3 percent respectively, while Indiana matched only 12.8 percent. As noted previously, the prescribing provider ID field is nine-filled in most of Florida's claims and despite showing a high match rate, the baseline numbers in that state are much lower than compared with North Carolina. In contrast, Indiana showed a relatively low match rate compared to the other two states. Instead of nine-filling the field, Indiana reported a number of provider IDs that did not match MSIS, NPPES, or state provider files. This level of missing and invalid information in this field is not unexpected, since historically the RX prescribing provider ID field has not been reviewed for content and states have never been required to report it. These results are shown in Table V.19.

5. Linkage of Master List of Provider IDs to Header Files to Obtain Provider Characteristics Information

The final step of the MAXPC file development was linking the master list of MAX provider IDs with its attached NPIs to header files containing provider characteristics. This process is similar to that of linking to crosswalks for the purpose of finding and attaching NPIs to legacy provider IDs. For this task, we first linked the master list to the NPPES header file using NPIs that produced output into two buckets: (1) provider IDs that originated from MAX with their matching NPI numbers derived from various sources and their provider characteristics as reported in NPPES, and (2) provider IDs that may or may not have had NPIs attached to the record and did not match the NPPES header file. Then, the second output file was linked to the

state header file to find characteristics for those that were not in NPPES. Provider IDs that did

not match the NPPES header file or the state header file were retained but the characteristics

were filled with spaces. The resulting output files were then recombined to form the final

product, the MAXPC file.

Table V.19.   Source of NPIs Attached to Legacy Prescribing Provider IDs Found in 2006 MAX RX Files

NPI Source	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Prescribing Provider IDs in MAX 2006	1,185	22,539	22,945	100.0	100.0	100.0
MSIS	835	2,880	3,488	70.5	12.8	15.2
NPPES-Medicaid Legacy Provider ID	43	3	9,531	3.6	0.0	41.5
NPPES-Medicare UPIN	0	3	1	0.0	0.0	0.0
State Provider File	16	0	5,634	1.4	0.0	24.6
Total NPIs Found	894	2,886	18,654	75.4	12.8	81.3
No NPI Found	291	19,653	4,291	24.6	87.2	18.7

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: The process of attaching NPIs to legacy provider IDs is hierarchical, with 2009 MSIS files linked first, followed by NPPES, and then state provider files. Once an NPI is linked to a legacy provider ID, no additional linkage with other sources is attempted.

B.   Assessment of Overall Linkage and by File Type

As designed, we had intended to use NPPES as the main source of provider characteristics,

avoiding the complication of having to decide which ones to use when discrepancies existed

between information provided in NPPES and state provider files. The decision to use NPPES as

the primary source was driven by the fact that the file is updated on a quarterly basis and

probably contains information as current as that found in any state provider file. Since the design

designated NPPES as the primary source of provider characteristics, linkage with the header files

was done hierarchically. Provider IDs were first linked with NPPES header files; they were only

linked with state header files if the first linkage failed to find a match. As such, linkages involving state provider files augmented the results obtained from NPPES.

We discuss the results of the linkage of legacy provider IDs to MSIS, NPPES, or state provider files for overall and each claim type below, followed by an examination of some provider characteristics in MAXPC including primary taxonomy codes, business address locations, entity types by ownership categories, gender, and general category of providers.

1.   Linkage of Legacy Provider IDs

Table V.20 shows the matching results of the final list of MAX provider IDs with header files to obtain provider characteristics. Not unexpectedly, provider characteristics are found for most, though not all, provider IDs for which an NPI is found either through MSIS, NPPES, or a state provider file.[11] For provider IDs whose characteristics that were not found in NPPES, provider characteristics were found by matching to state provider files. Comparing output counts of NPIs, shown in Table V.13 with the numbers shown in Table V.20, less than one half of one percent of provider IDs with NPIs in Florida, Indiana, and North Carolina do not pick up provider characteristics from NPPES. However, an additional 2.2, 4.0, and 0.4 percent of providers, respectively, did match with the state header files. Overall, provider characteristics information for 51.1, 55.2, and 87.4 percent of MAX LPIs in Florida, Indiana, and North Carolina, respectively, are found from both source files. Conversely, however, this also means that for Florida and Indiana, 48.9 percent and 44.8 percent of the legacy provider IDs in MAX, respectively, were nowhere to be found in NPPES or state files. These linkage rates were disappointing, especially when contrasted with the North Carolina linkage rate. Clearly, there is

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[11] As a caveat, however, some provider characteristics obtained from state header files may contain missing values and are thus counted as having been "matched."

something different going on in the latter state that makes its linkage rate stand out. It is worth

pointing out that North Carolina's "superior" linkage rate appears to be driven in part by a larger

number of Medicaid legacy provider IDs in MAX that were found in NPPES—28.0 percent

versus 2.3 and 3.9 percent for Florida and Indiana, respectively. These linkages are assessed by

file type in the succeeding tables.

Table V.20.   Number of MAX Legacy Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

	Number			Percent		
Linkage of Legacy Provider IDs	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Legacy Provider IDs in MAX 2006	124,732	66,596	47,342	100.0	100.0	100.0
Linked to NPPES by NPI	45,510	28,149	27,908	36.5	42.3	58.9
Linked to NPPES by Medicaid Legacy Provider ID	2,930	2,567	13,258	2.3	3.9	28.0
Linked to NPPES by Medicare UPIN	12,463	3,379	2	10.0	5.1	0.0
NPPES Linked	60,903	34,095	41,168	48.8	51.2	87.0
State Provider File Linked	2,777	2,652	191	2.2	4.0	0.4
Total Provider IDs Linked	63,680	36,747	41,359	51.1	55.2	87.4
Total Provider IDs Unlinked	61,052	29,849	5,983	48.9	44.8	12.6

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Note: Linkage is hierarchical.

Looking exclusively at MAX IP billing provider IDs in Table V.21, all provider

characteristics information added to MAXPC for Florida and North Carolina are derived from

NPPES. Florida's total linkage rate, however, was way short of the other two states—66.3

percent versus 94.4 and 94.8 percent for Indiana and North Carolina, respectively. Additionally,

for Indiana, the state header file contributed information to an additional 5.6 percent, resulting in

a 100 percent match rate for IP billing provider IDs. Of note, North Carolina's Medicaid legacy

provider IDs again shows a much higher linkage rate with NPPES than the other two states, 12.7

percent to 1.4 percent and 0.6 percent in Florida and Indiana, respectively.

Table V.21.   Number of MAX IP Billing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

	Number			Percent		
Linkage of Legacy Provider IDs	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
IP Legacy Billing Provider IDs in MAX 2006	813	322	426	100.0	100.0	100.0
Linked to NPPES by NPI	528	302	350	64.9	93.8	82.2
Linked to NPPES by Medicaid Legacy Provider ID	11	2	54	1.4	0.6	12.7
Linked to NPPES by Medicare UPIN	0	0	0	0.0	0.0	0.0
NPPES Linked	539	304	404	66.3	94.4	94.8
State Provider File Linked	0	18	0	0.0	5.6	0.0
Total Provider IDs Linked	539	322	404	66.3	100.0	94.8
Total Provider IDs Unlinked	274	0	22	33.7	0.0	5.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

For MAX LT billing provider IDs, the state header files in Florida and Indiana contributed

characteristics for an additional 3.1 and 1.1 percent more providers, respectively, adding to an

already high linkage rates of more than 90 percent across the board with NPPES header files. It

is our opinion that provider characteristics for MAX LT billing providers IDs are captured fairly

well using NPPES and state provider files. The results for LT billing provider IDs are shown in

Table V.22.

For MAX OT billing provider IDs, Table V.23 shows that the state header files added

information for an additional 5.2 percent of provider IDs in Florida, 11.6 percent more in

Indiana, and 0.5 percent more in North Carolina. Like the IP and LT, OT billing provider IDs

showed high matching rates for Indiana (virtually 100 percent) and North Carolina (94 percent)

while Florida matched only 64.6 percent. In North Carolina, a pattern of reporting Medicaid

legacy provider IDs in MAX appears to have been of great importance in the linkage process, especially for the prototype work that uses 2006 data. Despite not having NPIs in the claims, because North Carolina's legacy provider IDs are reported accurately in the claims files, we were able to match them directly to NPPES, enabling us to pick up the NPI variable and its accompanying provider characteristics. For MAX OT billing providers however, it should be noted that Indiana's linkage rate to NPPES using NPIs also stands quite high at 81.5 percent.

Table V.22.　Number of MAX LT Billing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

	Number			Percent		
Linkage of Legacy Provider IDs	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
LT Legacy Billing Provider IDs in MAX 2006	817	1,040	1,232	100.0	100.0	100.0
Linked to NPPES by NPI	725	1,018	1,007	88.7	97.9	81.7
Linked to NPPES by Medicaid Legacy Provider ID	13	11	157	1.6	1.1	12.7
Linked to NPPES by Medicare UPIN	0	0	0	0.0	0.0	0.0
NPPES Linked	738	1,029	1,164	90.3	98.9	94.5
State Provider File Linked	25	11	0	3.1	1.1	0.0
Total Provider IDs Linked	763	1,040	1,164	93.4	100.0	94.5
Total Provider IDs Unlinked	54	0	68	6.6	0.0	5.5

Source:　　Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Table V.23.   Number of MAX OT Billing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

Linkage of Legacy Provider IDs	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Billing Provider IDs in MAX 2006	36,547	15,913	28,759	100.0	100.0	100.0
Linked to NPPES by NPI	19,541	12,966	21,411	53.5	81.5	74.4
Linked to NPPES by Medicaid Legacy Provider ID	2,157	1,098	5,470	5.9	6.9	19.0
Linked to NPPES by Medicare UPIN	2	1	1	0.0	0.0	0.0
NPPES Linked	21,700	14,065	26,882	59.4	88.4	93.5
State Provider File Linked	1,916	1,843	143	5.2	11.6	0.5
Total Provider IDs Linked	23,616	15,908	27,025	64.6	100.0	94.0
Total Provider IDs Unlinked	12,931	5	1,734	35.4	0.0	6.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

For MAX OT servicing provider IDs, Table V.24 shows that minimal additional provider characteristics information is gained from state header files with 2.1 percent, 3.9 percent, and 0.5 percent matching state provider files for Florida, Indiana, and North Carolina, respectively. Total linked provider IDs for these three states are 49.6 percent, 63.5 percent, and 94.1 percent, respectively. As has been the case throughout, North Carolina again showed a much higher linkage rate to NPPES using Medicaid legacy provider IDs.

The linkage rates shown in Table V.20 clearly shows that the low rates seen in that table for Florida and Indiana are driven by the provider IDs that originate from the MAX OT servicing provider ID field. For Florida it was 89 percent (110,961/124,732) of the legacy provider IDs with a claim in MAX that were found in the OT servicing provider ID field, 75.2 percent (50,057/66,596) in Indiana, and 58.2 percent (27,550/47,342) in North Carolina. This is logical because we anticipated that the bulk of providers would come from the servicing provider ID field in the OT file. Comparing the linkage rates of MAX OT billing provider IDs with MAX OT

servicing provider IDs for Florida and Indiana, there appeared to be a disconnect between what is being reported by the states in the NPI field versus what they are instructed to put there. The specifications for MSIS indicate that states should report the NPI of the *servicing* provider ID in the OT file; in the IP, LT, and RX files, however, states were instructed to insert the NPI of the *billing* provider ID. Because the NPI and the servicing provider ID fields formed a natural link to the same provider in OT, it followed that the linkage rates for servicing provider IDs with the NPPES file should be higher than for OT billing provider IDs. However, *we are finding the opposite to be true for Florida and Indiana*.

Table V.24. Number of MAX OT Servicing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

Linkage of Legacy Provider IDs	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Servicing Provider IDs in MAX 2006	110,961	50,057	27,550	100.0	100.0	100.0
Linked to NPPES by NPI	38,514	24,100	20,611	34.7	48.1	74.8
Linked to NPPES by Medicaid Legacy Provider ID	1,741	2,338	5,167	1.6	4.7	18.8
Linked to NPPES by Medicare UPIN	12,462	3,376	1	11.2	6.7	0.0
NPPES Linked	52,717	29,814	25,779	47.5	59.6	93.6
State Provider File Linked	2,353	1,956	143	2.1	3.9	0.5
Total Provider IDs Linked	55,070	31,770	25,922	49.6	63.5	94.1
Total Provider IDs Unlinked	55,891	18,287	1,628	50.4	36.5	5.9

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

The results in North Carolina appear to track the expected outcome, despite one issue in its OT claims data. Looking at Tables V.23 and V.24, for reasons that have been explained previously, there are almost as many servicing provider IDs as there are billing provider IDs, 27,550 versus 28,759, an almost a 1:1 correlation.

Finally, regarding MAX RX billing provider IDs, Table V.25 shows that state header files contribute 2.7 percent, 12.9 percent, and 0.6 percent of the provider characteristics information for provider IDs in Florida, Indiana, and North Carolina respectively. As was seen in earlier tables, Indiana's state header files contributed greatly to all billing provider IDs in the IP, LT, OT, and RX files, resulting in 100 percent linkage of those provider IDs with their respective characteristics. And just as it has been throughout, North Carolina's reporting of Medicaid legacy provider IDs appears higher than Florida and Indiana, resulting in better match rates with NPPES. For Florida, linkage results for RX billing provider IDs stand at 88.6 percent, while in North Carolina, it is at 97 percent.

Table V.25.   Number of MAX RX Billing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

	Number			Percent		
Linkage of Legacy Provider IDs	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Billing Provider IDs in MAX 2006	4,034	1,443	2,018	100.0	100.0	100.0
Linked to NPPES by NPI	3,435	1,249	1,854	85.2	86.6	91.9
Linked to NPPES by Medicaid Legacy Provider ID	32	8	90	0.8	0.6	4.5
Linked to NPPES by Medicare UPIN	0	0	0	0.0	0.0	0.0
NPPES Linked	3,467	1,257	1,944	85.9	87.1	96.3
State Provider File Linked	109	186	13	2.7	12.9	0.6
Total Provider IDs Linked	3,576	1,443	1,957	88.6	100.0	97.0
Total Provider IDs Unlinked	458	0	61	11.4	0.0	3.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

As shown in Table V.26, the linkage for RX prescribing provider IDs are mixed for the three states with Florida's state header file contributing 6.0 percent of provider characteristics but virtually no additional linkage for Indiana and North Carolina. Total linkage for Florida, Indiana, and North Carolina for prescribing provider IDs is 81.3 percent, 12.8 percent, and 81.3 percent,

respectively. Looking at baseline numbers, reported counts for the state are only about five percent of providers in Indiana and North Carolina, despite the high linkage rate in Florida for prescribing provider IDs. As mentioned earlier, we believe that Florida's numbers are much lower than the other states because it does not often report RX prescribing provider IDs, choosing instead to nine-fill the field. Reporting a high number of prescribing provider IDs isn't necessarily helpful. In contrast with the very few provider IDs that Florida submitted in their claims files to MSIS, which found a link for 81.3 percent, Indiana reported a high number of prescribing provider IDs. However, these IDs linked to NPPES only in 12.8 percent of providers. Instead of nine-filling the field, Indiana reported a number of provider IDs that did not match MSIS, NPPES, or state provider files. Once again, North Carolina's Medicaid legacy provider IDs proved to be of high quality, resulting in a 41.5 percent linkage rate for those provider IDs.

Table V.26. Number of MAX Legacy RX Prescribing Provider IDs Linked to MSIS, NPPES, or State Provider Files Through the NPI or Legacy Provider IDs

	Number			Percent		
Linkage of Legacy Provider IDs	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Prescribing Provider IDs in MAX 2006	1,185	22,539	22,945	100.0	100.0	100.0
Linked to NPPES by NPI	849	2,880	9,019	71.6	12.8	39.3
Linked to NPPES by Medicaid Legacy Provider ID	43	3	9,531	3.6	0.0	41.5
Linked to NPPES by Medicare UPIN	0	3	1	0.0	0.0	0.0
NPPES Linked	892	2,886	18,551	75.3	12.8	80.8
State Provider File Linked	71	0	99	6.0	0.0	0.4
Total Provider IDs Linked	963	2,886	18,650	81.3	12.8	81.3
Total Provider IDs Unlinked	222	19,653	4,295	18.7	87.2	18.7

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

2.   Categories of Primary Provider Taxonomy Codes

Table V.27 shows a broad categorization of primary taxonomy codes for provider IDs found in the MAX 2006 files. Individuals or groups of individuals account for 39.0 percent of all provider IDs in Florida, with the majority of these providers being allopathic and osteopathic physicians. Nonindividual providers account for 8.6 percent of all provider IDs, the majority of which are in the supplier category where pharmacies, durable medical equipment suppliers, blood banks, and home delivered meal providers are included. As mentioned above, 51.2 percent of all provider IDs in Florida did not match to NPPES. Indiana shows fairly similar numbers with 36.5 percent of provider IDs being individuals or groups of individuals, 27.4 percent being allopathic and osteopathic physicians. Nonindividuals account for 13.7 percent of provider IDs, the majority of which are hospitals at 5.2 percent. In addition, 48.6 percent of provider IDs were not linked to NPPES and an additional 1.2 percent were missing taxonomy. North Carolina had 56.5 percent individuals or groups of individuals, including allopathic and osteopathic physicians at 35.8 percent and 26.7 percent nonindividuals mostly made up of suppliers, agencies, and nursing and custodial care facilities. The state had 3.8 percent missing primary taxonomy and 13.0 percent did not link to NPPES.

The results shown in the next six tables display consistent evidence that the design of the MAXPC file provides a correct linkage of provider IDs in MAX with the provider characteristics in NPPES. In Table V.28, we show the primary taxonomies of providers from the IP billing provider ID field in MAX. For this type of ID provider, 63.1 percent, 82.0 percent, and 82.9 in Florida, Indiana, and North Carolina, respectively, were hospital IDs. Additionally for Indiana and North Carolina, respectively, 7.1 and 10.3 percent of these provider IDs were hospital units. Given that the MSIS and MAX IP files are designed to contain acute care hospital claims, it follows that most provider IDs reported in these files are hospitals or hospital units.

Table V.27. Broad Categories of Primary Provider Taxonomy Codes for Legacy Provider IDs Found in the MAX 2006 Files

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Legacy Provider IDs in MAX 2006	124,732	66,596	47,342	100.0	100.0	100.0
Individual or Group of Individuals	**48,673**	**24,332**	**26,740**	**39.0**	**36.5**	**56.5**
Allopathic and Osteopathic Physicians	35,408	18,275	16,954	28.4	27.4	35.8
Behavioral Health and Social Service	934	726	2,109	0.7	1.1	4.5
Chiropractic	646	601	708	0.5	0.9	1.5
Dental	441	1,044	2,496	0.4	1.6	5.3
Dietary and Nutritional Service	2	2	0	0.0	0.0	0.0
Emergency Medical Service	26	53	21	0.0	0.1	0.0
Eye and Vision Services	1,044	724	963	0.8	1.1	2.0
Nursing Service	243	42	37	0.2	0.1	0.1
Nursing Service-Related	42	14	150	0.0	0.0	0.3
Other Service	3,383	784	1,513	2.7	1.2	3.2
Pharmacy Service	107	25	97	0.1	0.0	0.2
Physician Assistant and Advanced Practice Nursing	3,426	1,241	647	2.7	1.9	1.4
Podiatric Medicine and Surgery Service	810	288	293	0.6	0.4	0.6
Respiratory, Developmental, Rehab, Restorative	1,071	342	313	0.9	0.5	0.7
Speech, Language, and Hearing Service	1,073	162	423	0.9	0.2	0.9
Student, Health Care	2	1	1	0.0	0.0	0.0
Technologists, Technicians, and Other Technical	15	8	15	0.0	0.0	0.0
Nonindividuals	**10,785**	**9,094**	**12,652**	**8.6**	**13.7**	**26.7**
Agencies	1,268	1,683	3,235	1.0	2.5	6.8
Ambulatory Health Care Facilities	1,003	697	1,405	0.8	1.0	3.0
Hospital Units	9	30	64	0.0	0.0	0.1
Hospitals	814	3,436	819	0.7	5.2	1.7
Laboratories	122	118	132	0.1	0.2	0.3
Managed Care Organizations	75	10	62	0.1	0.0	0.1
Nursing and Custodial Care Facilities	1,128	761	2,166	0.9	1.1	4.6
Residential Treatment Facilities	99	257	1,117	0.1	0.4	2.4
Respite Care Facility	9	10	11	0.0	0.0	0.0
Suppliers	6,077	1,809	3,404	4.9	2.7	7.2
Transportation Services	181	283	237	0.1	0.4	0.5
Missing Primary Taxonomy	1,445	774	1,776	1.2	1.2	3.8
Unlinked to NPPES	63,829	32,396	6,174	51.2	48.6	13.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Table V.28.   Broad Categories of Primary Provider Taxonomy Codes for IP Legacy Billing Provider IDs in MAX 2006

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
IP Legacy Billing Provider IDs in MAX 2006	813	322	426	100.0	100.0	100.0
Individual or Group of Individuals	**1**	**3**	**1**	**0.1**	**0.9**	**0.2**
Behavioral Health and Social Service	1	3	0	0.1	0.9	0.0
Respiratory, Developmental, Rehab, Restorative	0	0	1	0.0	0.0	0.2
Nonindividuals	**531**	**297**	**399**	**65.3**	**92.2**	**93.7**
Agencies	0	0	1	0.0	0.0	0.2
Ambulatory Health Care Facilities	3	7	0	0.4	2.2	0.0
Hospital Units	3	23	44	0.4	7.1	10.3
Hospitals	513	264	353	63.1	82.0	82.9
Nursing and Custodial Care Facilities	0	0	1	0.0	0.0	0.2
Residential Treatment Facilities	11	2	0	1.4	0.6	0.0
Suppliers	0	1	0	0.0	0.3	0.0
Transportation Services	1	0	0	0.1	0.0	0.0
Missing Primary Taxonomy	7	4	4	0.9	1.2	0.9
Unlinked to NPPES	274	18	22	33.7	5.6	5.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

As shown in Table V.29, for LT billing provider IDs, 84.2 percent, 69.8 percent, and 80.1 percent of these providers in Florida, Indiana, and North Carolina, respectively, are nursing and custodial care facilities. An additional 3.2 percent, 19.2 percent, and 7.1 percent are residential treatment facilities, with another percentage or two for all three states from agencies, hospital units, and hospitals. These numbers are consistent with the design of the LT claims files—services rendered in mental hospital services for the aged, inpatient psychiatric facilities for individuals under age 21, intermediate care facilities for the mentally retarded, and all other nursing facility services.

Table V.29.   **Broad Categories of Primary Provider Taxonomy Codes for LT Legacy Billing Provider IDs in MAX 2006**

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
LT Legacy Billing Provider IDs in MAX 2006	817	1,040	1,232	100.0	100.0	100.0
Individual or Group of Individuals	**0**	**4**	**2**	**0.0**	**0.4**	**0.2**
Allopathic and Osteopathic Physicians	0	2	0	0.0	0.2	0.0
Nursing Service-Related	0	0	2	0.0	0.0	0.2
Speech, Language, and Hearing Service	0	2	0	0.0	0.2	0.0
Nonindividuals	**727**	**989**	**1,109**	**89.0**	**95.1**	**90.0**
Agencies	4	39	2	0.5	3.8	0.2
Ambulatory Health Care Facilities	0	1	0	0.0	0.1	0.0
Hospital Units	4	2	14	0.5	0.2	1.1
Hospitals	5	21	18	0.6	2.0	1.5
Nursing and Custodial Care Facilities	688	726	987	84.2	69.8	80.1
Residential Treatment Facilities	26	200	88	3.2	19.2	7.1
Missing Primary Taxonomy	11	36	53	1.3	3.5	4.3
Unlinked to NPPES	79	11	68	9.7	1.1	5.5

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Table V.30 shows primary provider taxonomies for OT billing provider IDs in MAX 2006. Individuals and groups of individuals account for 38.4 percent, 63.4 percent, and 50.3 percent while nonindividuals account for 19.4 percent, 22.9 percent, and 38.5 percent in Florida, Indiana, and North Carolina, respectively. Allopathic and osteopathic physicians alone make up 25.5 percent, 42.2 percent, and 24.9 percent of all providers in the three states, while suppliers are reported in 8.8 percent of provider taxonomies in Florida, 9.4 percent in Indiana, and 10.5 percent in North Carolina.

As for OT servicing provider IDs, Table V.31 shows a fairly consistent linkage of provider IDs with individuals or groups of individuals at 41.8, 45.3, and 51.8 percent. Nonindividuals

Table V.30.   Broad Categories of Primary Provider Taxonomy Codes for OT Legacy Billing Provider IDs in MAX 2006

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Billing Provider IDs in MAX 2006	36,547	15,913	28,759	100.0	100.0	100.0
Individual or Group of Individuals	**14,043**	**10,088**	**14,458**	**38.4**	**63.4**	**50.3**
Allopathic and Osteopathic Physicians	9,315	6,723	7,175	25.5	42.2	24.9
Behavioral Health and Social Service	81	355	1,865	0.2	2.2	6.5
Chiropractic	589	505	696	1.6	3.2	2.4
Dental	400	995	1,658	1.1	6.3	5.8
Dietary and Nutritional Service	1	1	0	0.0	0.0	0.0
Emergency Medical Service	8	30	11	0.0	0.2	0.0
Eye and Vision Services	683	536	740	1.9	3.4	2.6
Nursing Service	50	9	31	0.1	0.1	0.1
Nursing Service-Related	37	12	148	0.1	0.1	0.5
Other Service	1,478	428	1,004	4.0	2.7	3.5
Pharmacy Service	47	15	80	0.1	0.1	0.3
Physician Assistant and Advanced Practice Nursing	196	122	217	0.5	0.8	0.8
Podiatric Medicine and Surgery Service	505	176	225	1.4	1.1	0.8
Respiratory, Developmental, Rehab, Restorative	317	100	243	0.9	0.6	0.8
Speech, Language, and Hearing Service	325	73	350	0.9	0.5	1.2
Student, Health Care	0	1	0	0.0	0.0	0.0
Technologists, Technicians, and Other Technical	11	7	15	0.0	0.0	0.1
Nonindividuals	**7,096**	**3,650**	**11,077**	**19.4**	**22.9**	**38.5**
Agencies	1,223	593	3,222	3.3	3.7	11.2
Ambulatory Health Care Facilities	956	451	1,374	2.6	2.8	4.8
Hospital Units	3	27	26	0.0	0.2	0.1
Hospitals	744	582	741	2.0	3.7	2.6
Laboratories	122	117	131	0.3	0.7	0.5
Managed Care Organizations	70	5	60	0.2	0.0	0.2
Nursing and Custodial Care Facilities	511	33	1,234	1.4	0.2	4.3
Residential Treatment Facilities	60	51	1,029	0.2	0.3	3.6
Respite Care Facility	9	10	11	0.0	0.1	0.0
Suppliers	3,217	1,501	3,012	8.8	9.4	10.5
Transportation Services	181	280	237	0.5	1.8	0.8
Missing Primary Taxonomy	561	383	1,347	1.5	2.4	4.7
Unlinked to NPPES	14,847	1,792	1,877	40.6	11.3	6.5

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Table V.31. Broad Categories of Primary Provider Taxonomy Codes for OT Legacy Servicing Provider IDs in MAX 2006

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
OT Legacy Servicing Provider IDs in MAX 2006	110,961	50,057	27,550	100.0	100.0	100.0
Individual or Group of Individuals	**46,349**	**22,690**	**14,263**	**41.8**	**45.3**	**51.8**
Allopathic and Osteopathic Physicians	34,025	17,154	7,025	30.7	34.3	25.5
Behavioral Health and Social Service	905	603	1,865	0.8	1.2	6.8
Chiropractic	637	517	696	0.6	1.0	2.5
Dental	68	1,038	1,655	0.1	2.1	6.0
Dietary and Nutritional Service	2	2	0	0.0	0.0	0.0
Emergency Medical Service	24	52	11	0.0	0.1	0.0
Eye and Vision Services	968	647	740	0.9	1.3	2.7
Nursing Service	241	39	31	0.2	0.1	0.1
Nursing Service-Related	40	13	148	0.0	0.0	0.5
Other Service	3,220	668	1,000	2.9	1.3	3.6
Pharmacy Service	46	15	79	0.0	0.0	0.3
Physician Assistant and Advanced Practice Nursing	3,342	1,226	183	3.0	2.4	0.7
Podiatric Medicine and Surgery Service	792	257	224	0.7	0.5	0.8
Respiratory, Developmental, Rehab, Restorative	1,008	308	243	0.9	0.6	0.9
Speech, Language, and Hearing Service	1,014	145	349	0.9	0.3	1.3
Student, Health Care	2	1	0	0.0	0.0	0.0
Technologists, Technicians, and Other Technical	15	5	14	0.0	0.0	0.1
Nonindividuals	**5,136**	**6,594**	**10,181**	**4.6**	**13.2**	**37.0**
Agencies	912	1,408	3,217	0.8	2.8	11.7
Ambulatory Health Care Facilities	273	369	1,042	0.2	0.7	3.8
Hospital Units	1	22	5	0.0	0.0	0.0
Hospitals	26	2,785	216	0.0	5.6	0.8
Laboratories	117	115	130	0.1	0.2	0.5
Managed Care Organizations	16	8	60	0.0	0.0	0.2
Nursing and Custodial Care Facilities	390	33	1,232	0.4	0.1	4.5
Residential Treatment Facilities	34	40	1,020	0.0	0.1	3.7
Respite Care Facility	8	8	11	0.0	0.0	0.0
Suppliers	3,199	1,526	3,012	2.9	3.0	10.9
Transportation Services	160	280	236	0.1	0.6	0.9
Missing Primary Taxonomy	1,232	628	1,335	1.1	1.3	4.8
Unlinked to NPPES	58,244	20,145	1,771	52.5	40.2	6.4

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

accounted for 4.6, 13.2, and 37.0 percent in Florida, Indiana, and North Carolina, respectively. A new twist evident in these two tables is that in North Carolina, 11.7 percent of provider IDs that perform OT billing or servicing functions are agencies.[12] The other two states do not show more than three percent of these provider IDs as agencies.

Table V.32 also shows that the MAXPC linkage algorithm appears to attach the expected types of primary taxonomies to RX billing provider IDs. The supplier category accounted for 80.6, 80.7, and 80.7 percent of providers in all three states. Pharmacies are included in the supplier category (WPC 2010).

Table V.33 highlights substantial differences in how the individual prototype states chose to report prescribing provider IDs in their claims files. For their part, Florida chose to nine-fill their prescribing provider IDs in a vast majority of their RX claims files. Indiana appears to have reported provider IDs in their files, but most of these failed to match to an NPPES provider record. North Carolina reported more than 83 percent as many providers as they reported in their OT servicing provider ID fields. For North Carolina, and for the few cases in Florida that were not nine-filled, 77.5 and 73.4 percent of the RX prescribing provider ID field, respectively, are individuals or groups of individuals with the majority of the IDs being allopathic and osteopathic physicians, physician assistants and advanced practice nursing providers, dental providers, and other services. In contrast, Indiana's prescribing providers linked to NPPES are predominantly hospitals.

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[12] Agencies include case management, community and behavioral health, day training, and developmentally disabled services, early intervention provider agencies, foster care, home health, home infusion, in-home supportive care, nursing care, PACE provider organization, public health or welfare agencies, support brokerage agencies, and voluntary or charitable agencies (WPC 2010).

Table V.32.   Broad Categories of Primary Provider Taxonomy Codes for RX Legacy Billing Provider IDs in MAX 2006

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Billing Provider IDs in MAX 2006	4,034	1,443	2,018	100.0	100.0	100.0
Individual or Group of Individuals	**67**	**29**	**69**	**1.7**	**2.0**	**3.4**
Allopathic and Osteopathic Physicians	1	2	0	0.0	0.1	0.0
Chiropractic	0	1	0	0.0	0.1	0.0
Dental	0	1	0	0.0	0.1	0.0
Eye and Vision Services	0	1	0	0.0	0.1	0.0
Pharmacy Service	66	24	69	1.6	1.7	3.4
Nonindividuals	**3,276**	**1,181**	**1,650**	**81.2**	**81.8**	**81.8**
Agencies	9	4	7	0.2	0.3	0.3
Ambulatory Health Care Facilities	12	3	6	0.3	0.2	0.3
Hospitals	3	6	7	0.1	0.4	0.3
Laboratories	0	1	0	0.0	0.1	0.0
Managed Care Organizations	1	2	0	0.0	0.1	0.0
Nursing and Custodial Care Facilities	1	1	1	0.0	0.1	0.0
Residential Treatment Facilities	0	0	1	0.0	0.0	0.0
Suppliers	3,250	1,164	1,628	80.6	80.7	80.7
Missing Primary Taxonomy	124	55	225	3.1	3.8	11.1
Unlinked to NPPES	567	178	74	14.1	12.3	3.7

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

Table V.33. Broad Categories of Primary Provider Taxonomy Codes for RX Legacy Prescribing Provider IDs in MAX 2006

Primary Taxonomy Codes	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
RX Legacy Prescribing Provider IDs in MAX 2006	1,185	22,539	22,945	100.0	100.0	100.0
Individual or Group of Individuals	**870**	**50**	**17,771**	**73.4**	**0.2**	**77.5**
Allopathic and Osteopathic Physicians	545	46	13,077	46.0	0.2	57.0
Behavioral Health and Social Service	1	0	405	0.1	0.0	1.8
Chiropractic	0	0	49	0.0	0.0	0.2
Dental	11	4	1,900	0.9	0.0	8.3
Emergency Medical Service	0	0	11	0.0	0.0	0.0
Eye and Vision Services	8	0	578	0.7	0.0	2.5
Nursing Service	2	0	6	0.2	0.0	0.0
Other Service	63	0	872	5.3	0.0	3.8
Pharmacy Service	0	0	2	0.0	0.0	0.0
Physician Assistant and Advanced Practice Nursing	229	0	490	19.3	0.0	2.1
Podiatric Medicine and Surgery Service	10	0	197	0.8	0.0	0.9
Respiratory, Developmental, Rehab, Restorative	0	0	83	0.0	0.0	0.4
Speech, Language, and Hearing Service	0	0	99	0.0	0.0	0.4
Student, Health Care	0	0	1	0.0	0.0	0.0
Technologists, Technicians, and Other Technical	1	0	1	0.1	0.0	0.0
Nonindividuals	**3**	**2,820**	**289**	**0.3**	**12.5**	**1.3**
Agencies	0	426	11	0.0	1.9	0.0
Ambulatory Health Care Facilities	1	115	114	0.1	0.5	0.5
Hospital Units	0	3	2	0.0	0.0	0.0
Hospitals	0	2,241	65	0.0	9.9	0.3
Laboratories	0	0	3	0.0	0.0	0.0
Managed Care Organizations	0	0	7	0.0	0.0	0.0
Nursing and Custodial Care Facilities	1	0	5	0.1	0.0	0.0
Residential Treatment Facilities	0	0	1	0.0	0.0	0.0
Respite Care Facility	0	0	1	0.0	0.0	0.0
Suppliers	1	35	80	0.1	0.2	0.3
Missing Primary Taxonomy	19	16	491	1.6	0.1	2.1
Unlinked to NPPES	293	19,653	4,394	24.7	87.2	19.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

3.   Business Address Locations

One of the measures we tracked to help validate the linkage of MAX provider IDs with NPPES is whether the business address location of the provider IDs reported in NPPES matched the state where the claim is found. The premise is that Medicaid beneficiaries who need services are likely to get them in facilities or doctor's offices that are nearest to their residence, which would likely be in the same state. However, we recognize that some beneficiaries who reside near state boundaries or in rural areas may receive treatment in a neighboring state. After linking MAX provider IDs with the NPPES header file, we identified the business address state for the provider. If the address was the same as the state being processed—Florida, Indiana, or North Carolina—we labeled that provider as "in-state;" if the states did not match, we called that provider an "out-of-state."

Table V.34 shows the results of this measure by provider type. For IP billing provider IDs, we found a substantial share that were out-of-state: 36.4, 49.7, and 55.4 percent in Florida, Indiana, and North Carolina, respectively. This could be the result of hospitals and hospital units being a subpart of a larger parent organization that report an out-of-state billing address from a centralized location out of state. However, for the rest of the provider types, this measure appears to show overwhelmingly that a beneficiary's state is likely to be the same as where the provider's business address is located. For LT billing providers, providers are deemed to be in-state providers 89.8, 99.2, and 94.2 percent of the time in Florida, Indiana, and North Carolina, respectively. OT billing providers are in-state in 57.0 in Florida, 85.5 percent in Indiana, and 84.6 percent in North Carolina. Florida however had 40.6 percent missing a location or unlinked to NPPES. OT servicing provider IDs are in-state in 45.7 and 51.1 percent of cases in Florida and Indiana, respectively, compared with 1.8 and 11.9 percent out-of-state for the same states, with

Table V.34. Location of Business Addresses for MAX 2006 Legacy Provider IDs, by Provider Type

Business Location Addresses	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Total Number of Legacy Provider IDs in MAX files	**124,732**	**66,596**	**47,342**	**100.0**	**100.0**	**100.0**
In-State	58,335	29,454	36,961	46.8	44.2	78.1
Out-of-State	2,568	6,923	4,398	2.1	10.4	9.3
Missing Business Location / Unlinked to NPPES	63,829	30,219	5,983	51.2	45.4	12.6
IP Legacy Billing Provider IDs in MAX files	**813**	**322**	**426**	**100.0**	**100.0**	**100.0**
In-State	243	161	168	29.9	50.0	39.4
Out-of-State	296	160	236	36.4	49.7	55.4
Missing Business Location / Unlinked to NPPES	274	1	22	33.7	0.3	5.2
LT Legacy Billing Provider IDs in MAX files	**817**	**1,040**	**1,232**	**100.0**	**100.0**	**100.0**
In-State	734	1,032	1,161	89.8	99.2	94.2
Out-of-State	4	7	3	0.5	0.7	0.2
Missing Business Location / Unlinked to NPPES	79	1	68	9.7	0.1	5.5
OT Legacy Billing Provider IDs in MAX files	**36,547**	**15,913**	**28,759**	**100.0**	**100.0**	**100.0**
In-State	20,819	13,604	24,318	57.0	85.5	84.6
Out-of-State	881	2,019	2,707	2.4	12.7	9.4
Missing Business Location / Unlinked to NPPES	14,847	290	1,734	40.6	1.8	6.0
OT Legacy Servicing Provider IDs in MAX files	**110,961**	**50,057**	**27,550**	**100.0**	**100.0**	**100.0**
In-State	50,736	25,570	23,739	45.7	51.1	86.2
Out-of-State	1,981	5,956	2,183	1.8	11.9	7.9
Missing Business Location / Unlinked to NPPES	58,244	18,531	1,628	52.5	37.0	5.9
RX Legacy Billing Provider IDs in MAX files	**4,034**	**1,443**	**2,018**	**100.0**	**100.0**	**100.0**
In-State	3,443	1,317	1,834	85.3	91.3	90.9
Out-of-State	24	122	123	0.6	8.5	6.1
Missing Business Location / Unlinked to NPPES	567	4	61	14.1	0.3	3.0
RX Legacy Prescribing Provider IDs in MAX files	**1,185**	**22,539**	**22,945**	**100.0**	**100.0**	**100.0**
In-State	858	2,878	16,420	72.4	12.8	71.6
Out-of-State	34	8	2,230	2.9	0.0	9.7
Missing Business Location / Unlinked to NPPES	293	19,653	4,295	24.7	87.2	18.7

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

52.5 and 37.0 percent of cases missing. North Carolina's in-state provider rate, however, is 86.2 percent. For RX billing provider IDs, in-state is accounted for in 85.3, 91.3, and 90.9 percent of cases in the three states, with 14.1 percent unlinked in Florida. Finally, for RX prescribing provider IDs, 72.4, 12.8, and 71.6 percent of providers are in-state with 87.2 percent of the cases in Indiana with unlinked provider IDs.

4.   Entity Type / Ownership Status

The next seven tables provide additional background information as it relates to entity types of MAX 2006 provider IDs. In NPPES, sole proprietorship status and organizational subpart status are part of a "skip pattern," which providers navigated through when they applied for their NPIs. A declared "individual" provider is asked to identify whether or not he/she is the sole proprietor of his/her business. A provider declared as an "organization" is asked whether or not his/her organization is a subpart of a larger organization.[13]

Table V.35 shows entity types and ownership status for MAX 2006 provider IDs. Across all providers, individuals account for 36.6, 32.8, and 44.9 percent in Florida, Indiana, and North Carolina, respectively. Of these, 20.5, 12.8, and 17.1 percent are sole proprietors and 62.9, 73.9, and 69.5 percent are not sole proprietors. The rest chose not to respond. Organizations accounts for 12.2, 18.4, and 42.0 percent, respectively, and 15.7, 10.3, and 7.4 percent identify their organizations as a subpart of a parent organization.

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[13] Note that the "individual" and "organization" designation, as it relates to the NPPES' entity type data elements, is apart from the "individual and group of individuals" and "nonindividuals" terms used in relation to primary taxonomy codes, which are coined by the WPC. When applying for NPIs, providers are not restricted in the codes they choose to report as their primary taxonomy.

Table V.35. Entity Type of MAX 2006 Legacy Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Total Number of Legacy Provider IDs in MAX files	124,732	66,596	47,342	100.0	100.0	100.0
Individual	45,687	21,836	21,269	36.6	32.8	44.9
Entity is a Sole Proprietor[1]	9,345	2,791	3,646	20.5	12.8	17.1
Entity is Not a Sole Proprietor[1]	28,722	16,138	14,778	62.9	73.9	69.5
Not Answered[1]	7,620	2,907	2,845	16.7	13.3	13.4
Organization	15,216	12,259	19,899	12.2	18.4	42.0
Entity is a Subpart[2]	2,394	1,263	1,466	15.7	10.3	7.4
Entity is Not a Subpart[2]	9,768	7,190	11,243	64.2	58.7	56.5
Not Answered[2]	3,054	3,806	7,190	20.1	31.0	36.1
Unlinked to NPPES	63,829	32,501	6,174	51.2	48.8	13.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

Table V.36 shows, as expected, that virtually all IP billing provider IDs that linked to NPPES are organizations with 5.8 percent in Florida, and 10.9 percent in both Indiana and North Carolina identifying themselves as a subpart of a parent organization.

Table V.36. Entity Type of MAX 2006 IP Legacy Billing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of IP Legacy Billing Provider IDs in MAX files	813	322	426	100.0	100.0	100.0
Individual	0	0	1	0.0	0.0	0.2
Entity is a Sole Proprietor[1]	0	0	0	-	-	0.0
Entity is Not a Sole Proprietor[1]	0	0	1	-	-	100.0
Not Answered[1]	0	0	0	-	-	0.0
Organization	539	304	403	66.3	94.4	94.6
Entity is a Subpart[2]	31	33	44	5.8	10.9	10.9
Entity is Not a Subpart[2]	393	208	287	72.9	68.4	71.2
Not Answered[2]	115	63	72	21.3	20.7	17.9
Unlinked to NPPES	274	18	22	33.7	5.6	5.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

For LT billing provider IDs, Table V.37 shows virtually identical results as shown in Table V.36 with 5.8, 3.2, and 5.3 percent of providers identifying themselves as a subpart of a parent organization.

Table V.38 shows entity types and ownership status for MAX OT billing provider IDs. Here, 29.0, 47.5, and 30.8 percent of providers are identified as individuals, with 40.0, 24.0, and 29.5 percent sole proprietors in Florida, Indiana, and North Carolina, respectively. In addition, 30.4, 40.9, and 62.7 percent of providers are organizations with 14.2, 10.9, and 7.3 percent of those a subpart of a parent organization while 63.9, 58.9, and 56.2 percent not subparts. The rest chose not to respond or are unlinked to NPPES.

Table V.37. Entity Type of MAX 2006 LT Legacy Billing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of LT Legacy Billing Provider IDs in MAX files	817	1,040	1,232	100.0	100.0	100.0
Individual	0	0	1	0.0	0.0	0.1
Entity is a Sole Proprietor[1]	0	0	1	-	-	100.0
Entity is Not a Sole Proprietor[1]	0	0	0	-	-	0.0
Not Answered[1]	0	0	0	-	-	0.0
Organization	738	1,029	1,163	90.3	98.9	94.4
Entity is a Subpart[2]	43	33	62	5.8	3.2	5.3
Entity is Not a Subpart[2]	439	450	624	59.5	43.7	53.7
Not Answered[2]	256	546	477	34.7	53.1	41.0
Unlinked to NPPES	79	11	68	9.7	1.1	5.5

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

Table V.38. Entity Type of MAX 2006 OT Legacy Billing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of OT Legacy Billing Provider IDs in MAX files	36,547	15,913	28,759	100.0	100.0	100.0
Individual	10,598	7,553	8,855	29.0	47.5	30.8
Entity is a Sole Proprietor[1]	4,240	1,814	2,615	40.0	24.0	29.5
Entity is Not a Sole Proprietor[1]	4,635	4,688	4,918	43.7	62.1	55.5
Not Answered[1]	1,723	1,051	1,322	16.3	13.9	14.9
Organization	11,102	6,512	18,027	30.4	40.9	62.7
Entity is a Subpart[2]	1,580	709	1,323	14.2	10.9	7.3
Entity is Not a Subpart[2]	7,097	3,837	10,131	63.9	58.9	56.2
Not Answered[2]	2,425	1,966	6,573	21.8	30.2	36.5
Unlinked to NPPES	14,847	1,848	1,877	40.6	11.6	6.5

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

Table V.39 is the equivalent table for MAX OT servicing provider IDs. For these providers in Florida, Indiana, and North Carolina, respectively, 40.7, 43.4, and 31.7 percent are individuals with 20.1, 12.6, and 29.8 percent of them being sole proprietors and 63.1, 74.0, and 55.2 percent not a sole proprietor, with the rest choosing not to respond. Organizations are listed in 6.8, 16.1, and 61.9 percent, where 16.4, 10.6, and 7.2 percent are subparts and 61.2, 60.0, and 55.6 percent are not a subpart. The rest chose not to respond.

Table V.39. Entity Type of MAX 2006 OT Legacy Servicing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of OT Legacy Servicing Provider IDs in MAX files	110,961	50,057	27,550	100.0	100.0	100.0
Individual	45,157	21,746	8,735	40.7	43.4	31.7
Entity is a Sole Proprietor[1]	9,096	2,750	2,603	20.1	12.6	29.8
Entity is Not a Sole Proprietor[1]	28,479	16,097	4,823	63.1	74.0	55.2
Not Answered[1]	7,582	2,899	1,309	16.8	13.3	15.0
Organization	7,560	8,068	17,044	6.8	16.1	61.9
Entity is a Subpart[2]	1,237	857	1,221	16.4	10.6	7.2
Entity is Not a Subpart[2]	4,623	4,838	9,479	61.2	60.0	55.6
Not Answered[2]	1,700	2,373	6,344	22.5	29.4	37.2
Unlinked to NPPES	58,244	20,243	1,771	52.5	40.4	6.4

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] percentages shown are based on organization Entities.

Table V.40 also shows, as expected, that virtually all RX billing provider IDs that linked to NPPES are organizations—85.9 percent in Florida, 87.0 percent in Indiana, and 96.1 percent in North Carolina with the rest not linking to NPPES.

Table V.40.   Entity Type of MAX 2006 RX Legacy Billing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of RX Legacy Billing Provider IDs in MAX files	4,034	1,443	2,018	100.0	100.0	100.0
Individual	3	2	4	0.1	0.1	0.2
Entity is a Sole Proprietor[1]	3	1	3	100.0	50.0	75.0
Entity is Not a Sole Proprietor[1]	0	0	1	0.0	0.0	25.0
Not Answered[1]	0	1	0	0.0	50.0	0.0
Organization	3,464	1,255	1,940	85.9	87.0	96.1
Entity is a Subpart[2]	991	342	311	28.6	27.3	16.0
Entity is Not a Subpart[2]	2,182	791	1,220	63.0	63.0	62.9
Not Answered[2]	291	122	409	8.4	9.7	21.1
Unlinked to NPPES	567	186	74	14.1	12.9	3.7

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

Finally, Table V.41 also shows the strange disconnect that was seen in Table V.33 where Florida showed few provider IDs because of nine-filling, Indiana reported providers but only 12.8 percent validly links to NPPES. As was seen in Table V.33, this table also indicates that provider IDs in Indiana are almost entirely organizations while the opposite is true for Florida and North Carolina.

Table V.41. Entity Type of MAX 2006 RX Legacy Prescribing Provider IDs

Entity Type / Ownership Status	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Number of RX Legacy Prescribing Provider IDs in MAX files	1,185	22,539	22,945	100.0	100.0	100.0
Individual	873	6	17,251	73.7	0.0	75.2
Entity is a Sole Proprietor[1]	196	2	2,238	22.5	33.3	13.0
Entity is Not a Sole Proprietor[1]	531	2	12,768	60.8	33.3	74.0
Not Answered[1]	146	2	2,245	16.7	33.3	13.0
Organization	19	2,880	1,300	1.6	12.8	5.7
Entity is a Subpart[2]	1	253	60	5.3	8.8	4.6
Entity is Not a Subpart[2]	14	1,817	852	73.7	63.1	65.5
Not Answered[2]	4	810	388	21.1	28.1	29.8
Unlinked to NPPES	293	19,653	4,394	24.7	87.2	19.2

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

[1] Percentages shown are based on individual entities.
[2] Percentages shown are based on organization entities.

5.   Gender

Table V.42 shows the gender of MAX 2006 individual provider IDs linked to NPPES by each of the provider types. Overall, the ratio of female to male individual providers in MAXPC is 3:7. This ratio was consistent across the three prototype states. For OT billing provider IDs linked to NPPES, the ratio of female to male providers in the file are 2:8, 2:8, and 3:7 for Florida, Indiana, and North Carolina, respectively. OT servicing provider IDs as well as RX prescribing provider IDs mimic the ratio for overall individual providers at approximately 3:7 for all three states. Perhaps more important than seeing the breakdown of gender for individual providers, this table confirms our notion that there are few, if any, individuals in the IP, LT, and RX billing provider IDs. The reason for this is that claims in IP, LT, and RX files are likely to be facility claims and are billed by these entities as opposed to individual providers. OT billing

Table V.42. Gender of MAX 2006 Individual Legacy Provider IDs Linked to the NPPES File, by Provider Type

Individual Provider Gender	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Total Individual Legacy Provider IDs Linked to NPPES	**45,687**	**21,836**	**21,269**	**100.0**	**100.0**	**100.0**
Female	13,038	6,182	6,610	28.5	28.3	31.1
Male	32,649	15,654	14,659	71.5	71.7	68.9
IP Legacy Billing Provider IDs Linked to NPPES	**0**	**0**	**1**	**0.0**	**0.0**	**100.0**
Female	-	-	0	-	-	0.0
Male	-	-	1	-	-	100.0
LT Legacy Billing Provider IDs Linked to NPPES	**0**	**0**	**1**	**100.0**	**100.0**	**100.0**
Female	-	-	1	-	-	100.0
Male	-	-	0	-	-	0.0
OT Legacy Billing Provider IDs Linked to NPPES	**10,598**	**7,553**	**8,855**	**100.0**	**100.0**	**100.0**
Female	2,392	1,554	2,828	22.6	20.6	31.9
Male	8,206	5,999	6,027	77.4	79.4	68.1
OT Legacy Servicing Provider IDs Linked to NPPES	**45,157**	**21,746**	**8,735**	**100.0**	**100.0**	**100.0**
Female	12,884	6,140	2,775	28.5	28.2	31.8
Male	32,273	15,606	5,960	71.5	71.8	68.2
RX Legacy Billing Provider IDs Linked to NPPES	**3**	**2**	**4**	**100.0**	**100.0**	**100.0**
Female	1	1	0	33.3	50.0	0.0
Male	2	1	4	66.7	50.0	100.0
RX Legacy Prescribing Provider IDs Linked to NPPES	**873**	**6**	**17,251**	**100.0**	**100.0**	**100.0**
Female	232	2	4,862	26.6	33.3	28.2
Male	641	4	12,389	73.4	66.7	71.8

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

provider IDs are populated mostly by nonindividuals but individuals are represented fairly well

in the file with 46 percent of the IDs in Florida and Indiana, and 32 percent in North Carolina,

representing these mom-and-pop operations, which do not belong to a group of providers and

where the provider rendering the service is the same as the provider billing the work. As

expected, OT servicing provider IDs and RX prescribing provider IDs are populated mostly by

individual provider IDs. An exception to this "rule," however, can be seen for RX prescribing provider IDs in Indiana. Visual inspection of Indiana's prescribing provider field shows many instances of stray values in the field such as provider's names when the field should have contained provider IDs. As mentioned previously, the prescribing provider ID field in the RX file is not required in MSIS and thus receives no monitoring.

6.   Provider Category

In designing MAXPC, one measure we added that could provide researchers with a valuable analysis field is a non-medical provider flag. We had hoped that this measure could be derived from state provider files. The value of this field is that it can identify nonmedical providers, also known as atypical providers, who are not required to obtain NPIs and who are thus not included in NPPES. Our examination of the three provider files we obtained from the prototype states indicated that North Carolina's file has a variable that identifies atypical providers. Neither Florida, nor Indiana contained this indicator. Unfortunately, very few providers are deemed atypical in the North Carolina file. Table V.43 shows the results of the linkage used to create this field.

Going forward, we will retain the non-medical provider data element in MAXPC and will monitor provider files that we receive from states. We will populate this field as information becomes available.

Table V.43. Provider Category of MAX 2006 Legacy Provider IDs, By Provider Type

Provider Category	Number			Percent		
	Florida	Indiana	North Carolina	Florida	Indiana	North Carolina
Total Number of Legacy Provider IDs in MAX files	**124,732**	**66,596**	**47,342**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	32	NA	NA	0.1
Medical Provider	NA	NA	40,735	NA	NA	86.0
Unknown / Unlinked to NPPES	124,732	66,596	6,575	100.0	100.0	13.9
IP Legacy Billing Provider IDs in MAX files	**813**	**322**	**426**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	0	NA	NA	0.0
Medical Provider	NA	NA	396	NA	NA	93.0
Unknown / Unlinked to NPPES	813	322	30	100.0	100.0	7.0
LT Legacy Billing Provider IDs in MAX files	**817**	**1,040**	**1,232**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	0	NA	NA	0.0
Medical Provider	NA	NA	1,160	NA	NA	94.2
Unknown / Unlinked to NPPES	817	1,040	72	100.0	100.0	5.8
OT Legacy Billing Provider IDs in MAX files	**36,547**	**15,913**	**28,759**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	32	NA	NA	NA.1
Medical Provider	NA	NA	26,589	NA	NA	92.5
Unknown / Unlinked to NPPES	36,547	15,913	2,138	100.0	100.0	7.4
OT Legacy Servicing Provider IDs in MAX files	**110,961**	**50,057**	**27,550**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	30	NA	NA	0.1
Medical Provider	NA	NA	25,501	NA	NA	92.6
Unknown / Unlinked to NPPES	110,961	50,057	2,019	100.0	100.0	7.3
RX Legacy Billing Provider IDs in MAX files	**4,034**	**1,443**	**2,018**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	0	NA	NA	0.0
Medical Provider	NA	NA	1,952	NA	NA	96.7
Unknown / Unlinked to NPPES	4,034	1,443	66	100.0	100.0	3.3
RX Legacy Prescribing Provider IDs in MAX files	**1,185**	**22,539**	**22,945**	**100.0**	**100.0**	**100.0**
Non-Medical Provider	NA	NA	1	NA	NA	0.0
Medical Provider	NA	NA	18,351	NA	NA	80.0
Unknown / Unlinked to NPPES	1,185	22,539	4,593	100.0	100.0	20.0

Source: Medicaid Analytic eXtract Provider Characteristics (MAXPC) Files, 2006.

NA = not available

VI. RECOMMENDATIONS FOR THE FULL IMPLEMENTATION OF MAXPC

As we assess the process used to accomplish the MAXPC prototype production, it is apparent that there may be some design issues that should to be addressed before we launch into full implementation of building MAXPC files for all 51 jurisdictions. Using MAX data from three selected prototype states—Florida, Indiana, and North Carolina—we developed programs and algorithms to build a file containing characteristics of providers whose IDs were found in at least one claim in the MAX 2006 files. We believe that the process is fairly straightforward and that the files we accept from states, regardless of format(s), can be automated to run effectively and efficiently.

With some exceptions, which are discussed below, the IP, LT, OT, and RX billing provider IDs in MAX linked well to NPPES. In Indiana and North Carolina, over 94 percent of IP and OT billing provider IDs linked to NPPES. LT billing provider IDs linked in over 90 percent in all three states. RX billing provider IDs also linked at least 86 percent in all three states, with IDs from Indiana matching at virtually 100 percent, and 97 percent in North Carolina.

Two areas, however, appeared to show deficiencies—OT servicing provider IDs and RX prescribing provider IDs. For RX prescribing IDs, there was an across-the-board *shortfall* on linkage with about one-quarter of provider IDs in Florida unlinked, just under 20 percent in North Carolina, and a whopping 87 percent in Indiana. We believe the reason for this is that the states did not expend much effort providing information for this field since it was not required, opting instead to nine-fill the field (as in the case of Florida) or inserting unusable values such as provider's names (as in the case of Indiana). Even North Carolina, which showed excellent linkages for all types of provider IDs, linked only 81 percent of its prescribing provider IDs. Because of this, and discussed in more detail below, we feel that RX prescribing provider ID fields should be monitored to see whether linkage rates for other states and across years improve.

As for OT servicing provider IDs, surprisingly only North Carolina had good linkage rates—over 90 percent. Florida linked only a little over half of its IDs, and Indiana linked a little under two thirds. Seeking explanations, we contacted Indiana and North Carolina regarding our results. Indiana believes that the NPIs they provided on 2009 MSIS claims, which we used as our main source, were indeed for the OT servicing provider IDs. North Carolina uses an algorithm that inserts the attending physician's ID into the servicing provider ID field, which is the correct procedure. In cases when the attending physician's ID is missing from their files, however, the state inserts the *billing* provider ID into the servicing provider ID field. This explains why 95.8 percent of claims in North Carolina contain the same OT billing and OT servicing provider IDs.

Florida had the most unlinked provider IDs. One obvious reason is that the state provider file it supplied for our use contained only about half of the unique provider IDs in the state's MAX 2006 claims files. Indiana and North Carolina, meanwhile, provided files with more unique provider ID records than were contained in their MAX 2006 claims files. Whereas state provider files for Indiana and North Carolina supplied 16.1 and 19.5 percent of all the NPIs linked to their legacy provider IDs, respectively, only 1.0 percent of Florida's NPIs were found from the state provider file.

A. Improving the Quality of the Linkages

It was our stated aim to build MAXPC to serve as a supplemental database to the MAX IP, LT, RX, and OT claims files, containing provider characteristics for every provider ID on every claim in MAX, regardless of whether it is a fee-for-service or managed care claim. Generally, MAXPC, as it is now designed, can provide researchers the data to meet their goal of getting provider characteristics information, especially for billing providers in the IP, LT, RX, and OT files. However, we believe that MAXPC must demonstrate better linkage rates for the OT

servicing and RX prescribing provider IDs so that researchers can gain confidence in the file for their research. We believe that the full implementation of MAXPC using MAX 2009 data will produce better linkage results than the prototype, especially for provider IDs in the OT file, since there will no longer be a need to find matching NPIs for OT servicing provider IDs because both IDs are found in the same record.

We must discourage researchers from focusing on the aggregate linkage rate because the aggregate rate was lowered substantially by the poor linkage rates among the OT servicing and RX prescribing provider IDs. It is important to remember that the linkage rates for IP, LT, RX, and OT billing provider IDs look excellent.

In Table VI.1, we summarize our recommendations for the full implementation of the MAXPC design. These recommendations include:

- Monitoring the RX prescribing provider ID field and if warranted, changing the design of MAXPC to exclude it

- Requesting that states provide a crosswalk of NPIs and their legacy provider IDs

- Requesting a revision of the current MSIS specification document to provide clearer instructions for NPIs and legacy provider IDs

- Monitoring the content of provider IDs and NPIs to ensure the correct type of ID is provided

- Providing technical assistance to states that ask for help

- Revising the MAXPC validation tables to provide separate measures for OT servicing and billing provider IDs, and to add additional measures

- As more states are run, redesigning the anomaly tables to ensure more appropriate benchmarks are used to identify anomalies

Table VI.1. Recommendations for the Full Implementation of the MAXPC Design

Recommendation	Reason
Monitor the RX prescribing provider ID field in MAXPC; exclude from MAXPC if warranted.	Field is unreliable. High number of 9-filled RX prescribing provider ID fields in Florida and invalid values in Indiana.
Request that states provide provider file or at least a crosswalk of legacy provider IDs and corresponding NPIs.	High number of missing NPIs in 27 states as of August 2010.
Request that CMS revise current MSIS specifications for provider ID fields.	Current specifications are vague and subject to different interpretations. For example, for the RX prescribing provider ID field, inserting the DEA number in cases when the prescribing provider ID is missing. However, no MSIS fields indicate what type of ID is in the field.
Closer monitoring of MSIS fields.	Provider IDs and NPIs in MSIS have previously been unedited and undocumented. These fields need to be validated.
Provide direct technical assistance to states.	States with tight budgets may be unable to keep up with MSIS reporting requirements.
Revise MAXPC validation table design.	Separate reporting of OT servicing and billing provider IDs; adding additional measures.
Redesign of anomaly tables when more states are run.	Benchmarks are likely to change as more states are run.

Regardless of how sophisticated and advanced a database may be, researchers may not want to use it if there are questions as to its reliability as a data source. In designing MAXPC, we must ensure that the data is reliable and consistent. As seen in the tables in Chapter V, Florida nine-filled most of its prescribing provider ID field, resulting in only 1,185 IDs that had a chance of matching with NPPES. Even with that small amount, 24.7 percent did not match. Meanwhile, Indiana's aggregate matching rate for its providers, regardless of type, is 54.6 percent. This includes the state's 12.8 percent matching rate for its RX prescribing provider IDs. Excluding the latter, the state's matching rate would have been approximately 77 percent, still low but more acceptable than a little over half. Given that only three states were used for the prototype runs, and they did not necessarily represent any other state, we may see better linkage rates for RX prescribing provider IDs for the full implementation. We therefore recommend monitoring the

RX prescribing ID field in MAXPC to see if linkage rates improve over time, with an eye towards its exclusion if no improvement is seen.

As we move to the full implementation phase, we would request access to states' provider files for use in building MAXPC. For the prototype work, we accepted provider files from the states regardless of format, content, or structure. At the minimum, and not necessarily for all 51 jurisdictions, Mathematica recommends that CMS ask states to provide at least a crosswalk of legacy provider IDs with corresponding NPIs. For the prototype, the state provider files for Indiana and North Carolina proved to be the source of NPIs in 16.9 and 15.3 percent of their cases, respectively, a large percentage by any standard. Unfortunately, Florida's file proved to be incomplete and was less useful for linking.

Many states are not yet able to report NPIs in their claims files, which makes the state provider files so important. In Table VI.2, we highlight states and files that, as of the end of August 2010, were not providing NPIs, or at best only a small fraction of NPIs, in their files. For example, the NPIs in Ohio's and Rhode Island's IP, LT, RX, and OT files, through FY 2009, are still missing—a full 18 months after states were asked to provide this information in their MSIS claims submissions. Arkansas is still missing 42 percent of NPIs in their OT claims, New Hampshire is missing 100, 100, and 99 percent in their IP, LT, and OT files, respectively, and South Dakota is missing 99 percent in the RX file. A number of other states—there are 27 states on the list altogether—show deficiencies in their reporting, some are more serious than others. Without a state provider crosswalk, provider IDs from these states will not link well to NPPES because of the missing NPIs.

Table VI.2. States with Highest Percentage of Missing NPIs in 2009 Original FFS Non-Crossover Claims

State	IP	LT	OT	RX	Comment
Arizona	0	0	NA	0	OT submission missing all 4 quarters.
Arkansas	3	0	42	0	
Connecticut	0	0	44	0	
District of Columbia	0	0	NA	0	OT missing all 4 quarters; RX missing for Q2, Q3, Q4.
Georgia	0	0	4	1	Submission only thru Q1.
Hawaii	NA	NA	NA	NA	Not available.
Idaho	0	0	28	0	
Iowa	0	0	4	16	
Maine	100	100	100	100	
Maryland	19	6	9	0	
Nebraska	100	100	100	100	
Nevada	NA	0	17	0	Submission only thru Q1.
New Hampshire	100	100	99	0	
New Jersey	3	27	8	5	
New Mexico	0	0	16	0	
New York	0	0	34	0	
North Dakota	0	1	19	1	Submission only thru Q1.
Ohio	100	100	100	100	
Oklahoma	0	0	20	0	
Pennsylvania	1	0	NA	0	
Rhode Island	100	100	100	100	IP submission missing for Q4.
South Carolina	3	94	100	100	
South Dakota	0	0	3	99	
Texas	7	0	4	0	OT submission missing for Q2, Q3, Q4.
Utah	0	0	10	0	Submission only thru Q1.
Washington	14	54	50	100	
Wisconsin	0	0	9	0	Submission only thru Q1.

Source: Medicaid Statistical Information System, FY 2009 Claims Files.

Note: Unless specified, percents shown are through FY 2009 Q4 submissions received by August 2010. States with cells with percentages greater than 15 or have an outstanding issue shown in the "Comment" column are states that are either not providing NPIs, or at best only a small fraction of NPIs in their files, as of August 2010.

NA = Not Available

The ideal solution to the issues we face as we go forward is for states to provide accurate information. A number of remedies to improve that accuracy may or may not be within reach. First, we ask that CMS revise the current MSIS specifications to clarify what states are supposed to report in the files. As an example, currently for the RX prescribing provider ID field, states are

supposed to report the ID if it's known; when it's not known, the DEA number, if available, should be reported. If neither are available, states can nine-fill the field. Inserting the DEA number is a good idea, except no field in the RX claims file indicates the ID's source. Hence, the specification introduced a layer of error, rendering the field nearly unusable. Second, we recommend that CMS expend some resources to monitor, review, and validate fields in MSIS that are currently not being watched, such as the various provider IDs and NPIs in all four claims files. This would require modifying the existing MSIS validation and data quality reports to provide more measures to examine the contents of provider ID fields, such as whether the fields contain special characters, or have the correct length or format. Third, we recommend that CMS expend some resources providing technical assistance to states, when needed. Tight state resources disenable states from making improvements to their files; Mathematica can work with these states to provide them with the needed technical expertise.

Two additional recommendations that we will implement, with concurrence from CMS, is a revision to the current design of the MAXPC validation tables, and a redesign of the anomaly tables as more states are processed. The revision to the validation table design involves providing separate tables for the OT servicing and billing provider IDs instead of a combined table, and adding additional measures for researchers' use. We believe that it will be easier for researchers to read separate tables that show different denominators instead of an aggregate.

Additional measures to add to the validation tables could include but are not limited to:

- Distributions for enrollees served (recipients) showing:
    - Number of provider IDs serving less than 20 enrollees
    - Number of provider IDs serving greater than or equal to 20, but less than 100 enrollees
    - Number of provider IDs serving greater than or equal to 100, but less than 1,000 enrollees
    - Number of provider IDs serving greater than or equal to 1,000 enrollees

- Distributions for services provided showing:
  - Number of provider IDs with less than 100 services (claims)
  - Number of provider IDs with greater than or equal to 100, but less than 1,000 services
  - Number of provider IDs with greater than or equal to 1,000, but less than 10,000 services
  - Number of provider IDs with greater than or equal to 10,000 services

The cutoff points for these measures will be adjusted depending on actual distributions.

As for anomaly tables, we will be performing ongoing adjustments to these tables as we learn more about the characteristics of providers. We will use the knowledge we gain from processing more states to set benchmarks from which we determine anomalous situations reported in these tables.

B. Full Implementation Schedule

MAXPC files are produced near the end of each MAX production cycle for each state. Along with the file itself, a state-specific validation table is produced for the state, and the cross-state validation table is updated to include the state's most current data. Also, the MAXPC anomaly tables are updated to include newly processed information. We will examine results produced in the validation and anomaly tables to determine if there are issues that need to be addressed.

The first full implementation of MAXPC will be generated from MAX 2009 claims files and will be completed by December 31, 2011. MAXPC 2010 will be generated from MAX 2010 claims files and will be completed by December 31, 2012. Finally, MAXPC 2011 will be generated from MAX 2011 claims files and will be completed by June 1, 2013, with the final report due on August 1, 2013.

REFERENCES

American Health Care Association. "What is OSCAR Data?" Available at [http://www.ahcancal.org/research_data/oscar_data/Pages/WhatisOSCARData.aspx]. Accessed February 13, 2010.

Annadata, Madhu. "MSIS PLUS Data Dictionary, Provider File." Centers for Medicare & Medicaid Services, December 16, 2009.

Centers for Medicare & Medicaid Services. "CMS Manual System, Pub 100-08 Medicare Program Integrity, Transmittal 154." Available at [https://www.cms.gov/transmittals/downloads/R154PI.pdf]. Accessed September 24, 2010.

Centers for Medicare & Medicaid Services. "Health Plans, Reports, Files and Data." Available at [http://www.cms.hhs.gov/HealthPlanRepFileData/05_Inst.asp#TopOfPage]. Accessed February 13, 2010.

Centers for Medicare & Medicaid Services. "Medicaid Statistical Information System (MSIS) File Specifications and Data Dictionary, Release 3." Available at [http://www.cms.gov/MSIS/downloads/msisdd05.pdf]. Accessed September 24, 2010.

Centers for Medicare & Medicaid Services. "Medicare Program Integrity Manual, Chapter 14–National Provider Identifier." Available at [http://www.cms.hhs.gov/manuals/downloads/pim83c14.pdf]. Accessed February 13, 2010.

Centers for Medicare & Medicaid Services. "Medicare Provider-Supplier Enrollment, Internet Based PECOS." Available at [http://www.cms.gov/MedicareProviderSupEnroll/04_InternetbasedPECOS.asp#TopOfPage]. Accessed February 12, 2010.

Centers for Medicare & Medicaid Services. "Medicare Provider-Supplier Enrollment, Overview." Available at [https://www.cms.gov/MedicareProviderSupEnroll/01_Overview.asp#TopOfPage]. Accessed September 24, 2010.

Centers for Medicare & Medicaid Services. "National Plan and Provider Enumeration System (NPPES), Data Dissemination – Code Values." Available at [http://www.cms.gov/NationalProvIdentStand/06a_DataDissemination.asp#TopOfPage]. Accessed September 2009.

Centers for Medicare & Medicaid Services. "National Plan and Provider Enumeration System (NPPES), Data Dissemination—Code Values." Available at [http://www.cms.hhs.gov/NationalProvIdentStand/Downloads/Data_Dissemination_File-Code_Values.pdf]. Accessed September 2009.

Centers for Medicare & Medicaid Services. "National Provider Identifier (NPI) Overview." Available at [http://www.cms.gov/nationalProvIdentstand/]. Accessed February 13, 2010.

Commonwealth of Virginia, Department of Medical Assistance Services (DMAS). "Use of Taxonomy Codes on Claim Submissions." Available at [http://www.dmas.virginia.gov/downloads/pdfs/npi_DMAS_TaxonomyCodeSummary.pdf]. Accessed March 31, 2010.

"HIPAA Administrative Simplification: Standard Unique Health Identifier for Health Care Providers, Final Rule." Federal Register, Volume 69, No. 15 (23 January 2004): 3434-3469. Print.

Miller, Robb, and Yohannes Birre. "MSIS PLUS Pilot Project." Paper presented at MMIS Conference, August 19, 2009". Available at [http://www.mmisconference.org/MMIS2009_Presentations_PDFs/Wednesday/The%20Future%20of%20MSIS/Wednesday_MSIS_Birre.pdf]. Accessed February 12, 2010.

Research Data Assistance Center, University of Minnesota. "Medicare Physician Identifiers UPINs, PINs, and NPI Numbers." ResDAC Publication Number TB-002. Minneapolis, MN: Research Data Assistance Center, January 2003.

Silva, Chris. "Medicare PECOS Deadline Extended Again." American Medical Association. Available at [http://www.ama-assn.org/amednews/2010/03/08/gvsb0308.htm]. Accessed March 16, 2010.

U.S. Census Bureau. "United States—States, GCT-T4-R, Percent of the Total Population Who Are 65 Years and Over." Available at [http://factfinder.census.gov/servlet/GCTTable?_bm=y&-geo_id=01000US&-_box_head_nbr=GCT-T4-R&-ds_name=PEP_2009_EST&-format=U-40Sc]. Accessed September 9, 2010.

Washington Publishing Company. "Healthcare Provider Taxonomy Code Set." Available at [http://www.wpc-edi.com/codes/taxonomy]. Accessed September 2009.

APPENDIX A

MAXPC FILE VALIDATION TABLES

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FLORIDA

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Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
IP Providers								
Number of provider IDs	813	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	80.7	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	66.3	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	66.3	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.0	N/A		N/A		N/A	N/A	N/A
average number of IP claims	509.8	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with IP claims	424.7	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	539	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	97.0	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	2.0	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	0.9	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	539	N/A		N/A		N/A	N/A	N/A
% linked via NPI	98.0	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	2.0	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.0	N/A		N/A		N/A	N/A	N/A
% with middle name	0.0	N/A		N/A		N/A	N/A	N/A
% with last name	0.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.0	N/A		N/A		N/A	N/A	N/A
% female	0.0	N/A		N/A		N/A	N/A	N/A
% with credential	0.0	N/A		N/A		N/A	N/A	N/A
% with business name	100.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006 Value	2006 Within Range	2007 Value	2007 Within Range	2008 Value	2008 Within Range	% Change 2006-2007	% Change 2007-2008
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = IP state code	45.1	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	98.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	100.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	0	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	532	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	0.2	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	0.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.2	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	99.8	N/A		N/A		N/A	N/A	N/A
% agencies	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% ambulatory health care facilities	0.6	N/A		N/A		N/A	N/A	N/A
% hospital units	0.6	N/A		N/A		N/A	N/A	N/A
% hospitals	96.4	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	2.1	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.0	N/A		N/A		N/A	N/A	N/A
% transportation services	0.2	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	0	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	539	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	5.8	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	72.9	N/A		N/A		N/A	N/A	N/A
% not answered	21.3	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 LT MAX Provider Characteristics Validation Table
State: FL
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
LT Providers								
Number of provider IDs	817	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	10.5	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	90.3	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	90.3	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	3.1	N/A		N/A		N/A	N/A	N/A
average number of LT claims	919.5	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with LT claims	109.4	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	738	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	92.1	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	1.8	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	6.1	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	738	N/A		N/A		N/A	N/A	N/A
% linked via NPI	98.2	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	1.8	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.0	N/A		N/A		N/A	N/A	N/A
% with middle name	0.0	N/A		N/A		N/A	N/A	N/A
% with last name	0.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.0	N/A		N/A		N/A	N/A	N/A
% female	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 LT MAX Provider Characteristics Validation Table
State: FL
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with credential	0.0	N/A		N/A		N/A	N/A	N/A
% with business name	100.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = LT state code	99.5	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	98.5	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	100.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	25	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	727	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	0.0	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	0.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	100.0	N/A		N/A		N/A	N/A	N/A
% agencies	0.6	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% hospital units	0.6	N/A		N/A		N/A	N/A	N/A
% hospitals	0.7	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	94.6	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	3.6	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.0	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	0	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	738	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	5.8	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	59.5	N/A		N/A		N/A	N/A	N/A
% not answered	34.7	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
OT Providers								
Number of provider IDs	119,992	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	30.5	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	92.5	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.5	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.1	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	1.1	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	47.7	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	47.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	2.2	N/A		N/A		N/A	N/A	N/A
average number of OT claims	824.6	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with OT claims	151.4	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	57,208	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	71.3	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	26.8	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	1.9	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	57,035	N/A		N/A		N/A	N/A	N/A
% linked via NPI	73.1	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	5.0	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	21.9	N/A		N/A		N/A	N/A	N/A
% with name prefix	39.5	N/A		N/A		N/A	N/A	N/A
% with first name	79.9	N/A		N/A		N/A	N/A	N/A
% with middle name	57.7	N/A		N/A		N/A	N/A	N/A
% with last name	79.9	N/A		N/A		N/A	N/A	N/A
% with name suffix	2.6	N/A		N/A		N/A	N/A	N/A
% male	57.2	N/A		N/A		N/A	N/A	N/A
% female	22.8	N/A		N/A		N/A	N/A	N/A
% with credential	77.4	N/A		N/A		N/A	N/A	N/A
% with business name	20.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = OT state code	95.6	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	97.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	79.9	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	20.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	2,600	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	55,707	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	87.1	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	63.5	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	1.7	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	1.2	N/A		N/A		N/A	N/A	N/A
% dental providers	0.8	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	1.9	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.4	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.1	N/A		N/A		N/A	N/A	N/A
% other service providers	6.1	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.1	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	6.1	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	1.5	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	1.9	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	1.9	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	12.9	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

	2006		2007		2008			
Measure	Value	Within Range	Value	Within Range	Value	Within Range	% Change 2006-2007	% Change 2007-2008
% agencies	2.3	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	1.8	N/A		N/A		N/A	N/A	N/A
% hospital units	0.0	N/A		N/A		N/A	N/A	N/A
% hospitals	1.3	N/A		N/A		N/A	N/A	N/A
% laboratories	0.2	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.1	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.9	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.1	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	5.8	N/A		N/A		N/A	N/A	N/A
% transportation services	0.3	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	45,595	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	20.4	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	62.9	N/A		N/A		N/A	N/A	N/A
% not answered	16.7	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	11,440	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	13.9	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	64.0	N/A		N/A		N/A	N/A	N/A
% not answered	22.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
RX Providers								
Number of provider IDs	5,219	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	77.3	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	22.7	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	26.2	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	84.0	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	83.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	3.4	N/A		N/A		N/A	N/A	N/A
average number of RX claims	2,702.8	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with RX claims	319.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	4,385	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	96.8	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	1.7	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	1.5	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	4,359	N/A		N/A		N/A	N/A	N/A
% linked via NPI	98.3	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	1.7	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	9.6	N/A		N/A		N/A	N/A	N/A
% with first name	20.1	N/A		N/A		N/A	N/A	N/A
% with middle name	16.0	N/A		N/A		N/A	N/A	N/A
% with last name	20.1	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.9	N/A		N/A		N/A	N/A	N/A
% male	14.8	N/A		N/A		N/A	N/A	N/A
% female	5.3	N/A		N/A		N/A	N/A	N/A
% with credential	19.8	N/A		N/A		N/A	N/A	N/A
% with business name	79.9	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = RX state code	98.7	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	96.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	20.1	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	79.9	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	180	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	4,216	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	22.2	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	13.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.3	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.2	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	1.5	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	1.6	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	5.4	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.2	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	77.8	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 RX MAX Provider Characteristics Validation Table
State: FL
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% agencies	0.2	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	0.3	N/A		N/A		N/A	N/A	N/A
% hospital units	0.0	N/A		N/A		N/A	N/A	N/A
% hospitals	0.1	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.0	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	77.1	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	876	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	22.7	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	60.6	N/A		N/A		N/A	N/A	N/A
% not answered	16.7	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	3,483	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	28.5	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	63.0	N/A		N/A		N/A	N/A	N/A
% not answered	8.5	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
All Providers								
Number of provider IDs	124,732	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	0.7	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	0.7	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	29.3	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	89.0	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	3.2	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	1.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider	32.9	N/A		N/A		N/A	N/A	N/A
% NPI billing provider	0.0	N/A		N/A		N/A	N/A	N/A
% servicing provider	89.0	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider	0.0	N/A		N/A		N/A	N/A	N/A
% prescribing provider	1.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	49.0	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	48.8	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	2.2	N/A		N/A		N/A	N/A	N/A
average number of claims	915.7	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with claims	160.9	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	61,099	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	72.8	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	25.2	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	2.0	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	60,903	N/A		N/A		N/A	N/A	N/A
% linked via NPI	74.7	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	4.8	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	20.5	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 All MAX Provider Characteristics Validation Table
State: FL
Produced: 08/14/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with name prefix	37.0	N/A		N/A		N/A	N/A	N/A
% with first name	75.0	N/A		N/A		N/A	N/A	N/A
% with middle name	54.2	N/A		N/A		N/A	N/A	N/A
% with last name	75.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	2.4	N/A		N/A		N/A	N/A	N/A
% male	53.6	N/A		N/A		N/A	N/A	N/A
% female	21.4	N/A		N/A		N/A	N/A	N/A
% with credential	72.7	N/A		N/A		N/A	N/A	N/A
% with business name	25.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = claim state code	95.8	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	97.6	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	75.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	25.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	2,777	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	59,458	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	81.9	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	59.6	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	1.6	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	1.1	N/A		N/A		N/A	N/A	N/A
% dental providers	0.7	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	1.8	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.4	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% other service providers	5.7	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.2	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	5.8	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	1.4	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	1.8	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	1.8	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	18.1	N/A		N/A		N/A	N/A	N/A
% agencies	2.1	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	1.7	N/A		N/A		N/A	N/A	N/A
% hospital units	0.0	N/A		N/A		N/A	N/A	N/A
% hospitals	1.4	N/A		N/A		N/A	N/A	N/A
% laboratories	0.2	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.1	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	1.9	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.2	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	10.2	N/A		N/A		N/A	N/A	N/A
% transportation services	0.3	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	45,687	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	20.5	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	62.9	N/A		N/A		N/A	N/A	N/A
% not answered	16.7	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	15,216	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	15.7	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	64.2	N/A		N/A		N/A	N/A	N/A
% not answered	20.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

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INDIANA

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2006-2008 IP MAX Provider Characteristics Validation Table
State: IN
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
IP Providers								
Number of provider IDs	322	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	7.5	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	87.6	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	94.4	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	94.4	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	5.6	N/A		N/A		N/A	N/A	N/A
average number of IP claims	453.3	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with IP claims	394.6	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	304	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	69.7	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	0.7	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	29.6	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	304	N/A		N/A		N/A	N/A	N/A
% linked via NPI	99.3	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	0.7	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.0	N/A		N/A		N/A	N/A	N/A
% with middle name	0.0	N/A		N/A		N/A	N/A	N/A
% with last name	0.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.0	N/A		N/A		N/A	N/A	N/A
% female	0.0	N/A		N/A		N/A	N/A	N/A
% with credential	0.0	N/A		N/A		N/A	N/A	N/A
% with business name	100.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = IP state code	52.3	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	98.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	100.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	18	N/A		N/A		N/A		N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	300	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	1.0	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	1.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	99.0	N/A		N/A		N/A	N/A	N/A
% agencies	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% ambulatory health care facilities	2.3	N/A		N/A		N/A	N/A	N/A
% hospital units	7.7	N/A		N/A		N/A	N/A	N/A
% hospitals	88.0	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.7	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.3	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	0	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	304	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	10.9	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	68.4	N/A		N/A		N/A	N/A	N/A
% not answered	20.7	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 LT MAX Provider Characteristics Validation Table
State: IN
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
LT Providers								
Number of provider IDs	1,040	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	2.3	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	2.6	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	98.9	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	98.9	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	1.1	N/A		N/A		N/A	N/A	N/A
average number of LT claims	866.7	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with LT claims	44.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	1,029	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	96.0	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	1.1	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	2.9	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	1,029	N/A		N/A		N/A	N/A	N/A
% linked via NPI	98.9	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	1.1	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.0	N/A		N/A		N/A	N/A	N/A
% with middle name	0.0	N/A		N/A		N/A	N/A	N/A
% with last name	0.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.0	N/A		N/A		N/A	N/A	N/A
% female	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with credential	0.0	N/A		N/A		N/A	N/A	N/A
% with business name	100.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = LT state code	99.5	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	96.5	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	100.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	11	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	993	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	0.4	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	0.2	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.2	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	99.6	N/A		N/A		N/A	N/A	N/A
% agencies	3.9	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	0.1	N/A		N/A		N/A	N/A	N/A
% hospital units	0.2	N/A		N/A		N/A	N/A	N/A
% hospitals	2.1	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	73.1	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	20.1	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.0	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	0	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	1,029	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	3.2	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	43.7	N/A		N/A		N/A	N/A	N/A
% not answered	53.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
OT Providers								
Number of provider IDs	53,450	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	29.8	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	93.7	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.5	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.1	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	22.2	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	61.1	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	60.9	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	4.8	N/A		N/A		N/A	N/A	N/A
average number of OT claims	978.3	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with OT claims	144.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	32,682	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	49.4	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	18.1	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	32.5	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	32,574	N/A		N/A		N/A	N/A	N/A
% linked via NPI	81.8	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	7.8	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	10.4	N/A		N/A		N/A	N/A	N/A
% with name prefix	26.2	N/A		N/A		N/A	N/A	N/A
% with first name	67.0	N/A		N/A		N/A	N/A	N/A
% with middle name	51.9	N/A		N/A		N/A	N/A	N/A
% with last name	67.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	1.8	N/A		N/A		N/A	N/A	N/A
% male	48.0	N/A		N/A		N/A	N/A	N/A
% female	19.0	N/A		N/A		N/A	N/A	N/A
% with credential	65.5	N/A		N/A		N/A	N/A	N/A
% with business name	33.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = OT state code	80.2	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	97.8	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	67.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	33.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	2,584	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	31,946	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	76.1	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	57.2	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	2.3	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	1.9	N/A		N/A		N/A	N/A	N/A
% dental providers	3.3	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.2	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	2.3	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.1	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	2.5	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	3.9	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.9	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	1.1	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.5	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	23.9	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% agencies	5.1	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	2.2	N/A		N/A		N/A	N/A	N/A
% hospital units	0.1	N/A		N/A		N/A	N/A	N/A
% hospitals	10.1	N/A		N/A		N/A	N/A	N/A
% laboratories	0.4	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.1	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.2	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	4.8	N/A		N/A		N/A	N/A	N/A
% transportation services	0.9	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	21,831	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	12.8	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	73.9	N/A		N/A		N/A	N/A	N/A
% not answered	13.3	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	10,743	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	9.9	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	60.4	N/A		N/A		N/A	N/A	N/A
% not answered	29.7	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
RX Providers								
Number of provider IDs	23,982	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	6.0	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	94.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	49.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	17.3	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	17.3	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.8	N/A		N/A		N/A	N/A	N/A
average number of RX claims	651.5	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with RX claims	89.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	4,151	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	97.5	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	0.3	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	2.1	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	4,143	N/A		N/A		N/A	N/A	N/A
% linked via NPI	99.7	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	0.3	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.1	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.2	N/A		N/A		N/A	N/A	N/A
% with first name	0.2	N/A		N/A		N/A	N/A	N/A
% with middle name	0.2	N/A		N/A		N/A	N/A	N/A
% with last name	0.2	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.1	N/A		N/A		N/A	N/A	N/A
% female	0.1	N/A		N/A		N/A	N/A	N/A
% with credential	0.2	N/A		N/A		N/A	N/A	N/A
% with business name	99.8	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = RX state code	97.2	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	98.3	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.2	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	99.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	186	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	4,080	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	1.9	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	1.2	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.1	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.6	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	98.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% agencies	10.5	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	2.9	N/A		N/A		N/A	N/A	N/A
% hospital units	0.1	N/A		N/A		N/A	N/A	N/A
% hospitals	55.1	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.0	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	29.4	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	8	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	37.5	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	25.0	N/A		N/A		N/A	N/A	N/A
% not answered	37.5	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	4,135	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	14.4	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	63.1	N/A		N/A		N/A	N/A	N/A
% not answered	22.5	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
All Providers								
Number of provider IDs	66,596	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	0.5	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	1.6	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	23.9	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	75.2	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	2.2	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	33.8	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider	26.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider	0.0	N/A		N/A		N/A	N/A	N/A
% servicing provider	75.2	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider	0.0	N/A		N/A		N/A	N/A	N/A
% prescribing provider	33.8	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	51.4	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	51.2	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	4.0	N/A		N/A		N/A	N/A	N/A
average number of claims	1,035.5	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with claims	147.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	34,205	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	51.4	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	17.4	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	31.2	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	34,095	N/A		N/A		N/A	N/A	N/A
% linked via NPI	82.6	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	7.5	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	9.9	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 All MAX Provider Characteristics Validation Table
State: IN
Produced: 08/14/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with name prefix	25.0	N/A		N/A		N/A	N/A	N/A
% with first name	64.0	N/A		N/A		N/A	N/A	N/A
% with middle name	49.6	N/A		N/A		N/A	N/A	N/A
% with last name	64.0	N/A		N/A		N/A	N/A	N/A
% with name suffix	1.7	N/A		N/A		N/A	N/A	N/A
% male	45.9	N/A		N/A		N/A	N/A	N/A
% female	18.1	N/A		N/A		N/A	N/A	N/A
% with credential	62.6	N/A		N/A		N/A	N/A	N/A
% with business name	36.0	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = claim file state code	80.8	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	97.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	64.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	36.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	2,652	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	33,426	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	72.8	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	54.7	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	2.2	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	1.8	N/A		N/A		N/A	N/A	N/A
% dental providers	3.1	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.2	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	2.2	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.1	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% other service providers	2.3	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.1	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	3.7	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.9	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	1.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.5	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	27.2	N/A		N/A		N/A	N/A	N/A
% agencies	5.0	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	2.1	N/A		N/A		N/A	N/A	N/A
% hospital units	0.1	N/A		N/A		N/A	N/A	N/A
% hospitals	10.3	N/A		N/A		N/A	N/A	N/A
% laboratories	0.4	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	2.3	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.8	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	5.4	N/A		N/A		N/A	N/A	N/A
% transportation services	0.8	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	21,836	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	12.8	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	73.9	N/A		N/A		N/A	N/A	N/A
% not answered	13.3	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	12,259	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	10.3	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	58.7	N/A		N/A		N/A	N/A	N/A
% not answered	31.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

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NORTH CAROLINA

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Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
IP Providers								
Number of provider IDs	426	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.7	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	79.3	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	10.8	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	94.8	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	94.8	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.0	N/A		N/A		N/A	N/A	N/A
average number of IP claims	633.6	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with IP claims	540.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	404	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	46.5	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	13.4	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	40.1	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	404	N/A		N/A		N/A	N/A	N/A
% linked via NPI	86.6	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	13.4	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.2	N/A		N/A		N/A	N/A	N/A
% with middle name	0.2	N/A		N/A		N/A	N/A	N/A
% with last name	0.2	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.2	N/A		N/A		N/A	N/A	N/A
% female	0.0	N/A		N/A		N/A	N/A	N/A
% with credential	0.2	N/A		N/A		N/A	N/A	N/A
% with business name	99.8	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = IP state code	41.6	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	99.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.2	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	99.8	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	0	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	400	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	0.3	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	0.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.3	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	99.8	N/A		N/A		N/A	N/A	N/A
% agencies	0.3	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% ambulatory health care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% hospital units	11.0	N/A		N/A		N/A	N/A	N/A
% hospitals	88.3	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.3	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.0	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.0	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	1	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	100.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	403	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	10.9	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	71.2	N/A		N/A		N/A	N/A	N/A
% not answered	17.9	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

	2006		2007		2008			
Measure	Value	Within Range	Value	Within Range	Value	Within Range	% Change 2006-2007	% Change 2007-2008
LT Providers								
Number of provider IDs	1,232	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	100.0	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.2	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	6.4	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	0.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	94.5	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	94.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.0	N/A		N/A		N/A	N/A	N/A
average number of LT claims	722.3	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with LT claims	44.7	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	1,164	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	75.4	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	13.5	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	11.1	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	1,164	N/A		N/A		N/A	N/A	N/A
% linked via NPI	86.5	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	13.5	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	0.0	N/A		N/A		N/A	N/A	N/A
% with first name	0.1	N/A		N/A		N/A	N/A	N/A
% with middle name	0.0	N/A		N/A		N/A	N/A	N/A
% with last name	0.1	N/A		N/A		N/A	N/A	N/A
% with name suffix	0.0	N/A		N/A		N/A	N/A	N/A
% male	0.0	N/A		N/A		N/A	N/A	N/A
% female	0.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 LT MAX Provider Characteristics Validation Table
State: NC
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with credential	0.0	N/A		N/A		N/A	N/A	N/A
% with business name	99.9	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = LT state code	99.7	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	95.4	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	0.1	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	99.9	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	0	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	1,111	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	0.2	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	0.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	0.0	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.0	N/A		N/A		N/A	N/A	N/A
% dental providers	0.0	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.2	N/A		N/A		N/A	N/A	N/A
% other service providers	0.0	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.0	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.0	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 LT MAX Provider Characteristics Validation Table
State: NC
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	99.8	N/A		N/A		N/A	N/A	N/A
% agencies	0.2	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% hospital units	1.3	N/A		N/A		N/A	N/A	N/A
% hospitals	1.6	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	88.8	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	7.9	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	0.0	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	1	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	100.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	0.0	N/A		N/A		N/A	N/A	N/A
% not answered	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	1,163	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	5.3	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	53.7	N/A		N/A		N/A	N/A	N/A
% not answered	41.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006 Value	2006 Within Range	2007 Value	2007 Within Range	2008 Value	2008 Within Range	% Change 2006-2007	% Change 2007-2008
OT Providers								
Number of provider IDs	28,760	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	100.0	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	95.8	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	1.2	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.3	N/A		N/A		N/A	N/A	N/A
% also a provider on RX claim	26.3	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	94.1	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	93.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.5	N/A		N/A		N/A	N/A	N/A
average number of OT claims	2,944.6	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with OT claims	337.5	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	27,058	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	62.2	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	20.2	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	17.6	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	26,882	N/A		N/A		N/A	N/A	N/A
% linked via NPI	79.6	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	20.3	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	20.1	N/A		N/A		N/A	N/A	N/A
% with first name	32.9	N/A		N/A		N/A	N/A	N/A
% with middle name	28.2	N/A		N/A		N/A	N/A	N/A
% with last name	32.9	N/A		N/A		N/A	N/A	N/A
% with name suffix	2.8	N/A		N/A		N/A	N/A	N/A
% male	22.4	N/A		N/A		N/A	N/A	N/A
% female	10.5	N/A		N/A		N/A	N/A	N/A
% with credential	31.7	N/A		N/A		N/A	N/A	N/A
% with business name	67.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 OT MAX Provider Characteristics Validation Table
State: NC
Produced: 08/14/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = OT state code	90.0	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	95.0	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	32.9	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	67.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	143	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	25,535	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	56.6	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	28.1	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	7.3	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	2.7	N/A		N/A		N/A	N/A	N/A
% dental providers	6.5	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	2.9	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.1	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.6	N/A		N/A		N/A	N/A	N/A
% other service providers	3.9	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.3	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	0.8	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.9	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	1.0	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	1.4	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.1	N/A		N/A		N/A	N/A	N/A
% nonindividuals	43.4	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

| | 2006 | | 2007 | | 2008 | | | |
Measure	Value	Within Range	Value	Within Range	Value	Within Range	% Change 2006-2007	% Change 2007-2008
% agencies	12.6	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	5.4	N/A		N/A		N/A	N/A	N/A
% hospital units	0.1	N/A		N/A		N/A	N/A	N/A
% hospitals	2.9	N/A		N/A		N/A	N/A	N/A
% laboratories	0.5	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.2	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	4.8	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	4.0	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	11.8	N/A		N/A		N/A	N/A	N/A
% transportation services	0.9	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	8,855	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	29.5	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	55.5	N/A		N/A		N/A	N/A	N/A
% not answered	14.9	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	18,027	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	7.3	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	56.2	N/A		N/A		N/A	N/A	N/A
% not answered	36.5	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
RX Providers								
Number of provider IDs	24,909	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	8.1	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	92.1	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on IP claim	0.2	N/A		N/A		N/A	N/A	N/A
% also a provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% also a provider on OT claim	30.4	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	82.5	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	82.1	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.4	N/A		N/A		N/A	N/A	N/A
average number of RX claims	942.3	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with RX claims	142.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	20,558	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	25.5	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	46.8	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	27.7	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	20,442	N/A		N/A		N/A	N/A	N/A
% linked via NPI	52.9	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	47.1	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A
% with name prefix	44.8	N/A		N/A		N/A	N/A	N/A
% with first name	84.4	N/A		N/A		N/A	N/A	N/A
% with middle name	71.4	N/A		N/A		N/A	N/A	N/A
% with last name	84.4	N/A		N/A		N/A	N/A	N/A
% with name suffix	5.7	N/A		N/A		N/A	N/A	N/A
% male	60.6	N/A		N/A		N/A	N/A	N/A
% female	23.8	N/A		N/A		N/A	N/A	N/A
% with credential	82.2	N/A		N/A		N/A	N/A	N/A
% with business name	15.6	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

	2006		2007		2008			
Measure	**Value**	**Within Range**	**Value**	**Within Range**	**Value**	**Within Range**	**% Change 2006-2007**	**% Change 2007-2008**
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = RX state code	88.6	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	96.5	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	84.4	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	15.6	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	112	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	19,730	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	90.4	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	66.3	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	2.1	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	0.2	N/A		N/A		N/A	N/A	N/A
% dental providers	9.6	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.1	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	2.9	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.0	N/A		N/A		N/A	N/A	N/A
% other service providers	4.4	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.4	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	2.5	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	1.0	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.4	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	0.5	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	9.6	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006-2008 RX MAX Provider Characteristics Validation Table
State: NC
Produced: 08/04/2010

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% agencies	0.1	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	0.6	N/A		N/A		N/A	N/A	N/A
% hospital units	0.0	N/A		N/A		N/A	N/A	N/A
% hospitals	0.4	N/A		N/A		N/A	N/A	N/A
% laboratories	0.0	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.0	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	0.0	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	0.0	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	8.4	N/A		N/A		N/A	N/A	N/A
% transportation services	0.0	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	17,255	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	13.0	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	74.0	N/A		N/A		N/A	N/A	N/A
% not answered	13.0	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	3,187	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	11.4	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	63.9	N/A		N/A		N/A	N/A	N/A
% not answered	24.7	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
All Providers								
Number of provider IDs	47,342	N/A		N/A		N/A	N/A	N/A
% billing provider on IP claim	0.9	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on IP claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on LT claim	2.6	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on LT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on OT claim	60.7	N/A		N/A		N/A	N/A	N/A
% servicing provider on OT claim	58.2	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider on OT claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider on RX claim	4.3	N/A		N/A		N/A	N/A	N/A
% prescribing provider on RX claim	48.5	N/A		N/A		N/A	N/A	N/A
% NPI billing provider on RX claim	0.0	N/A		N/A		N/A	N/A	N/A
% billing provider	64.4	N/A		N/A		N/A	N/A	N/A
% NPI billing provider	0.0	N/A		N/A		N/A	N/A	N/A
% servicing provider	58.2	N/A		N/A		N/A	N/A	N/A
% NPI servicing provider	0.0	N/A		N/A		N/A	N/A	N/A
% prescribing provider	48.5	N/A		N/A		N/A	N/A	N/A
% provider IDs with NPI	87.4	N/A		N/A		N/A	N/A	N/A
% provider IDs linked to NPPES	87.0	N/A		N/A		N/A	N/A	N/A
% provider IDs with or without NPI but linked to state provider file	0.4	N/A		N/A		N/A	N/A	N/A
average number of claims	2,309.1	N/A		N/A		N/A	N/A	N/A
average number of beneficiaries with claims	278.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPI								
Number of provider IDs with NPI	41,393	N/A		N/A		N/A	N/A	N/A
% NPI source = MSIS	45.6	N/A		N/A		N/A	N/A	N/A
% NPI source = NPPES	32.0	N/A		N/A		N/A	N/A	N/A
% NPI source = state cross-reference file	22.4	N/A		N/A		N/A	N/A	N/A
Provider IDs Linked to NPPES								
Number of provider IDs linked to NPPES	41,168	N/A		N/A		N/A	N/A	N/A
% linked via NPI	67.8	N/A		N/A		N/A	N/A	N/A
% linked via Medicaid legacy provider ID	32.2	N/A		N/A		N/A	N/A	N/A
% linked via Medicare UPIN	0.0	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% with name prefix	28.1	N/A		N/A		N/A	N/A	N/A
% with first name	51.7	N/A		N/A		N/A	N/A	N/A
% with middle name	43.6	N/A		N/A		N/A	N/A	N/A
% with last name	51.7	N/A		N/A		N/A	N/A	N/A
% with name suffix	3.7	N/A		N/A		N/A	N/A	N/A
% male	35.6	N/A		N/A		N/A	N/A	N/A
% female	16.1	N/A		N/A		N/A	N/A	N/A
% with credential	50.0	N/A		N/A		N/A	N/A	N/A
% with business name	48.3	N/A		N/A		N/A	N/A	N/A
% with address line 1	100.0	N/A		N/A		N/A	N/A	N/A
% with city	100.0	N/A		N/A		N/A	N/A	N/A
% with state	100.0	N/A		N/A		N/A	N/A	N/A
% state = claim file state code	89.4	N/A		N/A		N/A	N/A	N/A
% with zip code	100.0	N/A		N/A		N/A	N/A	N/A
% with primary taxonomy	95.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = individual	51.7	N/A		N/A		N/A	N/A	N/A
% with provider entity type = organization	48.3	N/A		N/A		N/A	N/A	N/A
Provider IDs with or without NPI but linked to state provider file								
Number of provider IDs with or without NPI linked to state provider file	191	N/A		N/A		N/A	N/A	N/A
Provider IDs with NPPES Primary Taxonomy								
Number of provider IDs with NPPES primary taxonomy	39,392	N/A		N/A		N/A	N/A	N/A
% individual or group of individuals	67.9	N/A		N/A		N/A	N/A	N/A
% allopathic and osteopathic physicians	43.0	N/A		N/A		N/A	N/A	N/A
% behavioral health and social service providers	5.4	N/A		N/A		N/A	N/A	N/A
% chiropractic providers	1.8	N/A		N/A		N/A	N/A	N/A
% dental providers	6.3	N/A		N/A		N/A	N/A	N/A
% dietary and nutritional service providers	0.0	N/A		N/A		N/A	N/A	N/A
% emergency medical service providers	0.1	N/A		N/A		N/A	N/A	N/A
% eye and vision service providers	2.4	N/A		N/A		N/A	N/A	N/A
% nursing service providers	0.1	N/A		N/A		N/A	N/A	N/A
% nursing service-related providers	0.4	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

Measure	2006		2007		2008		% Change 2006-2007	% Change 2007-2008
	Value	Within Range	Value	Within Range	Value	Within Range		
% other service providers	3.8	N/A		N/A		N/A	N/A	N/A
% pharmacy service providers	0.2	N/A		N/A		N/A	N/A	N/A
% physician assistants and advanced practice nursing providers	1.6	N/A		N/A		N/A	N/A	N/A
% podiatric medicine and surgery service providers	0.7	N/A		N/A		N/A	N/A	N/A
% respiratory, developmental, rehabilitative, and restorative service providers	0.8	N/A		N/A		N/A	N/A	N/A
% speech, language, and hearing service providers	1.1	N/A		N/A		N/A	N/A	N/A
% student health care	0.0	N/A		N/A		N/A	N/A	N/A
% technologists, technicians, and other technical service providers	0.0	N/A		N/A		N/A	N/A	N/A
% nonindividuals	32.1	N/A		N/A		N/A	N/A	N/A
% agencies	8.2	N/A		N/A		N/A	N/A	N/A
% ambulatory health care facilities	3.6	N/A		N/A		N/A	N/A	N/A
% hospital units	0.2	N/A		N/A		N/A	N/A	N/A
% hospitals	2.1	N/A		N/A		N/A	N/A	N/A
% laboratories	0.3	N/A		N/A		N/A	N/A	N/A
% managed care organizations	0.2	N/A		N/A		N/A	N/A	N/A
% nursing and custodial care facilities	5.5	N/A		N/A		N/A	N/A	N/A
% residential treatment facilities	2.8	N/A		N/A		N/A	N/A	N/A
% respite care facility	0.0	N/A		N/A		N/A	N/A	N/A
% suppliers	8.6	N/A		N/A		N/A	N/A	N/A
% transportation services	0.6	N/A		N/A		N/A	N/A	N/A
% nonmedical	0.1	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Individual								
Number of provider IDs with entity type = individual	21,269	N/A		N/A		N/A	N/A	N/A
% a sole proprietorship	17.1	N/A		N/A		N/A	N/A	N/A
% not a sole proprietorship	69.5	N/A		N/A		N/A	N/A	N/A
% not answered	13.4	N/A		N/A		N/A	N/A	N/A
Provider IDs with Entity Type = Organization								
Number of provider IDs with entity type = organization	19,899	N/A		N/A		N/A	N/A	N/A
% organization is a subpart	7.4	N/A		N/A		N/A	N/A	N/A
% organization is not a subpart	56.5	N/A		N/A		N/A	N/A	N/A
% not answered	36.1	N/A		N/A		N/A	N/A	N/A

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

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CROSS-STATE VALIDATION TABLES

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2006 IP MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
IP Providers			
Number of provider IDs	813	322	426
% billing provider on IP claim	100.0	100.0	100.0
% NPI billing provider on IP claim	0.0	0.0	0.0
% also a provider on LT claim	0.0	7.5	0.7
% also a provider on OT claim	80.7	87.6	79.3
% also a provider on RX claim	0.0	0.0	10.8
% provider IDs with NPI	66.3	94.4	94.8
% provider IDs linked to NPPES	66.3	94.4	94.8
% provider IDs with or without NPI but linked to state provider file	0.0	5.6	0.0
average number of IP claims	509.8	453.3	633.6
average number of beneficiaries with IP claims	424.7	394.6	540.0
Provider IDs with NPI			
Number of provider IDs with NPI	539	304	404
% NPI source = MSIS	97.0	69.7	46.5
% NPI source = NPPES	2.0	0.7	13.4
% NPI source = state cross-reference file	0.9	29.6	40.1
Provider IDs Linked to NPPES			
Number of provider IDs linked to NPPES	539	304	404
% linked via NPI	98.0	99.3	86.6
% linked via Medicaid legacy provider ID	2.0	0.7	13.4
% linked via Medicare UPIN	0.0	0.0	0.0
% with name prefix	0.0	0.0	0.0
% with first name	0.0	0.0	0.2
% with middle name	0.0	0.0	0.2
% with last name	0.0	0.0	0.2
% with name suffix	0.0	0.0	0.0
% male	0.0	0.0	0.2
% female	0.0	0.0	0.0
% with credential	0.0	0.0	0.2
% with business name	100.0	100.0	99.8
% with address line 1	100.0	100.0	100.0
% with city	100.0	100.0	100.0
% with state	100.0	100.0	100.0
% state = IP state code	45.1	52.3	41.6
% with zip code	100.0	100.0	100.0
% with primary taxonomy	98.7	98.7	99.0
% with provider entity type = individual	0.0	0.0	0.2
% with provider entity type = organization	100.0	100.0	99.8

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 IP MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
Provider IDs with or without NPI but linked to state provider file			
Number of provider IDs with or without NPI linked to state provider file	0	18	0
Provider IDs with NPPES Primary Taxonomy			
Number of provider IDs with NPPES primary taxonomy	532	300	400
% individual or group of individuals	0.2	1.0	0.3
% allopathic and osteopathic physicians	0.0	1.0	0.0
% behavioral health and social service providers	0.2	0.0	0.0
% chiropractic providers	0.0	0.0	0.0
% dental providers	0.0	0.0	0.0
% dietary and nutritional service providers	0.0	0.0	0.0
% emergency medical service providers	0.0	0.0	0.0
% eye and vision service providers	0.0	0.0	0.0
% nursing service providers	0.0	0.0	0.0
% nursing service-related providers	0.0	0.0	0.0
% other service providers	0.0	0.0	0.0
% pharmacy service providers	0.0	0.0	0.0
% physician assistants and advanced practice nursing providers	0.0	0.0	0.0
% podiatric medicine and surgery service providers	0.0	0.0	0.0
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	0.0	0.3
% speech, language, and hearing service providers	0.0	0.0	0.0
% student health care	0.0	0.0	0.0
% technologists, technicians, and other technical service providers	0.0	0.0	0.0
% nonindividuals	99.8	99.0	99.8
% agencies	0.0	0.0	0.3
% ambulatory health care facilities	0.6	2.3	0.0
% hospital units	0.6	7.7	11.0
% hospitals	96.4	88.0	88.3
% laboratories	0.0	0.0	0.0
% managed care organizations	0.0	0.0	0.0
% nursing and custodial care facilities	0.0	0.0	0.3
% residential treatment facilities	2.1	0.7	0.0
% respite care facility	0.0	0.0	0.0
% suppliers	0.0	0.3	0.0
% transportation services	0.2	0.0	0.0
% nonmedical	0.0	0.0	0.0
Provider IDs with Entity Type = Individual			

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 IP MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
Number of provider IDs with entity type = individual	0	0	1
% a sole proprietorship	0.0	0.0	0.0
% not a sole proprietorship	0.0	0.0	100.0
% not answered	0.0	0.0	0.0
Provider IDs with Entity Type = Organization			
Number of provider IDs with entity type = organization	539	304	403
% organization is a subpart	5.8	10.9	10.9
% organization is not a subpart	72.9	68.4	71.2
% not answered	21.3	20.7	17.9

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 LT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
LT Providers			
Number of provider IDs	817	1,040	1,232
% billing provider on LT claim	100.0	100.0	100.0
% NPI billing provider on LT claim	0.0	0.0	0.0
% also a provider on IP claim	0.0	2.3	0.2
% also a provider on OT claim	10.5	2.6	6.4
% also a provider on RX claim	0.0	0.0	0.5
% provider IDs with NPI	90.3	98.9	94.5
% provider IDs linked to NPPES	90.3	98.9	94.5
% provider IDs with or without NPI but linked to state provider file	3.1	1.1	0.0
average number of LT claims	919.5	866.7	722.3
average number of beneficiaries with LT claims	109.4	44.8	44.7
Provider IDs with NPI			
Number of provider IDs with NPI	738	1,029	1,164
% NPI source = MSIS	92.1	96.0	75.4
% NPI source = NPPES	1.8	1.1	13.5
% NPI source = state cross-reference file	6.1	2.9	11.1
Provider IDs Linked to NPPES			
Number of provider IDs linked to NPPES	738	1,029	1,164
% linked via NPI	98.2	98.9	86.5
% linked via Medicaid legacy provider ID	1.8	1.1	13.5
% linked via Medicare UPIN	0.0	0.0	0.0
% with name prefix	0.0	0.0	0.0
% with first name	0.0	0.0	0.1
% with middle name	0.0	0.0	0.0
% with last name	0.0	0.0	0.1
% with name suffix	0.0	0.0	0.0
% male	0.0	0.0	0.0
% female	0.0	0.0	0.1
% with credential	0.0	0.0	0.0
% with business name	100.0	100.0	99.9
% with address line 1	100.0	100.0	100.0
% with city	100.0	100.0	100.0
% with state	100.0	100.0	100.0
% state = LT state code	99.5	99.5	99.7

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 LT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
% with zip code	100.0	100.0	100.0
% with primary taxonomy	98.5	96.5	95.4
% with provider entity type = individual	0.0	0.0	0.1
% with provider entity type = organization	100.0	100.0	99.9
Provider IDs with or without NPI but linked to state provider file			
Number of provider IDs with or without NPI linked to state provider file	25	11	0
Provider IDs with NPPES Primary Taxonomy			
Number of provider IDs with NPPES primary taxonomy	727	993	1,111
% individual or group of individuals	0.0	0.4	0.2
% allopathic and osteopathic physicians	0.0	0.2	0.0
% behavioral health and social service providers	0.0	0.0	0.0
% chiropractic providers	0.0	0.0	0.0
% dental providers	0.0	0.0	0.0
% dietary and nutritional service providers	0.0	0.0	0.0
% emergency medical service providers	0.0	0.0	0.0
% eye and vision service providers	0.0	0.0	0.0
% nursing service providers	0.0	0.0	0.0
% nursing service-related providers	0.0	0.0	0.2
% other service providers	0.0	0.0	0.0
% pharmacy service providers	0.0	0.0	0.0
% physician assistants and advanced practice nursing providers	0.0	0.0	0.0
% podiatric medicine and surgery service providers	0.0	0.0	0.0
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	0.0	0.0
% speech, language, and hearing service providers	0.0	0.2	0.0
% student health care	0.0	0.0	0.0
% technologists, technicians, and other technical service providers	0.0	0.0	0.0
% nonindividuals	100.0	99.6	99.8
% agencies	0.6	3.9	0.2
% ambulatory health care facilities	0.0	0.1	0.0
% hospital units	0.6	0.2	1.3
% hospitals	0.7	2.1	1.6
% laboratories	0.0	0.0	0.0
% managed care organizations	0.0	0.0	0.0

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 LT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
% nursing and custodial care facilities	94.6	73.1	88.8
% residential treatment facilities	3.6	20.1	7.9
% respite care facility	0.0	0.0	0.0
% suppliers	0.0	0.0	0.0
% transportation services	0.0	0.0	0.0
% nonmedical	0.0	0.0	0.0
Provider IDs with Entity Type = Individual			
Number of provider IDs with entity type = individual	0	0	1
% a sole proprietorship	0.0	0.0	100.0
% not a sole proprietorship	0.0	0.0	0.0
% not answered	0.0	0.0	0.0
Provider IDs with Entity Type = Organization			
Number of provider IDs with entity type = organization	738	1,029	1,163
% organization is a subpart	5.8	3.2	5.3
% organization is not a subpart	59.5	43.7	53.7
% not answered	34.7	53.1	41.0

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 OT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
OT Providers			
Number of provider IDs	119,992	53,450	28,760
% billing provider on OT claim	30.5	29.8	100.0
% servicing provider on OT claim	92.5	93.7	95.8
% NPI servicing provider on OT claim	0.0	0.0	0.0
% also a provider on IP claim	0.5	0.5	1.2
% also a provider on LT claim	0.1	0.1	0.3
% also a provider on RX claim	1.1	22.2	26.3
% provider IDs with NPI	47.7	61.1	94.1
% provider IDs linked to NPPES	47.5	60.9	93.5
% provider IDs with or without NPI but linked to state provider file	2.2	4.8	0.5
average number of OT claims	824.6	978.3	2,944.6
average number of beneficiaries with OT claims	151.4	144.8	337.5
Provider IDs with NPI			
Number of provider IDs with NPI	57,208	32,682	27,058
% NPI source = MSIS	71.3	49.4	62.2
% NPI source = NPPES	26.8	18.1	20.2
% NPI source = state cross-reference file	1.9	32.5	17.6
Provider IDs Linked to NPPES			
Number of provider IDs linked to NPPES	57,035	32,574	26,882
% linked via NPI	73.1	81.8	79.6
% linked via Medicaid legacy provider ID	5.0	7.8	20.3
% linked via Medicare UPIN	21.9	10.4	0.0
% with name prefix	39.5	26.2	20.1
% with first name	79.9	67.0	32.9
% with middle name	57.7	51.9	28.2
% with last name	79.9	67.0	32.9
% with name suffix	2.6	1.8	2.8
% male	57.2	48.0	22.4
% female	22.8	19.0	10.5
% with credential	77.4	65.5	31.7
% with business name	20.1	33.0	67.1
% with address line 1	100.0	100.0	100.0
% with city	100.0	100.0	100.0
% with state	100.0	100.0	100.0
% state = OT state code	95.6	80.2	90.0
% with zip code	100.0	100.0	100.0
% with primary taxonomy	97.7	97.8	95.0
% with provider entity type = individual	79.9	67.0	32.9

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 OT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
% with provider entity type = organization	20.1	33.0	67.1
Provider IDs with or without NPI but linked to state provider file			
Number of provider IDs with or without NPI linked to state provider file	2,600	2,584	143
Provider IDs with NPPES Primary Taxonomy			
Number of provider IDs with NPPES primary taxonomy	55,707	31,946	25,535
% individual or group of individuals	87.1	76.1	56.6
% allopathic and osteopathic physicians	63.5	57.2	28.1
% behavioral health and social service providers	1.7	2.3	7.3
% chiropractic providers	1.2	1.9	2.7
% dental providers	0.8	3.3	6.5
% dietary and nutritional service providers	0.0	0.0	0.0
% emergency medical service providers	0.0	0.2	0.0
% eye and vision service providers	1.9	2.3	2.9
% nursing service providers	0.4	0.1	0.1
% nursing service-related providers	0.1	0.0	0.6
% other service providers	6.1	2.5	3.9
% pharmacy service providers	0.1	0.0	0.3
% physician assistants and advanced practice nursing providers	6.1	3.9	0.8
% podiatric medicine and surgery service providers	1.5	0.9	0.9
% respiratory, developmental, rehabilitative, and restorative service providers	1.9	1.1	1.0
% speech, language, and hearing service providers	1.9	0.5	1.4
% student health care	0.0	0.0	0.0
% technologists, technicians, and other technical service providers	0.0	0.0	0.1
% nonindividuals	12.9	23.9	43.4
% agencies	2.3	5.1	12.6
% ambulatory health care facilities	1.8	2.2	5.4
% hospital units	0.0	0.1	0.1
% hospitals	1.3	10.1	2.9
% laboratories	0.2	0.4	0.5
% managed care organizations	0.1	0.0	0.2
% nursing and custodial care facilities	0.9	0.1	4.8
% residential treatment facilities	0.1	0.2	4.0
% respite care facility	0.0	0.0	0.0
% suppliers	5.8	4.8	11.8
% transportation services	0.3	0.9	0.9
% nonmedical	0.0	0.0	0.1

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 OT MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
Provider IDs with Entity Type = Individual			
Number of provider IDs with entity type = individual	45,595	21,831	8,855
% a sole proprietorship	20.4	12.8	29.5
% not a sole proprietorship	62.9	73.9	55.5
% not answered	16.7	13.3	14.9
Provider IDs with Entity Type = Organization			
Number of provider IDs with entity type = organization	11,440	10,743	18,027
% organization is a subpart	13.9	9.9	7.3
% organization is not a subpart	64.0	60.4	56.2
% not answered	22.1	29.7	36.5

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 RX MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
RX Providers			
Number of provider IDs	5,219	23,982	24,909
% billing provider on RX claim	77.3	6.0	8.1
% prescribing provider on RX claim	22.7	94.0	92.1
% NPI billing provider on RX claim	0.0	0.0	0.0
% also a provider on IP claim	0.0	0.0	0.2
% also a provider on LT claim	0.0	0.0	0.0
% also a provider on OT claim	26.2	49.5	30.4
% provider IDs with NPI	84.0	17.3	82.5
% provider IDs linked to NPPES	83.5	17.3	82.1
% provider IDs with or without NPI but linked to state provider file	3.4	0.8	0.4
average number of RX claims	2,702.8	651.5	942.3
average number of beneficiaries with RX claims	319.8	89.1	142.0
Provider IDs with NPI			
Number of provider IDs with NPI	4,385	4,151	20,558
% NPI source = MSIS	96.8	97.5	25.5
% NPI source = NPPES	1.7	0.3	46.8
% NPI source = state cross-reference file	1.5	2.1	27.7
Provider IDs Linked to NPPES			
Number of provider IDs linked to NPPES	4,359	4,143	20,442
% linked via NPI	98.3	99.7	52.9
% linked via Medicaid legacy provider ID	1.7	0.3	47.1
% linked via Medicare UPIN	0.0	0.1	0.0
% with name prefix	9.6	0.2	44.8
% with first name	20.1	0.2	84.4
% with middle name	16.0	0.2	71.4
% with last name	20.1	0.2	84.4
% with name suffix	0.9	0.0	5.7
% male	14.8	0.1	60.6
% female	5.3	0.1	23.8
% with credential	19.8	0.2	82.2
% with business name	79.9	99.8	15.6
% with address line 1	100.0	100.0	100.0
% with city	100.0	100.0	100.0
% with state	100.0	100.0	100.0
% state = RX state code	98.7	97.2	88.6
% with zip code	100.0	100.0	100.0
% with primary taxonomy	96.7	98.3	96.5
% with provider entity type = individual	20.1	0.2	84.4

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 RX MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
% with provider entity type = organization	79.9	99.8	15.6
Provider IDs with or without NPI but linked to state provider file			
Number of provider IDs with or without NPI linked to state provider file	180	186	112
Provider IDs with NPPES Primary Taxonomy			
Number of provider IDs with NPPES primary taxonomy	4,216	4,080	19,730
% individual or group of individuals	22.2	1.9	90.4
% allopathic and osteopathic physicians	13.0	1.2	66.3
% behavioral health and social service providers	0.0	0.0	2.1
% chiropractic providers	0.0	0.0	0.2
% dental providers	0.3	0.1	9.6
% dietary and nutritional service providers	0.0	0.0	0.0
% emergency medical service providers	0.0	0.0	0.1
% eye and vision service providers	0.2	0.0	2.9
% nursing service providers	0.0	0.0	0.0
% nursing service-related providers	0.0	0.0	0.0
% other service providers	1.5	0.0	4.4
% pharmacy service providers	1.6	0.6	0.4
% physician assistants and advanced practice nursing providers	5.4	0.0	2.5
% podiatric medicine and surgery service providers	0.2	0.0	1.0
% respiratory, developmental, rehabilitative, and restorative service providers	0.0	0.0	0.4
% speech, language, and hearing service providers	0.0	0.0	0.5
% student health care	0.0	0.0	0.0
% technologists, technicians, and other technical service providers	0.0	0.0	0.0
% nonindividuals	77.8	98.1	9.6
% agencies	0.2	10.5	0.1
% ambulatory health care facilities	0.3	2.9	0.6
% hospital units	0.0	0.1	0.0
% hospitals	0.1	55.1	0.4
% laboratories	0.0	0.0	0.0
% managed care organizations	0.0	0.0	0.0
% nursing and custodial care facilities	0.0	0.0	0.0
% residential treatment facilities	0.0	0.0	0.0
% respite care facility	0.0	0.0	0.0
% suppliers	77.1	29.4	8.4
% transportation services	0.0	0.0	0.0
% nonmedical	0.0	0.0	0.0

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 RX MAX Provider Characteristics Cross State Validation Table
Last Update: 08/04/2010

Measure	FL	IN	NC
Provider IDs with Entity Type = Individual			
Number of provider IDs with entity type = individual	876	8	17,255
% a sole proprietorship	22.7	37.5	13.0
% not a sole proprietorship	60.6	25.0	74.0
% not answered	16.7	37.5	13.0
Provider IDs with Entity Type = Organization			
Number of provider IDs with entity type = organization	3,483	4,135	3,187
% organization is a subpart	28.5	14.4	11.4
% organization is not a subpart	63.0	63.1	63.9
% not answered	8.5	22.5	24.7

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 All MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
All Providers			
Number of provider IDs	124,732	66,596	47,342
% billing provider on IP claim	0.7	0.5	0.9
% NPI billing provider on IP claim	0.0	0.0	0.0
% billing provider on LT claim	0.7	1.6	2.6
% NPI billing provider on LT claim	0.0	0.0	0.0
% billing provider on OT claim	29.3	23.9	60.7
% servicing provider on OT claim	89.0	75.2	58.2
% NPI servicing provider on OT claim	0.0	0.0	0.0
% billing provider on RX claim	3.2	2.2	4.3
% prescribing provider on RX claim	1.0	33.8	48.5
% NPI billing provider on RX claim	0.0	0.0	0.0
% billing provider	32.9	26.0	64.4
% NPI billing provider	0.0	0.0	0.0
% servicing provider	89.0	75.2	58.2
% NPI servicing provider	0.0	0.0	0.0
% prescribing provider	1.0	33.8	48.5
% provider IDs with NPI	49.0	51.4	87.4
% provider IDs linked to NPPES	48.8	51.2	87.0
% provider IDs with or without NPI but linked to state provider file	2.2	4.0	0.4
average number of claims	915.7	1,035.5	2,309.1
average number of beneficiaries with claims	160.9	147.8	278.1
Provider IDs with NPI			
Number of provider IDs with NPI	61,099	34,205	41,393
% NPI source = MSIS	72.8	51.4	45.6
% NPI source = NPPES	25.2	17.4	32.0
% NPI source = state cross-reference file	2.0	31.2	22.4
Provider IDs Linked to NPPES			
Number of provider IDs linked to NPPES	60,903	34,095	41,168
% linked via NPI	74.7	82.6	67.8
% linked via Medicaid legacy provider ID	4.8	7.5	32.2
% linked via Medicare UPIN	20.5	9.9	0.0
% with name prefix	37.0	25.0	28.1
% with first name	75.0	64.0	51.7
% with middle name	54.2	49.6	43.6
% with last name	75.0	64.0	51.7
% with name suffix	2.4	1.7	3.7
% male	53.6	45.9	35.6
% female	21.4	18.1	16.1

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 All MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
% with credential	72.7	62.6	50.0
% with business name	25.0	36.0	48.3
% with address line 1	100.0	100.0	100.0
% with city	100.0	100.0	100.0
% with state	100.0	100.0	100.0
% state = claim file state code	95.8	80.8	89.4
% with zip code	100.0	100.0	100.0
% with primary taxonomy	97.6	97.7	95.7
% with provider entity type = individual	75.0	64.0	51.7
% with provider entity type = organization	25.0	36.0	48.3
Provider IDs with or without NPI but linked to state provider file			
Number of provider IDs with or without NPI linked to state provider file	2,777	2,652	191
Provider IDs with NPPES Primary Taxonomy			
Number of provider IDs with NPPES primary taxonomy	59,458	33,426	39,392
% individual or group of individuals	81.9	72.8	67.9
% allopathic and osteopathic physicians	59.6	54.7	43.0
% behavioral health and social service providers	1.6	2.2	5.4
% chiropractic providers	1.1	1.8	1.8
% dental providers	0.7	3.1	6.3
% dietary and nutritional service providers	0.0	0.0	0.0
% emergency medical service providers	0.0	0.2	0.1
% eye and vision service providers	1.8	2.2	2.4
% nursing service providers	0.4	0.1	0.1
% nursing service-related providers	0.1	0.0	0.4
% other service providers	5.7	2.3	3.8
% pharmacy service providers	0.2	0.1	0.2
% physician assistants and advanced practice nursing providers	5.8	3.7	1.6
% podiatric medicine and surgery service providers	1.4	0.9	0.7
% respiratory, developmental, rehabilitative, and restorative service providers	1.8	1.0	0.8
% speech, language, and hearing service providers	1.8	0.5	1.1
% student health care	0.0	0.0	0.0
% technologists, technicians, and other technical service providers	0.0	0.0	0.0
% nonindividuals	18.1	27.2	32.1
% agencies	2.1	5.0	8.2
% ambulatory health care facilities	1.7	2.1	3.6
% hospital units	0.0	0.1	0.2

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

2006 All MAX Provider Characteristics Cross State Validation Table
Last Update: 08/14/2010

Measure	FL	IN	NC
% hospitals	1.4	10.3	2.1
% laboratories	0.2	0.4	0.3
% managed care organizations	0.1	0.0	0.2
% nursing and custodial care facilities	1.9	2.3	5.5
% residential treatment facilities	0.2	0.8	2.8
% respite care facility	0.0	0.0	0.0
% suppliers	10.2	5.4	8.6
% transportation services	0.3	0.8	0.6
% nonmedical	0.0	0.0	0.1
Provider IDs with Entity Type = Individual			
Number of provider IDs with entity type = individual	45,687	21,836	21,269
% a sole proprietorship	20.5	12.8	17.1
% not a sole proprietorship	62.9	73.9	69.5
% not answered	16.7	13.3	13.4
Provider IDs with Entity Type = Organization			
Number of provider IDs with entity type = organization	15,216	12,259	19,899
% organization is a subpart	15.7	10.3	7.4
% organization is not a subpart	64.2	58.7	56.5
% not answered	20.1	31.0	36.1

Source: Medicaid Analytic eXtract (MAX) Provider Characteristics File, 2006.

APPENDIX B

MAXPC FILE ANOMALY TABLES

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2006 MAX Provider Characteristics (MAXPC) Anomalies Report

General Issues	Number of Provider IDs				Percent with NPI				Percent Linked to NPPES				Percent linked to State Provider file				Average Number of Claims				Average Number of Beneficiaries with Claims			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Alabama																								
Alaska																								
Arizona																								
Arkansas																								
California																								
Colorado																								
Connecticut																								
Delaware																								
District of Columbia																								
Florida	813	817	119,992	5,219	66.3	90.3	47.7	84.0	66.3	90.3	47.5	83.5	0.0	3.1	2.2	3.4	509.8	919.5	824.6	2,702.8	424.7	109.4	151.4	319.8
Georgia																								
Hawaii																								
Idaho																								
Illinois																								
Indiana	322	1,040	53,450	23,982	94.4	98.9	61.1	17.3	94.4	98.9	60.9	17.3	5.6	1.1	4.8	0.8	453.3	866.7	978.3	651.5	394.6	44.8	144.8	89.1
Iowa																								
Kansas																								
Kentucky																								
Louisiana																								
Maine																								
Maryland																								
Massachusetts																								
Michigan																								
Minnesota																								
Mississippi																								
Missouri																								
Montana																								
Nebraska																								
Nevada																								
New Hampshire																								
New Jersey																								
New Mexico																								
New York																								
North Carolina	426	1,232	28,760	24,909	94.8	94.5	94.1	82.5	94.8	94.5	93.5	82.1	0.0	0.0	0.5	0.4	633.6	722.3	2,944.6	942.3	540.0	44.7	337.5	142.0
North Dakota																								
Ohio																								
Oklahoma																								
Oregon																								
Pennsylvania																								
Rhode Island																								
South Carolina																								
South Dakota																								
Tennessee																								
Texas																								
Utah																								
Vermont																								
Virginia																								
Washington																								
West Virginia																								
Wisconsin																								
Wyoming																								
Expected Range	N/A	N/A	N/A	N/A	> 90	> 90	> 50	> 50	> 90	> 90	> 90	> 90	> 3	> 3	> 3	> 3	< 1000	< 1000	< 1000	< 1000				

State	Total Number of Provider IDs in MAX	Pct of Billing Provider on IP claim	Pct of NPI Billing Provider on IP claim	Pct of Billing Provider on LT claim	Pct of NPI Billing Provider on LT claim	Pct of Billing Provider on OT claim	Pct of Servicing Provider on OT claim	Pct of NPI Servicing Provider on OT claim	Pct of Billing Provider on RX claim	Pct of Prescribing Provider on RX claim	Pct of NPI Billing Provider on IP claim	Pct of Billing Provider	Pct NPI Billing Provider	Pct Servicing Provider	Pct NPI Servicing Provider	Pct Prescribing Provider
Alabama																
Alaska																
Arizona																
Arkansas																
California																
Colorado																
Connecticut																
Delaware																
District of Columbia																
Florida	124,732	0.7	0.0	0.7	0.0	29.3	89.0	0.0	3.2	1.0	0.0	32.9	0.0	89.0	0.0	1.0
Georgia																
Hawaii																
Idaho																
Illinois																
Indiana	66,596	0.5	0.0	1.6	0.0	23.9	75.2	0.0	2.2	33.8	0.0	26.0	0.0	75.2	0.0	33.8
Iowa																
Kansas																
Kentucky																
Louisiana																
Maine																
Maryland																
Massachusetts																
Michigan																
Minnesota																
Mississippi																
Missouri																
Montana																
Nebraska																
Nevada																
New Hampshire																
New Jersey																
New Mexico																
New York																
North Carolina	47,342	0.9	0.0	2.6	0.0	60.7	58.2	0.0	4.3	48.5	0.0	64.4	0.0	58.2	0.0	48.5
North Dakota																
Ohio																
Oklahoma																
Oregon																
Pennsylvania																
Rhode Island																
South Carolina																
South Dakota																
Tennessee																

State	Total Number of Provider IDs in MAX	Pct of Billing Provider on IP claim	Pct of NPI Billing Provider on IP claim	Pct of Billing Provider on LT claim	Pct of NPI Billing Provider on LT claim	Pct of Billing Provider on OT claim	Pct of Servicing Provider on OT claim	Pct of NPI Servicing Provider on OT claim	Pct of Billing Provider on RX claim	Pct of Prescribing Provider on RX claim	Pct of NPI Billing Provider on IP claim	Pct of Billing Provider	Pct NPI Billing Provider	Pct Servicing Provider	Pct NPI Servicing Provider	Pct Prescribing Provider
Texas																
Utah																
Vermont																
Virginia																
Washington																
West Virginia																
Wisconsin																
Wyoming																
Expected Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

NPI-Related Issues	Number of Provider IDs with NPIs				Percent NPI Source=MSIS			
State	**IP**	**LT**	**OT**	**RX**	**IP**	**LT**	**OT**	**RX**
Alabama								
Alaska								
Arizona								
Arkansas								
California								
Colorado								
Connecticut								
Delaware								
District of Columbia								
Florida	539	738	57,208	4,385	97.0	92.1	71.3	96.8
Georgia								
Hawaii								
Idaho								
Illinois								
Indiana	304	1,029	32,682	4,151	69.7	96.0	49.4	97.5
Iowa								
Kansas								
Kentucky								
Louisiana								
Maine								
Maryland								
Massachusetts								
Michigan								
Minnesota								
Mississippi								
Missouri								
Montana								
Nebraska								
Nevada								
New Hampshire								
New Jersey								
New Mexico								
New York								
North Carolina	404	1,164	27,058	20,558	46.5	75.4	62.2	25.5
North Dakota								
Ohio								
Oklahoma								
Oregon								
Pennsylvania								
Rhode Island								

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

NPI-Related Issues	Number of Provider IDs with NPIs				Percent NPI Source=MSIS			
State	IP	LT	OT	RX	IP	LT	OT	RX
South Carolina								
South Dakota								
Tennessee								
Texas								
Utah								
Vermont								
Virginia								
Washington								
West Virginia								
Wisconsin								
Wyoming								
Expected Range	N/A	N/A	N/A	N/A	> 90	> 90	> 90	> 90

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

NPPES-Linkage Issues	Number of Provider IDs Linked to NPPES				Percent Linked to NPPES Via NPI				Percent Provider Is In-State				Percent with Primary Taxonomy				Percent Provider Entity Type=Individual			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Alabama																				
Alaska																				
Arizona																				
Arkansas																				
California																				
Colorado																				
Connecticut																				
Delaware																				
District of Columbia																				
Florida	539	738	57,035	4,359	98.0	98.2	73.1	98.3	45.1	99.5	95.6	98.7	98.7	98.5	97.7	96.7	0.0	0.0	74.0	20.1
Georgia																				
Hawaii																				
Idaho																				
Illinois																				
Indiana	304	1,029	32,574	4,143	99.3	98.9	81.8	99.7	52.3	99.5	80.2	97.2	98.7	96.5	97.8	98.3	0.0	0.0	67.0	0.2
Iowa																				
Kansas																				
Kentucky																				
Louisiana																				
Maine																				
Maryland																				
Massachusetts																				
Michigan																				
Minnesota																				
Mississippi																				
Missouri																				
Montana																				
Nebraska																				
Nevada																				
New Hampshire																				
New Jersey																				
New Mexico																				
New York																				
North Carolina	404	1,164	26,882	20,442	86.6	86.5	79.6	52.9	41.6	99.7	90.0	88.6	99.0	95.4	95.0	96.5	0.2	0.1	32.9	84.4
North Dakota																				
Ohio																				
Oklahoma																				
Oregon																				
Pennsylvania																				
Rhode Island																				
South Carolina																				
South Dakota																				
Tennessee																				
Texas																				
Utah																				
Vermont																				
Virginia																				
Washington																				
West Virginia																				
Wisconsin																				
Wyoming																				
Expected Range	N/A	N/A	N/A	N/A	> 90	> 90	> 90	> 90	> 50	> 90	> 90	> 90	> 90	> 90	> 90	> 90	< 10	< 10	> 50	< 10

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

State Provider File Linkage Issues	Number of Provider IDs Linked to State Provider File			
State	IP	LT	OT	RX
Alabama				
Alaska				
Arizona				
Arkansas				
California				
Colorado				
Connecticut				
Delaware				
District of Columbia				
Florida	0	25	2,600	180
Georgia				
Hawaii				
Idaho				
Illinois				
Indiana	18	11	2,584	186
Iowa				
Kansas				
Kentucky				
Louisiana				
Maine				
Maryland				
Massachusetts				
Michigan				
Minnesota				
Mississippi				
Missouri				
Montana				
Nebraska				
Nevada				
New Hampshire				
New Jersey				
New Mexico				
New York				
North Carolina	0	0	143	112
North Dakota				
Ohio				
Oklahoma				
Oregon				
Pennsylvania				

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

State Provider File Linkage Issues	Number of Provider IDs Linked to State Provider File			
State	**IP**	**LT**	**OT**	**RX**
Rhode Island				
South Carolina				
South Dakota				
Tennessee				
Texas				
Utah				
Vermont				
Virginia				
Washington				
West Virginia				
Wisconsin				
Wyoming				
Expected Range	N/A	N/A	N/A	N/A

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

Provider Taxonomy Issues	Number of Provider IDs with Primary Taxonomy				Percent Individual or Group of Individuals				Percent Nonindividuals			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Alabama												
Alaska												
Arizona												
Arkansas												
California												
Colorado												
Connecticut												
Delaware												
District of Columbia												
Florida	532	727	55,707	4,216	0.2	0.0	87.1	22.2	99.8	100.0	12.9	77.8
Georgia												
Hawaii												
Idaho												
Illinois												
Indiana	300	993	31,946	4,080	1.0	0.4	76.1	1.9	99.0	99.6	23.9	98.1
Iowa												
Kansas												
Kentucky												
Louisiana												
Maine												
Maryland												
Massachusetts												
Michigan												
Minnesota												
Mississippi												
Missouri												
Montana												
Nebraska												
Nevada												
New Hampshire												
New Jersey												
New Mexico												
New York												
North Carolina	400	1,111	25,535	19,730	0.3	0.2	56.6	90.4	99.8	99.8	43.4	9.6
North Dakota												
Ohio												
Oklahoma												

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

Provider Taxonomy Issues	Number of Provider IDs with Primary Taxonomy				Percent Individual or Group of Individuals				Percent Nonindividuals			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Oregon												
Pennsylvania												
Rhode Island												
South Carolina												
South Dakota												
Tennessee												
Texas												
Utah												
Vermont												
Virginia												
Washington												
West Virginia												
Wisconsin												
Wyoming												
Expected Range	N/A	N/A	N/A	N/A	< 5	< 5	> 75	< 5	> 95	> 95	< 25	> 95

Provider Entity Issues	Number of Provider IDs with Entity Type=Individual				Percent Sole Proprietorships				Number of Provider IDs with Entity Type=Organization				Percent Subpart			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Alabama																
Alaska																
Arizona																
Arkansas																
California																
Colorado																
Connecticut																
Delaware																
District of Columbia																
Florida	0	0	45,595	876	0.0	0.0	20.4	22.7	539	738	11,440	3,483	5.8	5.8	13.9	28.5
Georgia																
Hawaii																
Idaho																
Illinois																
Indiana	0	0	21,831	8	0.0	0.0	12.8	37.5	304	1,029	10,743	4,135	10.9	3.2	9.9	14.4
Iowa																
Kansas																
Kentucky																
Louisiana																
Maine																
Maryland																
Massachusetts																
Michigan																
Minnesota																
Mississippi																
Missouri																
Montana																
Nebraska																
Nevada																
New Hampshire																
New Jersey																
New Mexico																
New York																
North Carolina	1	1	8,855	17,255	0.0	100.0	29.5	13.0	403	1,163	18,027	3,187	10.9	5.3	7.3	11.4
North Dakota																
Ohio																
Oklahoma																
Oregon																
Pennsylvania																

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

Provider Entity Issues	Number of Provider IDs with Entity Type=Individual				Percent Sole Proprietorships				Number of Provider IDs with Entity Type=Organization				Percent Subpart			
State	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX	IP	LT	OT	RX
Rhode Island																
South Carolina																
South Dakota																
Tennessee																
Texas																
Utah																
Vermont																
Virginia																
Washington																
West Virginia																
Wisconsin																
Wyoming																
Expected Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2006 MAX Provider Characteristics (MAXPC) Anomalies Report

State

	IP	LT	OT	RX	IP	LT	OT	RX
Alabama								
Alaska								
Arizona								
Arkansas								
California								
Colorado								
Connecticut								
Delaware								
District of Columbia								
Florida								
Georgia								
Hawaii								
Idaho								
Illinois								
Indiana								
Iowa								
Kansas								
Kentucky								
Louisiana								
Maine								
Maryland								
Massachusetts								
Michigan								
Minnesota								
Mississippi								
Missouri								
Montana								
Nebraska								
Nevada								
New Hampshire								
New Jersey								
New Mexico								
New York								
North Carolina								
North Dakota								
Ohio								
Oklahoma								
Oregon								
Pennsylvania								
Rhode Island								
South Carolina								
South Dakota								
Tennessee								
Texas								
Utah								
Vermont								
Virginia								
Washington								
West Virginia								
Wisconsin								
Wyoming								
Expected Range								

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