

The Institute for Child Health Policy at the University of Florida

# Provider Directory Data Quality

Key Issues and Recommendations for  
Best Practices

The External Quality Review Organization (EQRO) for Texas  
Medicaid Managed Care and CHIP

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## Acronyms

<b>ADS</b>	Authoritative Data Source
<b>API</b>	Application Programming Interface
<b>CADS</b>	Center for Analytics and Decision Support
<b>CAQH®</b>	Council for Affordable Quality Healthcare
<b>CHIP</b>	Children’s Health Insurance Program
<b>CMS</b>	Centers for Medicare and Medicaid Services
<b>COMAR</b>	Code of Maryland Regulations
<b>DPV®</b>	Delivery Point Validation
<b>EB</b>	Enrollment Broker
<b>EMDM</b>	Enterprise Master Data Management
<b>EQRO</b>	External Quality Review Organization
<b>HHSC</b>	Health and Human Services
<b>ICHP</b>	Institute for Child Health Policy
<b>JIP</b>	Joint Interface Plan
<b>MAO</b>	Medicare Advantage Organizations
<b>MCO</b>	Managed Care Organization
<b>MDMS</b>	Master Data Management System
<b>MPF</b>	Master Provider File
<b>MMC</b>	Medicaid Managed Care
<b>MMP</b>	Medicaid-Medicare Plan
<b>NCoA</b>	National Change of Address
<b>NPI</b>	National Provider Identifier
<b>NUCC</b>	National Uniform Claim Committee
<b>OPL</b>	Online Provider Lookup
<b>PCP</b>	Primary Care Provider
<b>PMES</b>	Provider Management and Enrollment System
<b>QHP</b>	Qualified Health Plans
<b>SB</b>	Senate Bill
<b>TAC</b>	Texas Administrative Code
<b>TMHP</b>	Texas Medicaid and Healthcare Partnership
<b>TPI</b>	Texas Provider Identifier
<b>UMCM</b>	Uniform Managed Care Manual
<b>USPS</b>	United States Postal Service
<b>V21</b>	Vision 21 Data Warehouse

## Executive Summary

### Introduction

Managing the quality of provider directory information is a well-documented challenge to ensuring access to health care services. The Centers for Medicare and Medicaid Services (CMS) published findings from an audit of Medicare Advantage plan directories that indicated more than half of the provider locations listed in the directories had at least one inaccuracy, including: inconsistencies in provider practice addresses, contact numbers, in-/out-of-network designations, and whether the providers were accepting new patients.<sup>a</sup>

Maintaining the consistency and completeness of provider records is a priority for the Texas Health and Human Services Commission (HHSC) and the External Quality Review Organization (EQRO) because they are used to calculate travel time and distance metrics, and they provide important source data for the Appointment Availability study, all of which help HHSC ensure network adequacy for members of Medicaid and the Children’s Health Insurance Program (CHIP).

This study describes the current provider directory information system, outlines key challenges associated with ensuring the quality of existing provider directory data, and makes recommendations for best practices for managing provider data quality based on the analysis of 2018 provider directory information.

### Specific Aims

1. Assessing the variation in provider directory information by examining the differences in provider file attributes (address, phone number, specialty, as well as missing or incomplete attributes) among multiple sources of provider network data:
  - a. the Master Provider file (MPF), a Texas Medicaid and Healthcare Partnership (TMHP) data warehouse-derived pool of provider records,
  - b. the TMHP member-facing directory or “online provider lookup” (OPL) on the TMHP website,
  - c. the provider reconcile files, a MAXIMUS data warehouse-derived pool of provider records, and
  - d. the managed care organization (MCO) member-facing provider directories.
2. Developing a set of recommendations for improving the validity and completeness of the critical elements required for MCO member-facing provider directory files.

### Methods

The EQRO designed the following data collection methods to help meet the specific aims listed above:

#### AIM 1: Assessing Variation in Provider Directory Records

The EQRO selected sample records from: (1) the master provider file (MPF) maintained by TMHP; (2) the provider reconcile files maintained by MAXIMUS the enrollment broker (EB), (3) MCO electronic member-facing directories, (4) the TMHP OPL, and (5) records from several of the MCO online provider search engines.

<sup>a</sup> [AMA/LexisNexis® Risk Solutions Brief on Physician Directory Quality](https://www.ama-assn.org/sites/default/files/media-browser/public/about-ama/pr-statements/vhccp-infograph.pdf) (2018):  
<https://www.ama-assn.org/sites/default/files/media-browser/public/about-ama/pr-statements/vhccp-infograph.pdf>

The MPF records, provider reconcile files (the P84 PCP Reconcile files and P88 Specialist Reconcile files maintained by the EB), and member-facing directories represent a diversity of provider types, across a number of Medicaid programs as well as a range of medical and dental organizations. The goal of this sampling strategy was to provide a broad overview of the provider directory information landscape. The EQRO used these record samples to examine three domains of provider directory information:

#### *Consistency and completeness of data elements*

Complete and reliable records are an important component of an effective and efficient provider information system. The EQRO assessed the completeness of data elements by identifying the number of null attributes in several key fields – the National Provider Identifier (NPI), ZIP Code, and phone number.

#### *Record linkage rates across multiple sources of provider information*

Record linkage also needs to occur before attribute comparisons between key fields in different data files can be made. The EQRO assessed record linkage by matching unstandardized and standardized provider records from different record sources. Three fields from the provider’s physical address were compared: address, city, and ZIP Code.

A basic level of standardization was applied to the records for the matching process:

1. Address and city fields were changed to all capital letters
2. The city field was truncated to 12 characters
3. The ZIP Code was limited to 5-digits
4. Commas and periods were removed from the address and city fields
5. Inconsistencies in address attributes such as street were replaced with a consistent standard attribute

The goal of the standardization process was to make the address information as consistent as possible across data sources so text matching could be used to link records. The standardized comparisons only used the first 12 characters of the city because the MPF truncates the city field. ZIP Codes were limited to 5-digits to ensure consistency across all records. Record matching rates are reported as the number of unique records from each source.

#### *Accuracy of directory information*

Even the most well-connected and reliable provider information system will fail if the information being transmitted between stakeholders is inaccurate. To evaluate the accuracy of directory information, the EQRO ran all complete address information for a sample of providers from the MCO electronic member-facing plan directories and the reconcile files against United States Postal Service (USPS) information for delivery point verification (DPV) and National Change of Address (NCoA) data. DPV is the process of verifying that mail can be sent to that address. Address accuracy, in this case, refers to whether the address is a valid mailing address according to the USPS. It does not confirm whether it is the correct address for a provider.

#### **AIM 2: Identifying the Cause of Inconsistencies in Provider Information across Record Sources**

The EQRO held meetings and phone calls with key information stakeholders at HHSC, reviewed federal and state policy for guidelines on the quality of provider directory information, and systematically examined scientific and trade literature to identify best practices for improving provider data quality.

## Findings

HHSC has taken several important steps to improve the quality of provider directory information. For example, they are implementing robust MCO validation requirements and conducting an analysis of critical processes that impact directory accuracy. Furthermore, HHSC continues to streamline the provider enrollment process by developing a new Provider Management and Enrollment System (PMES) for centralizing all provider enrollment and management reporting processes. Once implemented, the new PMES will consolidate provider enrollment functions housed in various HHSC systems, consolidate multiple paper enrollment applications into a single online application, and deliver a centralized provider repository that aligns with ongoing data governance activities.

Despite these important advances, HHSC still needs to address several interconnected issues which contribute to the problem of provider directory data quality. Some of these issues relate to process, such as inconsistent validation of provider data; and others relate to policy, such as decentralized data governance. The EQRO observed the following issues affecting the accuracy of provider directory information.

### *Data standards, accuracy, and consistency*

- The misalignment of provider information across data sources and the low record linkage rates are largely the result of poorly defined data standards.
- There is no specific contract standard for the accuracy of provider directory information, and the MCOs use very different approaches for validating directory information.
- The lack of standardized data elements limits the effectiveness of machine-reading approaches for validating provider information and creates a significant administrative burden for HHSC, the health plans, and providers.
- There is no established uniform approach across HHSC, MAXIMUS, TMHP, and the health plans for validating provider information.
- Inconsistencies in record attributes also make it difficult to capture provider location and specialty accurately, which can impact the results of quality and health outcome metrics.

### *Data governance and authority*

- Data governance responsibilities are scattered across the HHSC information landscape. Reliable mechanisms are needed to assure that updates to crucial provider information occur consistently across the system.
- There is no centralized process for monitoring and enforcing standards for data quality.
- TMHP's master provider file is cited as an authoritative data source, yet more timely information is provided through the MCO provider directory update process, which subsequently creates numerous data alignment problems. HHSC staff and the EQRO rely on MAXIMUS-validated provider files for reporting and monitoring, but the enrollment broker cannot validate contact information for providers who do not update their information with TMHP.
- The Texas Uniform Managed Care Manual (UMCM) and Texas Medicaid Provider Procedures Manual (TMPPM) require plans and providers to update provider information on a consistent and timely basis. For example, the UMCM states, "The MCO must update the Provider Directory at least monthly in accordance with 42 C.F.R. § 438.10(h)(3). The MCO must make such updates available to existing Members upon request."<sup>b</sup> The UMCM includes additional

<sup>b</sup> UMCM v.2.26 Attachment B-1 Medicaid and Managed Care Services RFP, § 8.1.5.4.1

guidelines for online directory information, “The MCO must develop and maintain procedures for systematically updating the Provider Network database which must include predictable scheduled algorithms. The MCO Online Provider Directory must be updated at least on a weekly basis to reflect the most current MCO Provider Network.”<sup>c</sup> The TMPPM guidelines for providers state, “Within 10 calendar days of occurrence, providers must report changes in address (physical location or accounting), telephone number, name, federal tax ID, and any other information that pertains to the structure of the provider’s organization (for example, performing providers).”<sup>d</sup>

- The time required to establish a new TPI for a provider with an existing billing address discourages providers from correctly updating their address information with TMHP.

## Recommendations

Accurate provider data elements are critical for objective evaluation, rate-setting activities, monitoring network adequacy, and ensuring member access to appropriate providers. Based on the findings in this report, the EQRO recommends that Texas HHSC continue to work with MCOs and providers to improve the quality and completeness of provider data and improve reporting standards.

### *Establish enforceable data accuracy standards*

- Continue to establish, monitor, and enforce data accuracy standards and define standardized data elements for provider directory information. Consider enhancing the current guidelines for required critical directory elements with a set of rules for standardizing address information (such as using USPS standards for address information).
- Establish a standard approach and timeline for monitoring whether plans follow up with inactive providers and whether the plans remove them from provider directories.
- Leverage the provider information inaccuracies collected during appointment availability studies to monitor MCO’s maintenance of accurate provider directory information.

### *Centralize authority and processes for monitoring and enforcing data quality standards*

- Centralizing processes to monitor and enforce standards for data quality and employing more data validation mechanisms to standardize the data as it is entered into the system will help improve the overall quality of provider directory information. The new PMES that HHSC is developing should help address these concerns and help establish a clear, centralized, authoritative data source for updates to provider information.

### *Reduce administrative burden with a centralized provider information portal*

- When developing the PMES, HHSC should include a centralized provider information portal where providers can update information in a single location and have the updated information sent to TMHP, MAXIMUS, and the appropriate plans.
- A centralized portal can also serve as a location for providers to re-attest their directory information on a consistent basis. A centralized portal will reduce provider administrative burden because they will not have to update their information with multiple MCOs and TMHP.

<sup>c</sup> UCMCM v.2.26 Attachment B-1 Medicaid and Managed Care Services RFP, § 8.1.5.4.2

<sup>d</sup> TMPPM, January 2019, § 1.6.2 Maintenance of Provider Information.

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### *Create a probationary flag in the enrollment system when provider changes are made*

- If necessary, the enrollment broker can flag updates to provider information as “probationary” in the system until certification of attributes like alternate location are complete. HHSC can use the probationary flag to track how frequently providers are updating their information and the average length of time for the certification process in the network adequacy dashboard.

### *Ensure that unique provider locations and specialties can be tracked*

- When shifting to an NPI-only system in the new PMES, HHSC should make sure there is a way to continue to track unique provider locations and provider types. The NPI and the Texas Provider Identifier (TPI) are used to track this information in the current system. For example, a single Texas Medicaid provider (with a single NPI) can have multiple TPIs if they have more than one billing address, or if they serve as a performing provider for multiple medical groups. HHSC needs to be able to identify unique provider locations and specialties to assess compliance with network adequacy standards and calculate other key health metrics.

### *Engage key stakeholders and end users in data management plans*

- HHSC should continue to solicit MCO and provider feedback when developing data accuracy standards and the new PMES to clarify provider-level barriers to timely directory information updates. HHSC should use provider feedback on these barriers to create strategies that incentivize provider data updates.

### *Add new dashboard indicators for monitoring and assessing provider information quality*

#### *Network File Error Reports*

- Tracking patterns in the number of rejected MCO provider network records and data errors each month can provide information on misalignment between the plan provider networks and the certified providers listed in the MPF. HHSC can also use this information to identify potential MCOs for intervention and data quality improvement.

#### *Consumer Complaints about Provider Availability*

- HHSC is undertaking a number of initiatives to use the complaint reporting system to monitor and improve the quality assurance process. Tracking the number, location, and type of consumer reports about issues with provider availability and the time to complaint resolution can provide important information on network adequacy issues as they arise. HHSC may also want to consider developing an efficient method for querying member complaint data if one does not already exist.

#### *Data Quality Scorecards*

- The HHSC master data management system employs a user interface tool ([IDQ Analyst](#)) that can be used to generate data quality reports with summaries of information about provider data (the number of invalid postal addresses, missing attributes, unmatched records etc.). This may be an additional source of potential dashboard information.

## Introduction

The healthcare industry spends more than \$2 billion annually to maintain provider data.<sup>1</sup> Despite these costs and the importance of accurate information about health care providers, the error rate in provider directories continues to be a problem for both public and private health care systems. Common provider data problems include incorrect address and phone number information, incorrect information on provider type, outdated listings of network providers, and outdated lists of providers accepting new patients. These inaccuracies in provider data create significant problems when connecting patients and doctors, licensing providers and verifying provider credentials, assessing network adequacy and the quality of care, and billing for services.

Maintaining the consistency and completeness of provider records is a priority for Texas Health and Human Services Commission (HHSC) and the external quality review organization (EQRO). Completeness and validity of electronic provider directory fields are critical for the calculation of network adequacy metrics and other healthcare quality assessments that require (1) accurate data on the health plan networks that contract with specific providers, (2) the physical location of provider offices, and (3) the taxonomy codes assigned to each provider.

This study describes the current provider directory information system used in Texas Medicaid, outlines key challenges associated with ensuring the quality of existing provider directory data, and makes recommendations for best practices for managing provider data quality based on the analysis of current provider directory information.

### The Importance of Accurate and Reliable Provider Data

Provider directory accuracy is not just a problem for Texas Medicaid. In both private and public sector health plans, lack of comprehensive, integrated provider data is a major challenge for ensuring network adequacy, maintaining accurate and reliable provider directories, and reducing the barriers to care faced by Medicaid and Children's Health Insurance Program (CHIP) members. Currently, there are no unified processes for updating provider directory information at the federal or state level. This creates a burden for state agencies and insurers, who have to collect and maintain provider data, and a struggle for providers who must contend with multiple disjointed systems for tracking and updating their directory information.

A report from America's Health Insurance Plans notes that the accuracy and completeness of provider directories is a critical issue for both health plans and consumers.<sup>2</sup> Given the breadth, diversity and fluidity of provider networks, provider contact information can quickly become out of date. With each health plan or medical group/independent practice association requesting updates on its own and each medical practice, hospital, and pharmacy working separately with Medicare Advantage plans, Medicaid plans, and private health plans, this process is time consuming and costly for health plans and providers alike.

While accurate provider information is a shared responsibility of both providers and health plans, the health plans currently bear contractual responsibility for the accuracy of these directories. However, validation of directory information does create an administrative burden for providers. Many providers are subject to redundant and conflicting requests for data, even from separate departments within the same organization. These requests may be in different formats, on different schedules, and with different methods. For example, a 2013 study of 36,340 physicians contracted with managed care organizations in the United States between 1996 and 2005 estimated the average provider practice holds 12 contracts with health plans and must maintain 140 data elements for each contract.<sup>3</sup> Based on this estimate, a six-provider practice in the study would need to manage more than 10,000 data points, creating a significant administrative burden when providers and health plans need to update or validate this information. This estimate likely underestimates the current amount of information that provider offices need to maintain in 2018. Furthermore, while the demand for real-time provider data has increased rapidly, efficient new procedures, tools and business processes to

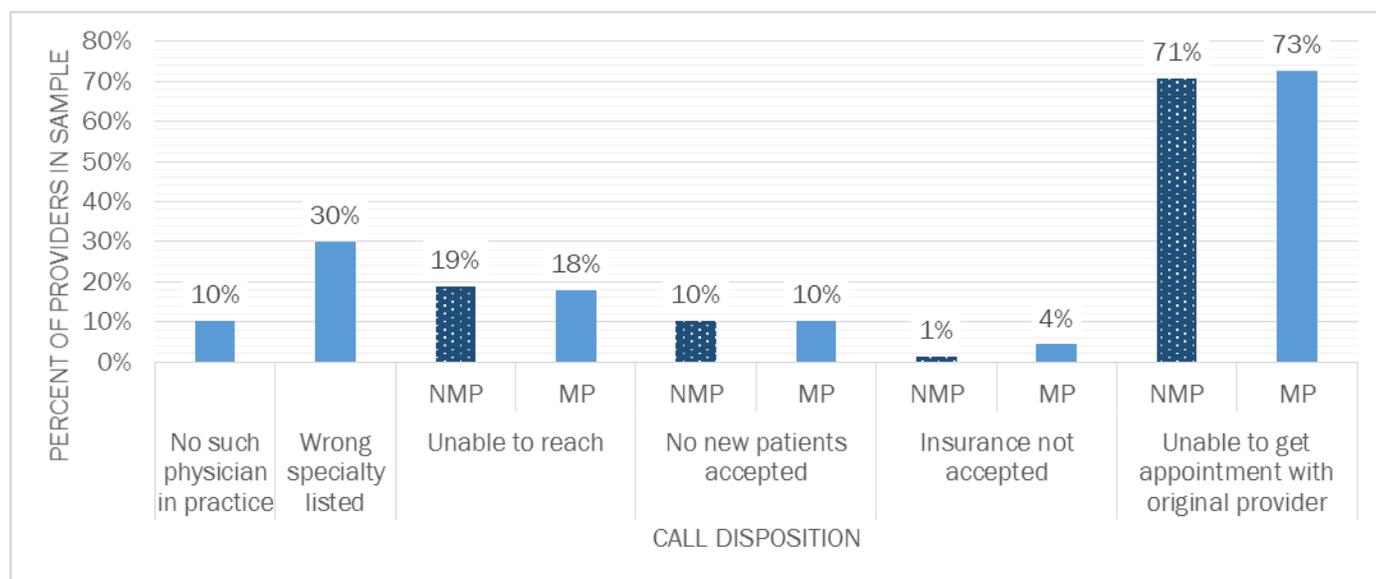
support this demand have not emerged as quickly. Therefore, short of contract nonrenewal, there is relatively little incentive for providers to keep their data up to date.

### The Scope of the Provider Directory Data Problem

In addition to the rising costs that payers face due to poor data management of provider lists, there is a significant burden on patients. A survey conducted by Lexus Nexus and the American Medical Association found that more than half of US physicians (52 percent) say they encounter patients every month with health insurance coverage issues due to inaccurate directories of in-network physicians.<sup>1</sup>

A 2016 study in the journal *Health Affairs* illustrates the problem faced by consumers. Researchers conducted a 'secret shopper' survey of 743 primary care providers from five of California's 19 regions for insurance marketplace pricing. The goal of the study was to understand whether network size or insurance marketplace status influenced access to care. Callers presented themselves as new patients either insured through a marketplace plan or insured through a mirrored plan that was not in the marketplace. Their findings indicated that obtaining access to primary care providers was equally challenging both inside and outside insurance marketplaces. Ten percent of the providers in the sample were no longer listed with the group or had never been in the health group at all. Fewer than 30 percent of consumers were able to schedule an appointment with the first provider they selected and information about provider networks was often inaccurate.<sup>4</sup> **Figure 1** shows the distribution of call dispositions for providers in the California study.

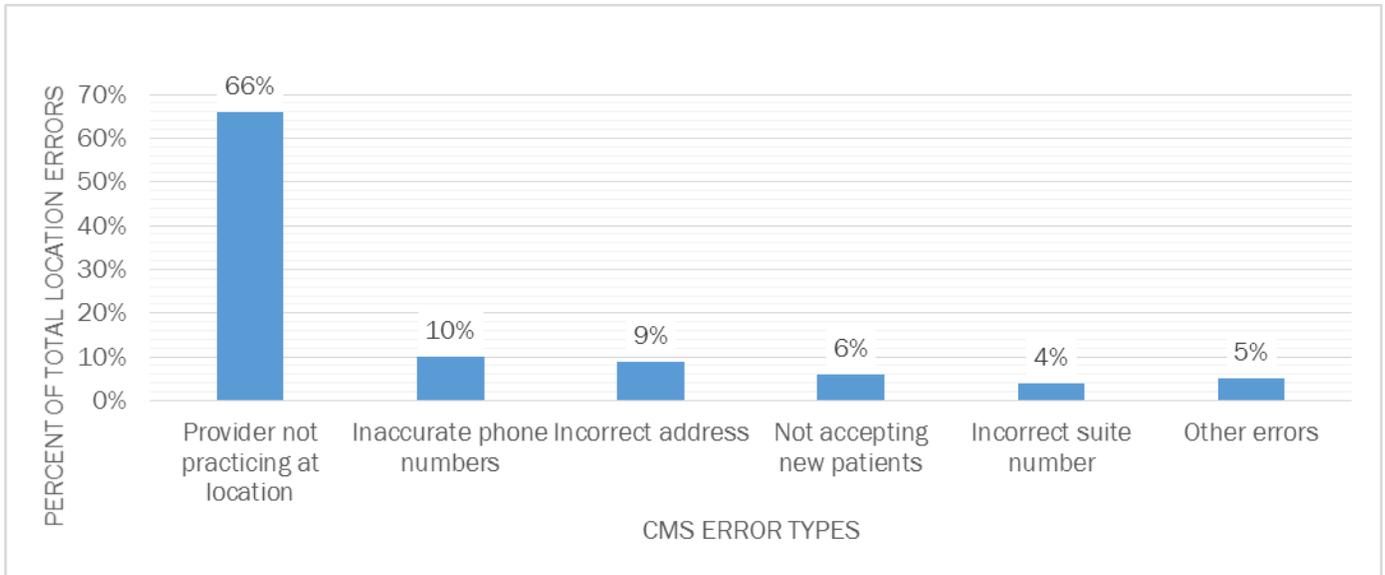
Figure 1. Appointment Availability for Market and Non-market Insurance Providers in California, 2015



**NMP:** non-Marketplace insurance, **MP:** Marketplace insurance. (Source: Haeder, Weimer, and Mukamel 2016)<sup>4</sup>

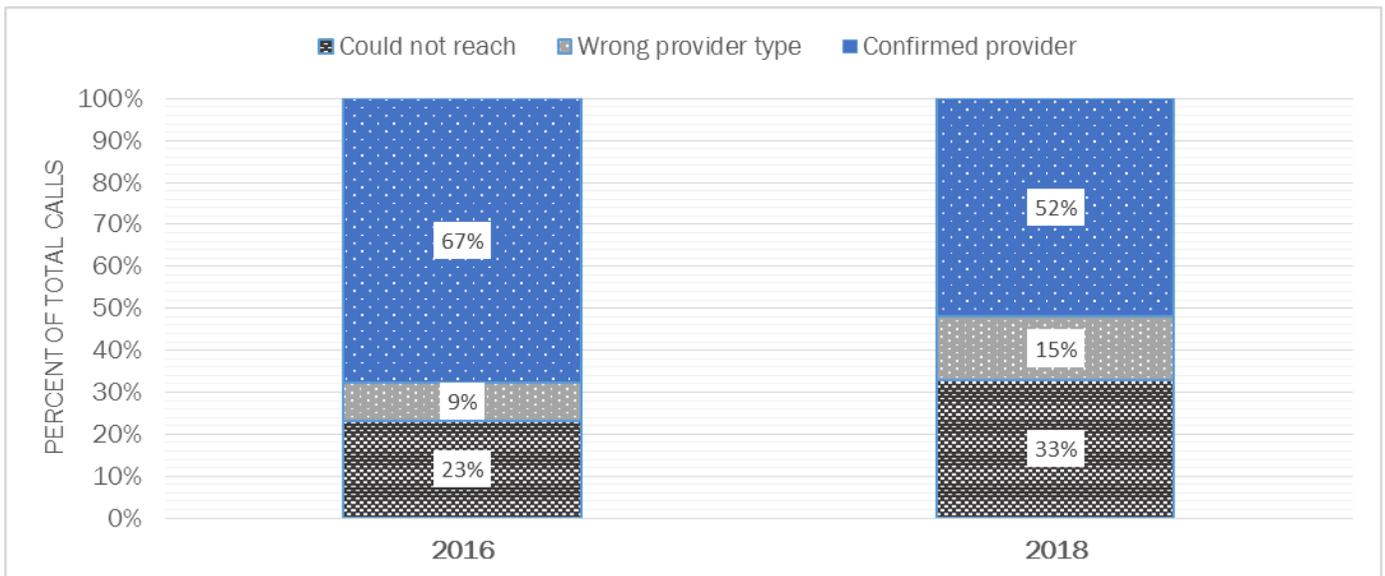
In 2016-2017, CMS completed the second round of a provider directory study that examined the accuracy of online directory information for 108 providers and their listed locations selected from the online directories of 64 Medicare Advantage Organizations (MAOs), approximately one-third of all MAOs, for 6,841 providers reviewed at 14,869 locations.<sup>5</sup> The CMS review found that 52.2 percent of the provider directory locations listed had at least one inaccuracy. CMS identified incorrect address and phone number information, outdated listings of network providers, and outdated listings of providers that were accepting new patients. Sixty-six percent of location inaccuracies were because the provider no longer practiced at that location. **Figure 2** shows the frequency of different types of provider directory information errors associated with location inaccuracies from the CMS study.

Figure 2. Breakdown of CMS Provider Directory Errors



The findings from these studies echo the results of studies by the EQRO that evaluate Texas MCO provider compliance with appointment wait-time standards following Section 8.1.3 of the Texas Uniform Managed Care Contract (UMCC).<sup>6</sup> The EQRO appointment availability studies use a “secret shopper” approach where EQRO staff members pose as new Texas Medicaid enrollees and caregivers of new Medicaid and CHIP enrollees who are attempting to schedule an appointment with a provider. To contact providers, the callers use the information in the member-facing provider directories supplied by the MCOs. **Figure 3** shows the proportion of providers for each study that could not be reached, were the incorrect provider type for the study, and could be successfully confirmed.

Figure 3. Provider Availability in Appointment Availability Prenatal Studies (2016, 2018)



## What Drives Inaccuracies in Provider Directory Information?

Variations in the format, exchange, content, and understanding of the uses of provider data cause unnecessary costs to the healthcare system and create obstacles for patients and others who need access to reliable provider information. Multiple underlying issues contribute to the general persistence of provider information inaccuracies, including limited provider authoritative data sources (ADS), variation in requirements and standards for data, frequent data changes, and lack of consistent provider engagement. The following is an overview of the issues affecting provider information systems *in general*. Specific examples of these issues from the Texas Medicaid and CHIP provider data are presented later in the report.

### Limited Authoritative Data Sources

One issue is the limited number of authoritative data sources and authoritative aggregators for provider information. An authoritative data source is an origin point or primary source for data attributes that is trusted because it is considered reliable or accurate, or because it originates from an official publication or reference (e.g. the USPS is the official source of US mailing ZIP Codes). An authoritative aggregator is a trusted intermediary between the originating ADS and the consumer of authoritative data that compiles information from different authoritative sources. A consumer reporting agency is one example of an authoritative data aggregator.

A recent report by the Provider Data Action Alliance identified four primary factors that contribute to the overall lack of authoritative aggregators for provider data:<sup>7</sup>

1. For many data elements, no sufficiently accurate source exists for users to rely upon.
2. Primary sources also supply data elements for which they are not the authority, which creates confusion. One example of this is provider taxonomy standards. The National Uniform Claim Committee (NUCC) developed a taxonomy for provider specialties that is widely used. Despite the widely accepted authority of the NUCC taxonomy, many organizations modify this taxonomy or develop proprietary taxonomies that work well on a small scale but are not transferrable to other provider data.
3. When primary sources for select provider data elements do exist (such as NPI), few aggregators have the capacity to combine the primary sourced data elements into complete and authoritative provider data records.

### Inconsistency in Data Standards

The limited number of ADS and trusted aggregators influences the type and consistency of data standards for provider information. Inconsistencies in data standards create problems when integrating data from different systems and may encourage data users to source primary data directly rather than decipher inconsistent datasets sourced by others. In cases where there is no ADS for a data element, users may interpret data in ways that create compatibility issues when combining data or using it for comparative analyses. For example, without an authoritative source for county code definitions, a county code of “23” might be defined as Travis County for one set of users and Harris County for a different group of users. These issues occur when no ADS is designated for provider data elements, multiple ADSs are designated for the same data element (leading to potential conflicts), or the designated ADS has significant accuracy issues.

Overall, provider data inconsistencies manifest in several ways:

- There is no standardized record format for the publication and consumption of aggregated provider data across all systems. Different data sources use distinct reporting formats, and no single standard transaction type or standard application programming interface (API) for data has been widely adopted.
- The collection and maintenance of provider data elements vary across different contexts based on intended, perceived, and actual use. For example, health plans collect provider directory information in different ways and vary in the processes they use to maintain up-to-date provider information (some MCOs reach out to providers, some ask providers to re-attest their information on a regular basis etc.).

- There is significant variation in the format and content of provider data. Many data elements, such as practice location address and provider type, lack a standardized format, making it difficult to match records and detect errors. For example, systems may mark addresses that vary only by abbreviation (e.g., “ST,” “St.,” and “Street”) as different locations.
- Providers can be unaware of, or misinformed about, how their data will eventually be used, leading to conflicts downstream. For example, a provider may not understand why it is necessary to update contact information with multiple entities because they are not familiar with how the various organizations share and utilize provider information.
- The “provider location” data element creates persistent problems because there is no common understanding of how to use this data element in different cases, such as for paying claims, receiving mail, or specifying the location as the “official place of business” for patient care. In the case of provider directories, many providers report “practice or office locations” that may be accurate for billing purposes but are different from the locations at which they see patients. This causes issues for patients seeking care from in-network providers as well as for the plans managing their care.

### Regulation of Provider Directory Information

Federal and state regulators have established policies to improve the quality of provider directory information and the accessibility of provider information for health consumers. [Table 1](#) highlights some of the policy benchmarks associated with provider directory improvement.

*Table 1. Benchmark Policies for Provider Directory Improvement*

Source	Requirement	Effective Date
<i>Medicaid and CHIP Final Rule</i>	Medicaid MCOs must update electronic provider directories no later than 30 calendar days after receiving updated provider information.	July 1, 2017
<i>Medicare Advantage 2016 Advance Notice</i>	MAOs must maintain “Regular, ongoing communications / contacts (quarterly) with providers...”	Jan. 1, 2016
<i>HHS Final 2016 Letter to Insurers in Federally Facilitated Marketplaces</i>	Qualified Health Plan (QHP) issuers must update their provider directory information at least once a month. The final letter includes field-level requirements for data.	Nov. 1, 2015

California Senate Bill (SB) 137<sup>8</sup> was a catalyst for states to begin regulating provider directory data. CA SB 137 took significant steps to identify provider directory inaccuracies and protect consumers from their negative impacts, providing a model for other states in both its legislative scope and the extent of its provider directory requirements. In 2015, Georgia (SB 302)<sup>9</sup> and Maryland (Code of Maryland Regulations 10.09.66.02)<sup>10</sup> passed similar laws. In 2015, Texas independently passed regulations focused on increasing the accessibility of provider information. Those measures are discussed in more detail below.

One of the biggest challenges to the regulation of provider directory information is coordination. While many states are adopting approaches to improve provider data quality, these approaches are not well-coordinated. For example, of the 29 states and the District of Columbia that enacted rules on provider directories prior to 2015, only about half included specifications about directory update frequency.<sup>11</sup> Currently, some state provider directory rules include only directory requirements, while others are broader and include financial, accessibility, administrative and contracting requirements.

### Regulation of Provider Directory Information among Texas MCOs

Texas Department of Insurance rules require health plans in Texas to meet provider directory requirements that include monthly updates to provider directory information, and accurate information on in-network and preferred providers.<sup>12</sup>

Texas SB 760 (2015)<sup>13</sup> required MCOs to post provider network directories on their website, along with a direct telephone number and email address for members to contact if they need assistance identifying in-network providers and available services.

Starting in 2016, House Bill 1624<sup>14</sup> also required Texas insurance plans with provider networks to display an email address and toll-free phone number for reporting directory inaccuracies. Plans that received a report that specifically identified potentially inaccurate information were required to investigate the report and correct the information no later than the seventh day after receiving the report.

Both bills also directed MCOs to send a hard copy of the organization's provider network directory to members enrolled in the STAR program if requested by the member. Effective September 1, 2016, plans were no longer required to send hard-copy provider directories to members receiving STAR services unless the member specifically requested a paper directory.<sup>15</sup>

The Uniform Managed Care Manual (UMCM)<sup>17</sup> lists program-specific managed care contract requirements for provider directory information for Medicaid Managed Care (MMC), CHIP, and CHIP Perinate. The UMCM outlines critical elements that must be included in the directory and how they should be organized. [Table 2](#) provides a list of state and federal guidelines about provider directory information including a list of specific chapters on directory information in the UMCM.

*Table 2. Federal and State Provider Directory Standards for Medicaid Managed Care and CHIP*

Topic	CMS	Texas HHSC
<i>Critical Attributes of Provider Listings</i>	§ 42 CFR 438.10 h - Provider Directory Information for MCOs *	<ul style="list-style-type: none"> <li>• Ch. 3.1 §IV Critical information for helping members identify and choose a provider †</li> <li>• Ch. 3.1: Critical elements for STAR, STAR+PLUS, and STAR Kids provider directories †</li> <li>• Ch. 3.2: Critical elements for the CHIP provider directory (includes CHIP Perinate)†</li> <li>• Ch. 3.13 Critical elements for STAR Health provider directories †</li> <li>• Ch. 3.17 Critical elements for CHIP Dental directories †</li> <li>• Ch. 3.25 Critical elements for MMC Dental provider directories †</li> </ul>
<i>Maintenance of Provider Information</i>	§ 42 CFR 438.10 h – Provider Directory information for MCOs*	§ 1.6.2 Guidelines for how quickly providers need to update TMHP after a change in information ◊
<i>Accessibility of Provider Directory Information and OPL</i>	§ 42 CFR 438.10 h – Provider Directory information for MCOs*	§ 1.6.2.2 Guidelines for OPL ◊ Ch. 3.1 §V Program-specific guidelines on making directories available to members †

Source: \*CMS Code of Federal Regulations (CFR),<sup>16</sup> † HHSC UMCM,<sup>17</sup> ◊ Texas Medicaid Provider Procedures Manual<sup>18</sup>

## Overview of the Texas Medicaid and CHIP Provider Directory Information System

The process of generating and maintaining Texas Medicaid and CHIP provider information is complex and includes a number of key entities and information files. The following section briefly describes some of the key components of this system. A more in-depth discussion of how interactions between the different components of the provider information system influence the quality of directory information is located in the **Results** section.

### System Entities

*Medicaid and CHIP Providers* are the primary sources of provider directory information. TMHP enrolls and certifies providers with Medicaid, and providers are responsible for updating their information with both the MCOs and TMHP. The provider can initiate information updates via the TMHP online portal or on paper.

*MCOs* are the health and dental plans that contract and credential Medicaid and CHIP providers. MCOs must contract and credential a Medicaid-enrolled provider within 90 days of receiving a complete application. These plans also produce and update member-facing provider directories, and generate and send the primary care provider (PCP) and specialist network files to the EB.

*Texas Medicaid and Healthcare Partnership (TMHP)* is the claims administrator for the Medicaid and Medicaid Managed Care programs. TMHP licenses Medicaid providers, produces the weekly State of Texas Medicaid MPF, manages TXMedCentral, and manages the TMHP Online Provider Lookup (OPL). TMHP also enrolls providers into Medicaid and revalidates their enrollment every three to five years.

*MAXIMUS* is the EB. The EB serves as the intermediary between the MCO, recipients, and the state. The EB processes enrollment information for managed care enrollees and candidates in STAR, STAR+PLUS, STAR Health, STAR Kids, the Children's Medicaid Dental Program, Medicare-Medicaid Plan (MMP), CHIP (Medical and Dental), and CHIP Perinate. The EB maintains a list of TMHP certified providers in the PCP, Dental and Specialist networks (called a reconcile file) for each MCO.

*TXMedCentral* is a data repository managed by TMHP. TXMedCentral is where health and dental plans upload provider network files for processing and where the EB posts the error and reconciliation files. TMHP also posts the MPF to TXMedCentral on a weekly basis.

### End Users

*The External Quality Review Organization (EQRO)* uses provider directory information to monitor MCO compliance with standards for timeliness of appointments among vision, prenatal, behavioral health, and primary care providers.<sup>19</sup> The EQRO uses electronic member-facing directory files from the medical and dental plans to identify and contact providers. Accurate provider directory information is important for assessing compliance with state standards.

*Center for Analytics and Decision Support (CADS)* at HHSC pulls travel time and distance reports from the second EB provider reconciliation file on the first month of the quarter.

*Managed Care Compliance and Operations* at HHSC uses the travel time and distance reports generated by CADS and the EQRO appointment availability study reports to assign corrective action plans and assess liquidated damages for MCOs that do not meet network adequacy standards for appointment availability and travel time/distance standards.

### Provider Information Files

There are a number of files used to share and update provider directory information. This report focuses on the specific subset of files used to verify eligibility and participation in the Medicaid and CHIP provider networks and as a source of contact information for providers.

All of the provider network file types discussed in this document (e.g. plan provider network files, network error response files, and provider reconcile files) include subpopulation-specific files for PCPs, specialists, Medicare

providers, nursing facility providers, and CHIP providers. More detailed information on each of these file types can be found in the EB-726 Joint Interface Plan (JIP)<sup>20</sup> located on TXMedCentral. The File Name ID Tables for Medicaid and CHIP Plan Interfaces are included in [Table 12](#) and [Table 13](#) of the Appendix.

#### *Master Provider File (MPF)*

The MPF contains a list of all providers approved to provide Medicaid services. The EB uses the MPF to verify eligibility information for providers that the plans submit for Medicaid and CHIP certification. The EB also uses this file to verify provider information when processing the provider network files from the MCOs. TMHP produces the MPF on a weekly basis.

#### *Provider Network Files*

The provider network files are plan-based rosters of all active providers in the MCO Medicaid and CHIP provider network. Plans send these files to the EB as frequently as necessary to establish the current list of providers that are active with the health or dental plan and the parameters for enrolling recipients with active PCPs or main dentists. Plans are required to update this information once a month, but they can update it as frequently as once a day if necessary.

The EB only uses the P92 PCP Network File to assist recipients in selecting a MCO, dental plan, PCP, or main dentist during the enrollment process and for all automated plan/PCP assignments for the MCOs. The EB does not use the other four provider network files to assign members to providers or plans; these files are resources to assist Medicaid and CHIP recipients in making health plan choices and sources of information for monthly reports to the State.

#### *Network Error Response Files*

The network error response files confirm that the EB processed a plan provider network file and identify any errors or rejected records during processing. If there are rejected records, the file will show all causes for record rejection. The EB and HHSC expect MCOs to check these files to verify that the EB accepted all of the providers listed in the provider network file. If the file contains rejected providers, the plan should correct the errors and resubmit the record. The EB transmits network error response files within 24 business hours of when the MCO submits a plan provider network file and posts a “no record” file if there are no rejected records.

#### *Provider Reconcile Files*

The provider reconcile files list all the providers that the EB currently recognizes as active in the Medicaid Managed Care and CHIP provider networks. The EB stores provider information in the reconcile files in the same format as the information in the provider network files. The EB and HHSC expect the MCOs to verify that the information in the file agrees with the provider network information in their system. If there are discrepancies between the two networks, the MCO should submit a corrected provider network file to the EB as quickly as possible to ensure congruency between the MCO and the EB provider networks. The data in the reconcile files are comprised of MPF-verified provider information from the provider network files, but they are only as accurate as the information that is entered into them. If a provider does not update their information with TMHP, then they will not be recognized in the reconcile files. The P92 provider reconcile files (PCP) are produced on the 15<sup>th</sup> of every month, the P023 files (CHIP) are produced on the 16<sup>th</sup> of each month, and the P88 (Specialist) and P84 (Medicaid) files are produced on the 1<sup>st</sup> and 15<sup>th</sup>. All files are considered current as of the time that the EB produces the file.

#### **Provider Network Verification Process**

The EB verifies the information in the provider network files by comparing the fields in the network files to the provider records in the MPF and EB system.

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*Step 1: Validate the file name*

The EB will reject a provider network file that does not follow the file naming convention outlined in the JIP (file type + plan code + three-digit Julian date, e.g. P9242352). Likewise, if a record in a provider network file contains a plan ID that is not associated with the MCO based on the plan code in the file name or if the plan ID is blank, the EB will also reject the entire file.

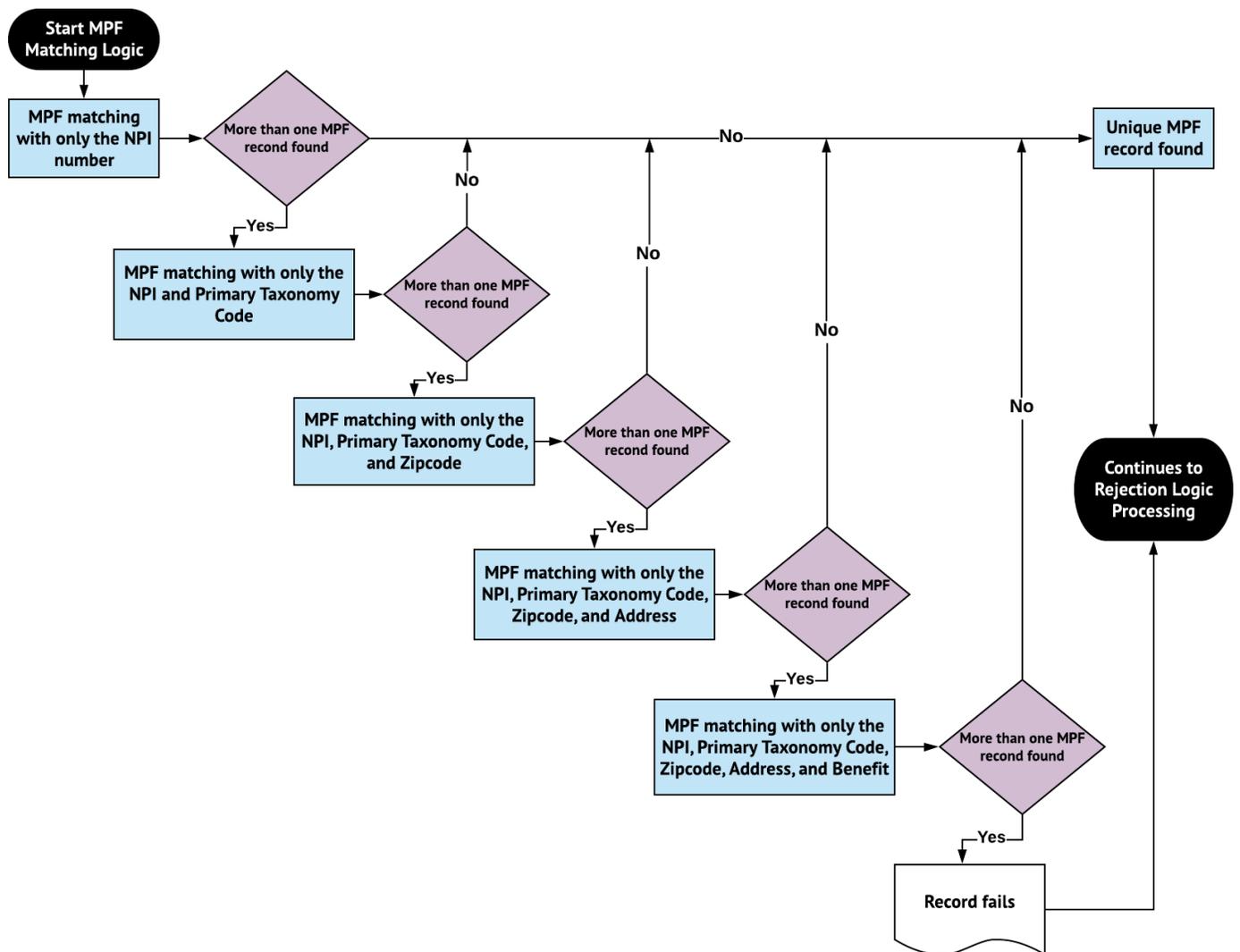
*Step 2: Verify the plan provider information against the MPF*

The EB uses the MPF as the first step to verify the information in the provider network files. Each NPI record is cross-walked with the MPF using the following fields to identify a unique TPI:

- Provider Last Name
- Provider First Name
- County Code
- Provider Type Code
- Specialty Code

If an MCO network file contains multiple provider records with a single TPI and unique addresses, the EB only processes the last record in the list for that TPI. The EB relies on basic string matching to compare the information in the MCO network files to the MPF. This process requires a 1:1 match on all characters and fields. Character mismatches and field misalignment can cause the EB to reject the record. Provider directory information that is updated with the MCO but is not updated with TMHP will cause the newer MCO record to be rejected. **Figure 4** outlines the matching logic for the verification process.

Figure 4. Diagram of MPF Matching Logic



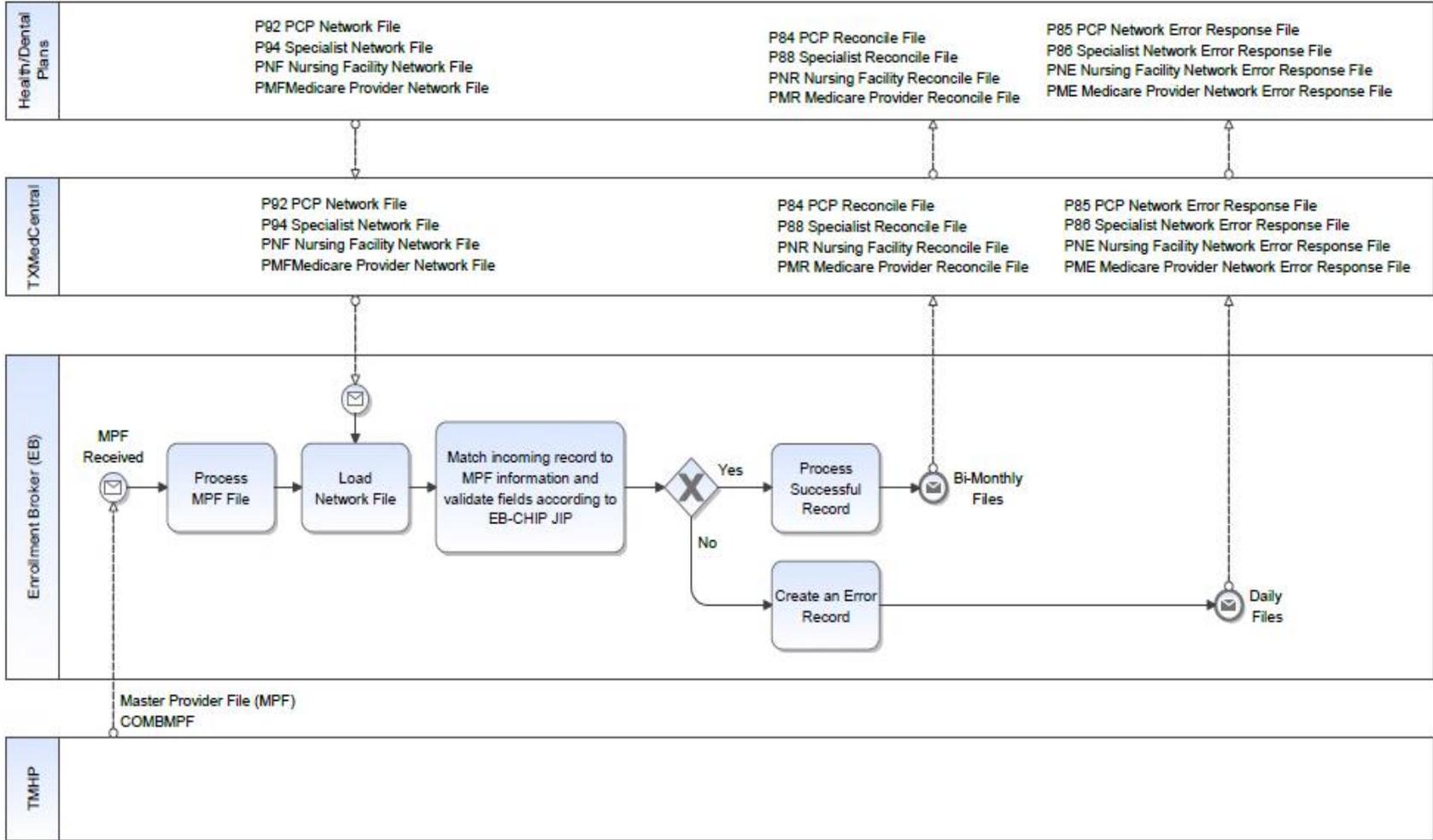
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*Step 3: Validate provider network file edits*

After the EB finds a successful NPI/TPI match on the MPF, they run the record through a series of validation rules (called field edits) to verify that the record includes the correct service restrictions for the provider type (gender served, age served, language served, and recipient acceptance code). If a record fails any of these field validation rules, the EB rejects it.

The EB system immediately reflects all provider information supplied in the provider network file that passes all three required data checks (file format, master provider file, and field validation). All updates are effective as of the date and time the file is processed. **Figure 5** illustrates the organization and flow of provider network information between the health/dental plans, TXMedCentral, the EB, and TMHP.

Figure 5. Medicaid Provider Network File Organization



**Table 3** shows the percentage of P92 records that the EB rejected for each plan between June and November 2018. The overall percentage of P92 record rejections is low; however, a few plans stand out. Children’s Medical Center and DentaQuest had the largest proportion of rejected records. Several other plans experienced sharp fluctuations in the rate of report rejection—for example, the rejection rate for Community First Health Plans jumped almost 20 percentage points between August and September.

These fluctuations in record rejection rates merit scrutiny. It is not clear whether MCOs submit the same rejected records multiple times or what drives the sharp fluctuations in rejection rates. Furthermore, it is not clear how MCOs follow up on rejected records and integrate that process into their strategies for improving provider directories. MCOs may tailor their monthly network submissions to reduce their rejection rates, which can result in an underrepresentation of inaccuracies in plan directories.

*Table 3. Rejection Rates for P92 Records (June 2018-November 2018)*

Plan	Average rate of record rejection for P92 files (2018)					
	June	July	Aug	Sept	Oct	Nov
AETNA Better Health	1.8%	2.9%	1.4%	4.2%	6.4%	6.5%
Amerigroup	0.8%	0.1%	0.2%	2%	1.3%	2.2%
Blue Cross Blue Shield of Texas	0.5%	0%	1.6%	0.2%	0.4%	5.7%
Children's Medical Center	88%	0%	98%	76%	77%	77%
Cigna-HealthSpring	2.7%	12.7%	6.7%	6.1%	14.4%	5.1%
Community First Health Plans	17.8%	25.6%	29.2%	50%	44.3%	35%
Community Health Choice	2.2%	5.3%	1.3%	1.8%	1.6%	1.4%
Cook Children’s Health Plan	0%	0%	2%	1%	2.3%	1.8%
Dell Children's Health Plan	0.1%	0.4%	0.1%	0.1%	0.5%	1.3%
DentaQuest	60.7%	61.9%	64.6%	68.1%	29.2%	17%
Driscoll Children's Health Plan	2%	1%	1%	1%	0%	0%
Driscoll Health Plan	2%	1%	1%	1%	0%	0%
El Paso Health	0%	0%	0%	0%	0%	0.1%
FirstCare	11.6%	16.6%	17.4%	17.1%	11.2%	28.6%
MCNA Dental	0.2%	0.2%	0.4%	0.3%	0.1%	0.2%
Molina Healthcare of Texas	3.3%	4.3%	5.6%	4.4%	3%	3.1%
Parkland Community Health Plan	1.7%	2.6%	1.2%	1.2%	1.6%	2%
RightCare from Scott and White	0.5%	0.2%	0.2%	0.2%	0.3%	0.3%
Superior HealthPlan	0%	0%	0%	0.8%	0%	0%
Texas Children's Health Plan	0.9%	0.6%	0.9%	1.4%	0.8%	1.7%
UnitedHealthcare Community Plan	1.8%	1.3%	1.6%	2.4%	2.6%	1.9%

## Methods

The EQRO designed the methods for data collection to help meet two specific aims:

1. Assessing and describing the variation in provider directory information between TMHP, the EB, and the electronic member-facing directories from the MCOs.
2. Identifying the primary drivers behind inconsistencies in provider information across record sources and using this information to develop recommendations for several dashboard indicators for monitoring provider directory information.

### AIM 1: Assessing Variation in Provider Directory Records

The EQRO selected sample records from: (1) the MPF, (2) provider reconcile files, (3) MCO electronic member-facing directories, (4) the TMHP OPL and (5) several online plan directories.

The records from the MPF, provider reconcile files, and member-facing directories represent a diversity of providers, across a number of Medicaid and CHIP programs as well as a range of medical and dental organizations. The goal of this sampling strategy was to provide a broad overview of the provider directory information landscape. The EQRO used these record samples to examine three domains of provider directory information:

#### 1. Consistency and Completeness of Data Elements

Complete and reliable records are an important component of an effective and efficient provider information system. The EQRO assessed the completeness of data elements by identifying the number of null attributes in several key fields (NPI, ZIP Code, and phone number).

#### 2. Record Linkage Rates across Multiple Sources of Provider Information

Complete and reliable records are only part of the picture. Record linkage needs to occur before the comparisons can be made that form a solid foundation for ensuring access to care for members. The EQRO assessed record linkage by matching unstandardized and standardized provider records from different record sources. Three fields from the physical address listed for a provider were compared across sources: address, city, and ZIP Code.

A basic level of standardization was applied to the records for matching:

- Address and city fields were changed to all capital letters
- The city field was truncated to 12 characters
- The ZIP Code was limited to 5-digits
- Commas and periods were removed from the address and city fields
- Inconsistencies in address attributes such as street were replaced with a consistent standard attribute

[Table 14](#) of the *Appendix* contains the list of standard attributes used in this process. The standardized comparisons only used the first 12 characters of the city because the MPF truncates the city field. ZIP Codes were limited to 5-digits to ensure consistency across all records. Record matching rates are based on unique records from each source.

#### 3. Accuracy of Directory Information

The third key component to ensuring high quality provider directory information is accuracy. Even the most well-connected and reliable provider information system will flounder if the information being transmitted between stakeholders is inaccurate. To evaluate the accuracy of directory information, the EQRO ran all complete address information for a sample of providers from the electronic plan directories and the reconcile files against USPS information for DPV and NCoA data. DPV is the process of verifying that an address is actually deliverable, meaning that mail can be sent to that address. Address accuracy in this case

refers to whether the address is a valid mailing address according to the USPS. It does not provide information on whether it is actually the correct address for a provider.

**AIM 2: Identifying Causes of Inconsistencies in Provider Information across Record Sources**

The EQRO held meetings and phone calls with key information stakeholders at HHSC, reviewed federal and state policy for guidelines on the quality of provider directory information, and systematically examined scientific and trade literature to identify best practices for improving provider data quality.

## Results

### AIM 1: Assessing Variation in Provider Directory Records

The EQRO found a number of inconsistencies in record attributes that do not influence the validity of the mailing address information but do reduce how efficiently records can be “matched” or linked back to a single unique provider. Standardizing and setting up validation rules to clean provider address information using postal service guidelines should help reduce record inconsistencies. This is something that the HHS Insights Platform has already integrated into its data profiling and staging processes using [Informatica Data Quality \(IDQ\) Analyst](#).

The process for identifying and removing out-of-date and inaccurate records needs to be improved. The EQRO found several instances where a single provider was associated with hundreds of “unique” address records. These findings are discussed in more detail below.

#### Consistency in Record Attributes

The EQRO found a number of inconsistencies and mismatches when comparing the address attributes between sources. There were 190 records in the reconcile file and 2816 records in the MPF where a billing address had been entered into the physical address field.

Four other types of inconsistencies in data fields frequently appeared in comparisons of the member-facing provider directories, the MPF, and the provider reconcile files. These inconsistencies were noted across all files, including the MPF, which is commonly referred to as an ADS for provider information.

- *Type 1:* Street, boulevard, or avenue attribute omitted in one of the address records.
- *Type 2:* Suite, floor, or building attribute omitted in one of the address records.
- *Type 3:* Spelling inconsistencies/mistakes in address attributes.
- *Type 4:* Address components are out of order (PO Box or suite listed before the street address; or provider name, PO Box, or floor appear in a different order).

[Table 4](#), [Table 5](#), [Table 6](#), and [Table 7](#) provide examples of each type of address field inconsistency listed above. Each set of addresses is associated with a single NPI and is supposed to represent the same unique provider location. These are examples of address records that could not be matched using text string matching.

*Table 4. Examples of a Type 1 Mismatch in Provider Address Data: Street, boulevard, or avenue attribute omitted in an address record*

Address in Plan Provider Directory	Address in Reconcile File
2600 LOCKWOOD	2600 LOCKWOOD <b>ST</b>
5201 HARRY HINES <b>BLVD</b>	5201 HARRY HINES

*Table 5. Examples of a Type 2 Mismatch in Provider Address Data: Suite, floor, or building attribute omitted in an address record*

Address in Plan Provider Directory	Address in Reconcile File
333 N Santa Rosa Street <b>3rd Floor</b> , San Antonio, 78207	333 North Santa Rosa Str , San Antonio, 78207
4910 AIRPORT AVE <b>BLDG D</b>	4910 AIRPORT AVE

Table 6. Examples of a Type 3 Mismatch in Provider Address Data: Misspelled attribute in address record

Address in Plan Provider Directory	Address in Reconcile File
5323 HARRY HINES BLVD	5323 HARRY HINES <b>BOULEBARD</b>
1000 S <b>Heritage</b> Parkway	1000 S HERITAGE PKWAY

Table 7. Example of a Complete Mismatch between Record Attributes

Address in Plan Provider Directory	Address in Reconcile File
10004 Johns Road, Boerne, 78006	113 Pleasant Valley Driv Suite 210, Boerne, 78006
11950 Bob Mitchell Drive, El Paso, 79936	4801 Alberta Avenue , El Paso, 79905

### Record Completion

The EQRO found a number of instances where the provider record information was incomplete. The frequency of missing attributes varied by field. CHIP often had the highest frequency of blank or non-numeric entries in the NPI field. [Table 8](#) shows the percent of files in the location table of the EQRO data load for July 2018 with non-numeric or null entries.

Table 8. Non-Numeric or Null NPI Entries by Record Source

Record Source	Records with null or non-numeric NPI	Percent of records with null or non-numeric NPI
MPF	357	2.5%
CHIP	13,758	95.3%
MMP	37	0.3%
STAR	61	0.4%
STAR+PLUS	221	1.5%
<b>Total</b>	<b>14,434</b>	<b>100%</b>

### Record Linkage Rates

The number of matching records varied by source. [Table 9](#) and [Table 10](#) show the number of standardized and unstandardized record matches by plan. There should be very few differences in the Vision 21 data warehouse (V21) reconcile files and the MPF because of the verification process. However, the EQRO noted that the match rate for these records varied considerably between plans. The overall number of matched records increased by approximately 30,000 records after standardization.

Table 9. Unique Unstandardized STAR Record Matches between V21 Reconcile Files and MPF by Plan

MCO	Unique Records	Unique Matched Records	Record Match Rate
Aetna Better Health	4,397	1,993	45.3%
Amerigroup	30,181	15,188	50.3%
Blue Cross Blue Shield of Texas	4,306	1,495	34.7%
Community First Health Plans	2,447	474	19.4%
Community Health Choice	8,253	1,951	23.6%
Cook Children’s Health Plan	1,679	536	31.9%

<b>MCO</b>	<b>Unique Records</b>	<b>Unique Matched Records</b>	<b>Record Match Rate</b>
<i>Dell Children's Health Plan (formerly Seton)</i>	1,853	805	43.4%
<i>Driscoll Health Plan</i>	3,942	1,366	34.7%
<i>El Paso Health</i>	731	196	26.8%
<i>FirstCare Health Plans</i>	3,393	2,310	68.1%
<i>Molina Healthcare of Texas</i>	12,782	3313	25.9%
<i>Parkland Community Health Plan</i>	2,037	651	32%
<i>RightCare from Scott &amp; White Health Plan</i>	1,717	606	35.3%
<i>Superior HealthPlan</i>	51,958	7357	14.2%
<i>Texas Children's Health Plan</i>	4,539	908	20%
<i>UnitedHealthCare Community Plan</i>	11,375	6141	54%
<b>Total</b>	<b>145,590</b>	<b>45,290</b>	<b>31.1%</b>

Table 10. Unique Standardized STAR Record Matches between V21 Reconcile Files and MPF by Plan

<b>MCO</b>	<b>Unique Records</b>	<b>Unique Matched Records</b>	<b>Record Match Rate</b>
<i>Aetna Better Health</i>	4,397	1,888	42.9%
<i>Amerigroup</i>	30,181	14,097	46.7%
<i>Blue Cross Blue Shield of Texas</i>	4,306	2,547	59.2%
<i>Community First Health Plans</i>	2,447	550	22.5%
<i>Community Health Choice</i>	8,253	4,454	54%
<i>Cook Children's Health Plan</i>	1,679	1,140	67.9%
<i>Dell Children's Health Plan (formerly Seton)</i>	1,853	591	31.9%
<i>Driscoll Health Plan</i>	3,942	2,521	64%
<i>El Paso Health</i>	731	479	65.5%
<i>FirstCare Health Plans</i>	3,393	2,211	65.2%
<i>Molina Healthcare of Texas</i>	12,782	6,882	53.8%
<i>Parkland Community Health Plan</i>	2,037	843	41.4%
<i>RightCare from Scott &amp; White Health Plan</i>	1,717	936	54.5%
<i>Superior HealthPlan</i>	51,958	29,385	56.6%
<i>Texas Children's Health Plan</i>	4,539	1,622	35.7%
<i>UnitedHealthCare Community Plan</i>	11,375	5,955	52.4%
<b>Total</b>	<b>145,590</b>	<b>76,101</b>	<b>52.3%</b>

### Record Deduplication and Purging

Inconsistencies in record attributes cause problems with record linkage that is exacerbated by inefficiencies in the process for identifying and removing inaccurate or out-of-date records. The EQRO found several instances where a single provider was associated with hundreds of unique records. This aspect of the provider data management system requires improvement.

## Record Accuracy

The EQRO sent 97,984 records to the vendor for USPS validation. 4,739 records failed the NCoA and DPV validation, 1,381 required a change of address, and approximately 17 percent (16,801 records) required correction. [Table 11](#) shows the overall distribution of USPS validation outcomes for the electronic plan directory records and the reconcile file records. Slightly more of the plan directory records remained unchanged compared to the addresses from the reconcile file.

*Table 11. USPS Record Validation Results*

	Plan Directory File	Reconcile File
<i>Verified address records</i>	45,125	48,120
<i>Remained unchanged</i>	37,361	35,529
<i>Required correction</i>	4958	11,843
<i>Required change of address</i>	633	748
<i>Failed address records</i>	2,806	1,933

## Timeliness of Provider Record Updates

Relative comparisons of records between the MPF, V21 reconcile files, plan directory files and OPL sources indicate that the provider records in the plan directories and plan OPL are more recent than the records in the MPF and reconcile files. This is significant because the MPF is being used by HHSC for calculating MCO compliance with travel time and distance standards. Therefore, corrective action plans and liquidated damages may be assessed based on inaccurate data.

### *Note on Geocoding*

Geocoding is an approach that has been employed to help standardize directory information and efficiently link unique records. The EQRO geocoded a sample of addresses from the member-facing directories and P84 PCP Network Reconcile files to assess whether geocoding would be an efficient method for standardizing and linking unique records. In this context, the process of standardizing records for geocoding appears to have been more time consuming than performing the USPS validation, and the match rates for records using geocoding was not significantly better than record linkage rates using less intensive standardization processes.

## AIM 2: Identifying Sources of Inconsistency in Provider Record Information

Several interconnected issues contribute to the misalignment of provider information across data sources and the low record linkage rates. Centralizing processes to monitor and enforce standards for data quality and employing more data validation mechanisms to standardize the data as it is entered into the system will help improve the overall quality of provider directory information. The new PMES that HHSC is developing should help address some of these concerns.

The next few paragraphs identify two particular challenges for HHSC: improving the processes and structures involved in verifying provider information, and establishing centralized data governance and ADS for provider directory information.

### Processes and Structures for Updating and Verifying Provider Information

The decentralized process that providers use to submit directory updates combined with the structure of the data flow between the EB and plans is an important source of misalignment in provider directory data.

The efficacy of the provider network file validation processes relies on timely and appropriate updates from providers. Individual providers need to update their directory information with both TMHP and the MCO at the same time. If a provider updates the directory information with the MCO only, then the EB will reject the

information during the provider network verification process (because it does not match the MPF) even if the plan provider data is more current than the information in the MPF. If the provider only updates with TMHP, there is a delay until that information cycles back to the MCO in the reconciliation file.

Provider information updates to the OPL do not always post immediately to the TMHP Provider Information Management System (PIMS). PIMS immediately reflects changes to physical addresses for providers, but any changes or additions to alternate physical addresses can take up to 30 days to process and require the provider to submit a W-9 for certification. It can take an additional 30 days to update the information in PIMS after the initial request is processed.<sup>21</sup> The length of this process is a disincentive to providers, especially when they also have to update their information with multiple MCOs. This further exacerbates the issues with data misalignment between these sources.

### **Decentralized Data Governance and Authoritative Sources for Data Validation Rules and Standardization**

Texas was one of the early-adopters of policy to improve the timeliness and quality of provider directory information. However, the sheer size and diversity of the Texas Medicaid and CHIP system has made it difficult for HHSC to monitor and enforce these policies. One of the primary challenges is the lack of a single authoritative source of “truth” for provider information. It is very difficult to monitor and evaluate data quality without a standard for comparison. At the same time, the scope of the Texas Medicaid and CHIP program, the decentralized structure of the current master data management system, and the diverse data needs of Texas users makes it difficult to establish a broadly-used set of validation rules and data quality standards. These issues compound the problems with data alignment associated with provider network verification by increasing the probability of incomplete records and inconsistencies in data attributes.

## Discussion

Texas is not unique in the challenges it faces in improving the quality of its provider directory information. Maintaining the quality of provider directory records is an issue across public and private health sectors. Multiple underlying issues contribute to the persistence of provider information inaccuracies in Texas Medicaid and CHIP including; limited ADS of information, variation in requirements and standards for data, frequent data changes, and lack of consistent provider engagement.

Nonetheless, the percentage of non-reachable Texas Medicaid and CHIP providers in the member-facing directories is similar to rates reported in other states. For example, in a 2015 study of Maryland's QHPs, the authors reached 43 percent of psychiatrists listed in their provider directories.<sup>22</sup> Among providers that the authors could reach, 19 percent of providers were misidentified. Some of the providers in the directory identified as psychiatrists were not psychiatrists; some were other types of mental health providers, and others were different types of physicians, such as family doctors.

### Steps Taken by Texas HHSC to Improve the Quality of Provider Directory Information

Texas HHSC is currently doing a number of things to improve the quality of provider directory information.

#### Improvements to HHSC Policies and Procedures

##### *Managed Care Oversight Improvement Initiatives: Network Adequacy and Access to Care*

The 85th Legislature of the State of Texas required the HHSC to conduct a review of the agency's contract management and oversight function for Medicaid and Children's Health Insurance Program (CHIP) managed care contracts.<sup>23</sup> Texas is on track toward institutionalizing and mandating the requirements of the Managed Care Final Rule that went into effect July 1, 2018, however, network adequacy and access to care was one of the areas recommended for improvement during the review.

In response to the review, HHSC developed a series of "Managed Care Oversight Improvement Initiatives" to improve the overall quality and efficiency of managed care.<sup>24</sup> There are five focus areas for these initiatives (Network Adequacy and Access to Care, Complaints Process and Data Analytics, Outcome Focused Performance Management, Strengthening Clinical Oversight, and Service and Care Coordination). The overall goal of the *Network Adequacy and Access to Care Initiative* is to build a comprehensive monitoring strategy that supports an accountability system with specific incentives and disincentives to ensure client access to services. This has direct implications for improving the quality of provider directory information.

Several of the activities associated with this initiative are likely to help improve the quality of provider directory information:

- HHSC focused one activity on improving the accuracy of provider directories, including implementing robust MCO validation requirements and conducting an analysis of critical processes that impact directory accuracy. This includes the initiation of an EQRO study to validate the STAR Health Psychiatry Directories that includes a provider survey with questions about barriers to the timely provider directory updates.
- A second goal is integrating network adequacy reporting to include additional measures, such as the Appointment Availability studies. To further this goal, HHSC is developing an Appointment Availability Provider Verification Report to help monitor MCO follow-up with providers that the EQRO cannot reach, and providers that indicate an appointment isn't available for another reason during the Appointment Availability studies. The report workflow is designed to help reduce the administrative burden associated with network adequacy reporting for both HHSC and the MCOs.

## Improvements to HHSC Information Systems

### *New Provider Management and Enrollment System—Centralized Provider Information Management*

Texas SB 200 (2015)<sup>25</sup> required HHSC to streamline the provider enrollment and credentialing processes under Medicaid by establishing a centralized Internet portal as a single, consolidated provider enrollment system for collecting and sharing provider enrollment and credentialing information.

HHSC continues to streamline the provider enrollment process by developing a new PMES that will centralize all provider enrollment and management reporting processes. The new system will consolidate provider enrollment functions housed in various HHSC systems, consolidate multiple paper enrollment applications into a single online application, and deliver a centralized provider repository that aligns with ongoing HHSC and TMHP data governance activities.

### *HHS Insights Platform*

The master data model being used in HHSC Insights Platform has the potential to significantly improve the quality of both member and provider records. Informatica's [AddressDoctor](#) address validation software can be used to analyze, verify, correct and format address data according to USPS standards, which will reduce the issues with mismatched and invalid provider addresses that currently exist. Setting up standards and procedures for evaluating the quality of master records will also help reduce the prevalence of data element mismatches and misalignment.

## Potential Dashboard Indicators for Monitoring and Assessing Provider Information Quality

### Network File Error Reports

Tracking patterns in the number of rejected MCO provider network records and data errors each month can provide information on misalignment between the plan provider networks and the certified providers listed in the MPF. HHSC can also use this information to identify potential targets for intervention and data quality improvement.

### Consumer Complaints about Provider Availability

HHSC is undertaking a number of initiatives to use the complaint reporting system to monitor and improve the quality assurance process. Tracking the number, location, and type of consumer reports about issues with provider availability and the time to complaint resolution can provide important information on network adequacy and potential deficiencies or information misalignment in the provider directories. HHSC may also want to consider developing an API to track customer complaints if one does not already exist.

### Data Quality Scorecards

The HHS Insights Platform mentioned above employs a user interface tool (IDQ Analyst) that can be used to generate data quality reports with summaries of information about provider data (the number of invalid postal addresses, missing attributes, unmatched records etc.). This may be an additional source of potential dashboard information.

## Findings and Recommendations

### Findings

HHSC has taken several important steps to improve the quality of provider directory information. For example, they are implementing robust MCO validation requirements and conducting an analysis of critical processes that impact directory accuracy. Furthermore, HHSC continues to streamline the provider enrollment process by developing a new Provider Management and Enrollment System (PMES) for centralizing all provider enrollment and management reporting processes. Once implemented, the new PMES will consolidate provider enrollment functions housed in various HHSC systems, consolidate multiple paper enrollment applications into a single online application, and deliver a centralized provider repository that aligns with ongoing data governance activities.

Despite these important advances, HHSC still needs to address several interconnected issues which contribute to the problem of provider directory data quality. Some of these issues relate to process, such as inconsistent validation of provider data; and others relate to policy, such as decentralized data governance. The EQRO observed the following issues impacting the accuracy of provider directory information.

#### *Data standards, accuracy, and consistency*

- The misalignment of provider information across data sources and the low record linkage rates are largely the result of poorly defined data standards.
- There is no specific contract standard for the accuracy of provider directory information, and the MCOs use very different approaches for validating directory information.
- The lack of standardized data elements limits the effectiveness of machine-reading approaches for validating provider information and creates a significant administrative burden for HHSC, the health plans, and providers.
- There is no established uniform approach across HHSC, MAXIMUS, TMHP, and the health plans for validating provider information.
- Inconsistencies in record attributes also make it difficult to capture provider location and specialty accurately, which can influence the results of quality and health outcome metrics.

#### *Data governance and authority*

- Data governance responsibilities are scattered across the HHSC information landscape. Reliable mechanisms are needed to assure that updates to crucial provider information occur consistently across the system.
- There is no centralized process for monitoring and enforcing standards for data quality.
- TMHP's master provider file is cited as an authoritative data source, yet more timely information is provided through the MCO provider directory update process, which subsequently creates numerous data alignment problems. HHSC staff and the EQRO rely on MAXIMUS-validated provider files for reporting and monitoring, but the enrollment broker cannot validate contact information for providers who do not update their information with TMHP.
- The Texas Uniform Managed Care Manual (UMCM) and Texas Medicaid Provider Procedures Manual (TMPPM) require plans and providers to update provider information on a consistent and timely basis. For example, the UMCM states, "The MCO must update the Provider Directory at least monthly in accordance with 42 C.F.R. § 438.10(h)(3). The MCO must make such updates available to existing Members upon

request.”<sup>5</sup> The UMCM includes additional guidelines for online directory information, “The MCO must develop and maintain procedures for systematically updating the Provider Network database which must include predictable scheduled algorithms. The MCO Online Provider Directory must be updated at least on a weekly basis to reflect the most current MCO Provider Network.”<sup>6</sup> The TMPPM guidelines for providers state, “Within 10 calendar days of occurrence, providers must report changes in address (physical location or accounting), telephone number, name, federal tax ID, and any other information that pertains to the structure of the provider’s organization (for example, performing providers).”<sup>7</sup>

- The time required to establish a new TPI for a provider with an existing billing address discourages providers from correctly updating their address information with TMHP.

## Recommendations

Accurate provider data elements are critical for objective evaluation, rate-setting activities, monitoring network adequacy, and ensuring member access to appropriate providers. Based on the findings in this report, the EQRO recommends that Texas HHSC continue to work with MCOs and providers to improve the quality and completeness of provider data and improve reporting standards.

### *Establish enforceable data accuracy standards*

- Continue to establish, monitor, and enforce data accuracy standards and define standardized data elements for provider directory information. Consider enhancing the current guidelines for required critical directory elements with a set of rules for standardizing address information (such as using USPS standards for address information).
- Establish a standard approach and timeline for monitoring whether plans follow up with inactive providers and whether the plans remove them from provider directories.
- Leverage the provider information inaccuracies collected during appointment availability studies to monitor MCO’s maintenance of accurate provider directory information.

### *Centralize authority and processes for monitoring and enforcing data quality standards*

- Centralizing processes to monitor and enforce standards for data quality and employing more data validation mechanisms to standardize the data as it is entered into the system will help improve the overall quality of provider directory information. The new Provider Management Enrollment System (PMES) that HHSC is developing should help address these concerns and help establish a clear, centralized, authoritative data source for updates to provider information.

### *Reduce administrative burden with a centralized provider information portal*

- When developing the PMES, HHSC should include a centralized provider information portal where providers can update information in a single location and have the updated information sent to TMHP, MAXIMUS, and the appropriate plans.
- A centralized portal can also serve as a location for providers to re-attest their directory information on a consistent basis. A centralized portal will reduce provider administrative burden because they will not have to update their information with multiple MCOs and TMHP.

### *Create a probationary flag in the enrollment system when provider changes are made*

- If necessary, the enrollment broker can flag updates to provider information as “probationary” in the system until certification of attributes like alternate location are complete. HHSC can use the probationary

<sup>5</sup> UMCM v.2.26 Attachment B-1 Medicaid and Managed Care Services RFP, § 8.1.5.4.1

<sup>6</sup> UMCM v.2.26 Attachment B-1 Medicaid and Managed Care Services RFP, § 8.1.5.4.2

<sup>7</sup> TMPPM, January 2019, § 1.6.2 Maintenance of Provider Information.

flag to track how frequently providers are updating their information and the average length of time for the certification process in the network adequacy dashboard.

#### *Ensure that unique provider locations and specialties can be tracked*

- When shifting to an NPI-only system in the new PMES, HHSC should make sure there is a way to continue to track unique provider locations and provider types. The NPI and the TPI are used to track this information in the current system. For example, a single Texas Medicaid provider (with a single NPI) can have multiple TPIs if they have more than one billing address, or if they serve as a performing provider for multiple medical groups. HHSC needs to be able to identify unique provider locations and specialties to assess compliance with network adequacy standards and calculate other key health metrics.

#### *Engage key stakeholders and end users in data management plans*

- HHSC should continue to solicit MCO and provider feedback when developing data accuracy standards and the new PMES to clarify provider-level barriers to timely directory information updates. HHSC should use provider feedback on these barriers to create strategies that incentivize provider data updates.

#### *Add new dashboard indicators for monitoring and assessing provider information quality*

##### *Network File Error Reports*

- Tracking patterns in the number of rejected MCO provider network records and data errors each month can provide information on misalignment between the plan provider networks and the certified providers listed in the MPF. HHSC can also use this information to identify potential MCOs for intervention and data quality improvement.

##### *Consumer Complaints about Provider Availability*

- HHSC is undertaking a number of initiatives to use the complaint reporting system to monitor and improve the quality assurance process. Tracking the number, location, and type of consumer reports about issues with provider availability and the time to complaint resolution can provide important information on network adequacy issues as they arise. HHSC may also want to consider developing an efficient method for querying member complaint data if one does not already exist.

##### *Data Quality Scorecards*

- The HHSC master data management system employs a user interface tool (IDQ Analyst) that can be used to generate data quality reports with summaries of information about provider data (the number of invalid postal addresses, missing attributes, unmatched records etc.). This may be an additional source of potential dashboard information.

## Appendix

Table 12. File Name ID Table for Medicaid Plan Interfaces

FILE ID	DESCRIPTION	PROGRAM	SENDER	RECEIVER	FREQUENCY	ASSOCIATED FILE ID #
P34	Monthly HIPAA 834 Enrollment	MMC	MAXIMUS	PLANS	Monthly	
P34DV	Medicaid Managed Care Dental Validation File	MMC	MAXIMUS	PLANS	Monthly	
P35	Daily HIPAA 834 Enrollment for certain records for TP40s, Newborn, STAR+PLUS, and STAR Health as defined in the P35 section	MMC	MAXIMUS	PLANS	Daily	
MAXBAL	Recon Balancing Report	MMC	MAXIMUS	PLANS	Monthly	
P46	Texas Health Steps – Periodic Dues File	MMC	MAXIMUS	PLANS	Monthly	
P47	Texas Health Steps – Overdue File	MMC	MAXIMUS	PLANS	Monthly	
P57	Medicaid Managed Care Monthly Exception File	MMC	MAXIMUS	PLANS	Monthly	
P82	Monthly Capitation File	MMC	MAXIMUS	PLANS	Monthly	
P83	Recipient PCP Change Error File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	P93
P84	PCP Reconcile File	MMC	MAXIMUS	PLANS	Mo	P92
PNR	Nursing Facility Reconcile File	MMC	MAXIMUS	PLANS	Bimonthly	PNF
PMR	Medicare Provider Reconcile File	MMC	MAXIMUS	PLANS	Bimonthly	PMF
P85	PCP Network Error Response File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	P92
PNE	Nursing Facility Network Error Response File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	PNF
PME	Medicare Provider Network Error response File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	PMF
P86	Specialist Network Error Response File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	P94
P87	Capitation – Adjustments File	MMC	MAXIMUS	PLANS	Monthly	
P88	Specialist Reconcile File	MMC	MAXIMUS	PLANS	Bimonthly	P94

FILE ID	DESCRIPTION	PROGRAM	SENDER	RECEIVER	FREQUENCY	ASSOCIATED FILE ID #
P89	Recipients Enrolled with a PCP that is not with the Plan	MMC	MAXIMUS	PLANS	Monthly	
P97	Recipients with Special Health Care Needs Response File	MMC	MAXIMUS	PLANS	Daily (As Necessary)	P90
P90	Recipients with Special Health Care Needs File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	P97
P92	PCP Network File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	P85
PNF	Nursing Facility Network File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	PNE
PMF	Medicare Provider Network File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	PME
P93	Recipient PCP Assignment Changes File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	P83
P94	Specialist Network File	MMC	PLANS	MAXIMUS	Daily (As Necessary)	P86

Table 13. File Name ID Table for CHIP Plan Interfaces

FILE ID	DESCRIPTION	Program	SENDER	RECEIVER	FREQUENCY	ASSOCIATED FILE ID #
P834	Monthly HIPAA 834 CHIP Enrollment File	CHIP	MAXIMUS	PLANS	Monthly	
P835	Daily HIPAA 834 CHIP Perinate Enrollment File	CHIP	MAXIMUS	PLANS	Daily	
P011	Daily CHIP Perinate Enrollment File	CHIP	MAXIMUS	PLANS	Daily	
P030	Cost Share Limit Notice File	CHIP	MAXIMUS	PLANS	Daily	
P040	CHIP Capitation File	CHIP	MAXIMUS	PLANS	Monthly	
P050	CHIP Retroactive Adjustments File	CHIP	MAXIMUS	PLANS	Monthly	
CBAL	Capitation Balancing File	CHIP	MAXIMUS	PLANS	Monthly	
P020	Monthly CHIP Provider File	CHIP	PLANS	MAXIMUS	Monthly	
P022	Provider Error Response File	CHIP	MAXIMUS	PLANS	Monthly	P020
P023	Provider Reconcile File	CHIP	MAXIMUS	PLANS	Monthly	P020

Table 14. Standardized Address Abbreviations Used in Record Matching

ORIGINAL	STANDARIZED VALUE	ORIGINAL	STANDARIZED VALUE
AVENUE	AVE	SUIT #	STE
BOULEVARD	BLVD	SUITE#	STE
BOULEVAR	BLVD	SUIT#	STE
BOULEVA	BLVD	STE#	STE
BOULEV	BLVD	SUITE	STE
BOULE	BLVD	SUIT	STE
BOUL	BLVD	TERRACE	TER
CENTER	CTR	TRACE	TR
CIRCLE	CIR	TRAIL	TRL
COURT	CT	WEST	W
DRIVE	DR	MAIL CODE	MC
EAST	E	FIRST	1ST
EXPRESSWAY	EXPY	SECOND	2ND
FLOOR	FLR	THIRD	3RD
FREEWAY	FWY	FOURTH	4TH
HIGHWAY	HWY	FIFTH	5TH
INTERSTATE	IH	SIXTH	6TH
LANE	LN	SEVENTH	7TH
NORTHEAST	NE	EIGHTH	8TH
NORTHWEST	NW	NINTH	9TH
NORTH	N	TENTH	10TH
PARKWAY	PKWY	ELEVENTH	11TH
PLACE	PL	#	STE
ROAD	RD		
SOUTH	S		
SOUTHEAST	SE		
SOUTHWEST	SW		
STREET	ST		
STR	ST		
STE #	STE		
SUITE #	STE		

**ADDITIONAL STANDARDIZATION**

Address and city fields capitalized

Periods and commas removed

**City:** 12 char from left

**ZIP Code:** 5 char from left

<sup>1</sup> Issue Brief: *Administrative Provider Data*. CAQH (December 2011).

<sup>2</sup> [Provider Directory Initiative Key Findings](https://www.ahip.org/provider-directory-initiative-key-findings/). AHIP March 2017: <https://www.ahip.org/provider-directory-initiative-key-findings/>

<sup>3</sup> Dan P. Ly, MD, and Sherry A. Glied "[The Impact of Managed Care Contracting on Physicians](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3889938/)," *Journal of General Internal Medicine* (September 2013): <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3889938/>

<sup>4</sup> Haeder, Simon F., David L. Weimer, and Dana B. Mukamel. "Secret shoppers find access to providers and network accuracy lacking for those in marketplace and commercial plans." *Health Affairs* 35.7 (2016): 1160-1166.

<sup>5</sup> *Online Provider Directory Review Report*. Centers for Medicare and Medicaid Services, January 13, 2017.

- <sup>6</sup> [Texas Health & Human Services Commission Uniform Managed Care Terms & Conditions](https://hhs.texas.gov/sites/default/files/documents/services/health/medicaid-chip/programs/contracts/uniform-managed-care-contract.pdf) V. 2.26  
<https://hhs.texas.gov/sites/default/files/documents/services/health/medicaid-chip/programs/contracts/uniform-managed-care-contract.pdf>
- <sup>7</sup> Provider Data Action Alliance. [An Industry Roadmap for Provider Data](https://www.caqh.org/sites/default/files/explorations/pdaa-industry-roadmap.pdf). CAQH. 2018. Available at:  
<https://www.caqh.org/sites/default/files/explorations/pdaa-industry-roadmap.pdf>
- <sup>8</sup> ([Chapter 649 §1367.27](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB137), 2015) [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB137](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB137)
- <sup>9</sup> [Georgia SB-302](http://www.legis.ga.gov/legislation/en-US/Display/20152016/SB/302) <http://www.legis.ga.gov/legislation/en-US/Display/20152016/SB/302>
- <sup>10</sup> [Maryland COMAR 10.09.66.02](http://www.dsd.state.md.us/comar/comarhtml/10/10.09.66.02.htm) <http://www.dsd.state.md.us/comar/comarhtml/10/10.09.66.02.htm>
- <sup>11</sup> Issue Brief: [Improving the Accuracy of Health Insurance Plans' Provider Directories](https://familiesusa.org/sites/default/files/product_documents/ACA_Provider%20Directory%20Issue%20Brief_web.pdf). FamiliesUSA (October 2015)  
[https://familiesusa.org/sites/default/files/product\\_documents/ACA\\_Provider%20Directory%20Issue%20Brief\\_web.pdf](https://familiesusa.org/sites/default/files/product_documents/ACA_Provider%20Directory%20Issue%20Brief_web.pdf)
- <sup>12</sup> [Texas Administrative Code Title 28, Part 1, Chapter 11, Subchapter Q, Rule §11.1612 Mandatory Disclosure Requirements](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=N&p_rloc=184008&p_tloc=&p_ploc=1&pg=4&p_tac=&ti=28&pt=1&ch=11&rl=1607).  
[https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=T&app=9&p\\_dir=N&p\\_rloc=184008&p\\_tloc=&p\\_ploc=1&pg=4&p\\_tac=&ti=28&pt=1&ch=11&rl=1607](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=N&p_rloc=184008&p_tloc=&p_ploc=1&pg=4&p_tac=&ti=28&pt=1&ch=11&rl=1607)
- <sup>13</sup> <https://capitol.texas.gov/BillLookup/Text.aspx?LegSess=84R&Bill=SB760>
- <sup>14</sup> [Texas HB-01624F](https://capitol.texas.gov/tlodocs/84R/billtext/pdf/HB01624F.pdf): <https://capitol.texas.gov/tlodocs/84R/billtext/pdf/HB01624F.pdf>
- <sup>15</sup> Texas HHS. [Provider Directories](https://hhs.texas.gov/about-hhs/communications-events/news/2016/04/provider-directories): <https://hhs.texas.gov/about-hhs/communications-events/news/2016/04/provider-directories>
- <sup>16</sup> Centers for Medicare and Medicaid Services. [Code of Federal Regulations](https://www.cms.gov/Regulations-and-Guidance/Regulations-and-Guidance.html). The CMS website with links to CFR information by topic can be found at: <https://www.cms.gov/Regulations-and-Guidance/Regulations-and-Guidance.html>
- <sup>17</sup> [Texas Medicaid and CHIP Uniform Managed Care Manual](https://hhs.texas.gov/services/health/medicaid-chip/provider-information/contracts-manuals/texas-medicaid-chip-uniform-managed-care-manual) <https://hhs.texas.gov/services/health/medicaid-chip/provider-information/contracts-manuals/texas-medicaid-chip-uniform-managed-care-manual>
- <sup>18</sup> [Texas Medicaid Provider Procedures Manual](http://www.tmhp.com/Pages/Medicaid/Medicaid_Publications_Provider_manual.aspx) (updated November 30, 2018):  
[http://www.tmhp.com/Pages/Medicaid/Medicaid\\_Publications\\_Provider\\_manual.aspx](http://www.tmhp.com/Pages/Medicaid/Medicaid_Publications_Provider_manual.aspx)
- <sup>19</sup> Texas Health and Human Services Uniform Managed Care Contract Section 8.1.3.1
- <sup>20</sup> EB-CHIP JIB (EB-726) Joint Interface Plan (JIP) v6.11. Located on TXMedCentral.
- <sup>21</sup> [Provider Information Management System \(PIMS\) User Guide](http://www.tmhp.com/TMHP_File_Library/Provider_Manuals/PIMS_User_Guide.pdf). TMHP:  
[http://www.tmhp.com/TMHP\\_File\\_Library/Provider\\_Manuals/PIMS\\_User\\_Guide.pdf](http://www.tmhp.com/TMHP_File_Library/Provider_Manuals/PIMS_User_Guide.pdf)
- <sup>22</sup> Mental Health Association of Maryland, [Access to Psychiatrists in 2014 Health Plans](http://mhamd.org/wp-content/uploads/2014/01/2014-QHPPsychiatric-Network-Adequacy-Report.pdf) (Baltimore, MD: MHAMD, January 2015): <http://mhamd.org/wp-content/uploads/2014/01/2014-QHPPsychiatric-Network-Adequacy-Report.pdf>
- <sup>23</sup> [Rider 60/61 Evaluations Deliverable 7 - Rider Report 61 Final Comprehensive Report Rider 61\(b\): Evaluation of Medicaid and CHIP Managed Care – Review of Managed Care Contract Review and Oversight Function Summary of Findings](https://hhs.texas.gov/sites/default/files/documents/about-hhs/process-improvement/managed-care-oversite/rider-61b-evaluation-medicaid-chip-managed-care.pdf). August 2018. Available online: <https://hhs.texas.gov/sites/default/files/documents/about-hhs/process-improvement/managed-care-oversite/rider-61b-evaluation-medicaid-chip-managed-care.pdf>
- <sup>24</sup> [HHS Managed Care Oversight Improvement Initiatives](https://hhs.texas.gov/about-hhs/process-improvement/managed-care-oversight-improvement-initiatives) <https://hhs.texas.gov/about-hhs/process-improvement/managed-care-oversight-improvement-initiatives>
- <sup>25</sup> [Texas SB 200 \(2015\)](https://capitol.texas.gov/tlodocs/84R/billtext/html/SB00200F.htm): <https://capitol.texas.gov/tlodocs/84R/billtext/html/SB00200F.htm>