Department of Health and Human Services (HHS)
Centers for Medicare & Medicaid Services (CMS)
The Center for Consumer Information and Insurance Oversight (CCIIO)

Marketplace Plan Management Group
Division of Issuer Compliance and Monitoring

Machine-Readable Provider Directory Review Summary Report Plan Years 2017–2021

March 22, 2022

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1. Executive Summary

1.1 Introduction

The Patient Protection and Affordable Care Act (ACA) is a comprehensive health care reform law that establishes strong consumer protections and provides affordable coverage options for the American public. The ACA requires the establishment of State-based or Federally-facilitated Exchanges (FFEs) for the marketing and sale of health insurance. The Centers for Medicare & Medicaid Services (CMS), a component of the Department of Health and Human Services (HHS), acts as administrator of the FFEs. Health insurance companies' ("issuers'") plans must meet or exceed the Exchange participation standards to be certified by CMS as Qualified Health Plans (QHPs) to be sold through the Exchanges to individual consumers and small businesses.

CMS conducts annual reviews to determine whether issuers comply with network adequacy machine-readable (MR) standards as defined in 45 CFR § 156.230(c), which requires a QHP issuer in an FFE to make available provider directory information in an HHS specified format and also submit this information to HHS, in a format and manner and at times determined by HHS. To assess the accuracy of these MR provider data files, CMS compares the data files to the issuers' online provider directories and other data sources.

The Center for Consumer Information and Insurance Oversight (CCIIO) conducts periodic compliance and validation reviews on operational activities performed by QHP and SADP issuers on the FFEs to ensure compliance with regulations found in 45 CFR part 156 and its implementing guidance published and disseminated by CCIIO to QHP and SADP issuers. This report summarizes the data quality and validation reviews of MR provider directory data for five plan years beginning in plan year (PY) 2017 through PY2021, including changes to the sampling, scope, and methodology for each plan year.

1.2 Sampling Methodology

Although the overall sample size varied from plan year to plan year, CCIIO chose the sample of providers for each issuer to validate through consistent categorization. For each issuer, the target sample was selected to equally distribute primary care physician (PCP), obstetrics/gynecology (OB/GYN), pediatrics, and specialty providers for QHPs, and general dentists, pediatric dentists, and specialty dentists for SADPs. The provider's National Provider Identification number (NPI) was used to ensure providers were not chosen more than once during each plan year review. If the directory did not contain a sufficient number of unique providers in any certain provider category, additional providers were selected from another.

1.3 Review Methodology

Each plan year, CCIIO reviews MR provider network files to assess the accuracy and consistency of provider information contained within monthly data files submitted to the FFE by QHP and SADP issuers. The review methodology has evolved over a five-year period, beginning with a "secret-shopper" review in PY2017 and expanding into comparison reviews between other publicly available data sources. The secret-shopper review was not conducted in PY2020 due to the impact on providers related to the COVID-19 pandemic. A description of the methodology and sampling parameters may include changes to sample sizes, modification of review techniques, and/or inclusion of additional data sources for comparison, which are described within each plan year's results summary section (see Section 2.) However, regardless of modifications to the

sampling or review methodology, the data quality and validation review seeks to answer the following questions related to the data published in the MR provider directory files:

- Are issuers publishing accurate provider contact and location information?
- Are issuers publishing accurate provider specialty information?
- Are issuers participating in the identified plan (based on plan type and in-network status)?
- Are issuers publishing accurate information on whether or not providers are accepting new patients?

To validate the MR provider data for these questions, CCIIO uses the following approach:

- Automated data validation via comparison of selected MR data to other publicly available datasets such as the National Plan and Provider Enumerator System (NPPES) registry and the United States Postal Service (USPS) address verification database
- Telephonic outreach or secret-shopper style calls
- Manual comparison of MR provider data to published Network URLs

Both the manual and automated validation reviews evaluate the following data fields from the MR file[1]: NPI; Name (first, last); Address (address, city, state, zip code); Phone; Specialty; Accepting New Patients. See **Table 1** for the methodologies employed for each plan year.

Table 1: Methodology by Plan Year

Review Methodology	PY2017	PY2018	PY2019	PY2020	PY2021
Secret-Shopper Calls (Manual Review)	✔	✔	✔	⊘	✔
Comparison to Network URL (Manual Review)	⊘	✔	✔	✔	✔
Comparison to Other Data Sources (Automated Review)	⊘	⊘	⊘	✔	✔

1.4   Key Findings by Plan Year

The MR provider directory review is a data validation review to determine the consistency and accuracy of provider contact, specialty, and acceptance of new patient data contained within the published MR network directory files submitted to CCIIO as a condition of certification as a QHP on an FFE. The validation review includes validation through secret-shopper calls, manually comparing the MR provider data to the published Network URL available to consumers, and comparing the selected MR data to NPPES and USPS data sets.

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[1] Descriptions of the data elements are found in the CCIIO MR data dictionary: https://www.cms.gov/CCIIO/Resources/Data-Resources/Downloads/MachineReadable-DataDictionary-PY21.pdf.

This material was produced and disseminated at U.S. taxpayer expense.

Figure 1: Results by Methodology and Plan Year Chart[2]

Percentage of Complete Records Validated by Methodology/Plan Year

(Legend: PY 2017, PY 2018, PY 2019, PY 2020, PY 2021)

Secret-Shopper: 29%, 38%, 43%, 47%
URL Comparison: 60%, 65%, 73%, 73%
NPPES Comparison: 28%, 25%
USPS Comparison: 93%, 95%
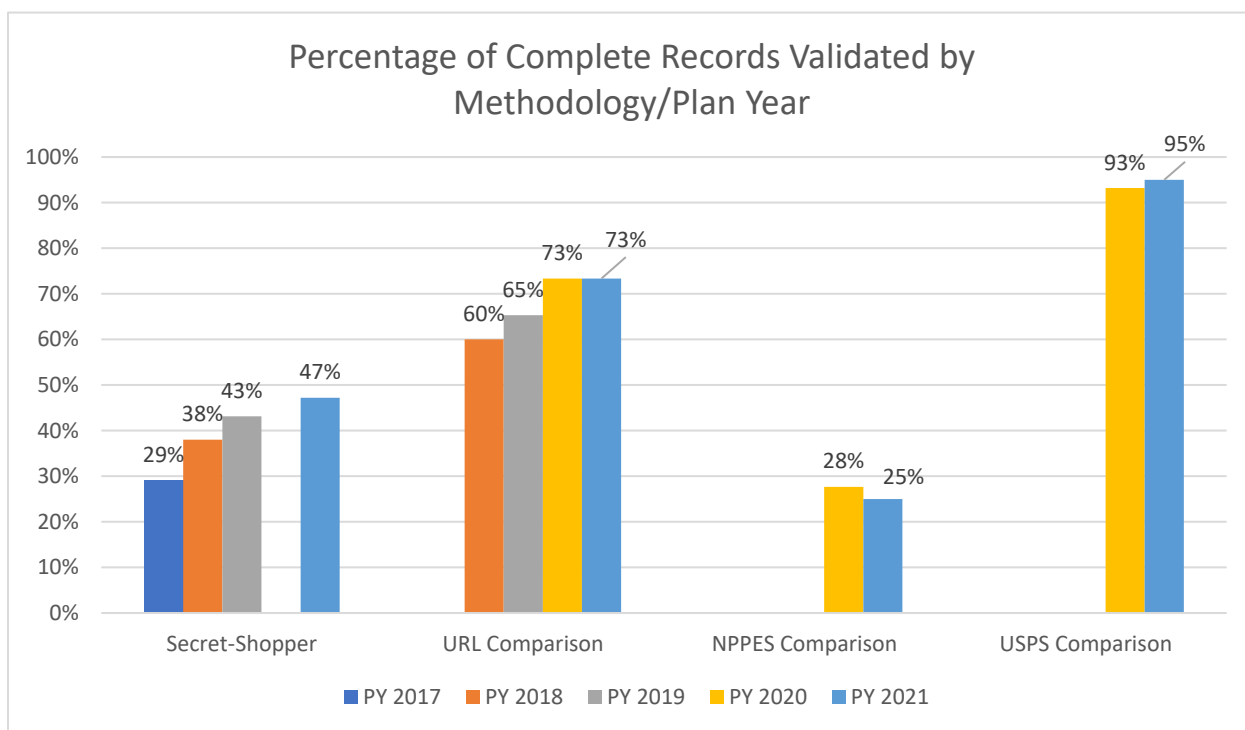
Over five plan years, CMS consistently identified variances between the provider network data contained in the MR data files and the secret-shopper review results and comparison to other published data sources. When validating provider information through secret-shopper calls, CMS confirmed that no more than 47% of the selected provider entries included all current and up-to-date telephone numbers, addresses, specialties, plan affiliations, and accepting new patient information at the time of the MR file submission. Likewise, when comparing the MR provider data to the published directories accessed by consumers via the Network URL, no more than 73% of the providers reviewed could by fully matched. The additional comparisons to the NPPES NPI registry and the USPS address verification database provided additional insight into the validity of the provider information contained in the MR file. Although nearly all of the addresses were identified as active and valid according to USPS, no more that 28% of the provider names, addresses, and specialties were matched.

Key considerations in interpreting these results include:

- Issuers may not be maintaining their MR files concurrent with their Network URL directory files at any given point in time as suggested by the variance between the secret-shopper results and the Network URL comparison.
- Each issuer's maintenance of provider data depends on timely submission of changes to provider information initiated by the provider community, by provider contact change, or through other

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[2] Due to the risk-based nature of the selection methodology employed by CMS, the results of this review are not directly comparable year to year.

internal auditing functions. This reliance on timely submission means that changes at the provider level, such as retiring physicians or change of location, may or may not be communicated to each issuer in a timely manner which may be reflected in the lower rate of validation through secret-shopper review and the variance with the Network URL.

- Providers may not be updating NPPES records related to changes in location or contact information.

Tables 2-4 below describe the results of each review by plan year as a percentage of validated data fields grouped by review criteria.

Table 2: Secret-Shopper Review Agreement Rates by Plan Year

Data Element	PY2017	PY2018	PY2019	PY2020[3]	PY2021	Total
Total Calls Attempted	1,235	1,250	1,300	N/A	1,250	5,035
% of Secret-Shopper Calls Connected	94%	91%	87%	N/A	97%	92%
% Verified Provider Address	52%	66%	59%	N/A	67%	61%
% Verified Telephone Number	60%	65%	75%	N/A	86%	71%
% Verified Provider Specialty Information	58%	64%	64%	N/A	72%	64%
% Verified Plan Acceptance/In-network Status	46%	52%	55%	N/A	56%	52%
% Verified Accepting New Patients	49%	57%	57%	N/A	66%	57%
% Verified All Data Elements	29%	38%	43%	N/A	47%	39%

Table 3: Network URL Comparison Review Agreement Rates by Plan Year

Data Element	PY2017	PY2018	PY2019	PY2020	PY2021	Total
Total Records Evaluated	N/A	250	240	6,250	1,250	7,990
% Records Found in URL Directory	N/A	74%	97%	87%	88%	87%
% Telephone Confirmed	N/A	66%	80%	80%	88%	81%
% Address Confirmed	N/A	70%	82%	83%	84%	83%
% Specialty Confirmed	N/A	72%	87%	86%	87%	85%
% Plan Acceptance Confirmed	N/A	29%	30%	29%	31%	29%
% Accepting New Patients Confirmed	N/A	70%	79%	78%	77%	78%
% Complete Record Confirmed	N/A	60%	73%	71%	73%	71%

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[3] Secret-shopper review was not conducted in PY20 due to COVID-19 pandemic mitigation response.

Table 4: Other Data Sources Comparison Review Agreement Rates by Plan Year

Data Element	PY2017	PY2018	PY2019	PY2020	PY2021	Total
Total Records Compared	N/A	N/A	N/A	6,250	6,219	12,469
% Verified Provider Address – NPPES	N/A	N/A	N/A	43%	44%	44%
% Verified Location Information – USPS	N/A	N/A	N/A	95%	93%	94%
% Verified Provider Telephone – NPPES	N/A	N/A	N/A	42%	43%	43%
% Verified Provider Specialty Information – NPPES	N/A	N/A	N/A	75%	79%	77%
% Verified All Data Elements	N/A	N/A	N/A	25%	28%	26%

1.5   Best Practice Recommendations

This MR provider directory review process includes 1) a comparison of the online and MR provider directory files to determine consistency between provider network information in publicly available data sources such as the NPPES NPI registry, the USPS address verification database, and the Network URL directories, as a means of determining reliability of the data contained within the MR data file, and 2) a secret-shopper style validation to determine the accuracy of the MR provider network data at the time of publication. The MR provider network directory is intended to provide accurate contact, location, and practice information for network providers. Understanding the accuracy of the URL directory and MR files provides CMS with an opportunity to determine best practices to increase the efficacy of both online (URL) and MR directory files. Based on the results of the MR provider directory review for PY2016 through PY2021, CMS provides the following best practices:

- Maintenance of records:
  - CMS suggests that separate data files for URL and MR directories be updated concurrently or in a comparable time frame, to ensure consistency between each source and the resulting directory output.
  - CMS suggests print and online directories include a "last updated" timestamp or verified date to inform and notify consumers of verification and update frequency.
  - CMS encourages outreach campaigns to educate providers on their shared responsibility to maintain data accuracy and consumer education of new provider directory protections.
- Provider notification:
  - CMS encourages developing an active or more interactive process between the issuer and providers to facilitate more timely notification of changes to demographic data such as changes to the provider's address, specialty, phone number, or acceptance of new patients.
  - Additionally, issuers should utilize the same interactive process to communicate with providers that have not filed a claim within a certain timeframe to confirm provider network/data accuracy.

2. Plan Year 2017 Results Summary

2.1 Background and Scope

For PY2017 the MR provider directory review methodology focused on validating selected elements of issuer-submitted MR provider directory data via secret-shopper review. The criteria used to measure and evaluate compliance are defined by requirements in Subpart C of 45 CFR Part 156: Qualified Health Plan Minimum Certification Standards, and more specifically in 45 CFR § 156.230(c) The MR provider directory secret-shopper review was conducted on a sample of 1,235 MR provider directory records selected from 50 QHPs provided by CCIIO from files submitted by issuers to the FFE in March 2017.

2.2 Sample Selection

CMS selected a sample of 25 providers from 45 QHP and 5 SADP issuers based on the review methodology described in Section 1.3. The NPI was used to ensure one provider per location was selected. One SADP in the sample had only 15 unique NPIs from which a sample could be selected; this resulted in the final sample size of 1,235 unique NPIs.

2.3 Review Methodology

For PY2017, CMS validated the MR provider directory data by conducting telephonic outreach. Each provider was questioned to determine the following:

- Is the telephone number published in the MR data active and valid for the provider listed?
- Is the address listed in the directory the correct address for the provider listed?
- Does the specialty listed in the directory reflect the correct specialty for the provider?
- Does the provider participate in the plan identified in the directory?
- Is the indicator of whether the provider is accepting new patients accurate?

If a phone number did not connect with a live person, CMS reached out a second time on a different date and time. If a person could not be reached to ask the above questions, the unsuccessful contact was documented and the data elements were rated as "not confirmed."

2.4 Results

For PY2017, CMS was able to connect with a live person for 1,162 (94%) of 1,235 attempted calls. Overall, CMS confirmed that 360 (29%) of the MR provider directory data records contained all accurate data at the time contact was made. An analysis of each data element is described below. See **Figure 2** and **Table 5** for the breakout of matched provider directory data by data element and data source.

Figure 2: Plan Year 2017 Results Chart

PY17 MR Review Results - Secret-Shopper Review Only
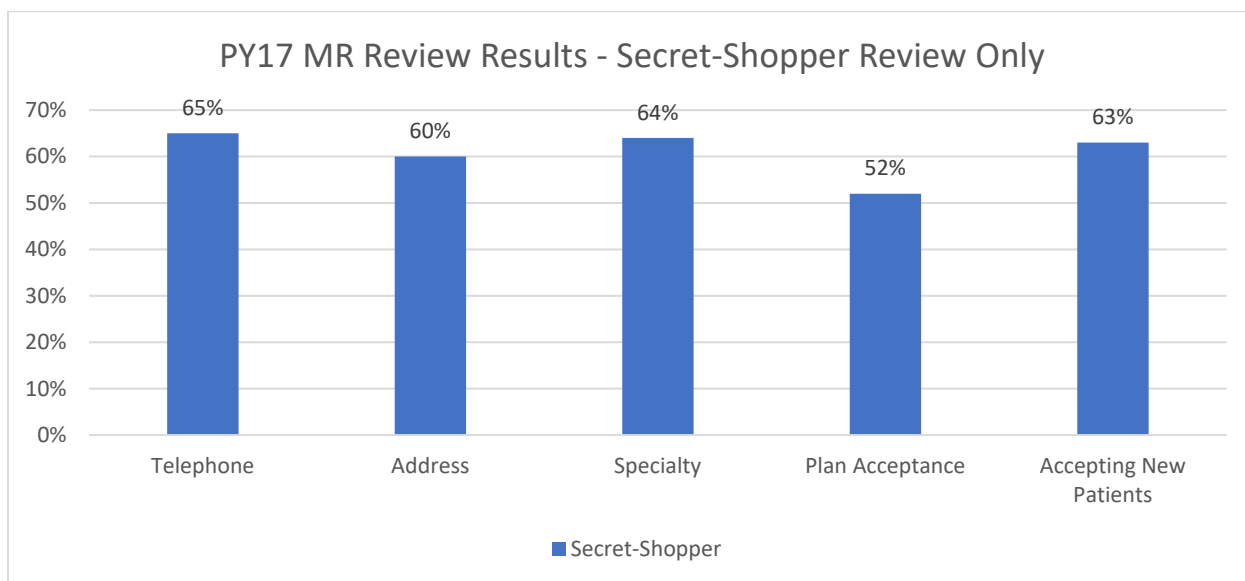
The PY2017 validation review of MR provider data confirmed 29% of the provider directory records were accurate and up to date. A record was confirmed as accurate and up-to-date if a provider could be contacted using the telephone number in the MR data file, and all elements were confirmed to be accurate at the date and time of the outreach. See **Table 5** for the results of the PY2017 MR validation review by data element.

Table 5: Plan Year 2017 Confirmed Data Elements Results

Confirmed Accuracy	Sample Size	Calls Connected	Telephone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Complete Record
% Confirmed	1,235	94%	60%	49%	58%	46%	52%	29%

3. Plan Year 2018 Results Summary

3.1 Background and Scope

In PY2018 the MR provider directory review methodology continued to focus on validating selected elements of issuer-submitted MR provider directory data via secret-shopper review and added a comparison to the published Network URL directory. The criteria used to measure and evaluate compliance was defined by requirements in Subpart C of 45 CFR Part 156: Qualified Health Plan Minimum Certification Standards, and more specifically in 45 CFR § 156.230(c). The PY2018 review was conducted on a sample of 1,250 MR provider directory records selected from QHP and SADP Issuer MR files submitted to the FFE in May 2018.

3.2 Sample Selection

For each issuer, the provider data was divided into three specialty groups. The first group included four samples of either PCP, OB/GYN, pediatrician, or mental health providers (or a mixture of the four specialties). The second group included two samples of either oncologists, cardiologists, endocrinologists, or ophthalmologists. The third group included one sample from the "Other" designation. If the provider data did not include a sufficient number of specialty providers in a specific group, the sample was modified to

include other specialties from within the same group. For example, when sampling an issuer for four PCPs, if only three PCPs were identified, then the sample included a provider from OB/GYN, pediatricians, or mental health.

If the provider data for each issuer did not include a sufficient number of specialty providers in any group, the sample was modified to include providers from the other specialty provider groups. Once a provider is sampled for a QHP as a particular specialty, they are automatically excluded from future sampling of other plans issued by the same issuer or other issuers. For example, if a provider with a single NPI practices at several locations, only one will be chosen for review even if the provider's NPI appears multiple times in the data set.

3.3   Review Methodology

3.3.1   Secret-Shopper Review

To verify the accuracy of the submitted MR files, reviewers called providers, using the contact information published in the issuer's May 2018 MR data file. CMSemployed an assessment algorithm that started with whether 1) the phone number was active and reached a live person, and 2) the phone number published in the MR file connected with a valid provider's office. If a reviewer could not reach a live person after two additional attempts at different times and days, or the representative could not provide the information requested, the reviewer recorded the results as "No Response" in the applicable data fields. If a provider office could be reached with the information published in the MR directory, reviewers continued verifying remaining data points to confirm the accuracy of the contents of the MR file by questioning the office representative to determine the following:

- Did the telephone number connect to the provider office listed in the MR directory entry?
- Is the address listed in the MR directory the correct address for the provider listed?
- Does the specialty listed in the MR directory reflect the correct specialty for the provider?
- Does the provider participate in the plan identified in the MR directory?

3.3.2   Comparison to Online Provider Directory URL

To determine if the MR provider directory data is being maintained regularly, CMS compared the provider data in the MR file to the network URL directory. To conduct this review, CMS accessed each issuer's provider directory URL using a variety of search techniques (i.e., by provider name, zip code plus distance range, by network name) and attempted to locate the same provider record selected from the MR directory. Each data element in the MR file was compared to the network URL directory to confirm the telephone, address, specialty, plan participation, and accepting new patients were consistent between the two directories.

3.4   Results

The sections below describe the results from the secret-shopper review and the comparison of MR provider data to the published Network URLs. See **Figure 3** for the breakout of matched provider directory data by data element and data source.

Figure 3: Plan Year 2018 Results Chart
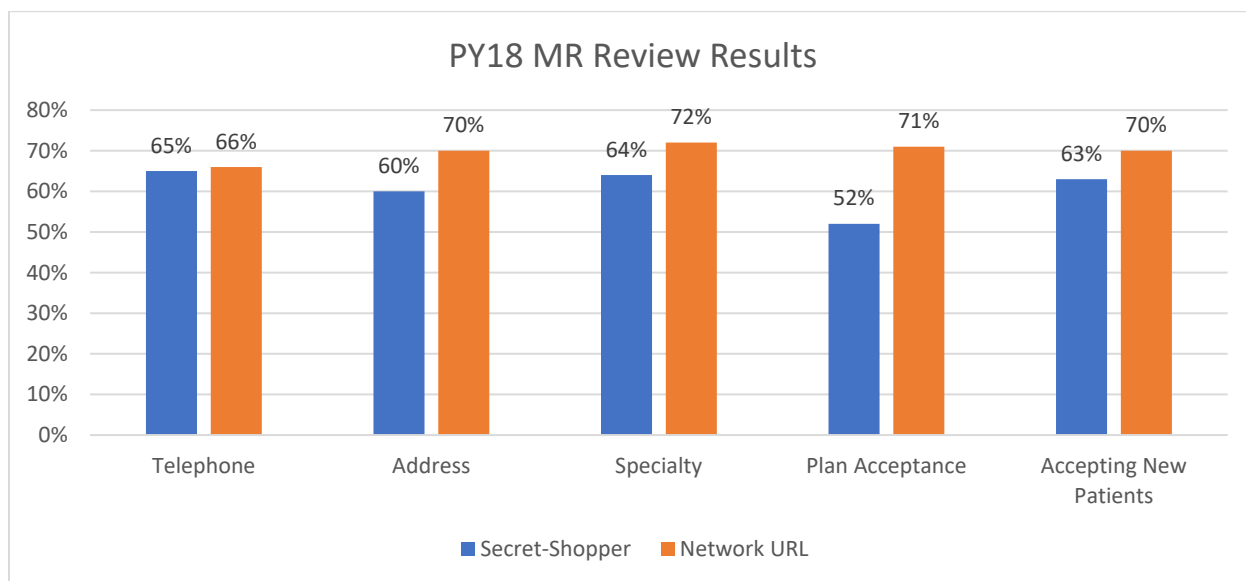
The PY2018 validation review of MR provider data confirmed 38% of the provider directory records were completely accurate and up to date. A record was confirmed as accurate and up-to-date if a provider could be contacted using the telephone number in the MR data file, and all elements were confirmed to be accurate at the date and time of the outreach.

The scope of the MR validation review expanded in PY2018 to include a comparison of the MR provider data to the Network URL. This comparison resulted in 60% of the provider records confirmed as a complete match between the two data sources.

See **Table 6** for the results of the PY18 MR validation review by data element.

Table 6: Plan Year 2018 Results

Data Source	Sample Size	Record Found/Call Connected	Phone	Address	Specialty	Plan Acceptance	Accepting New Patients	Complete Record
Secret-Shopper	1,250	91%	65%	60%	64%	52%	63%	38%
URL	250	74%	66%	70%	72%	71%	70%	60%

The overall rate of provider directory records confirmed as accurate and up-to-date improved from PY2017 (29%) to PY2018 (38%).

The 40% variance between the secret-shopper results and the network URL directory suggests that the consumer-facing provider directories and the MR provider data files are not being maintained concurrently.

4. Plan Year 2019 Results Summary

4.1 Background and Scope

In PY2019 the MR provider directory review methodology continued to focus on validating selected elements of issuer-submitted MR provider directory data via secret-shopper review and added a comparison to the published Network URL directory. The criteria used to measure and evaluate compliance was defined by requirements in Subpart C of 45 CFR Part 156: Qualified Health Plan Minimum Certification Standards, and more specifically in 45 CFR § 156.230(c). The PY2019 review was conducted on a sample of 1,250 MR provider directory records selected from QHP and SADP Issuer MR files submitted to the FFE in April 2019.

4.2 Sample Selection

For PY2019, CMS selected 52 QHP and SADP Issuers that were deemed to be at greater risk of potential noncompliance based on review of certification data and post-certification assessment data. MR provider directory records associated with the selected issuers and their QHPs and SADPs were then reviewed using a secret-shopping methodology, as described below, to determine the accuracy and consistency of reported provider data.

For each QHP Issuer, CMS continued to selected provider directory data from five broad provider groupings: PCP, OB/GYN, Pediatricians, Mental Health providers, and Specialists (i.e., oncologists, cardiologists, endocrinologists, ophthalmologists, and an "Other" category for all other specialties). If the MR provider data file did not include enough providers in a specific provider group, providers from another group were included in a same sample set to ensure each QHP Issuer had at least 25 provider directory records to review. Once a provider was included in a sample for a QHP, they were automatically excluded from sampling for other QHPs issued by the same or other issuers during that specific testing phase.

For the Network URL Comparison, CMS selected a ~10% sample from each of the provider groupings to conduct the manual comparison of MR provider data to the Network URL provider directory.

4.3 Review Methodology

4.3.1 Secret-Shopper Review

To verify the accuracy of the submitted MR files, reviewers called providers, using the contact information published in the issuer's May 2019 MR data file. CMS employed an assessment algorithm that started with whether 1) the phone number was active and reached a live person, and 2) the phone number published in the MR file connected with a valid provider's office. If a reviewer could not reach a live person after two additional attempts at different times and days, or the representative could not provide the information requested, the reviewer recorded the results as "No Response" in the applicable data fields. If a provider office could be reached with the information published in the MR directory, reviewers continued verifying remaining data points to confirm the accuracy of the contents of the MR file by questioning the office representative to determine the following:

- Did the telephone number connect to the provider office listed in the MR directory entry?
- Is the address listed in the MR directory the correct address for the provider listed?
- Does the specialty listed in the MR directory reflect the correct specialty for the provider?
- Does the provider participate in the plan identified in the MR directory?

4.3.2 *Comparison to Online Provider Directory URL*

To further validate the results of the secret-shopper review, a second test was added to compare a subset of MR records selected from the 1,250 records to each QHP Issuer's published online provider directory URL. The goal of this second test is to ensure that the data provided to CMS in the MR monthly file submission is consistent with the information available to consumers.

A systematic sample was identified by starting at the fifth record in the ordered list of 1,250 and selecting every fifth record until the desired sample size of 250 MR records was met. This resulted in at least one provider record being selected from 50 unique QHP Issuers (including both QHPs and SADPs).

To establish comparability, the same elements were evaluated in the online provider directory and the secret-shopper review. The reviewer accessed the QHP Issuer's provider directory URL and used a variety of search techniques (i.e., by provider name, zip code plus distance range, by network name) to locate the same provider record selected from the MR directory. Next, the reviewer assessed whether each element 1) is published as required in the online directory, and 2) the published element is consistent with the information included in the MR file. The results for each reviewed element were then identified as a match, mismatch, or not available.

4.4 Results

The sections below describe the results from the secret-shopper review and the comparison of MR provider data to the published Network URLs. See **Figure 4** for the breakout of matched provider directory data by data element and data source.

Figure 4: Plan Year 2019 Results Chart

PY19 MR Review Results

Element	Secret-Shopper	Network URL
Telephone	65%	80%
Address	59%	82%
Specialty	64%	87%
Plan Acceptance	55%	70%
Accepting New Patients	57%	79%
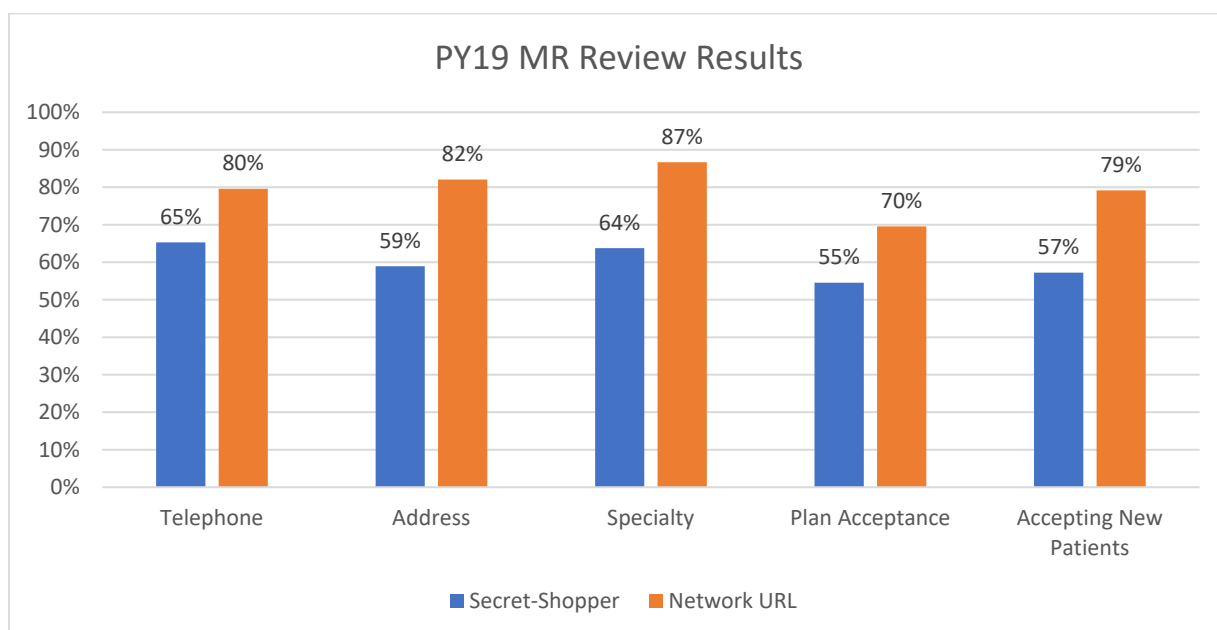
The PY2019 validation review of MR provider data confirmed 43% of the provider directory records were accurate and up to date. A record was confirmed as accurate and up-to-date if a provider could be contacted using the telephone number in the MR data file, and all elements were confirmed to be accurate

at the date and time of the outreach. The scope of the MR validation review includes a comparison of the MR provider data to the Network URL which resulted in 73% of the provider records confirmed as a complete match between the two data sources.

See **Table 7** for the results of the PY19 MR validation review by data element.

Table 7: Plan Year 2019 Results Table

Data Source	Record Found/Call Connected	Telephone	Address	Specialty	Plan Acceptance	Accepting New Patients	Complete Record
Secret-Shopper	87%	65%	59%	64%	55%	57%	43%
Network URL	97%	80%	82%	87%	70%	79%	65%

The overall rate of provider directory records confirmed as accurate and up-to-date improved from PY2018 (38%) to PY2019 (43%).

5. Plan Year 2020 Results Summary

5.1 Background and Scope

In PY2020, the scope and methodology of the MR provider directory review was modified to reduce data inconsistencies due to the COVID-19 pandemic. These changes included the following:

- Elimination of the secret-shopper review
- Expansion of sample size from 1,250 to 6,250 unique providers
- Incorporation of comparison data from the NPPES database and the USPS Address verification database
- Expansion of the Network URL comparison sample to 100% of selected providers

The scope was modified from previous years due to the availability of providers during the onset of the COVID-19 pandemic in 2020. There were significant disruptions of service during this time that would have led to improperly skewed data. CMS modified the scope in response. The purpose of the modified scope was to ascertain the reliability of QHP and SADP MR provider directory information for 6,250 unique NPIs randomly selected from publicly available MR Exchange Directory files without using the secret-shopper review. Reliability was assessed through quantitative and qualitative analysis comparing consistency among MR provider directories, QHP and SADP directories on plan websites, and other data sources including a combination of automated and manual review methods. The focus of the review was on consistency of provider addresses, telephone numbers, specialties, and the accepting-new-patients indicator where available.

Data used in this review was downloaded and aggregated from four distinct sources of provider data. These sources included Exchange MR directory files, CMS' NPPES NPI Registry, the USPS Address Database, and the Exchange Network URL directories found on QHP and SADP issuers' websites. The data sources and methodology for retrieval are listed in **Table 8** below.

Table 8: Plan Year 2020 Data Sources

Source	Description	Methodology
FFE Exchange MR Directories	Exchange MR files provided from each issuer in prescribed format	Downloaded script to automatically download .JSON files
Exchange Network URL	Provider directory files from each issuer's network URL	Network URLs obtained from QHP/SADP landscape PUF
USPS Address Verification Database	USPS database that includes only valid, deliverable addresses for doctors and offices	USPS API used
NPPES NPI Registry	National system for nearly all providers, including an NPI, practice locations, telephone numbers, and specialty taxonomies	Downloaded entire NPI registry

In addition to the data sources identified above, we accessed taxonomy code definitions for Medicare and commercial providers[4] and assigned each taxonomy code to one of the provider group categories described in Section 3.1 of this document. This crosswalk was then used as a key to compare the MR provider specialty data, the Network URL directory specialty, and the specialty reported in the NPPES NPI Registry.

5.2   Sample Selection

For each of 42 QHP and 8 SADP issuers, CMS selected providers from five provider groupings. If the MR provider data file did not include enough provider NPIs in a specific provider group, NPIs from another group were included for each issuer to have at least 125 NPIs per issuer to review for a total of 6,250 unique providers. To ensure only unique NPIs were reviewed, each NPI was only sampled once and not duplicated between issuers.

5.3   Review Methodology

The Exchange MR provider data was the first data to be extracted using script to extract .JSON data files from the public URL crawl list. Due to the size of the files, extraction was limited to those QHP and SADP Plan IDs included in the sample methodology. Provider addresses in the MR provider directory were compared to each of the data sources to determine likely matches or mismatches between the datasets.

5.3.1   Secret-Shopper Review

The secret-shopper review was not conducted in PY2020 to prevent excessive regulatory burden on the provider community.

5.3.2   Comparison to Published Network URLs

The Exchange Network URL directories were manually compared with the MR directory data using a SharePoint custom tool to collect responses. For this analysis, reviewers accessed each issuer's Network URL and used a variety of search techniques including searches by provider name, zip code plus distance range, or network name to locate the same provider record. The reviewer then recorded whether each of the four elements (accepting new patients, address, phone, and specialty) were matched to the MR provider data. This included confirming that the specialty and "Accepting New Patients" indicator corresponded to the MR provider data.

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[4] CMS provides a taxonomy code download list at http://www.nucc.org/index.php/code-sets-mainmenu-41/provider-taxonomy-mainmenu-40/csv-mainmenu-57.

5.3.3   Comparison to the NPPES Registry Data

Provider data from the NPPES NPI registry file[5] was compared to the extracted MR provider data. This comparison was performed in a local database. For phone number comparisons, the MR provider data phone numbers and NPPES phone numbers were formatted the same and compared to determine if there was a match. For specialty comparisons, the MR provider data Specialty Category and the NPPES Specialty Category were compared by using the NPPES primary taxonomy code and cross-referencing the taxonomy code with the specialty category using the NPPES crosswalk data to determine if the specialties were a match.

5.3.4   Comparison to the USPS Address Verification Database

The USPS API was used to determine if the MR provider data address was a valid USPS address. A client application was developed that pulled the MR provider address from the sample and provided the address to the USPS API for comparison. The USPS API returned XML data for each individual address. The parsed XML data contained the information to confirm whether or not the address was a valid USPS address.

5.4   Results

The sections below describe the results from the comparison review of MR provider data to the NPPES NPI registry, the USPS address verification database, and the published Network URLs. See **Figure 5** for the breakout of matched provider directory data by data element and data source.

Figure 5: Plan Year 2020 Review Results
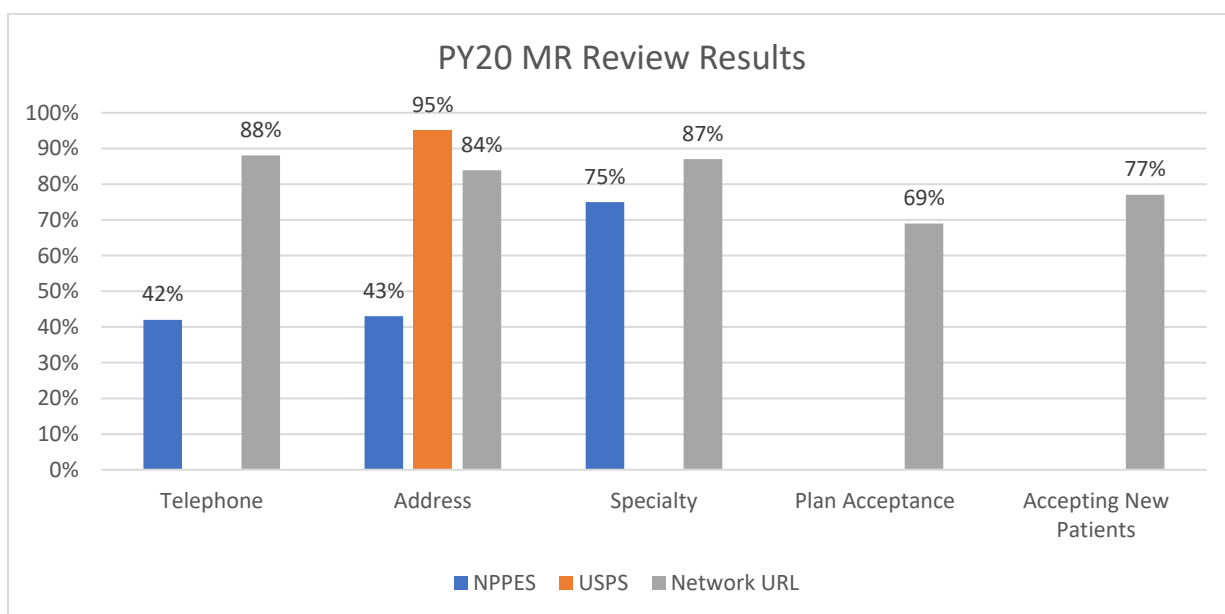
The scope of the PY2020 validation review was modified to not include the secret-shopper review and expanded comparison of the MR provider data to additional data sources. The results of the PY2020 evaluation of the MR provider data confirmed 73% of the provider directory records were consistent with the network URL directory. However, when comparing the MR provider data to the NPPES NPI registry, only

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[5]The NPPES NPI registry is located at https://npiregistry.cms.hhs.gov/.

25% of the provider directory records completely matched.

See **Table 9** for the results of the PY2020 MR validation review by data element.

Table 9: Plan Year 2020 Results

Data Source	Record Found	Telephone	Address	Specialty	Plan Acceptance	Accepting New Patients	Complete Record
NPPES[6]	75%	42%	43%	75%	N/A	N/A	25%
USPS	95%	N/A	95%	N/A	N/A	N/A	95%
Network URL	88%	88%	84%	87%	69%	77%	73%

5.5   Recommendations

CMS will expand the scope of future reviews to incorporate the NPPES and USPS comparison of the MR provider directory data.

6.   Plan Year 2021 Results Summary

6.1   Background and Scope

In PY2021 the MR provider directory review methodology continued to focus on validating the accuracy of selected elements from issuer-submitted MR provider directory data via secret-shopper review and evaluating the consistency of data with the published Network URL directory, the NPPES NPI Registry, and the USPS address verification database. The criteria used to measure and evaluate compliance was defined by requirements in Subpart C of 45 CFR Part 156: Qualified Health Plan Minimum Certification Standards, and more specifically in 45 CFR § 156.230(c) The PY2021 review was conducted on a sample of 6,250 MR provider directory records selected from QHP and SADP Issuer MR files submitted to the FFE in February 2021.

6.2   Sample Selection

For PY2021, the provider categories reviewed remain consistent with the established methodology. However, as in PY2020, CMS selected up to 125 providers for a total of 6,250 unique NPIs representative of the established provider groupings. If an MR provider directory file does not include enough NPIs in a specific provider group, NPIs from another group are included for each issuer to ensure a target of 125 NPIs per issuer are reviewed. Each NPI is only sampled once and not duplicated between issuers. For the secret-shopper review and manual comparison to the Network URL, CMS selected ~20% of the providers with a target of five providers in each of the selected provider categories.

6.3   Review Methodology

Evaluation of reliability and accuracy of MR provider directory data is conducted through qualitative analysis of provider data gathered through a combination of automated and manual review techniques. MR provider directory data is gathered from published FFE MR directories and then compared to provider data published in the NPPES provider registry as well as the USPS address verification database. Provider information is

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[6] Plan information and Accepting New Patients information are not included in the NPPES NPI Registry database.

then manually abstracted from each issuer's Network URL and collected through secret-shopper calls to provider offices for comparison to the MR directory. The data sources and methodology for retrieval are listed in **Table 10** below.

Table 10: Plan Year 2021 Data Sources

Source	Description	Methodology
FFE Exchange MR Directories	Exchange MR files provided from each issuer in prescribed format	Downloaded script to automatically download .JSON files
Exchange Network URL	Provider directory files from each issuer's network URL	Network URLs obtained from QHP/SADP landscape PUF
USPS Address Verification Database	USPS database that includes only valid, deliverable addresses for doctors and offices	USPS API used
NPPES NPI Registry	National system for nearly all providers, including a national provider ID, practice locations, telephone numbers, and specialty taxonomies	Downloaded entire NPI registry

In addition to the data sources identified above, we access taxonomy code definitions for Medicare and commercial providers[7] and assign each taxonomy code to one of the provider group categories described in Section 3.1 of this document. This crosswalk is used as a key to compare the MR provider specialty data, the Network URL directory specialty, and the specialty reported in the NPPES NPI Registry. The Exchange MR provider data is extracted using a script to extract .JSON data files from the public URL crawl list. Due to the size of the files, extraction is limited to those QHP and SADP Plan IDs included in the sample methodology.

6.3.1 Secret-Shopper Calls

To verify the accuracy of the submitted MR provider directory files, CMS calls providers using the contact information published in the MR data files. For each attempted contact, providers are first assessed for whether 1) the phone number is active and reaches a live representative, and 2) the phone number published in the MR file connects with the provider's office. If a call reaches an inactive or disconnected telephone number or the call does not result in reaching a live representative after two attempts at different times and days, the date and time of both attempts are documented, and the entire record is considered to have "failed" the review. If a valid provider office can be reached with the information published in the MR file, CMS continues verifying remaining data points to confirm the accuracy of the contents of the MR file by questioning the live representative to determine the following:

- Did the telephone number connect to the provider office listed in the MR directory entry?
- Is the address listed in the MR directory the correct address for the provider listed?
- Does the specialty listed in the MR directory reflect the correct specialty for the provider?
- Does the provider participate in the plan listed in the MR file?

6.3.2 Comparison to Online Provider Directory URL

Concurrently with the secret-shopper reviews, an additional evaluation is performed to better understand the relationship between the QHP issuers' provider data submitted to the FFE and the provider information

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[7] CMS provides a taxonomy code download list at http://www.nucc.org/index.php/code-sets-mainmenu-41/provider-taxonomy-mainmenu-40/csv-mainmenu-57.

publicly available to consumers. To accomplish this, the same sub-sample of NPIs selected for the secret-shopper evaluation are manually reviewed by accessing each QHP issuer's published online provider directory URL. This is performed to ensure that the data provided to CMS in the MR monthly file submission is consistent with information available to consumers using the Network URL provided to the FFE as published in the Network PUF. Each URL comparison employs the same questions as in the secret shopper review. The reviewer accesses the QHP issuer's provider directory URL and uses a variety of search techniques (i.e., by provider name, zip code plus distance range, network name) to locate the same provider record as was selected from the MR file. Next, the reviewer assesses whether each element 1) is published as required in the online directory, and 2) the published element is consistent with the information included in the MR file. If all elements in the URL provider record do not match the MR file, the entire provider record is counted as a failed record.

6.3.3 Comparison to NPPES and USPS

The first evaluation for reliability and accuracy is a qualitative comparison of MR provider directory location, contact, and specialty information to provider data published in the NPPES provider registry, and a comparison of the provider location information in the MR directory to the USPS address database.

To conduct this review, the NPPES NPI download file is downloaded to a local database server environment and then compared to the MR provider data using various SQL algorithms. For phone number comparisons, the MR provider data phone numbers and NPPES phone numbers are formatted to matching types and compared to determine if there is a match. For specialty comparisons, the MR provider data Specialty Category and the NPPES Specialty Category are compared by using the NPPES primary taxonomy code and cross-referencing the taxonomy code with the specialty category, using the NPPES crosswalk data to determine if the specialties are a match.

The USPS API is used to determine if the MR provider data address is a valid USPS address. A client application was developed that pulls the MR provider address from the sample and provides the address to the USPS API for comparison. The USPS API returns XML data for each individual address and is then parsed to confirm whether or not the address is a valid USPS address.

6.4   Results

For PY2021, inconsistencies are found in provider information across provider data sources when compared to the Exchange MR provider directories. See **Figure 6** for the breakout of matched provider directory data by data element and data source.

Figure 6: Plan Year 2021 Review Results
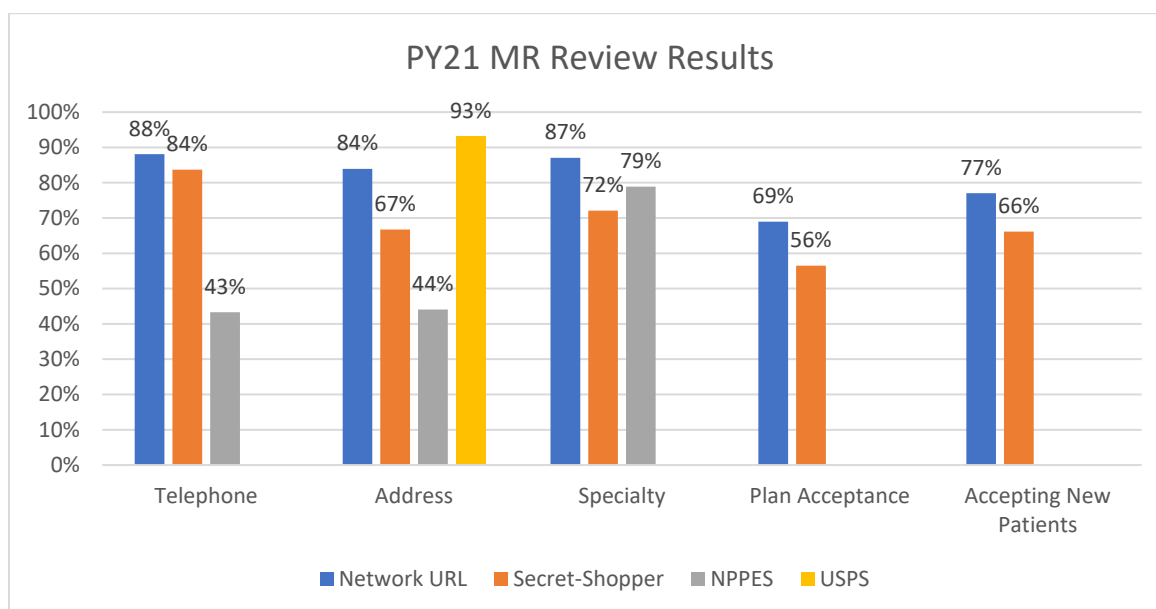
The PY2021 validation review of MR provider data confirmed 47% of the provider directory records were accurate and up to date. A record was confirmed as accurate and up-to-date if a provider could be contacted using the telephone number in the MR data file, and all elements were confirmed to be accurate at the date and time of the outreach. The scope of the MR validation review includes a comparison of the MR provider data to the Network URL which resulted in 73% of the provider records confirmed as a complete match between the two data sources.

See **Table 11** for the results of the PY2021 MR validation review by data element.

Table 11: Plan Year 2021 Results Table

Data Source	Record Found/ Call Connected	Telephone	Address	Specialty	Plan Acceptance	Accepting New Patients	Complete Record
Secret-Shopper	97%	84%	67%	72%	56%	66%	47%
Network URL	88%	88%	84%	87%	69%	77%	73%
NPPES[8]	79%	43%	44%	79%	N/A	N/A	28%
USPS[9]	93%	N/A	93%	N/A	N/A	N/A	93%

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[8] Plan information and Accepting New Patients information are not included in NPPES registry data.
[9] Telephone, Specialty, and Plan information data elements are not included in USPS database.

7. Conclusions and Best Practices

Over the first five plan years that CMS has conducted the MR Provider Directory Review, the secret-shopper review results indicate that slightly fewer than half of network providers listed in the machine-readable data contain accurate, up-to-date, and complete contact, location, specialty, and accessibility information. However, the results vary when comparing the MR provider directory data to other public databases to determine consistency. Overall, the results of this review suggest the following:

- Issuers may not be maintaining their MR files consistent with their Network URL directory files as suggested by the variance between the secret-shopper results and the Network URL comparison.
- Changes at the provider level, such as retiring physicians or change of location, may or may not be communicated to each issuer in a timely manner which may be reflected in the lower rate of validation through secret-shopper review and the variance with the Network URL.
- Providers may not be updating NPPES records related to changes in location or contact information.

Based on findings, CMS has the following best practices:

- QHP Issuer Network URL and MR provider directory data should be updated concurrently to ensure consistency between each source and the resulting directory output.
- QHP Issuers should encourage providers to make timely notification of changes to demographic and directory data – such as changes to the provider's address, specialty, phone number, or acceptance of new patients.
- QHP Issuers should regularly monitor and routinely update their verified provider network data to ensure consumers and researchers have access to the most accurate provider network information.
- QHP Issuers should establish a response protocol to actively communicate and verify demographic and provider network information between the issuer and providers and to facilitate timely notification of changes.
- QHP Issuers should consider including a "last updated" timestamp or verified date on print and online directories to inform and notify consumers of verification and update frequency.
- QHP Issuers can consider investing in outreach campaigns to educate providers on their shared responsibility to maintain data accuracy and consumer education of new provider directory protections.

Appendix 1: Plan Year 2017 Results by Issuer

Exhibit 1: Secret-Shopper Agreement Rates by Sample ID

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	25	76%	64%	88%	84%	80%	56%
2	25	40%	84%	100%	84%	92%	64%
3	25	71%	56%	96%	52%	64%	40%
4	25	94%	72%	68%	52%	60%	40%
5	25	84%	84%	96%	64%	80%	56%
6	25	96%	68%	88%	56%	60%	48%
7	25	56%	56%	60%	52%	44%	12%
8	25	32%	52%	72%	48%	32%	8%
9	25	72%	64%	88%	84%	76%	44%
10	25	74%	72%	76%	52%	64%	20%
11	25	76%	40%	60%	44%	48%	8%
12	25	88%	56%	68%	56%	68%	44%
13	25	76%	52%	68%	36%	52%	4%
14	25	56%	28%	44%	36%	32%	20%
15	25	82%	16%	16%	12%	16%	4%
16	25	64%	16%	32%	32%	24%	8%
17	25	84%	28%	32%	12%	16%	0%
18	25	67%	20%	44%	20%	32%	0%
19	25	77%	8%	12%	8%	8%	0%
20	25	52%	16%	20%	12%	16%	4%
21	25	69%	20%	28%	16%	28%	16%
22	25	80%	36%	36%	28%	36%	28%
23	25	74%	68%	76%	68%	76%	60%
24	25	42%	32%	40%	12%	36%	12%
25	25	56%	52%	60%	56%	48%	44%
26	25	96%	36%	36%	36%	32%	32%
27	25	77%	68%	80%	40%	80%	24%
28	25	60%	68%	68%	36%	64%	20%
29	25	60%	28%	48%	44%	36%	20%
30	25	78%	64%	48%	64%	60%	44%
31	25	70%	32%	36%	32%	36%	24%
32	25	74%	68%	68%	68%	64%	64%
33	25	60%	56%	56%	44%	32%	20%
34	25	60%	84%	88%	84%	88%	80%
35	25	50%	16%	16%	8%	16%	8%

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
36	25	32%	16%	16%	12%	16%	4%
37	25	52%	40%	16%	12%	12%	8%
38	25	60%	32%	36%	28%	28%	16%
39	25	92%	52%	96%	56%	56%	44%
40	25	40%	80%	100%	92%	84%	72%
41	25	80%	48%	100%	64%	72%	28%
42	25	81%	60%	96%	64%	60%	52%
43	25	76%	52%	96%	48%	48%	40%
44	10	81%	70%	0%	20%	10%	0%
45	25	48%	60%	0%	56%	32%	0%
46	25	12%	60%	68%	64%	68%	56%
47	25	64%	32%	36%	32%	28%	20%
48	25	20%	56%	56%	52%	48%	32%
49	25	76%	76%	60%	80%	76%	56%
50	25	32%	52%	72%	76%	80%	36%
Grand Total	1235	68%	49%	58%	46%	49%	29%

Appendix 2: Plan Year 2018 Results by Issuer

Exhibit 2: Secret-Shopper Agreement Rates by Sample ID

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	25	48%	44%	48%	36%	44%	28%
2	25	60%	52%	60%	52%	52%	40%
3	25	56%	52%	60%	56%	56%	48%
4	25	60%	60%	60%	36%	12%	8%
5	25	56%	48%	56%	52%	52%	32%
6	25	52%	52%	52%	28%	52%	20%
7	25	52%	52%	48%	32%	52%	16%
8	25	48%	48%	52%	44%	56%	20%
9	25	84%	84%	84%	44%	72%	28%
10	25	56%	48%	56%	48%	52%	20%
11	25	48%	12%	12%	12%	12%	12%
12	25	64%	60%	64%	64%	64%	56%
13	25	44%	0%	0%	0%	0%	0%
14	25	68%	40%	44%	20%	40%	12%
15	25	60%	60%	60%	60%	60%	60%
16	25	84%	84%	84%	84%	84%	84%
17	25	72%	72%	72%	68%	72%	68%
18	25	76%	68%	68%	76%	68%	52%
19	25	72%	64%	68%	8%	68%	8%
20	25	56%	36%	56%	56%	60%	32%
21	25	88%	84%	84%	68%	80%	64%
22	25	76%	72%	64%	24%	52%	16%
23	25	68%	60%	60%	36%	64%	16%
24	25	68%	48%	64%	40%	68%	24%
25	25	72%	68%	68%	56%	72%	48%
26	25	32%	32%	32%	32%	28%	28%
27	25	40%	44%	52%	36%	32%	20%
28	25	68%	68%	72%	60%	60%	40%
29	25	68%	64%	72%	56%	56%	40%
30	25	48%	40%	48%	36%	24%	20%
31	25	76%	72%	80%	68%	52%	36%
32	25	64%	60%	76%	60%	20%	4%
33	25	64%	60%	72%	56%	52%	44%
34	25	72%	72%	72%	48%	64%	40%
35	25	68%	60%	80%	76%	60%	20%

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
36	25	100%	100%	100%	100%	100%	100%
37	25	100%	100%	100%	100%	100%	100%
38	25	68%	72%	72%	68%	52%	48%
39	25	48%	52%	52%	44%	52%	36%
40	25	64%	64%	88%	60%	80%	48%
41	25	84%	84%	92%	84%	88%	72%
42	25	72%	76%	76%	76%	72%	52%
43	25	64%	64%	60%	64%	64%	48%
44	25	32%	36%	36%	36%	32%	24%
45	25	72%	72%	76%	72%	76%	64%
46	25	80%	84%	100%	88%	92%	64%
47	25	68%	60%	68%	64%	68%	52%
48	25	56%	56%	48%	44%	44%	28%
49	25	60%	48%	52%	56%	56%	40%
50	25	84%	80%	72%	24%	64%	20%
Grand Total	1250	65%	60%	64%	52%	57%	38%

Exhibit 3: Network URL Comparison Agreement Rates by Sample ID

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	5	80%	80%	100%	100%	100%	80%
2	5	100%	100%	100%	100%	100%	100%
3	5	100%	100%	100%	100%	100%	100%
4	5	80%	80%	80%	80%	80%	80%
5	5	100%	80%	100%	100%	0%	0%
6	5	100%	100%	100%	100%	100%	100%
7	5	60%	100%	100%	100%	100%	60%
8	5	40%	40%	40%	40%	40%	40%
9	5	100%	100%	100%	100%	100%	100%
10	5	100%	100%	100%	100%	100%	100%
11	5	100%	100%	100%	100%	100%	100%
12	5	100%	100%	100%	100%	100%	100%
13	5	40%	40%	40%	40%	40%	40%
14	5	60%	60%	60%	60%	60%	60%
15	5	80%	80%	100%	100%	100%	80%
16	5	100%	100%	100%	100%	100%	100%
17	5	100%	100%	100%	100%	100%	100%
18	5	40%	40%	40%	40%	40%	40%
19	5	60%	100%	80%	100%	100%	40%
20	5	100%	100%	100%	100%	100%	100%
21	5	100%	80%	100%	100%	100%	80%
22	5	100%	100%	100%	40%	100%	40%
23	5	20%	20%	20%	20%	20%	20%
24	5	0%	0%	0%	0%	0%	0%
25	5	60%	60%	80%	60%	60%	60%
26	5	0%	100%	100%	100%	100%	0%
27	5	80%	80%	80%	80%	80%	80%
28	5	60%	40%	60%	40%	40%	40%
29	5	80%	80%	80%	80%	80%	80%
30	5	20%	20%	20%	40%	40%	20%
31	5	80%	100%	100%	100%	100%	80%
32	5	80%	100%	100%	100%	100%	80%
33	5	60%	60%	60%	60%	60%	60%
34	5	80%	100%	100%	100%	100%	80%
35	5	60%	80%	80%	80%	80%	60%
36	5	80%	100%	100%	100%	100%	80%
37	5	100%	100%	100%	100%	100%	100%
38	5	40%	40%	20%	40%	20%	20%

Sample ID	Sample Size	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
39	5	100%	100%	100%	100%	100%	100%
40	5	60%	60%	80%	80%	80%	40%
41	5	80%	80%	80%	80%	80%	80%
42	5	40%	40%	40%	40%	40%	40%
43	5	80%	80%	80%	80%	80%	80%
44	5	80%	80%	80%	80%	80%	80%
45	5	100%	100%	100%	100%	100%	100%
46	5	0%	0%	0%	0%	0%	0%
47	5	0%	0%	0%	0%	0%	0%
48	5	0%	0%	0%	0%	0%	0%
49	5	0%	0%	0%	0%	0%	0%
50	5	0%	0%	0%	0%	0%	0%
Grand Total	250	66%	70%	72%	71%	70%	60%

Appendix 3: Plan Year 2019 Results by Issuer

Exhibit 4: Secret-Shopper Review Agreement Rates by Sample ID

Sample ID	Sample Size	Calls Connected	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	25	96%	76%	56%	72%	68%	60%	44%
2	25	84%	40%	40%	40%	40%	40%	40%
3	25	92%	68%	60%	68%	68%	60%	52%
4	25	96%	96%	96%	96%	80%	92%	76%
5	25	96%	72%	68%	64%	52%	56%	36%
6	25	84%	32%	32%	32%	28%	32%	28%
7	25	96%	76%	72%	76%	76%	72%	68%
8	25	96%	88%	76%	88%	84%	76%	72%
9	25	88%	48%	44%	48%	40%	48%	36%
10	25	88%	88%	76%	88%	4%	88%	4%
11	25	84%	56%	48%	56%	32%	52%	28%
12	25	88%	80%	80%	80%	64%	68%	56%
13	25	84%	68%	56%	68%	56%	16%	12%
14	25	88%	88%	84%	88%	84%	80%	72%
15	25	100%	80%	68%	76%	80%	72%	56%
16	25	96%	80%	80%	80%	80%	80%	80%
17	25	84%	68%	64%	64%	52%	56%	32%
18	25	80%	36%	24%	36%	32%	32%	16%
19	25	72%	56%	56%	56%	52%	48%	44%
20	25	92%	68%	64%	68%	56%	64%	56%
21	25	84%	52%	48%	52%	52%	52%	48%
22	25	92%	60%	56%	56%	40%	60%	36%
23	25	100%	52%	44%	52%	48%	48%	40%
24	25	92%	60%	52%	56%	52%	52%	44%
25	25	92%	76%	72%	72%	44%	68%	40%
26	25	92%	80%	72%	80%	80%	80%	72%
27	25	96%	88%	64%	84%	84%	52%	44%
28	25	84%	60%	52%	56%	48%	40%	32%
29	25	100%	80%	72%	76%	72%	76%	60%
30	25	84%	64%	60%	60%	56%	64%	48%
31	25	100%	68%	64%	64%	64%	64%	56%
32	25	0%	0%	0%	0%	0%	0%	0%
33	25	96%	60%	52%	60%	52%	60%	44%
34	25	76%	52%	48%	52%	24%	48%	20%
35	25	100%	80%	76%	80%	80%	76%	72%

Sample ID	Sample Size	Calls Connected	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
36	25	100%	60%	56%	60%	48%	60%	44%
37	25	84%	72%	64%	72%	68%	68%	56%
38	25	96%	48%	44%	44%	44%	44%	32%
39	25	88%	80%	76%	80%	64%	72%	52%
40	25	100%	68%	40%	60%	68%	48%	24%
41	25	92%	72%	72%	68%	72%	72%	68%
42	25	88%	60%	60%	56%	52%	52%	40%
43	25	92%	80%	76%	80%	64%	72%	52%
44	25	92%	84%	80%	84%	64%	32%	16%
45	25	96%	84%	72%	80%	84%	80%	68%
46	25	0%	0%	0%	0%	0%	0%	0%
47	25	92%	72%	68%	72%	72%	72%	68%
48	25	88%	60%	48%	60%	40%	48%	28%
49	25	96%	56%	44%	52%	40%	52%	24%
50	25	92%	64%	56%	64%	44%	56%	44%
51	25	80%	56%	52%	56%	24%	44%	16%
52	25	96%	84%	80%	84%	64%	72%	48%
Grand Total	**1300**	**87%**	**65%**	**59%**	**64%**	**55%**	**57%**	**43%**

Exhibit 5: Network URL Comparison Review Agreement Rates by Sample ID

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	5	100%	80%	80%	80%	80%	80%	80%
2	5	100%	100%	100%	100%	100%	100%	100%
3	5	100%	100%	100%	100%	100%	100%	100%
4	3	100%	67%	67%	67%	67%	67%	67%
5	5	100%	100%	100%	100%	80%	80%	80%
6	3	100%	67%	67%	67%	0%	0%	0%
7	5	100%	100%	100%	100%	100%	100%	100%
8	5	80%	80%	80%	80%	80%	80%	80%
9	3	100%	100%	100%	100%	67%	100%	100%
10	3	100%	67%	67%	67%	67%	67%	67%
11	5	100%	80%	80%	100%	100%	100%	80%
12	5	100%	100%	100%	100%	80%	100%	100%
13	5	100%	80%	80%	80%	20%	20%	20%
14	5	100%	100%	100%	100%	40%	60%	60%
15	5	100%	100%	100%	100%	100%	100%	100%
16	3	100%	100%	100%	100%	100%	100%	100%
17	5	100%	100%	100%	100%	80%	100%	100%
18	5	100%	60%	60%	80%	40%	60%	60%
19	5	100%	80%	80%	80%	60%	80%	80%
20	5	100%	80%	80%	80%	60%	80%	80%
21	3	100%	0%	0%	100%	100%	100%	0%
22	5	100%	80%	80%	80%	60%	80%	80%
23	5	100%	100%	100%	100%	80%	100%	100%
24	5	100%	60%	40%	60%	20%	60%	40%
25	5	100%	60%	60%	60%	20%	40%	40%
26	5	100%	60%	60%	60%	40%	60%	60%
27	5	100%	100%	100%	100%	100%	100%	100%
28	5	100%	100%	100%	100%	100%	100%	100%
29	5	100%	80%	80%	80%	80%	80%	80%
30	5	100%	80%	80%	80%	40%	80%	80%
31	3	100%	100%	100%	100%	100%	100%	100%
32	5	100%	40%	100%	100%	100%	100%	40%
33	3	100%	100%	100%	100%	33%	100%	100%
34	3	67%	33%	33%	67%	0%	0%	0%
35	5	80%	80%	80%	80%	80%	80%	80%
36	3	100%	67%	67%	100%	67%	100%	67%
37	5	80%	60%	60%	60%	60%	60%	60%
38	5	100%	100%	80%	100%	80%	80%	60%

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
39	5	100%	100%	100%	100%	40%	100%	100%
40	5	100%	40%	40%	40%	40%	40%	40%
41	5	80%	40%	40%	40%	20%	20%	20%
42	5	100%	80%	80%	80%	60%	80%	80%
43	5	80%	80%	80%	80%	60%	80%	80%
44	5	100%	60%	80%	100%	20%	20%	20%
45	5	100%	100%	100%	100%	100%	100%	100%
46	5	100%	0%	80%	80%	80%	80%	0%
47	5	100%	100%	100%	100%	100%	100%	100%
48	5	80%	80%	80%	80%	80%	80%	80%
49	5	100%	80%	80%	100%	100%	100%	80%
50	5	100%	100%	100%	100%	100%	100%	100%
51	5	100%	100%	100%	100%	100%	100%	100%
52	5	100%	100%	100%	100%	100%	100%	100%
Grand Total	**240**	**97%**	**80%**	**82%**	**87%**	**70%**	**79%**	**73%**

Appendix 4: Plan Year 2020 Results by Issuer

Exhibit 6: Network URL Comparison Agreement Rate by Sample ID

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	125	93%	92%	91%	93%	93%	93%	91%
2	125	97%	92%	94%	97%	94%	96%	91%
3	125	97%	94%	94%	96%	94%	95%	91%
4	125	100%	100%	100%	100%	95%	99%	99%
5	125	98%	98%	95%	98%	81%	87%	86%
6	125	80%	74%	74%	80%	80%	80%	74%
7	125	68%	67%	67%	68%	66%	66%	66%
8	125	94%	94%	93%	94%	90%	94%	93%
9	125	99%	98%	99%	99%	94%	94%	94%
10	125	98%	94%	98%	95%	43%	98%	91%
11	125	70%	67%	69%	70%	14%	14%	14%
12	125	80%	72%	71%	80%	80%	80%	70%
13	125	100%	99%	100%	100%	98%	100%	99%
14	125	98%	87%	97%	94%	85%	95%	82%
15	125	74%	53%	53%	74%	52%	72%	46%
16	125	96%	95%	94%	95%	67%	82%	79%
17	125	98%	94%	94%	97%	54%	54%	51%
18	125	99%	99%	98%	99%	95%	98%	98%
19	125	76%	67%	69%	75%	74%	74%	63%
20	125	79%	79%	79%	78%	74%	78%	77%
21	125	92%	90%	90%	92%	86%	91%	89%
22	125	97%	90%	95%	95%	88%	95%	89%
23	125	89%	85%	82%	88%	84%	84%	78%
24	125	85%	80%	81%	82%	73%	74%	67%
25	125	75%	54%	52%	75%	75%	75%	51%
26	125	98%	94%	97%	91%	53%	98%	87%
27	125	94%	0%	90%	86%	70%	93%	0%
28	125	99%	98%	99%	98%	94%	99%	98%
29	125	97%	97%	97%	97%	38%	39%	39%
30	125	89%	85%	87%	87%	69%	72%	70%
31	125	88%	87%	86%	88%	83%	88%	86%
32	125	58%	55%	56%	58%	53%	54%	52%
33	125	98%	98%	98%	98%	84%	98%	98%
34	125	89%	76%	82%	89%	70%	83%	70%
35	125	46%	41%	41%	46%	38%	44%	40%
36	125	50%	48%	49%	50%	42%	43%	42%

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
37	125	98%	98%	96%	98%	95%	98%	96%
38	125	70%	66%	69%	69%	56%	56%	53%
39	125	73%	72%	71%	70%	52%	62%	58%
40	125	77%	54%	72%	76%	41%	60%	42%
41	125	93%	83%	88%	90%	73%	78%	68%
42	125	90%	86%	90%	90%	75%	88%	84%
43	125	98%	92%	98%	97%	71%	98%	90%
44	125	90%	86%	87%	89%	79%	86%	79%
45	125	100%	100%	100%	98%	46%	51%	51%
46	125	85%	79%	84%	83%	72%	79%	73%
47	125	79%	75%	76%	78%	71%	71%	66%
48	125	66%	51%	48%	54%	58%	58%	38%
49	125	92%	86%	90%	91%	61%	61%	55%
50	125	93%	90%	91%	93%	90%	90%	88%
Grand Total	**6250**	**87%**	**80%**	**83%**	**86%**	**71%**	**78%**	**71%**

Exhibit 7: NPPES Comparison Review Agreement Rate by Sample ID

Sample ID	Sample Size	Phone Number	Address	Specialty	Overall Agreement
1	125	39%	43%	66%	23%
2	125	35%	37%	72%	22%
3	125	53%	54%	77%	35%
4	125	26%	50%	77%	20%
5	125	48%	47%	83%	33%
6	125	38%	37%	82%	23%
7	125	49%	36%	81%	24%
8	125	70%	68%	96%	58%
9	125	49%	45%	76%	30%
10	125	56%	52%	75%	30%
11	125	44%	34%	69%	23%
12	125	50%	42%	74%	25%
13	125	50%	49%	82%	42%
14	125	50%	49%	70%	30%
15	125	57%	54%	80%	37%
16	125	54%	55%	82%	41%
17	125	60%	58%	72%	35%
18	125	45%	46%	77%	32%
19	125	42%	32%	55%	11%
20	125	68%	58%	86%	42%
21	125	46%	48%	79%	31%
22	125	45%	54%	80%	30%
23	125	43%	44%	74%	28%
24	125	38%	44%	66%	18%
25	125	34%	32%	80%	22%
26	125	31%	36%	72%	15%
27	125	0%	57%	68%	0%
28	125	39%	30%	83%	24%
29	125	54%	52%	77%	32%
30	125	48%	40%	73%	27%
31	125	46%	54%	69%	29%
32	125	29%	27%	75%	15%
33	125	39%	49%	71%	20%
34	125	33%	36%	82%	23%
35	125	34%	40%	61%	15%
36	125	51%	54%	81%	32%
37	125	46%	39%	83%	29%
38	125	30%	30%	73%	18%
39	125	38%	29%	74%	18%

Sample ID	Sample Size	Phone Number	Address	Specialty	Overall Agreement
40	125	27%	40%	78%	13%
41	125	23%	27%	64%	10%
42	125	52%	53%	79%	30%
43	125	22%	45%	66%	14%
44	125	47%	50%	70%	27%
45	125	33%	28%	81%	22%
46	125	22%	29%	75%	8%
47	125	39%	42%	72%	22%
48	125	37%	29%	58%	12%
49	125	42%	42%	82%	33%
50	125	43%	41%	73%	21%
Grand Total	**6250**	**42%**	**43%**	**75%**	**25%**

Exhibit 8: USPS Comparison Review Agreement Rate by Sample ID

Sample ID	Count of Issuer ID	Address Result
1	125	95%
2	125	98%
3	125	98%
4	125	95%
5	125	98%
6	125	98%
7	125	98%
8	125	30%
9	125	96%
10	125	97%
11	125	87%
12	125	100%
13	125	95%
14	125	97%
15	125	98%
16	125	100%
17	125	95%
18	125	96%
19	125	99%
20	125	98%
21	125	97%
22	125	100%
23	125	98%
24	125	100%
25	125	97%
26	125	100%
27	125	96%
28	125	99%
29	125	99%
30	125	99%
31	125	95%
32	125	88%
33	125	95%
34	125	100%
35	125	94%
36	125	94%
37	125	98%
38	125	94%
39	125	92%

Sample ID	Count of Issuer ID	Address Result
40	125	98%
41	125	93%
42	125	97%
43	125	100%
44	125	98%
45	125	95%
46	125	53%
47	125	98%
48	125	98%
49	125	98%
50	125	97%
Grand Total	6250	95%

Appendix 5: Plan Year 2021 Results by Issuer

Exhibit 9: Secret-Shopper Review Agreement Rates by Sample ID

Sample ID	Sample Size	Calls Connected	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	25	88%	80%	68%	72%	64%	68%	60%
2	25	100%	92%	80%	76%	60%	80%	52%
3	25	100%	96%	60%	80%	52%	72%	40%
4	25	100%	92%	68%	76%	52%	76%	44%
5	25	96%	76%	60%	68%	52%	52%	44%
6	25	96%	84%	60%	68%	68%	72%	52%
7	25	96%	84%	72%	84%	72%	80%	60%
8	25	96%	76%	64%	72%	56%	48%	36%
9	25	96%	80%	68%	72%	64%	68%	60%
10	25	92%	56%	52%	48%	44%	48%	36%
11	25	100%	96%	80%	92%	72%	84%	56%
12	25	96%	80%	56%	60%	52%	60%	52%
13	25	84%	60%	52%	56%	24%	48%	20%
14	25	100%	88%	72%	80%	76%	72%	68%
15	25	100%	88%	64%	64%	24%	64%	24%
16	25	96%	80%	60%	60%	52%	56%	48%
17	25	100%	80%	68%	76%	60%	72%	56%
18	25	100%	92%	72%	88%	76%	84%	60%
19	25	100%	92%	76%	76%	60%	76%	60%
20	25	100%	96%	88%	84%	64%	88%	60%
21	25	100%	84%	64%	68%	52%	64%	44%
22	25	100%	92%	84%	84%	76%	76%	64%
23	25	100%	76%	52%	64%	32%	60%	24%
24	25	84%	64%	52%	60%	56%	52%	40%
25	25	92%	56%	36%	40%	28%	32%	24%
26	25	100%	96%	80%	84%	84%	72%	68%
27	25	100%	88%	88%	88%	80%	80%	72%
28	25	100%	92%	72%	80%	52%	68%	48%
29	25	92%	72%	44%	56%	52%	52%	40%
30	25	100%	76%	48%	60%	40%	60%	36%
31	25	92%	76%	60%	60%	44%	60%	32%
32	25	100%	92%	64%	76%	60%	80%	52%
33	25	100%	92%	80%	84%	76%	24%	16%
34	25	100%	96%	88%	96%	88%	84%	72%
35	25	100%	92%	56%	64%	56%	60%	44%
36	25	100%	100%	72%	72%	32%	72%	32%
37	25	96%	92%	76%	76%	68%	36%	32%
38	25	92%	72%	56%	60%	36%	56%	28%
39	25	100%	80%	64%	76%	72%	72%	60%
40	25	92%	88%	80%	88%	64%	84%	56%
41	25	100%	84%	48%	56%	48%	52%	40%
42	25	96%	76%	68%	68%	32%	64%	32%
43	25	100%	72%	56%	56%	52%	64%	48%
44	25	100%	92%	72%	88%	72%	84%	52%
45	25	100%	92%	80%	84%	64%	84%	64%
46	25	100%	88%	76%	80%	68%	76%	64%
47	25	100%	72%	64%	64%	48%	60%	44%
48	25	100%	80%	80%	80%	60%	76%	60%
49	25	96%	88%	60%	60%	36%	60%	36%

Sample ID	Sample Size	Calls Connected	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
50	25	100%	96%	76%	80%	52%	76%	48%
Grand Total	**1250**	**97%**	**84%**	**67%**	**72%**	**56%**	**66%**	**47%**

Exhibit 10: Network URL Comparison Agreement Rate by Sample ID

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
1	25	100%	100%	96%	100%	88%	100%	96%
2	25	68%	68%	68%	64%	56%	68%	64%
3	25	100%	100%	100%	100%	92%	100%	100%
4	25	96%	96%	96%	96%	80%	96%	96%
5	25	100%	100%	96%	100%	84%	96%	92%
6	25	100%	100%	92%	96%	76%	92%	80%
7	25	96%	96%	88%	96%	88%	92%	84%
8	25	100%	100%	100%	100%	84%	84%	84%
9	25	84%	84%	84%	84%	68%	84%	84%
10	25	72%	72%	72%	72%	68%	72%	72%
11	25	96%	96%	92%	96%	44%	56%	52%
12	25	76%	76%	52%	76%	56%	76%	52%
13	25	88%	88%	80%	84%	76%	80%	68%
14	25	96%	96%	96%	96%	88%	88%	88%
15	25	84%	84%	84%	84%	60%	84%	84%
16	25	100%	100%	96%	100%	92%	92%	88%
17	25	96%	96%	92%	96%	92%	96%	92%
18	25	96%	96%	92%	92%	68%	80%	80%
19	25	100%	100%	100%	100%	76%	92%	92%
20	25	80%	80%	72%	80%	76%	80%	72%
21	25	92%	92%	84%	88%	92%	92%	80%
22	25	100%	100%	96%	96%	84%	96%	88%
23	25	88%	88%	88%	88%	76%	80%	80%
24	25	96%	96%	92%	96%	92%	96%	92%
25	25	48%	48%	48%	48%	28%	28%	28%
26	25	100%	100%	92%	100%	88%	100%	92%
27	25	100%	100%	96%	100%	60%	64%	60%
28	25	68%	68%	64%	68%	68%	68%	64%
29	25	72%	72%	68%	72%	36%	48%	48%
30	25	76%	76%	68%	72%	76%	76%	68%
31	25	32%	32%	32%	32%	28%	28%	28%
32	25	96%	96%	96%	96%	72%	72%	72%
33	25	88%	88%	80%	80%	12%	12%	12%
34	25	100%	100%	100%	96%	84%	100%	96%
35	25	88%	88%	84%	88%	80%	88%	84%
36	25	100%	100%	96%	100%	40%	44%	44%
37	25	92%	92%	92%	92%	36%	40%	40%
38	25	92%	92%	92%	92%	52%	52%	52%

Sample ID	Sample Size	Record Found	Phone Number	Address	Specialty	Plan Acceptance	Accepting New Patients	Overall Agreement
39	25	100%	100%	100%	100%	88%	96%	96%
40	25	100%	100%	100%	100%	100%	100%	100%
41	25	88%	88%	84%	88%	88%	88%	84%
42	25	100%	100%	92%	100%	80%	96%	92%
43	25	84%	84%	84%	76%	68%	80%	76%
44	25	76%	76%	68%	76%	32%	40%	40%
45	25	80%	80%	80%	80%	60%	76%	76%
46	25	72%	72%	68%	68%	52%	64%	60%
47	25	72%	72%	60%	72%	48%	72%	60%
48	25	100%	100%	80%	100%	56%	72%	72%
49	25	84%	84%	72%	84%	80%	84%	72%
50	25	92%	92%	92%	92%	80%	92%	92%
Total	1250	88%	88%	84%	87%	69%	77%	73%