



QHP Certification

Machine-Readable Data Issuer Guide

Updated 4/01/2022

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ABOUT THE 2023 MACHINE-READABLE DATA ISSUER GUIDE

The 2023 Machine-Readable Data Issuer Guide consolidates important information about the plan year (PY) 2023 machine-readable (MR) plan, provider, and formulary data requirements for Qualified Health Plan (QHP) issuers, including important guidance for new issuers, operational tips for ensuring compliance, and technical guidance on the data specifications. This guide is a supplemental resource and is not intended to replace official guidance or instructions.

For more technical information about MR data requirements, including access to validation tools and frequently-asked questions, please visit the CMS-developed [Coverage Portal](#). Legal authorities for the MR data requirements may be found at 45 C.F.R. § 156.122 and 45 C.F.R. § 156.230.



NEW FOR PY2023

New URL Submission Method

New for PY2023 is that all new Index URL Submissions and Index URL updates will be made in the HIOS Supplemental Submission Module (SSM). CMS will be migrating to this new system starting with PY2023 Certification.

Additional Provider Gender Functionality

In prior schema versions, the only allowable fields in the provider “gender” field were “male”, “female”, and “other”. Starting in the PY2023 machine-readable schema, additional allowable values include “transgender-female”, “transgender-male”, “non-binary”, and “non-disclose”.

Index URL Submissions Deadline

Index URLs must be submitted by both new and returning issuers by the initial application submission deadline, June 15, 2022.

PY23 Data Posting Deadline

Data must be formatted properly, with the best available data for the upcoming plan year included, by September 21, 2022.

MACHINE READABLE TIMELINE

Timeline

The QHP Certification process requires issuers to submit their index URL by June 15, 2022 and post or update an initial set of MR data for the next plan year by September 21, 2022. CMS reviews this data to ensure that issuers are prepared to present MR data to consumers through Healthcare.gov and Direct Enrollment Partner websites prior to Open Enrollment. Consumers can use MR data ingested by an enrollment platform, like Healthcare.gov, during Open Enrollment to filter search results for QHPs that cover specific providers or drugs.

Figure 1. Machine Readable Timeline

Dates	Activity
05/19/2022	QHP Issuer Webinar on the URL Submission Process including the new Machine-Readable SSM Submission Process
06/05/2022	Machine Readable Data Refresher and Technical Presentation
06/15/2022	Index URL Submission Deadline. <i>Please note that starting for PY2023, all Index URL Initial Submissions and Updates should be completed in the HIOS Supplemental Submission Module (SSM)</i>
07/01/2022 – 09/21/2022	Weekly Account Manager Outreach to Validate Index URL Submission Information and provide Technical Assistance (TA) for the Data Deadline in September.
09/21/2022	Deadline for issuers to demonstrate MR data meets content and formatting requirements for PY2023
11/01/2022	Open Enrollment (OE) begins

MR DATA COMPLIANCE OPERATIONS WALKTHROUGH

Figure 2. MR Data Compliance Checklist

Steps	Checklist
Step 1: Planning	<p>Before beginning work on developing your MR data:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Review the MR data standard. <input type="checkbox"/> Discuss the generation of these files with your technical staff or with a third-party vendor. <input type="checkbox"/> Determine the requirements for generating, updating, and posting MR files and associated costs.
Step 2: Develop Business Processes	<ul style="list-style-type: none"> <input type="checkbox"/> Develop a process for the submission of the MR index URL and associated information to the HIOS Supplemental Submission Module (SSM) <input type="checkbox"/> Develop a process for the generation of required MR data files. <input type="checkbox"/> Develop a testing process that permits your organization to validate the content and format of MR data files. This process should include the use of the CMS-developed Schema Validator. <input type="checkbox"/> Develop a process for posting MR data files online for public access. Ensure that new files are replacing older files when posting updated information. <input type="checkbox"/> Develop a testing process that permits your organization to validate that MR files are posted and updated appropriately.
Step 3: Post MR Data	<ul style="list-style-type: none"> <input type="checkbox"/> Generate all MR files and post them available online at a publicly-available location. <input type="checkbox"/> Test that MR files have been posted successfully.
Step 4: Submit Index URL	<ul style="list-style-type: none"> <input type="checkbox"/> Submit Index URL and associated information to the HIOS Supplemental Submission Module (SSM) All updates throughout the year will also need to go through the SSM. <ul style="list-style-type: none"> • Ensure that the issuer name provided is either the issuer name used with the Exchange or the legal name of the parent organization (if the index URL covers multiple issuers with different names). • Ensure that all issuer IDs covered by your posted MR data are listed without typographical errors prior to submission.

Steps	Checklist
Step 5: Compliance Within a Plan Year	<ul style="list-style-type: none"> <input type="checkbox"/> Monitor the technical and compliance POC email addresses for error and compliance reports, respectively, from CMS. <ul style="list-style-type: none"> • CMS will crawl and review your MR data on a daily basis. Reports on the crawl and review could be sent at any time during the QHP certification process or the plan year. <input type="checkbox"/> Changes in your provider, drug, or plan information must be updated in your MR files no less frequently than a monthly basis.
Step 6: Preparation for an Upcoming Plan Year	<ul style="list-style-type: none"> <input type="checkbox"/> Monitor for updates on MR requirements in regular CMS communications, and the annual Letter to Issuers. <input type="checkbox"/> Submit your index URL and associated information by June 15, 2022, the deadline for initial QHP application submission, even if you submitted an index URL last year. <input type="checkbox"/> By September 21, 2022, update your existing MR data files, to the greatest extent practicable, to reflect data for the next plan year. <input type="checkbox"/> Validate data display using the Coverage Inspector Tool to check how your information will be displayed on healthcare.gov and Direct Enrollment Partner websites before consumer-facing Window Shopping begins.

Self-Help Tools

CMS has developed a reference website and two online tools to assist you with avoiding compliance issues and ensuring that the data displayed on healthcare.gov and other enrollment platforms meets your issuer’s expectations.

- [Coverage Portal](#)
 - A reference website where you can review information in the knowledge base, access the two tools described below, and find other helpful links.
- [Schema Technical Documentation](#)
 - For technical or IT staff at issuers, documentation of the JSON schema for each of the four types of files required for machine-readable data compliance.
- [Schema Validator](#)
 - Upload an MR data file of a specific type.
 - Receive a report of the warnings and errors identified in the file.
 - Warnings are common but do not represent compliance issues. They may affect the display of data however.
 - Errors represent compliance issues.

- [Coverage Inspector](#)
 - Enter an identifier: drug name or RxCUI, plan ID, provider NPI, issuer ID, etc. based on what kind of data you want to inspect.
 - Receive a report of the data that is associated to that identifier.

Get Help from CMS

Email or Call the Marketplace Service Desk

Send technical questions to the MR Team Help Desk at marketplace-api@cms-provider-directory.uservice.com.

Contact Your Account Manager

For non-technical issues, like deadlines or legal requirements, the Account Manager serves as an issuer’s primary point of contact.

Join QHP Webinars

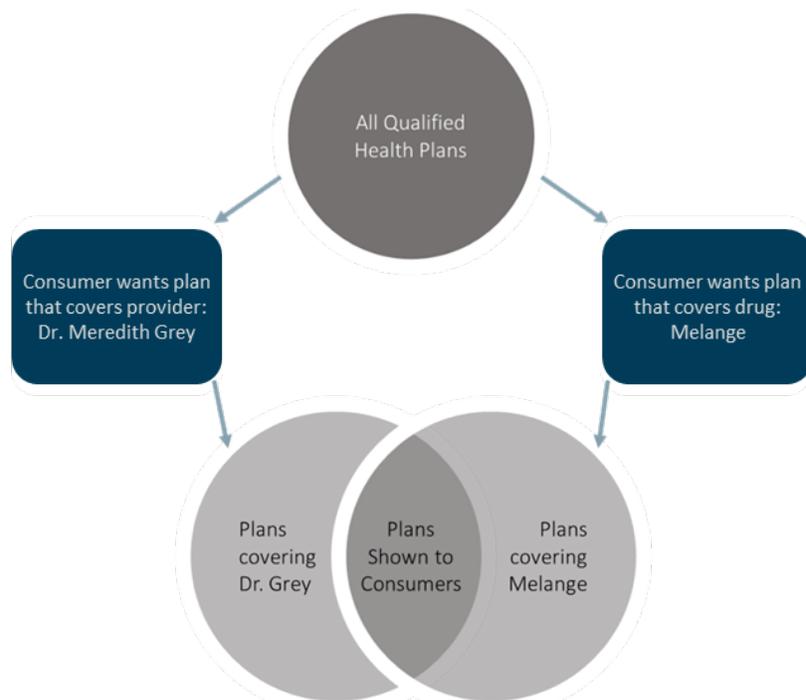
CMS hosts an annual series of QHP webinars that provides issuers with program and operational guidance for operating Marketplace and Premium Stabilization programs. These webinars cover a wide array of topics related to QHP certification, and various CMS subject matter experts (SMEs) respond to participant questions during the final portion of each session. For registration and the most up-to-date information on this webinar series, issuers can visit REGTAP.

Know the Data

What It Is And How It Is Used

MR data is an issuer-generated, structured dataset that describes the traits of, and relationships between, the plans, providers, and drugs that are covered by a QHP issuer. Structuring this data allows CMS and third-party developers to gather and present this information to consumers efficiently.

MR data is used by CMS to support the enrollment platform healthcare.gov and provide data to Direct Enrollment Partner enrollment platforms. Consumers



who want to make sure that a QHP covers a particular provider or drug can filter QHP results based on issuer MR data.

CMS gathers MR data on a daily basis and transforms it into a format that feeds multiple enrollment platforms. This transformation process may drop or replace some of the data that issuers are required to post. Often, when a replacement occurs, CMS is relying on information in the National Plan and Provider Enumeration System (NPPES) to replace data that tends to vary across MR files with a single, reliable value. For this reason, CMS strongly encourages issuers to use the [Coverage Inspector Tool](#) on the [Coverage Portal](#) to identify what consumers will see after the data transformation.

How It Should Be Made Available

Data must be constantly available to the public by Hypertext Transfer Protocol Secure (HTTPS). The data must be publicly-available so that researchers and other interested parties can use it for their purposes. The data must be made available by HTTPS to protect the privacy and integrity of the data that CMS and other users are pulling from issuer websites into their own operational systems. HTTPS is the preferred protocol for many major websites like Google and Amazon.

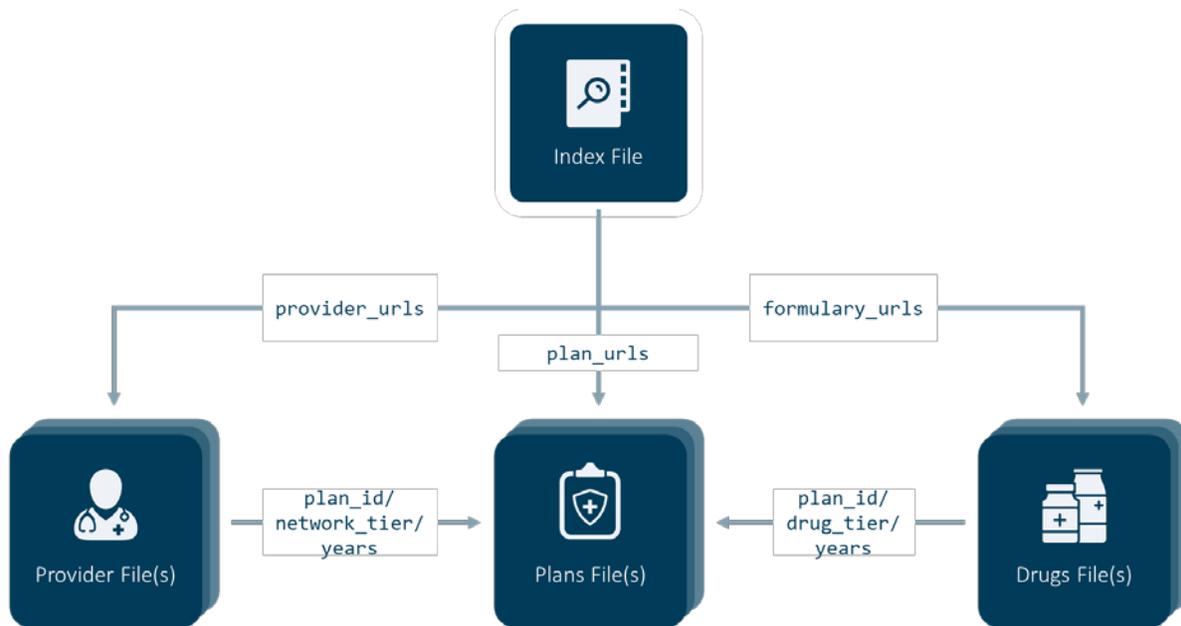
How It Looks

The following sections will explain what data must be included in a MR data file in plain English by way of example. For technical experts looking for a more concise specification, please refer to the JSON schema documentation published on the [Coverage Portal](#).

There are four types of files that you will need to create to meet your MR data requirements. These are:

- 1) Index file,
- 2) Plans file(s),
- 3) Providers file(s), and
- 4) Drugs file(s).

Figure 3. MR Data File Relationships



Each of these files work together to provide a complete picture of the QHPs you are offering. Data contained in one file can be used to reference data in another file. For example, information about a provider participating in plan 12345WA0010001 can be linked to information about the benefit structure of that plan using the plan ID.

The Index File

Like an index in a book, the index file tells CMS and other users where they can find the data that they’re looking for. It is the only file that will not contain specific data about your issuer’s QHPs relevant to consumers. It tells the user where all of the plans, providers, and drugs files that your issuer has publicly posted can be found. Because the index needs to be a consistent reference for where to find the MR data, you can only have one index file. If you need to make changes, update the index file.

Index files contain URLs that are categorized by the type of data file found at the URL. This allows people to look up just the MR data files that they want. If someone only wants information on the plans your issuer is offering, they can just look at the URL(s) categorized under “plan_urls.”



How do people know where to find the index files?

When you submit your index URL to the HIOS Supplemental Submission Module (SSM), CMS records that information into a tracking file. That tracking file is released as the Machine-Readable Public Use File. These files are posted under [Public Use Files](#) to the CCIIO website.

Figure 4. Index File Example

Explanation	Example
<p>1) Categories: Each of the types of MR data files is categorized by the first value (e.g. “provider_urls”).</p> <p>2) URLs: The files that contain data for a specific category can be found at the listed URLs. This example breaks up files by state but there is no obligation to do so. Your data can be split in multiple files any way you wish or just put into one file. Similarly, the order of the URLs does not matter.</p> <p>3) Special Cases: Dental issuers may not have any formularies associated with their offerings. To indicate that, simply put [] with no URLs between.</p>	<pre data-bbox="706 661 1421 1029"> { "provider_urls": ["https://www.example.com/json/providers_WA.json", "https://www.example.com/json/providers_OR.json", "https://www.example.com/json/providers_ID.json"], "formulary_urls": ["https://www.example.com/json/drugs_WA.json", "https://www.example.com/json/drugs_ID.json", "https://www.example.com/json/drugs_OR.json"], "plan_urls": ["https://www.example.com/json/plans.json"] } </pre>

The Plans Files

Your plans files will provide CMS and other users with basic information about each of the plans you’re offering on healthcare.gov and the Direct Enrollment Partner platforms. The files will also link your plans data with the provider data, using the network information, and with the drug data, using the formulary information.

You can split your issuer’s plans data into as many files as you want, but you must have at least one plans file.

Each plan record in a plans file will:

- 1) Identify the plan's:
 - a. HIOS plan ID,
 - b. Marketing name,
 - c. Point-of-contact email address at the issuer where users who find errors in the plan data can report the error, and
 - d. Plan years.
- 2) Associate the plan with:
 - a. Your consumer-facing marketing documents, like the summary of benefits and coverage (SBC), with URLs,
 - b. The networks included in the plan,
 - c. The formularies included in the plan.
- 3) Tell the user the date that the plan's data was last updated.

Figure 5. Overlapping Data Points for Plans, Provider, and Drug File(s)

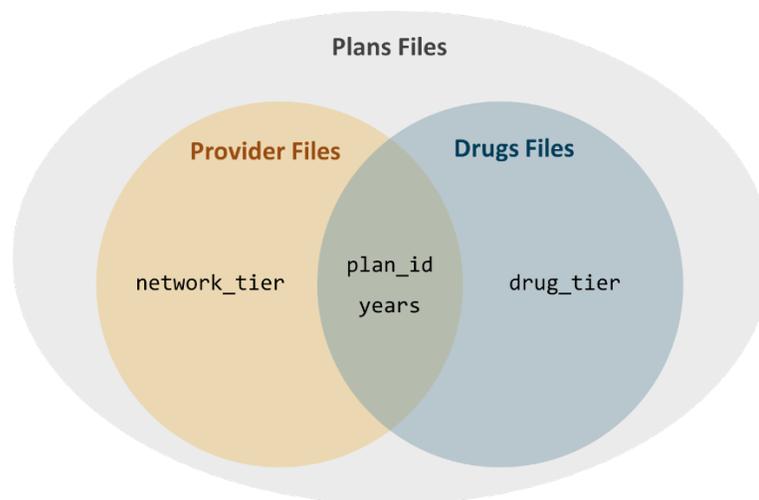


Table 6. Plan File Example

Explanation	Example
<p>1) Identifiers: The basic information needed to identify a plan like its HIOS plan ID and the marketing name that your issuer uses. You identify that the plan ID is a HIOS plan ID by entering HIOS-PLAN-ID in the “plan_id_type” field.</p> <p>2) Years: The plan years that the plan was offered.</p> <p>3) Document Associations: URLs for where a user can find the plan’s SBC, plan brochure, or formulary brochure. The SBC URL is the only document association that must be included; the others are optional.</p> <p>4) Plan Contact: Address users can email if they find errors.</p> <p>5) Last Updated: The date when this plan’s data was last updated.</p>	<pre>[{ "plan_id_type": "HIOS-PLAN-ID", "plan_id": "12345WA0010001", "years": [2016, 2017, 2018], "marketing_name": "ShondaCare Silver HMO", "summary_url": "https://www.example.com/SBC", "marketing_url": "https://www.exaple.com/PB", "formulary_url": "https://www.example.com/RX", "plan_contact": "email@example.com", "last_updated_on": "2019-03-17", }]</pre>
<p>1) Network: A list of the network tier names in the plan.</p> <p>2) Network Tier: This is the value that will link a provider to a plan. You will have to use the same name in your providers files.</p> <p>a) <i>Special Rules:</i> Must be uppercase without any spaces between words. Use hyphens instead.</p>	<pre>"network": [{ "network_tier": "PREFERRED" }, { "network_tier": "NON-PREFERRED" }],</pre>

Explanation	Example
<ol style="list-style-type: none"> 1. Formulary: A list of the tiers in your formulary and details of each of those tiers. 2. Drug Tier: This is the value that will link a drug to a plan. You will have to use the same name in your drugs files. <ol style="list-style-type: none"> a. Special Rules: Must be uppercase without any spaces between words. Use hyphens instead. 3. Mail Order: Can drugs in this formulary be ordered by mail? 4. Cost Sharing: The specific cost-sharing structure used for drugs within the drug tier. <ol style="list-style-type: none"> a. <i>Special Rules:</i> Pharmacy type, copay option, and coinsurance option must be uppercase without any spaces between words. Use hyphens instead. b. In the first tier of this example, a one-month supply of Basic tier drugs supplied through retail have a 10% coinsurance before deductible and \$20 copay after deductible. Those same drugs if supplied by mail have a 20% coinsurance before deductible with no co-pay. 5. Special Cases: Dental issuers may not have any formularies associated with their offerings. To indicate that, simply put [] with no data between in the “formulary” field. 	<pre> "formulary": [{ "drug_tier": "BASIC", "mail_order": true, "cost_sharing": [{ "pharmacy_type": "1-MONTH-IN-RETAIL", "copay_amount": 20.0, "copay_opt": "AFTER-DEDUCTIBLE", "coinsurance_rate": 0.10, "coinsurance_opt": "BEFORE-DEDUCTIBLE" }, { "pharmacy_type": "1-MONTH-IN-MAIL", "copay_amount": 0.0, "copay_opt": "NO-CHARGE", "coinsurance_rate": 0.20, "coinsurance_opt": "BEFORE-DEDUCTIBLE" }] }, { "drug_tier": "PREFERRED", "mail_order": true, "cost_sharing": [{ "pharmacy_type": "1-MONTH-IN-RETAIL", "copay_amount": 20.0, "copay_opt": "AFTER-DEDUCTIBLE", "coinsurance_rate": 0.10, "coinsurance_opt": "BEFORE-DEDUCTIBLE" }, { "pharmacy_type": "1-MONTH-IN-MAIL", "copay_amount": 0.0, "copay_opt": "NO-CHARGE", "coinsurance_rate": 0.20, "coinsurance_opt": null }] }] </pre>

The Providers Files

Your providers files will provide users with detailed information about each provider that participates in networks covered by your issuer’s Exchange plans. A provider can be either an individual or a facility.

You must have at least one providers file. Because of the typical size of provider data, many QHP issuers choose to split their provider data into many providers files.



Providers File Example

The example provided in Figure 7 is an individual record. Facility records in providers files use a slightly different specification. More details can be found on the [Coverage Portal](#).

Each provider record in a providers file will:

- 1) Identify the provider’s:
 - a. Name,
 - b. Specialties,
 - c. Accepting New Patients status,
 - d. Gender,
 - e. Provider Type – Individual or Facility,
 - f. Languages Spoken,
 - g. National Provider Identifier (NPI) number, and
 - h. Practice Locations.
- 2) Associate the provider with:
 - a. The plans your issuer offers that cover the provider,
 - b. The network tiers in those plans to which the provider belongs, and
 - c. The plan years in which the provider was part of those plans and network tiers

Figure 7. Provider File Example

Explanation	Example
1) Identifiers: Basic information for identifying who the provider is. <ol style="list-style-type: none"> a. The most important and primary identifier for healthcare.gov is the NPI number. 2) Accepting: The field for indicating whether the provider is accepting new patients or is not. 3) Type: The field used to indicate whether this is an individual, group, or facility provider.	<pre>[{ "name": { "first": "Meredith", "middle": "", "last": "Grey" }, "specialty": ["Neurosurgery", "General Surgery"], "accepting": "accepting", "gender": "Female", "type": "INDIVIDUAL", "languages": ["English", "Spanish"], "npi": "123456789", }]</pre>

Explanation	Example
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- 1) **Addresses:** A collection of one or more addresses for locations where the provider practices within the network.
 - a. *Special Rules:* Every practice location for a provider should be included in this collection, whether the provider is there every day or rarely.
- 2) **Address:** Each address contains standard location data and the contact phone number for that practice location.

```
"addresses": [
  {
    "Address": "15000 Centennial Drive",
    "Address2": "",
    "City": "Seattle",
    "State": "WA",
    "Zip": "98109",
    "Phone": "2065556000"
  }
],
```



Special Treatment of Addresses: Address information for the same provider may differ among one or more QHP issuers. Healthcare.gov relies on address information located in NPPES to avoid this data conflict. However, reliance on NPPES location data affects how providers are displayed on healthcare.gov and you should use the [Coverage Inspector](#) tool on the [Coverage Portal](#) to identify what addresses will be associated to your providers when consumers search for QHPs on healthcare.gov or Direct Enrollment partner sites.

- 1) **Plans:** A collection of the plans that the provider participates in with your issuer.
- 2) **Plan:** Each plan will associate the provider to the HIOS plan ID of the plan, a network tier in that plan, and the plan years in which the provider was covered by that plan.
- 3) **Network Tier:** The tier in the plan that matches one of the network tiers declared in your plans file for that plan.
 - a. *Special Rules:* Must be upper-case without any spaces between words. Use hyphens instead.
- 4) **Years:** The plan year that the provider participated in the plan. Failing to update this field is the number one cause of compliance issues for existing issuers prior to Open Enrollment in providers files.

```
"plans": [
  {
    "plan_id_type": "HIOS-PLAN-ID",
    "plan_id": "12345WA0010001",
    "network_tier": "PREFERRED",
    "years": [
      2018,
      2019,
      2020
    ],
    "plan_id_type": "HIOS-PLAN-ID",
    "plan_id": "12345WA0010002",
    "network_tier": "PREMIUM",
    "years": [
      2018,
      2019,
      2020
    ]
  }
]
```

The Drugs or Formulary Files

Your drugs files will provide users with detailed information about each drug that is covered by a formulary in your issuer’s Exchange plans. These files will also capture the benefit structure that affects the consumer’s access to the covered drugs.

You must have at least one drugs file. Because of the typical size of drug data, many QHP issuers choose to split their drug data into many drugs files.

Each drug record in a drugs file will:

- 1) Identify the drug’s:
 - a. Name, and
 - b. RxCUI, a unique identifier for the drug from RXNORM.
- 2) Associate the drug with:
 - a. The plans that cover the drug,
 - b. The formulary tiers under which the drug is covered,
 - c. Utilization management traits like prior authorization, step therapy, or quantity limits, and
 - d. The plan years in which the drug was part of those plans and formulary tiers.

Figure 8. Drugs or Formulary File Example

Explanation	Example
1) Identifiers: The RxCUI of the drug and the name of the drug in your issuer’s formulary.	<pre>[{ "rxnorm_id": "123456", "drug_name": "Melange 1000 MG Oral [Spice]",</pre>
1) Plans: A collection of plans that include this drug in their formulary.	<pre>"plans": [{ "plan_id_type": "HIOS-PLAN-ID", "plan_id": "12345WA0010001", "drug_tier": "GENERIC", "prior_authorization": true, "step_therapy": false, "quantity_limit": false, "years": [2018, 2019, 2020] }, { "plan_id_type": "HIOS-PLAN-ID", "plan_id": "12345WA0010002", "drug_tier": "GENERIC", "prior_authorization": true, "step_therapy": false, "quantity_limit": false, "years": [2018, 2019, 2020] }],</pre>
2) Plan: Each plan will associate the drug benefit design and utilization management to a specific plan and formulary tier for a specific set of plan years.	
3) Drug Tier: The tier in the plan’s formulary that matches one of the drug tiers declared in your plans file for that plan. <ol style="list-style-type: none"> a. <i>Special Rules:</i> Must be uppercase without any spaces between words. Use hyphens instead. 	
4) Years: The plan year that the drug was covered in the plan’s formulary at that tier. Failing to update this field is the number one cause of compliance issues for existing issuers prior to Open Enrollment in drugs files.	

Troubleshooting

Common Errors and How to Solve Them

The majority of compliance errors identified by CMS each year are similar to the examples discussed below. As a best practice, review your data for the presence of these errors prior to seeking specific assistance from CMS.

Missing the Next Coverage Year

CMS requires you to have the best-available MR data for the next plan year months in advance of Open Enrollment for that plan year. This serves two purposes: 1) enabling CMS system testing and preparation for Open Enrollment, and 2) giving your issuer time to review how data will be displayed to consumers before Open Enrollment begins.

As an example, look at the drug example above. Each one of the plan associations has a “years” field that shows that the data only applies to plan years 2018, 2019, and 2020. In preparation for the Open Enrollment Period for plan year 2023, the issuer needs to add 2023 to those “years” fields in the drugs (and providers) files for any drugs (or providers) that are being carried over from 2022 to 2023.

In the most common version of this error, issuers have existing MR data available online and assume that, because the dataset is in compliance for the current plan year, that no changes are required for the next plan year. This is incorrect.

If a currently covered provider or drug will not be covered in the next year, then no update is needed.



Though this is the most common error CMS observes, it is very easy to fix: simply add new data to your “years” fields to associate the providers and drugs in your data to the next plan year where appropriate.

Wrong Format

As with most data specifications, the machine-readable data format is very exacting. A misplaced comma, colon, or bracket can be enough to make your issuer’s data unreadable.

Attempting to find these errors visually is often very difficult. CMS provides the [Schema Validator](#) tool on the [Coverage Portal](#) to assist you with identifying format errors in your files before CMS or other users find the errors. As a best practice, test some files in the [Schema Validator](#) tool prior to posting them online.

Text Formatting Issues

Similar to the wrong format error described above, there are some format issues related to how data is entered in your MR files.

As noted in the explanation and example tables above, certain fields of the MR data require text that is uppercase with no whitespace in between. Text data that is not uppercase or has whitespace could cause errors in loading your data to healthcare.gov or other enrollment platforms. The [Schema Validator](#) tool on the [Coverage Portal](#) can catch these errors for you as well.