Locating Health

Data Import Documentation

Locating Health Data Integrations for External Providers

Revision 1.1.0 - August 10, 2020

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Overview

Background and Scope

The **Locating Health** platform is the administrative application that participating healthcare sites, pharmacies, and public health departments use to oversee, import, and update data within our suite of applications. The current tools within this suite are the **MedFinder** (https://medfinder.org), **VaccineFinder** (https://vaccinefinder.org), and the upcoming **PODFinder** (https://pod-finder.org), applications.

Boston Children's Hospital and Centers for Disease Control and Prevention (CDC) have developed the **Locating Health, MedFinder, VaccineFinder,** and **PODFinder** suite as a free, online service to improve access to medical countermeasures (e.g., vaccines, antiviral drugs). These resources aim to help people locate providers that offer medication and vaccination services based on extrapolated supply information.

This document is applicable to all data providers, including the CDC, pharmacies, health departments, healthcare sites, and immunization providers with the capability to automate data reporting. The intent of this guide is to fully document and explain the import process in a way that allows providers to successfully import data into these applications in a consistent way to ensure their information is available and searchable to the public at large.

Today, over 34,000 provider locations and public health partners across the Nation are enrolled in this suite of applications to help inform the public that their site has medications and vaccines available.

How **Locating Health** Works

1. Providers enroll to participate and estimate their sites' projected medication supply (e.g., antiviral drugs, vaccines). These estimates will display as supply levels in **MedFinder** and **VaccineFinder:** red (<24-hour supply of product), yellow (24–48 hour supply of product), or green (>48-hour supply of product).
2. When enrolled in **Locating Health**, information on each site's projected medication supply is provided to **MedFinder, VaccineFinder,** and **PODFinder**. Manual and automated reporting options are available. Reporting may be centralized for large providers (e.g., retail chain pharmacies).
3. Provider reporting continues indefinitely, providing these tools with the latest available data for the public.

Systematically, **Locating Health** proposes a technical solution for a provider to report information to **MedFinder, VaccineFinder,** and **PODFinder**. Data on site locations and projected medication supply will be stored in the **Locating Health** database and used to populate the **MedFinder, VaccineFinder,** and **PODFinder** web applications.

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MedFinder Included Medications

The drugs currently included in **Med**Finder are the following flu antiviral medications: zanamivir (trade name Relenza), various strengths and formulations of oseltamivir (trade name Tamiflu), and baloxivir (trade name Xofluza).

VaccineFinder Included Vaccines

The vaccines currently included in **Vaccine**Finder are as follows:

Routinely Recommended:	Flu Vaccinations:	Travel Vaccinations:
- DT - DTaP - Hepatitis A (18+) - Hepatitis B (18+) - HPV (9-valent) - Meningococcal (MenB) - Meningococcal (MenACWY) - MMR - Pneumococcal (PCV13) - Pneumococcal (PPSV23) - Shingles (Zostavax) - Td - Tdap - Varicella	- Flu Nasal Spray - Trivalent Flu Shot - Intradermal Flu Shot - Quadrivalent Flu Shot - Adjuvanted Flu Shot - High-Dose Flu Shot - Flu Shot (Egg-free),Cell-Based Flu Shot - Recombinant Flu Shot - Quadrivalent Flu Shot	- Cholera - Dengue - Inactivated Polio Vaccine - Japanese Encephalitis - Rabies - Typhoid (ViCP Shot) - Typhoid (Oral Vaccine) - Yellow Fever

To enable this transfer of information, the pharmacy must assemble the appropriate information in a predetermined format for electronic transfer. The data, methods, and security features selected for this process are described below.

System Methodology

To provide data to **Locating** **Health**, the participating provider will access the **Locating** **Health** server either through the **Locating** **Health** Dashboard (10,000 or fewer records per import file), or via Secure File Transfer Protocol (SFTP) and provide data in a comma-separated values (CSV) file. We provide both methods for partnering organizations to decide which option is most feasible.

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The overall process for data transfers will be as follows:

Algorithm

- **Locating Health** does not access actual inventory numbers unless they are provided by the provider within their imports. In addition, it captures a site's projected medication supply for each product reported using an algorithm.
- Participating providers will create an algorithm to estimate projected medication supply for selected products for each site (categorized as <24-hour supply of product, 24–48 hour supply of product, >48 hour supply of product, or no supply). This information will be populated in a CSV file using a specified data file format.
- Algorithm calculations are performed behind provider firewalls.
- Test algorithms are available for providers to use as a starting point that can be refined as needed. Providers may also choose to use their own. For guidance on setting up a base algorithm, please contact Boston Children's Hospital or CDC at Locating Health@healthmap.org.

Formatting Data

The provider will supply a CSV file where:
- Columns contain a valid header with exact field names.
- CSV file is valid if:
  - Provider Id, OR Name, Address, City, State, Zip, and Phone number are not present per line
    -AND-
  - an NDC OR GPI and Drug Type are not present per line (The exception is Point of Dispensing (POD) locations, which do not need to report medications)
- CSV file is invalid if:
  - Provider Id, OR Name, Address, City, State, Zip, and Phone number are not present per line
    -AND-
  - an NDC OR GPI and Drug Type are not present per line
- Each row of the file will represent one store/drug combination.
- The file should have a consistent name that follows this format
  - YYYYMMDD.csv (i.e. 20190409.csv)
  - parsed data (i.e., <24, 24-48, >48, or no supply estimates for each drug/store combination) will remain stored in the **Locating Health** database to allow for system evaluation and research.
- A template is available upon request.

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Data Workflows

Data Transfer

Providers currently have two methods to transfer data files to the **Locating Health** platform: manual upload or automated secure transfer.

Dashboard Upload Solution (manual)

This import solution is ideal for single provider sites, or providers that are providing up to 10,000 records per import file. This method is not available for larger providers (e.g., chain pharmacies), as the CSV rows limit is capped at 10,000 records. The process for uploading via the application works as follows:

- The provider will login and upload the data file to the **Locating Health** Contributor Dashboard.
- The server will check the file type, validate its format, parse the file, and load the data to the **Locating Health** database over a secure HTTPS connection.
- Data will be used to populate a map of site locations on the **MedFinder, VaccineFinder,** and **PODFinder** websites.

SFTP Solution (automated)

The SFTP solution is ideal for larger providers that intend to automate their import process, as it involves a direct file upload, and does not require working through the **Locating Health** Dashboard directly. Once you have a contributor account in the **Locating Health** application, there is a request SFTP form to allow you to request access to this solution. The process via SFTP works as follows:

- The provider will transfer the data file to the **Locating Health** server over SFTP.
- A Python script on the server will check the file type, parse the file, and load the data to the **Finder Tools** database over a secure Transmission Control Protocol (TCP) connection.
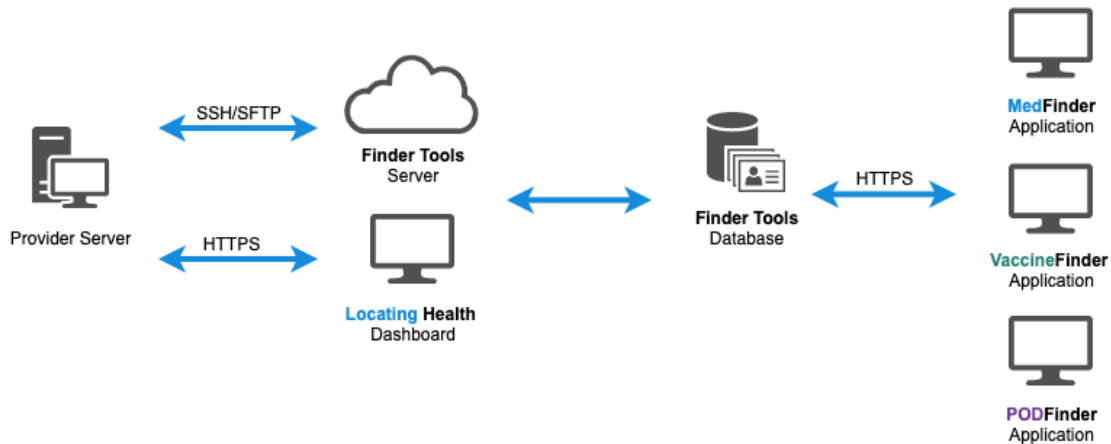- Data will be used to populate a map of site locations on the **MedFinder, VaccineFinder,** and **PODFinder** websites.

*Figure 1. Automated System Diagram: The pharmacy file is transferred to the **Locating Health Dashboard, or via the Finder Tools** SFTP server which is then stored in the **Locating Health** database (Postgres) on an AWS Aurora Cluster. All web apps are served by nginx web servers running on an AWS ECS cluster configured with a Linux (Ubuntu) operating system.*

Security

The project will use either the **Locating Health** application or STFP to establish a secure connection between the participating pharmacy and **Locating Health** servers. Providers participating via the manual Contributor Dashboard upload method will be securely authenticated and offered a file upload form to publish data. When the provider uploads this file, the system recognizes the provider as the owner of the data and allows transfer of data files.

Providers participating via the automated SFTP will authenticate and establish a secure connection between the participating provider and **Locating Health** servers to facilitate the provider's CSV data file transfer. They will need to provide us with a public SSH key from the computer or server they intend to use in order to access our SFTP server.

The Postgres database cluster is securely accessed with login and password. The login and password only allows access to the specific database used by the **Locating Health, MedFinder, VaccineFinder,** and **PODFinder** applications, and exists on a virtual private cloud (VPC) that disallows access from outside of those applications.

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Field Reference

Medications, vaccine, and point of dispensing supply data are imported by our contributors, in CSV format, either via file upload within the **Locating Health** Contributor Dashboard, or via SFTP upload. This documentation relates to the format and structure of the file which is used to import this critical supply data, and which then feeds the **Med**Finder, **Vaccine**Finder, and **POD**Finder applications.

Import Format (*.csv)

Each row within the CSV *(RFC-4180 comma-separated values)* file represents 1 single medication record for a provider. To allow for a combined CSV of multiple providers and/or medications, each row asks for the provider details in full. This allows the system to match and locate the provider to add the medication without having to worry about multiple rows of data simultaneously. By having one consistent CSV format that encapsulates the import process for vaccinations, medications, as well as point of dispensing locations, the complexity becomes lower for those providers that would otherwise need to provide all these data for multiple inventories within separate import files and using different formats for each.

An added benefit to using the CSV format for imports is that Microsoft Excel, as well as Google Sheets, natively support CSV, as the XLS and XLSX formats are simply an extension of this open source data format. For more information on the formal specification for this file format, please visit the IETF foundation documentation of the specification here: https://tools.ietf.org/html/rfc4180

Fields

Within each row in the CSV import file, there are two distinct types of data that are provided. These are the Provider and Medication/Vaccine being updated. These are in separate tables in this documentation below in order to separate out the logic a bit for the field explanations, but keep in mind each row in your import file needs to have the provider being updated as well as medication details in order to be imported. Asterisks denote a required field.

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Provider Detail Fields

CSV field name	Description	Acceptable Inputs
Store Number	Chain store or site number	
Provider Id	FinderTools ProviderId	See "Provider Id" Below
CDC Provider Id	CDC Data Pool ProviderId	See "CDC Provider Id" Below
Vams Provider Id	Vams ProviderId	See "Vams Provider Id" Below
Name*	Provider display name	Required unless Provider Id is provided
Address*	Street address	Required unless Provider Id is provided See "Address" Below
City*	City (example: "Boston")	Required unless Provider Id is provided
State*	Two Character State (example: "MA")	Required unless Provider Id is provided
Zip*	Postal Code	Required unless Provider Id is provided See "Zip" Below
Phone*	Phone Number	Required unless Provider Id is provided

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		See "Phone" Below
Sun Open	Open hours for Sunday	See "Sun-Sat Open" Below
Mon Open	Open hours for Monday	See "Sun-Sat Open" Below
Tues Open	Open hours for Tuesday	See "Sun-Sat Open" Below
Wed Open	Open hours for Wednesday	See "Sun-Sat Open" Below
Thurs Open	Open hours for Thursday	See "Sun-Sat Open" Below
Fri Open	Open hours for Friday	See "Sun-Sat Open" Below
Sat Open	Open hours for Saturday	See "Sun-Sat Open" Below
Website	Web address	
Prescreen	Prescreen/Registration Web address	
Active	Should this provider be displayed? True or False	See "Active / Insurance / Walkins" Below
Insurance	Accepts Insurance? True or False	See "Active / Insurance / Walkins" Below

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Walk-ins	Accepts Walk-ins? True or False	See "Active / Insurance / Walkins" Below
Provider Type*å	The 1-digit provider type code	See "Provider Type" Below
Open Date	The date the provider becomes available (seasonal or POD clinics, etc.)	See "Open/Close Date" Below
Close Date	The date the provider becomes available (seasonal or POD clinics, etc.)	See "Open/Close Date" Below
Notes	Notes to display on the provider details page	

Acceptable Values

Provider Id

If this field and providerType are present, the **Locating Health** import process does not need the other required provider fields, unless it doesn't match a current provider with proper address etc. already. This is a shorthand property that allows you to update a medication record without having to update all other provider fields as well each time. If this field is provided, and the record does not exist, then the row will be skipped on import. If this field is present, and any other fields are also present, then we will update the fields you provide, for instance, if you want to change the open hours, or perhaps the website link, etc.

CDC Provider Id

This field is ignored in all but a specific CDC import process, and not required from any other providers. If this field and providerType are present, the **Locating Health** import process does not need the other required provider fields, unless the matching record does not have the required address fields already (i.e., new provider being reported).

If you are adding a new provider that doesn't already exist, then all the other required provider fields will still be required in order to create the new provider record.

For records that already exist, if this field is present, and any other fields are also present, then

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Locating Health will update the fields you provide, for instance, if you want to change the open hours, or perhaps the website link, etc.

VAMS Provider Id

This field is ignored in all but a specific CDC/VAMS import process, and not required from any other providers. If this field and providerType are present, the **Locating Health** import process does not need the other required provider fields, unless the matching record does not have the required address fields already (i.e., new provider being reported).

If you are adding a new provider that doesn't already exist, then all other required provider fields will still be required in order to create the new provider record.

For records that already exist, if this field is present, and any other fields are also present, then **Locating Health** will update the fields you provide, for instance, if you want to change the open hours, or perhaps the website link, etc.

Address

Address must be in one of the following formats in order to ensure that the system can match to a proper mailing address and therefore map it properly:

- "123 Main St"
- "123 Main St #456"
- "123 Main St, Suite 7"
- "123 Main St, Building A"

This is Bad Formatting, and will not be accepted:

- 123-127 Main St

Zip

We can take the 5-digit, as well as the 9-digit zip code, the following formats are accepted:

- "02111"
- "02919-3232"

Phone

Our preferred format is (555) 555-5555, however the import will accept any of the following formats:

- (555) 555-5555
- 5555555555
- 555-555-5555

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Sun-Sat Open

If you provide open hours for only one, or some days of the week, and not others, the ones which are not present or blank will be considered as days your provider is closed. So accordingly, when updating these fields, it is all or nothing.

If no Open hours fields are provided at all (blank or not existing), then whatever current open hours the provider record has set will remain as they were. There is the option to add sets of open hours for a particular day to account for providers that close for lunch. Examples are as follows:

Format: hh:mm:AM - hh:mm:AM

- "11:00AM - 6:00PM"
- "5:00AM - 11:00AM, 1PM-11PM"

Active / Insurance / Walkins

Acceptable values:

- true
- false

Provider Type

This field is required at all times. The value provided should be a 1-digit number. The following numeric values are accepted:

- 1 - Clinic
- 2 - Health Department
- 3 - Healthcare Provider's Office
- 4 - Pharmacy
- 5 - Community Provider / Immunizer
- 6 - Tribal Health Center
- 7 - Point of Dispensing

Open/Close Date

Some providers are temporary or seasonal, and these fields allow a provider to list as such. If the current date is after the close date provided, then the FinderTools applications will not display the provider at all in search results.

- "01/31/2020" - MM/DD/YYYY
- "01-31-2020" - MM-DD-YYYY

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Medication/Vaccine Fields

If the provider type is "Point of Dispensing", this implies that there is one and only one specific medication available, and therefore there is no absolute requirement to fill out any of the Medication Vaccine Fields below in this case. Other than that specific use case, medications/vaccine supplies are imported one per row, along with the associated provider details above. Asterisks denote a required field.

CSV field name	Description	Acceptable Inputs
GPI	The 14-digit Generic Product Identifier Code	See "GPI" Below
Med Type	The type of medication	See "Med Type" Below
NDC*	The National Drug Code	See "NDC" Below
Med Name*	The name of the medication	See "Med Name" Below
Start Date	The date the medication becomes available (seasonal meds)	See "Start / End Date" Below
End Date	The date the medication is no longer available (seasonal meds)	See "Start / End Date" Below
Cost	The cost of the medication	See "Cost" Below
In Stock*	Is this item in stock?	See "In Stock" Below

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Supply Level	The Supply Level availability code	See "Supply Level" Below
Quantity	The on hand quantity	See "Quantity" Below

Acceptable Values

GPI

The 14-digit GPI code for the medication. This can be with or without the hyphens:

- 58-20-00-60-10-01-05
- 58200060100105

Med Type

If using the GPI field, the Med Type is also required. The value will be a single letter, either "B", "G", or "V". The values stand for the following:

- "B" - Brandname
- "G" - Generic
- "V" - Vaccine

NDC

The National Drug Code for the medication. This can be with or without hyphens:

- 62332-414-10
- 6233241410

Med Name

This field provides our technical staff with the Medication name, making it easier for us to manually review import files as part of our usual spot-checking practices. While there is no specific requirement, keeping it simple and consistent helps us to ensure the best review quality possible. Format and suggested value examples:

- Drug Name - Dosage Form - Strength
- Oseltamivir - Capsule - 45mg

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- Oseltamivir Capsule 45mg

Start / End Date

These fields represent when a particular vaccine/medication will start to be available and cease to be available, and is meant to be utilized for seasonal vaccinations, or other limited offerings. If there is no start and end date, then the medication will be assumed to always be available at this location.

Cost

This is the cost of the medication/vaccine in dollars/cents (US). If the cost is not available or unable to be listed, then "-1" should be the chosen value here. Acceptable formats:

- -1
- 20.00

In Stock

Acceptable values:

- true
- false

Supply Level

The supply level constitutes how many days supply of this medication the provider is carrying. It is important to know this, since simply knowing the quantity on hand of a medication is not enough to determine how long before the location runs out. This is due to the fact that some pharmacies have much higher traffic than others, and medication demand can also be regional or event based. Both the CDC as well as potential customers need these data to make informed supply level decisions for a location. The value will be a single digit number, and the values are as follows:

- -1: No Report
- 0: No Supply
- 1: <24 Hour Supply
- 2: 24 Hour Supply
- 3: 24–48 Hour Supply
- 4: >48 Hour Supply

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Quantity

How many doses of this medication are currently on hand. "-1" can be provided if that information is not available. Some format examples:

- -1
- 20
- 1000

Import CSV Examples

Below are some simplistic CSV examples to illustrate the various required/non-required fields. Alternatively, if working from a template, non-required fields may be left blank for a record, and will be ignored on import, except where stated above in "Acceptable Field Values".

Single Medication Supply, Updating Info and Pharmacy Hours

Store Number,Name,Address,City,State,Zip,Phone,Sun Open,Mon Open,Tues Open,Wed Open,Thurs Open,Fri Open,Sat Open,Website,Prescreen,Active,Insurance,Walk-ins,Provider Type,Notes,GPI,Med Type,NDC,Med Name,Cost,In Stock,Supply Level,Quantity
00123,Pharmacy Name #00123,1234 Main Street,New York,NY,10001,(555) 555-5555,"5:00AM - 11:00AM, 1PM-11PM",5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,https://www.pharmacy.com,https://www.pharmacy.com/prescreen-form,TRUE,TRUE,TRUE,4,Please call ahead for vaccination appointments.,12-50-40-60-20-10-40,B,50242-860-87,Xofluza - Capsule - 40mg,20.00,TRUE,4,30

Single Seasonal Medication Supply, Not Updating Info and Pharmacy Hours

Name,Address,City,State,Zip,Phone,Website,Provider Type,GPI,Med Type,NDC,Med Name,Start Date,End Date,Cost,In Stock,Supply Level,Quantity
Pharmacy Name #00123,1234 Main Street,New York,NY,10001,(555) 555-5555,4,12-50-40-60-20-10-40,B,50242-860-87,Xofluza - Capsule - 40mg,09/01/2020,03/01/2021,20.00,TRUE,4,30

Two Medication Supplies, One Provider, Using Provider Id, Updating Pharmacy Hours

Store Number,Provider Id,Sun Open,Mon Open,Tues Open,Wed Open,Thurs Open,Fri Open,Sat Open,Provider Type,GPI,Med Type,NDC,Med Name,Cost,In Stock,Supply Level,Quantity

00123,1234,"5:00AM - 11:00AM, 1PM-11PM",5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,4,12-50-40-60-20-10-40,B,50242-860-87,Xofluza - Capsule - 40mg,20.00,TRUE,4,30
00123,1234,4,12-50-40-60-20-10-40,B,50242-860-87,Xofluza - Capsule - 40mg,09/01/2020,03/01/2021,20.00,TRUE,4,30

Point of Dispensing Location

Name,Address,City,State,Zip,Phone,Sun Open,Mon Open,Tues Open,Wed Open,Thurs Open,Fri Open,Sat Open,Website,Prescreen,Active,Insurance,Walk-ins,Provider Type,Notes
Name,1234 Main Street,New York,NY,10001,(555) 555-5555,"5:00AM - 11:00AM, 1PM-11PM",5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,5:00AM - 11:00PM,https://www.name.com,https://www.name.com/prescreen-form,TRUE,TRUE,TRUE,7,Please call ahead for vaccination appointments.

Contact Us

HealthMap, in collaboration with CDC, is committed to developing an accurate, feasible, and low-burden solution for pharmacies that providers, patients, and public health officials can use during a public health emergency. We welcome your ideas to enhance efficiency and accuracy to help improve access to these critical medications.

For more information, please contact Locating Health@healthmap.org.

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