New York State Food as Medicine Program Map Project

Victor Russak, CAPM
MS Analytics Candidate, Georgia Tech

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Introduction

Food as Medicine (FAM), also commonly known as Food is Medicine (FIM), refers to a spectrum of health interventions and programs aimed at increasing access to nutritious foods and nutrition education. The goal of these programs is to improve the health outcomes of food insecure individuals living with diet-related chronic disease. These nutrition interventions have shown significant positive impact on participant's health as well as a reduction in the medical costs associated with their care (Hager, et. al., 2024).

Most FAM programs require a participant to meet two criteria: 1) a clinical diagnosis of a diet-related chronic disease, such as diabetes; 2) a positive screening on a validated food insecurity questionnaire. The standard for food insecurity screenings is the two item "Hunger Vital Sign" (Gravity Project, 2025). Due to the clinical and social risk eligibility requirements, participation in a FAM program such as medically tailored groceries or medically tailored meals usually begins in the doctors office. Since most Food as Medicine programs require a provider referral (FIMMA, 2021), interfacing with clinical settings is a crucial step in the referral pathway for a patient seeking FAM services.

The New York State Food as Medicine Coalition (NYS FAM Coalition), sponsored by The Food Pantries for the Capital District, is a statewide network of food as medicine stakeholders promoting collaboration, resource-sharing, and advocacy to advance the integration of food as medicine into New York State policy and practice. Coalition members and other stakeholders have the opportunity to voice collective feedback on best practices and challenges facing FAM programs through an Advisory Council and quarterly coalition meetings. Feedback from stakeholders highlighted the barriers and inefficiencies in the referral process for FAM services. This referral process faces a number of challenges. Clinicians with the Coalition have voiced a concern that many providers are unaware that FAM services exist, and those that are familiar with the concept often don't know how or where to refer their patients. This disconnect is in part due to FAM still being in the early stages of development, though this is changing as recent federal initiatives have highlighted the important connection between nutrition and public health (MAHA Commission, 2025). However, more outreach to clinicians is still needed to ensure providers know about these programs and have the information needed to confidently refer their patients.

The barriers to a smooth referral process are further exacerbated by the lack of standard electronic health record (EHR) codes for these services, making referrals through EHR systems difficult or impossible. There have been some efforts to establish standardized coding (Ettman et al., 2024) and EHR referral processes (Long et al., 2024), but these initiatives are still nascent, and more work is needed to make them viable at scale. Likewise, programs under Medicaid 1115 Waiver Amendments like the New York State Health Equity Reform (NYHER) Social Care Network Program (SCN) are piloting referral systems that integrate social care referral platforms with state health databases. However, these Waiver amendment programs only cover a small slice of the population eligible for FAM services (OHIP, 2025).

While working towards the broader integration and standardization of these referral systems, alternative referral pathways are needed to ensure patients who are eligible for nutrition interventions can receive them. To address these referral barriers, the New York State Food as Medicine Coalition initiated a project to gather information on Food as Medicine programs across the state and build a centralized program directory. The directory would give providers a user-friendly platform in which to search for FAM programs and submit referrals. A key feature of this directory would be the inclusion of a "one-click referral" option to make the referral process as easy as possible. The feature would allow a user to instantly access a program's preferred referral method with a single click.

A secondary aim of the project was to perform an analysis of the program data to identify geographic gaps throughout the state and gaps in available service types. By learning which areas of the state are missing coverage for FAM services and which service types are missing, future outreach and technical assistance initiatives could target these areas.

The project team originally intended to add the FAM program data as a layer on the NYS Food Connect Map. This map, managed by The Food Pantries for the Capital District, is a live resource with information on emergency food programs (e.g. food pantries, congregate meal sites, etc.). It was ultimately decided to create an entirely separate map due to the difference in target users and use cases of each directory. The project concluded with the publication of a NYS Food as Medicine Provider Map on Tableau Public on July 15th, 2025.

This report discusses the methods used for data collection, shares key insights and findings, and proposes next steps for continued outreach and data gathering to make the NYS FAM Provider Map a more robust and comprehensive directory of available FAM services.

Methods

Part 1) Data Collection

A survey tool was implemented in Jotform to collect data on FAM programs across the state. Jotform was chosen for its diverse functionality, including diverse options for question types, customizable user interface and design, and ability to correct entry errors directly in the software using Jotform Tables.

The survey tool was implemented in three iterations. The first iteration of the survey was created by mapping questions to the data schema in the NYS Food Connect Map, with the intention of uploading the data as a separate layer on that map. Survey respondents were given the opportunity to opt out of including their program's information on the NYS Food Connect Map, instead submitting their information for internal use only. A third option, indicating "I need more information" before consenting was also included.

The survey tool was first implemented in May 2024. It was distributed to NYS FAM Coalition stakeholders via the Coalition email list, as well as through New York State Department of Health and NYS Department of Agriculture networks. Responses were collected for a period of 4 weeks. After the responses were compiled, significant staffing changes caused the project to be placed on hold.

In October 2024, a second draft of the survey tool was created, with minor edits for increased clarity and the addition of supplementary questions at the request of the Research and Evaluation Subcommittee of the NYS FAM Coalition. These questions intended to gather information on programs' willingness to connect with researchers across the state and the research areas they felt were most needed to advance their programs. Additionally, the NYS FAM Coalition partnered with Field and Fork Network to include an optional, secondary series of questions targeted at Produce Prescription programs (PRx), to complete a research report requested by New York State Department of Health on these programs in particular (Field and Fork, 2025). The second iteration of the survey was implemented from October through December 2024.

During this time, several changes occurred to federal policies impacting funding for food banks, agricultural operations, and emergency food assistance initiatives. For this reason, the FAM Provider Map project was deprioritized to fast track a concurrent project, the NYS Food Supplier Map. This project was deemed a higher priority as a resource for filling the food procurement gaps facing emergency food programs resulting from the federal policy changes.

The NYS Food Supplier Map was completed and published in April 2025, using Tableau Public. The project team decided to use the same software to create the FAM Provider Map. With this change in visualization software, a re-drafting of the database schema was needed, as well as changes to the format of some survey questions to better match the new schema. Response data that had already been collected by this point were cleaned to match the new schema. This involved transforming short form responses into standard categories to match the new single choice question format.

Additionally, two questions were added to the survey to collect information on a program's preferred referral method and the corresponding contact information. In May 2025, outreach was conducted only to organizations that already submitted responses, to update their submission with this additional information. The data from these two questions was used to create the "one-click referral" feature mentioned earlier in this report.

The core data elements collected in the final draft of the survey were:

1) The counties served by the program
2) The types of Food as Medicine services provided
3) Distribution method (home delivery, in-person pick up, or both)
4) Open days/times
5) Preferred referral method. The referral method options were: phone, email, fax, website.

See the appendix for a full schema of the dataset.

After publishing the directory and interactive map, the project team conducted additional statewide outreach efforts with the support of a Master's of Public Health intern to continue gathering responses. The survey remains open and new programs continue to be added to the map as of this writing.

Part 2) Data Cleaning and Transformation

The data collected in the first iteration (I1) of the survey was not reviewed or analyzed.

The second iteration (I2) data was cleaned in Excel. Duplicates were removed, unneeded columns filtered out (such as submission date), and fixes were made to typos and other entry errors in the short-form responses. Further, any survey submissions that did not meet the definition of a FAM service provider (e.g. soup kitchen) were removed from the dataset and archived.

A similar process was used to clean the third iteration (I3) dataset. Further cleaning and transforming was conducted in Excel PowerQuery to prepare the data for upload into the Tableau data model. Latitude and longitude data were collected manually from Google Maps using each program's street address. The short-form, comma-separated data structure used by Jotform Tables was transformed into long-form. Each unique combination of "Program", "County Served", "Open Days" and "Open Hours" were separated as individual data observations to match the filtering features needed in the Tableau visualization. For the "one-click referral" feature, a new column was constructed concatenating the referral method contact information (e.g., phone number, email address, etc.) with the corresponding URL prefix (e.g., https://, tel:, mailto:, etc.) to create a hyperlink for use in the Tableau dashboard.

Refer to the appendix for further technical details regarding data cleaning methodology, including the transformed dataset schema, copies of the datasets, lists of variable categories used and the PowerQuery script.

Part 3) Data Visualization and Analysis

The I2 dataset was analyzed in Excel to create a summary report and presentation of results. A static map visualization was built in PowerBI to display the geographic spread of the survey respondents. PowerBI was chosen because of its integration with the Microsoft Sharepoint product suite used by the sponsoring organization, and the ability to use internal, proprietary data in a closed environment. The results of this analysis were presented at the NYS FAM Coalition Quarterly Meeting on January 16th, 2025.

In June 2025, the cleaned and transformed I3 dataset was loaded into the Tableau Public data model via a cloud-based extract. A map visualization was created using the geographic coordinates to display the FAM programs as individual pins. A separate worksheet was built to display the list of FAM programs organized by county served in table format. A third worksheet was constructed to display a "Program Information Panel" including the following: service type, distribution method, referral method, open hours, phone number, address (hyperlinked to Google Maps), website url (hyperlinked), and last updated date.

The one-click referral feature functions by connecting the referral method string data with the concatenated URL for the user to simply click and activate the displayed referral contact method. For example, if the preferred referral method is email, clicking the link in the information panel will automatically open a new email draft with the program's email address pre-populated in the "To:" field. If the preferred method is phone, clicking the link will open the user's phone app with the phone number pre-populated.

All three worksheets were merged into a Tableau dashboard, and filters were added to search by by type of program, county served, distribution method, and open days/hours.

The interactive dashboard was reviewed by the project sponsor and other key stakeholders, and a final draft was published on the NYS FAM Coalition Website via a Tableau Public embed link. See Figure 3 in the Results section for a screenshot of the Tableau dashboard, and Appendix B for a live link.

Next, a gap analysis was conducted. The goal of the analysis was to identify geographic areas with low or no services, as well as identify underrepresented program types. RStudio was chosen for the analysis because of its robust functionality in data manipulation and transformation, and its integrated visualization tools. The R packages utilized were `janitor` for cleaning column names, `tidyverse` for transforming and manipulating dataframes, and `ggplot2` for visualizations. To review the R script used in this analysis, refer to the Appendix D.

The analyses performed included an assessment of the number of FAM program services per county and the distribution of program types, delivery methods, and referral methods. These findings are shared in the Results section and explored in more detail in the Discussion.

Results

Part 1) Results of Iteration 2 (I2) Analysis

The survey responses were assessed according to the organization's physical address. There were a total of 59 survey responses. 52 responses were from organizations located within New York State, and 7 responses were from organizations located in other states that provide services within NY (Florida, Iowa, Massachusetts, Maryland). 8 of the survey responses were from organizations that do not provide FAM services and were excluded from Figures 1. and 2. Their survey responses were removed from the dataset and archived separately.

Several organizations submitted multiple survey responses, indicating they have more than one program or program site. The final analysis included 44 organizations and 51 FAM programs. See the the presentation slidedeck from the January 16th Quarterly Coalition Meeting for more details in the appendix.

Figure 1. A filled map displaying the number of FAM Provider survey respondents by county, based on the organization's address. The county with the highest number of responses was Erie (n=12). There were 11 counties with the lowest program count (n=1). Image generated using ArcGIS for PowerBI.

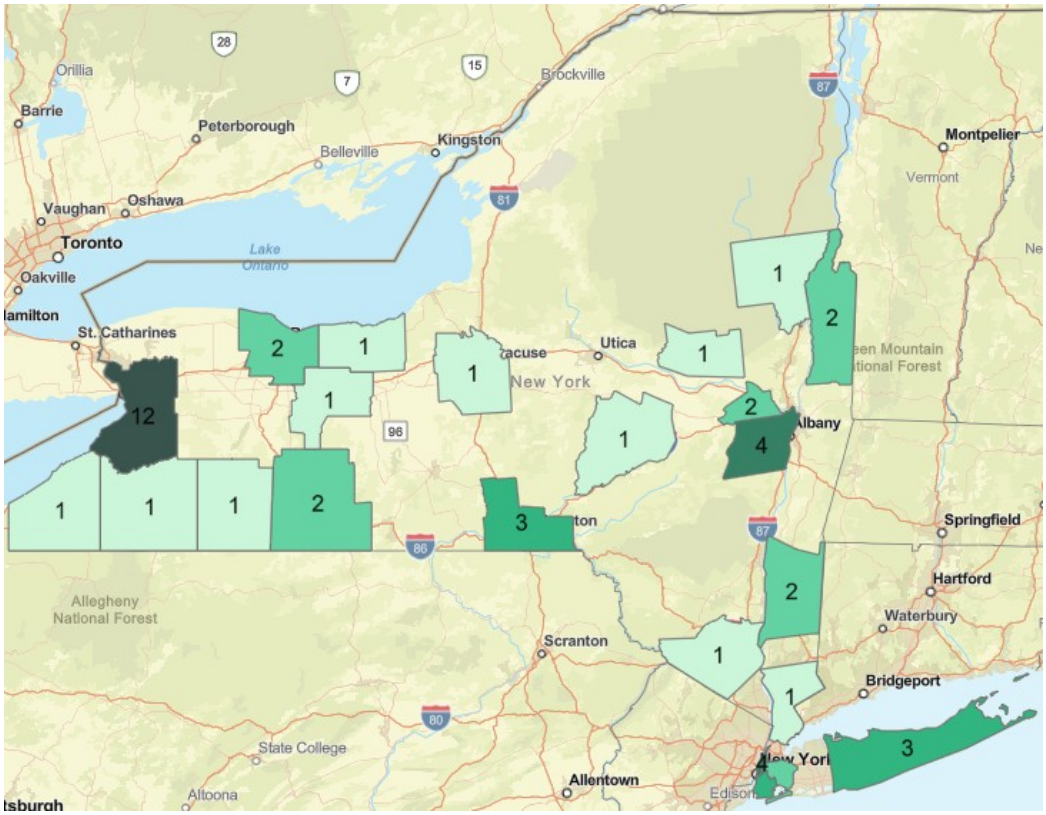
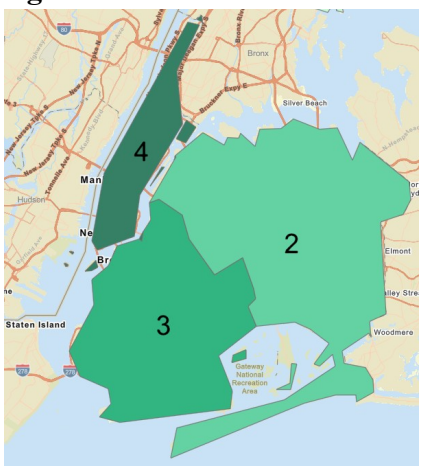
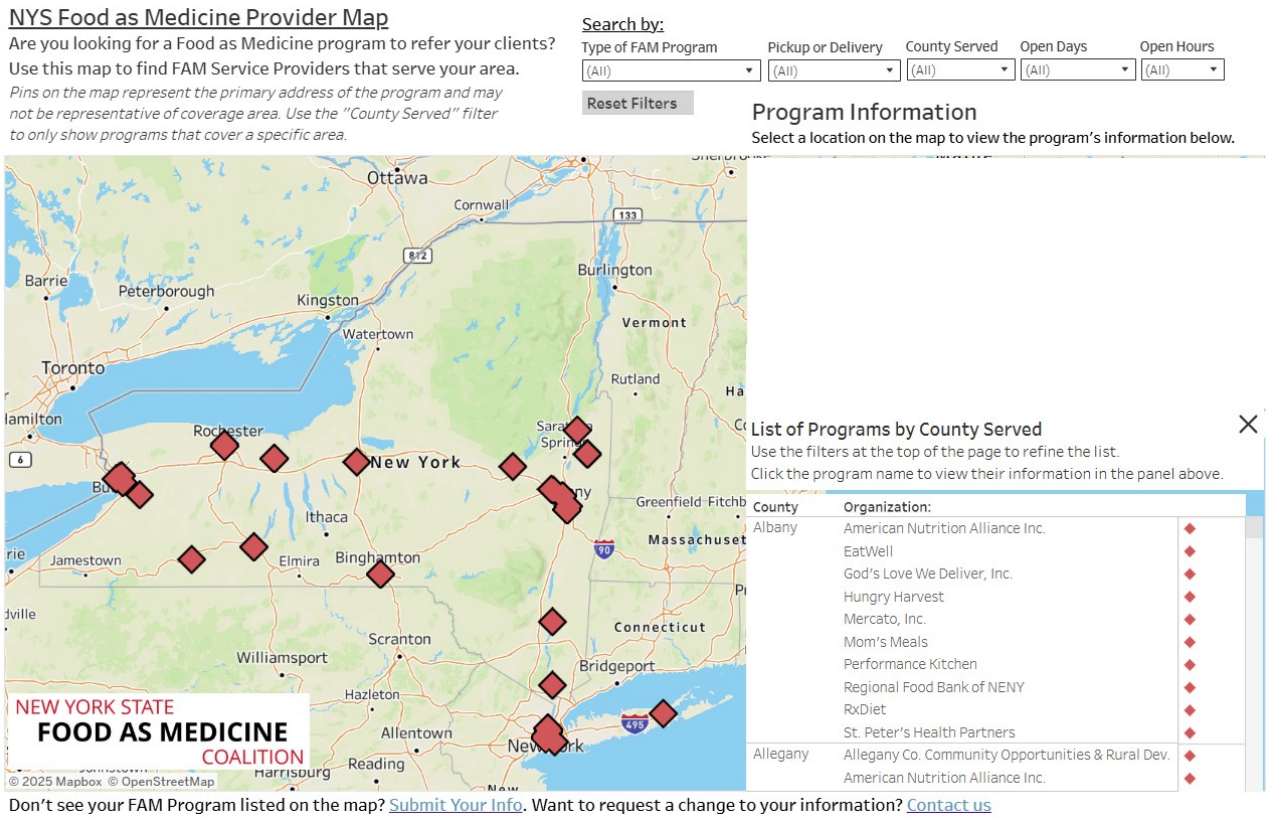


Figure 2. A zoomed-in view of **Figure 1** showing New York county, Kings county, and Queens county.



Part 2) Results of Iteration 3 (I3) Analysis

Figure 3. A screenshot of the Tableau Public interactive dashboard. For a link to the live dashboard, refer to Appendix A.



Iteration 3 included a total of 44 responses from organizations providing FAM services. Data from 33 of the FAM programs were added to the FAM Provider map, with the other 11 organizations declining to consent to information sharing. These 33 programs were distributed across 21 NYS counties. The remaining 41 counties do not have a physical program location represented in the survey data. Four programs had a physical address outside of New York State; one program in California, one in Iowa, one in Massachusetts, and one in Maryland. More than half the programs (n=19) indicated they provide services to more than one NYS county, with the remainder (n=14) only providing services to a single county. Several programs (n=8) provide services to all 62 counties.

Program count by county ranged from 8 to 13. There were 22 counties (see Figs. 6 & 7) all with the lowest program count (n=8). The county with the highest program count was Erie (n=13), followed by Saratoga and Schenectady counties with 12.

Figure 4. A bar chart displaying the five counties with the highest counts of programs. Erie (n=13), Saratoga (n=12), Schenectady (n=12), Kings (n=11), Monroe (n=11).

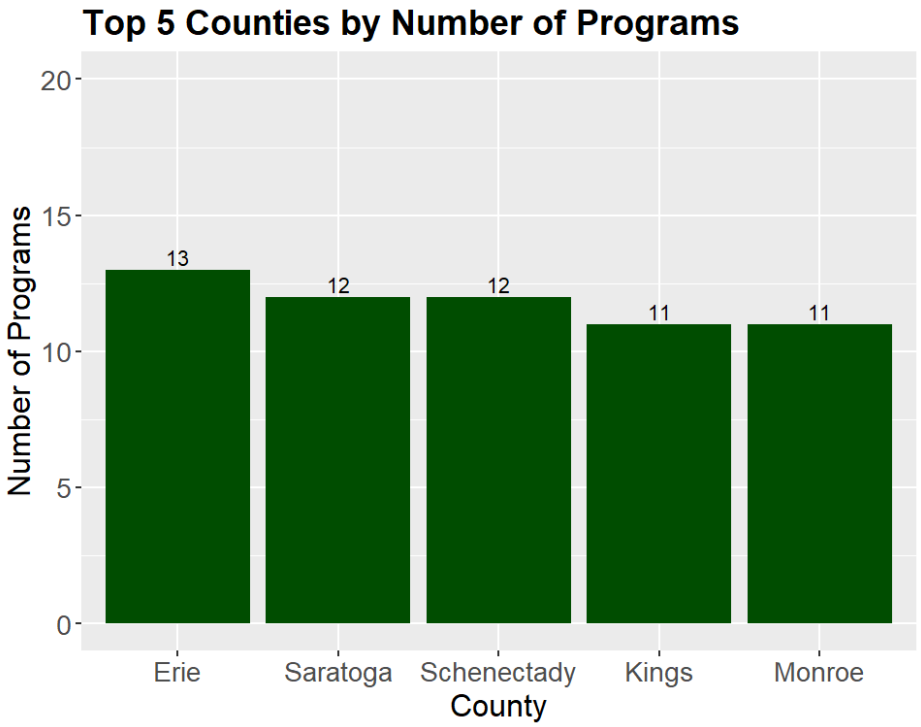


Figure 5. A map of New York State with the highest five counties by count of programs highlighted. Image generated as a screenshot of the NYS Food Supplier Map.

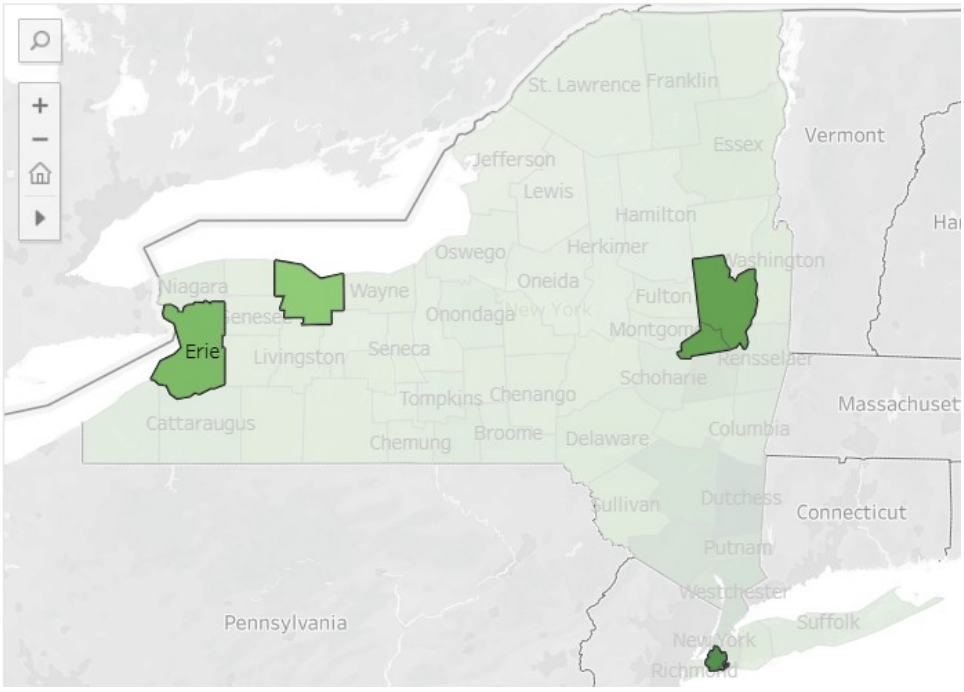


Figure 6. A map of NYS with the twenty-two counties that had the lowest count of programs (n=8) highlighted. Image generated as a screenshot of the NYS Food Supplier Map.

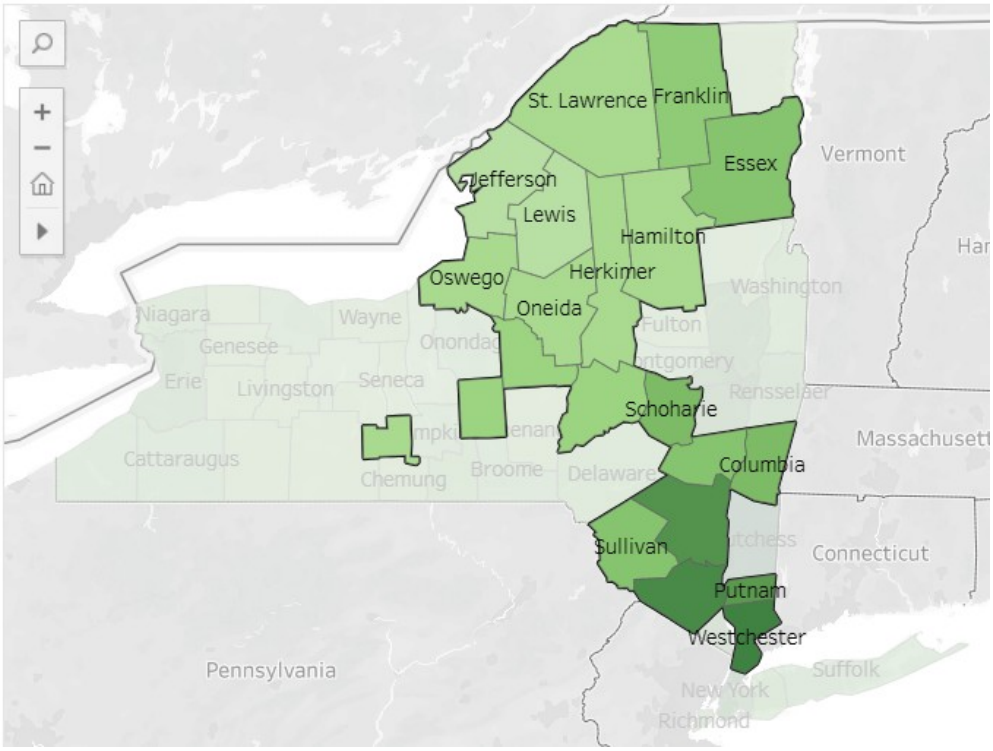


Figure 7. A table listing the twenty-two counties that had the lowest count of programs (n=8).

Clinton	Columbia	Cortland
Essex	Franklin	Greene
Hamilton	Herkimer	Jefferson
Lewis	Madison	Oneida
Orange	Oswego	Otsego
Putnam	Schoharie	Schuyler
St. Lawrence	Sullivan	Ulster
Westchester		

Figure 8. A bar chart displaying the count of programs by service type. Counts ranged from n=10 (Produce Prescriptions) to n=2 (Clinically Appropriate Meals).

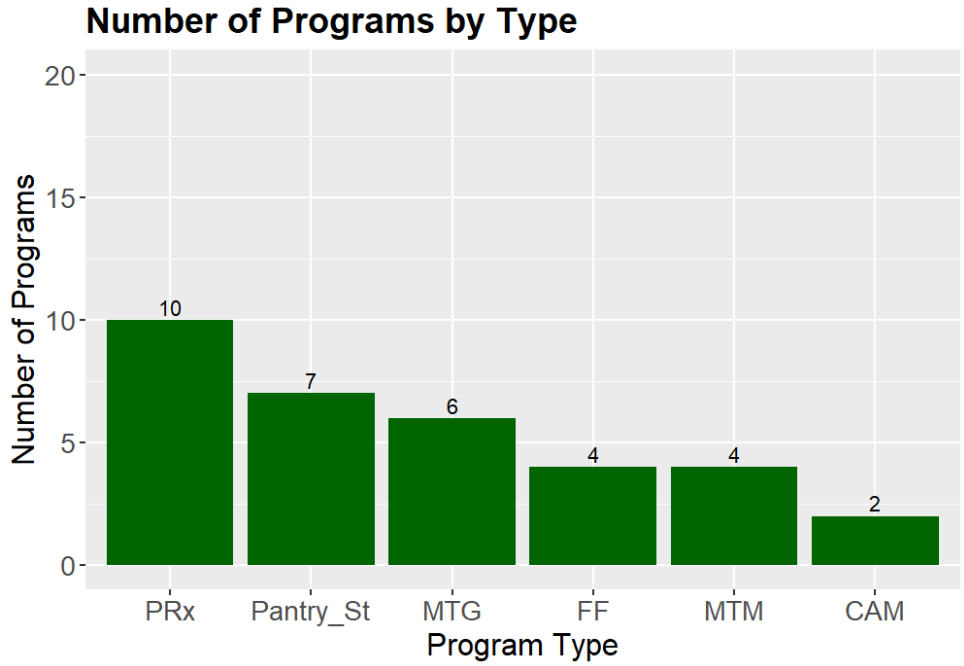


Figure 8 Legend. PRx: Produce Prescription. Pantry_St: Pantry Stocking. MTG: Medically Tailored Groceries. FF: Food Farmacy. MTM: Medically Tailored Meals. CAM: Clinically Appropriate Meals.

Figure 9. A table displaying the count of programs by service type.

Service Type	**Count**
Produce Prescriptions	10
Pantry Stocking	7
Medically Tailored Groceries	6
Food Farmacy	4
Medically Tailored Meals	4
Clinically Appropriate Meals	2

Discussion

The NYS Food as Medicine Provider Map was launched publicly on July 15th, 2025. The map was shared with NYS FAM Coalition members and stakeholders through the Coalition website. Various external stakeholder groups endorsed the Map and shared it among their networks. These stakeholder groups included the NYS Council on Hunger and Food Policy and the Federal Nutrition Advisory Coalition managed by the Food is Medicine Institute at Tufts University. The Jotform survey continues to receive new submissions as a result of the wide reach of these networks, as well as continued outreach efforts.

The results of the R analysis indicate clear trends and gaps in the survey data. Figures 6 and 7 show that 22 counties all had the same number of programs providing services (n=8). Further, there were 8 programs that indicated they provided services to all 62 counties. The data shows that these 8 statewide programs represented the majority of the coverage across the state, with only a small range (n=1 to n=5) of local programs providing services. There are a few possible reasons for this. One reason could be there simply aren't many local Food as Medicine programs across the state, so statewide programs make up the majority of current service providers. A second explanation could be that the survey data is incomplete and more outreach needs to be done to gather data on local programs. It is likely that both factors contribute to the present survey results, and more outreach is needed to verify.

In figure 4, the top 5 counties by number of programs, there is no observable trend or pattern to the results. Overall, the project team estimates the current survey data represents only a small portion of the total number of Food as Medicine providers across the state, as only approximately half the nutrition service providers the team contacted completed the survey, and it is likely there are more programs the team has not identified. Outreach should continue to gather additional responses.

In addition, figure 8 indicates that Produce Prescription programs (n=10) and Pantry Stocking services (n=7) make up the highest number of programs by type, while Medically Tailored Meals (n=4) and Clinically Appropriate Meal providers (n=2) represent the lowest number of programs by type. Therefore, it is recommended that future outreach efforts target Medically Tailored Meals, Clinically Appropriate Meals, and other lower count FAM provider types to encourage a more even distribution and accurate representation of services available across the state. The goal of the NYS Food as Medicine Provider Map is to increase knowledge of programs among clinicians and other healthcare providers and ease the referral pathway to these programs. Increasing the quantity and diversity of FAM programs listed on the map through additional outreach would advance this goal.

Conclusion

The New York State Food as Medicine Provider Map is a useful tool for analyzing trends and gaps in Food as Medicine services across the state. In a healthcare ecosystem that has net yet fully integrated Food as Medicine referral pathways into healthcare referral systems, the map provides a valuable alternative to finding appropriate FAM programs for patients and sending referrals for services. However, further outreach is needed to ensure the map accurately represents the available services in each county and provides a diversity of options to providers and patients.

References

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Appendix

A. Technical Documentation – Iteration 2 Analysis

Iteration 2 Dataset

https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/ugd/690f32_6934122301c74377a7a108b33ecd9374.xlsx

Analysis Results Presentation Slidedeck

https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/ugd/690f32_8d06985c4d8d44ccb5d28f1a8fc014bf.pptx

B. Technical Documentation – Iteration 3 Analysis

Tableau Public Dashboard (Static Copy):

https://public.tableau.com/app/profile/victor.russak/viz/NYSFAMProviderMap_17522644934820/Dashboard1

Jotform Survey Tool:

https://www.jotform.com/form/220697319341054

Dataset for Tableau Public Data Model:

https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/ugd/690f32_a2bdaf5611e64dcfa83e21f9f10831aa.xlsx

Tableau Workbook:

Available to download from the Tableau Public Viz

Dataset used in R:

https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/archives/690f32_3941750253344f40b9cc2432023ef436.zip

C. Dataset Schema of Tableau Public Extract

Column names cleaned using R package "janitor".

26,464 Observations of 27 Variables

Variable Name	Data Type	Description
[1] "organization"	String/Character	The name of the food supplier organization or company
[2] "program_name"	String/Character	The name of the program, if different from the organization name, or if there are multiple programs under the same organization
[3] "type_of_fam_program"	String/Character	The type of FAM services provided by the program
[4] "more_than_1_site"	String/Character	A value of "yes" or "no" to indicate whether the program operates at more than one physical address.
[5] "site_address"	String/Character	The physical address of other program sites. The number of columns with addresses should match the number of sites.
[6] "phone_number"	String/Character	The organization's primary phone number.
[7] "hours_of_operation"	String/Character	The days and times the program provides services. This field is completed by the survey respondent.
[8] "open_days"	String/Character	The days the program provides services, parsed from "hours_of_operation"
[9] "open_hours"	String/Character	The hours the program provides services, parsed from "hours_of_operation"
[10] "street_address"	String/Character	The physical street address of the primary program site.
[11] "street_address_line_2"	String/Character	The suite, building, or unit number of the primary program site.
[12] "city"	String/Character	The city of the primary program site.
[13] "state"	String/Character	The U.S. state of the primary program site
[14] "zip_code"	String/Character	The postal code of the primary program site

[15] “latitude”	Numerical	The latitude coordinate of the program.
[16] “longitude”	Numerical	The longitude coordinate of the program
[17] “address_county”	String/Character	The New York state county of the primary program site.
[18] “website”	String/Character	The URL of the organizations website.
[19] “get_directions”	String/Character	A URL of the program’s address in Google Maps search.
[20] “distribution_method”	String/Character	The service delivery method of the program, either Home Delivery, In Person Pick Up, or Both.
[21] “referral_method”	String/Character	The preferred referral method of the program, either Phone Call, Email, Fax, or Website
[22] “referral_contact_info”	String/Character	The contact information associated with the “referral_method”
[23] “referral_link”	String/Character	The “referral_contact_info” in URL format.
[24] “email”	String/Character	The primary email address for the organization
[25] “mail_to_url”	String/Character	The “email” in URL format
[26] “last_updated”	Date	The date of the most recent change to the data for that specific program
[27] “submission_id”	Numerical	The unique Jotform survey submision ID. Used as the primary key for this dataset.

D. Category Lists and Definitions

Food as Medicine Program Types (Hanson et al., 2024)

Program Type	**Description**
Clinically Appropriate Meals	Fully prepared, home-delivered meals that meet general health recommendations such as the federal Dietary Guidelines for Americans
Medically Tailored Meals	Fully prepared, home-delivered meals, tailored by a registered dietitian to the medical needs of individuals living with severe chronic illness or have been recently discharged from an inpatient hospital stay.

Medically Tailored Groceries	Healthy, unprepared food items preselected by a registered dietitian or other qualified professional, sufficient to prepare nutritionally complete meals that are tailored to specific diagnoses and medical needs (medically tailored).
Food Farmacy	
Produce Prescription Program	
Pantry Stocking	Food boxes including fresh produce and non-perishable grocery items that meet general health recommendations, such as the federal Dietary Guidelines for Americans. Does not include dairy, meat, or other protein items.

E. Code/Scripts

PowerQuery Code

This code was used in Excel PowerQuery to transform the raw survey data from Jotform into long format, and perform a preliminary cleaning of the data. Code was generated using Excel's built-in Query Editor User Interface. Dowload .txt file: https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/ugd/690f32_f58dae057d5143338aba49a1c372134a.txt

```
= Table.TransformColumnTypes(Source,{{"Organization:", type text}, {"Program Name:", type text}, {"Type of FAM Program", type text}, {"County", type text}, {"More Than 1 Site", type text}, {"Site Address", type any}, {"Phone Number", type text}, {"Hours of Operation", type text}, {"Street Address", type text}, {"Street Address Line 2", type text}, {"City", type text}, {"State", type text}, {"Zip Code", type any}, {"Latitude", type number}, {"Longitude", type number}, {"Address - County", type text}, {"Website", type text}, {"Distribution Method", type text}, {"Email:", type text}, {"MailTo_URL", type text}, {"Submission ID", Int64.Type}})
```

```
= Table.ExpandListColumn(Table.TransformColumns(#"Changed Type", {{"County", Splitter.SplitTextByDelimiter(",", QuoteStyle.Csv), let itemType = (type nullable text) meta [Serialized.Text = true] in type {itemType}}}), "County")
```

```
= Table.TransformColumnTypes(#"Split Column by Delimiter",{{"County", type text}})
```

```
= Table.TransformColumns(Table.TransformColumnTypes(#"Changed Type1", {{"Site Address", type text}, {"Zip Code", type text}, {"Latitude", type text}, {"Longitude", type text}, {"Submission ID", type text}}, "en-US"), {{"Organization:", Text.Trim, type text}, {"Program Name:", Text.Trim, type text}, {"Type of FAM Program", Text.Trim, type text}, {"County", Text.Trim, type text}, {"More Than 1 Site", Text.Trim, type text}, {"Phone Number", Text.Trim, type text}, {"Hours of Operation", Text.Trim, type text}, {"Street Address", Text.Trim, type
```

```
text}, {"Street Address Line 2", Text.Trim, type text}, {"City", Text.Trim, type text}, {"State", Text.Trim, type text}, {"Zip Code", Text.Trim, type text}, {"Latitude", Text.Trim, type text}, {"Longitude", Text.Trim, type text}, {"Address - County", Text.Trim, type text}, {"Website", Text.Trim, type text}, {"Distribution Method", Text.Trim, type text}, {"Email:", Text.Trim, type text}, {"MailTo_URL", Text.Trim, type text}, {"Submission ID", Text.Trim, type text}})

= Table.ExpandListColumn(Table.TransformColumns(#"Trimmed Text", {{"Open Days", Splitter.SplitTextByDelimiter(",", QuoteStyle.Csv), let itemType = (type nullable text) meta [Serialized.Text = true] in type {itemType}}}), "Open Days")

= Table.TransformColumnTypes(#"Split Column by Delimiter1",{{"Open Days", type text}})

= Table.ExpandListColumn(Table.TransformColumns(#"Changed Type2", {{"Open Hours", Splitter.SplitTextByDelimiter(",", QuoteStyle.Csv), let itemType = (type nullable text) meta [Serialized.Text = true] in type {itemType}}}), "Open Hours")

= Table.TransformColumnTypes(#"Split Column by Delimiter2",{{"Open Hours", type time}})

= Table.TransformColumns(Table.TransformColumnTypes(#"Changed Type3", {{"Open Hours", type text}}, "en-US"),{{"Open Days", Text.Trim, type text}, {"Open Hours", Text.Trim, type text}})
```

R Script

This R Script was used to perform the data analysis and plot the bar charts. Download .txt file: https://690f3218-4e9b-4f0c-8da5-9d12749e6b72.usrfiles.com/ugd/690f32_8ccd984f90524b868fe3b5792542ef60.txt

```
#Load necessary libraries
install.packages("tidyverse")
install.packages("ggplot2")
install.packages("janitor")
library(tidyverse)
library(ggplot2)
library(janitor)

#Load datasets and build dataframes
compressed_data <- read_csv("FAMProvider_PowerQuery_Data.csv")
long_form_data <- read_csv("FAMProvider_PowerQuery_Table.csv")
```

```
#View a high level summary of the dataframes
colnames(compressed_data)
head(compressed_data)
colnames(long_form_data)
head(long_form_data)

#Clean up the column names to make it easier for R to read them
compressed_data_clean <- compressed_data %>%
  clean_names()
long_form_data_clean <- long_form_data %>%
  clean_names()

#Review the new column names
colnames(compressed_data_clean)
colnames(long_form_data_clean)

#Create a new column in both dataframes that combines "organization" and
"program_name" as the primary key or unique identifier for each program.
compressed_data_unique <- compressed_data_clean %>%
  mutate(Program_ID = paste(organization, program_name, sep = "_"))

long_form_data_unique <- long_form_data_clean %>%
  mutate(Program_ID = paste(organization, program_name, sep = "_"))

#Count of unique entries in each column.
sapply(long_form_data_unique, function(x) n_distinct(x))

# Result: there are 33 unique Program_IDs, but 31 unique organizations, meaning
some organizations run more than 1 program. This is verified in "More Than 1 Site"
displaying a value of 2; two organizations have more than 1 program site. 24 Unique
City Addresses. 21 Unique County Addresses. 5 Unique States. 6 Types of FAM
Programs. 4 Distribution Methods. All 62 NYS Counties Covered.

# Create a dataframe that shows a count of programs by Program Type
programtype_count_unique <- long_form_data_unique %>%
  group_by(`type_of_fam_program`) %>%
  summarise(Num_Programs = n_distinct(`Program_ID`)) %>%
  arrange(desc(Num_Programs))

# View the top results
print(programtype_count_unique)

#Shorten the names of the program types so they fit on the x-axis of the bar chart.
First, create separate vectors, then combine them to create the data frame.
program_types <- c("PRx", "Pantry_St", "MTG", "FF", "MTM", "CAM")
program_counts <- c(10, 7, 6, 4, 4, 2)
programcount_shortnames <- data.frame(program_types, program_counts)

#Verify results
colnames(programcount_shortnames)
```

```
# Plot a bar chart showing count of organizations by Program Type
ggplot(programcount_shortnames, aes(x = reorder(`program_types`, -program_counts),
y = program_counts)) +
  geom_col(fill = "#006400") +
  geom_text(aes(label = program_counts), vjust = -0.3, color = "black") +
  labs(title = "Number of Programs by Type",
       x = "Program Type",
       y = "Number of Programs") +
  theme(
    axis.text = element_text(size = 14),
    axis.title = element_text(size = 16),
    plot.title = element_text(size = 18, face = "bold")
  ) +
  coord_cartesian(ylim = c(0, 20)
  )

# Create a dataframe that shows a count programs by Distribution Method
distributionmethod_count_unique <- long_form_data_unique %>%
  group_by(`distribution_method`) %>%
  summarise(Num_Programs = n_distinct(`Program_ID`)) %>%
  arrange(desc(Num_Programs))

# View the top results
print(distributionmethod_count_unique)

# Plot a bar chart showing count of organizations by Distribution Method
ggplot(distributionmethod_count_unique, aes(x = reorder(`distribution_method`,
-Num_Programs), y = Num_Programs)) +
  geom_col(fill = "#006400") +
  geom_text(aes(label = Num_Programs), vjust = -0.3, color = "black") +
  labs(title = "Number of Programs by Distribution Method",
       x = "Distribution Method",
       y = "Number of Programs") +
  theme(
    axis.text = element_text(size = 12),
    axis.title = element_text(size = 16),
    plot.title = element_text(size = 18, face = "bold")
  ) +
  coord_cartesian(ylim = c(0, 20)
  )

# Create a dataframe that shows a count programs by Referral Method
referralmethod_count_unique <- long_form_data_unique %>%
  group_by(`referral_method`) %>%
  summarise(Num_Programs = n_distinct(`Program_ID`)) %>%
  arrange(desc(Num_Programs))

# View the top results
print(referralmethod_count_unique)
```

```
# Plot a bar chart showing count of organizations by Referral Method
ggplot(referralmethod_count_unique, aes(x = reorder(`referral_method`,
-Num_Programs), y = Num_Programs)) +
  geom_col(fill = "#006400") +
  geom_text(aes(label = Num_Programs), vjust = -0.3, color = "black") +
  labs(title = "Number of Programs by Referral Method",
       x = "Referral Method",
       y = "Number of Programs") +
  theme(
    axis.text = element_text(size = 12),
    axis.title = element_text(size = 16),
    plot.title = element_text(size = 18, face = "bold")
  ) +
  coord_cartesian(ylim = c(0, 20)
  )

# Create a dataframe that shows count of programs servicing each county
county_counts <- long_form_data_unique %>%
  distinct(county, Program_ID) %>%
  group_by(county) %>%
  summarise(Num_Programs = n()) %>%
  ungroup() %>%
  arrange(desc(Num_Programs))

# View the top 5 counties with the highest number of programs
print(n=5, county_counts)

# View the bottom 5 counties with the lowest number of programs
tail(county_counts, 5)

# Plot bar charts showing the top 5 and bottom 5 counties. First, create the
dataframes.
top5_counties <- county_counts %>%
  slice_head(n = 5)

bottom5_counties <- county_counts %>%
  slice_tail(n = 5)

# Now, plot the bar chart for the top 5 counties
ggplot(top5_counties, aes(x = reorder(county, -Num_Programs), y = Num_Programs)) +
  geom_col(fill = "#004d00") +
  geom_text(aes(label = Num_Programs), vjust = -0.3, color = "black") +
  labs(title = "Top 5 Counties by Number of Programs",
       x = "County",
       y = "Number of Programs") +
  theme(
    axis.text = element_text(size = 14),
    axis.title = element_text(size = 16),
    plot.title = element_text(size = 18, face = "bold")
```

```
  ) +
  coord_cartesian(ylim = c(0, 20)
  )

# And plot the bar chart for the bottom 5 counties
ggplot(bottom5_counties, aes(x = reorder(county, -Num_Programs), y = Num_Programs))
+
  geom_col(fill = "#004d00") +
  geom_text(aes(label = Num_Programs), vjust = -0.3, color = "black") +
  labs(title = "Lowest 5 Counties by Number of Programs",
       x = "County",
       y = "Number of Programs") +
  theme(
    axis.text = element_text(size = 14),
    axis.title = element_text(size = 16),
    plot.title = element_text(size = 18, face = "bold")
  ) +
  coord_cartesian(ylim = c(0, 20)
  )

# The number of programs in each county is relatively similar. I wonder if this is
due to a subset of programs covering all 62 counties, with only minor variation of
unique programs. I want to see how many programs cover all 62 counties. I'll start
by creating a dataframe that combines unique combinations of Programs and Counties.
I'll make a new dataframe instead of making changes to the primary one, in case I
need the original later.
Program_County_Combined <- long_form_data_unique %>%
  mutate(program_county = paste(Program_ID, county, sep = "_"))

# Remove Duplicates, in case there are any.
Program_County_Combined <- Program_County_Combined %>%
  distinct(Program_ID, county, .keep_all = TRUE)

# Group the data
Program_County_Combined <- Program_County_Combined %>%
  group_by(Program_ID) %>%
  summarise(Num_Counties = n_distinct(program_county))

#Show all programs that cover 62 counties
statewide_programs <- Program_County_Combined %>%
  filter(Num_Counties == 62)
print(statewide_programs)

#Result: there are 8 programs that cover all 62 counties. Therefore, since the
county_counts range is 8-13, it's possible that some counties only have the
statewide programs, and for the other counties, there are only up to 5 unique local
options.
```