

# MHA Screening for Local Advocacy: A Toolkit for Creating Data Mapping Dashboards

**This resource is for affiliates' internal use only. Please do not share or distribute outside of your organizations.**

## Table of Contents

- [Introduction](#)
  - Why create a local mapping dashboard?
  - Understanding the Strengths and Limitations of MHA Screening Data
  - Creating Dashboards: What You Should Consider Before You Get Started
- [Using Tableau to Build a Local Data Dashboard](#)
  - Tableau Software
  - Pricing
  - Key Terminology
  - Common Troubleshooting Issues
- [Cleaning Your Data with the Affiliate Tableau Prep Flow](#)
  - The Private-Facing Dashboard Prep Flow
  - The Public-Facing Dashboard Prep Flow
- [Creating a Public or Private Mapping Dashboard with Tableau Desktop](#)
  - Creating Your Private-Facing Dashboard
  - Creating Your Public-Facing Dashboard
  - Publishing the Dashboard: Public-Facing Dashboards Only
- [Appendix A: Full Private-Facing Prep Flow Description](#)
- [Appendix B: Full Public-Facing Prep Flow Description](#)

## Introduction

Since 2014, [MHA Screening](#) provided mental health screenings online to over 20 million users worldwide, supporting roughly 5 million users annually since 2021. This robust sample of users provides an opportunity to evaluate population-level data that will help prioritize communities in need. In 2021, MHA published a [public dashboard of mental health risk](#) in the United States that supports our goal of identifying those communities at highest risk and need for mental health support.

As an extension of the lessons and impact of our public national dashboard, MHA sought to replicate the process at a local level. In 2022, MHA began working with [Mental Health America Illinois](#) to lay out a framework for building [a local dashboard](#) and to develop an actionable pathway to support policy and program opportunities for Cook County, Illinois. This guide was developed to provide best practices for affiliates to replicate the process of creating a local mapping dashboard in other counties across the U.S.

### **Why Create a Local Mapping Dashboard?**

Part of the mission of the MHA online screening program is to further data-driven, upstream, population-level efforts to improve mental health. Our goal is to use screening data to rapidly analyze and disseminate information to help fill unmet needs and gaps in care for our communities. MHA Screening is not only the largest existing data set of help-seeking individuals for mental health conditions, but it collects data in real time as people are actively taking screens. This allows MHA National and our affiliates to recognize and respond to changes and trends in the mental health of the nation faster than any other data set in the country. Building a local dashboard can aid in developing an actionable pathway to support policy and program opportunities to address mental health needs locally and at the state level.

In the development of the dashboard, MHA affiliates should consider local factors that may be driving disparities in accessibility of and proximity to adequate mental health care and identify key focus areas that can aid in finding stakeholders who share interests. Some factors to consider when making a dashboard and identifying stakeholders are: the amounts and sources of funding for mental health care, key decision makers, concentration of mental health providers and services throughout the county or state, historical contexts that contribute to disparities, and relationships between organizations involved in mental health care.

Creation of a local dashboard can help affiliates form relationships with other stakeholders in the community and forge cross-sector partnerships and programming based on the data. With every encounter, you're able to learn more about stakeholder interest and use it to fuel the development and use of the dashboard. When preparing to do outreach, it's important to consider:

- People you know
- People who control funding of systems you want to elevate
  - City, County, and State Public mental health department
  - City, County, and State Public health department
  - Other MH organizations and advocates
  - Schools: districts, principals, school board
  - State and local policymakers
- What policy or local activities are happening that can be leveraged for meeting or to increase interest or will in the data

- Organizations or stakeholders based on catchment areas of interest
- Organizations or stakeholders based on data findings – for example, MHA has key interests in public health/mental health and youth facing organizations; actionable prevention opportunities; and stakeholders working with high risk populations.

## **Understanding the Strengths and Limitations of MHA Screening Data**

The results from MHA Screening constitute one of the largest datasets collecting and distributing national mental health information in real-time, allowing us to recognize and react to changes in the mental health of the nation as they occur. MHA Screening also captures information about an individual's mental health needs earlier than other datasets. When people first begin experiencing symptoms of a mental health condition or begin to experience a relapse of symptoms from an existing mental health condition, they often look for answers and resources online, long before speaking to a provider. As such, the data can be an indicator of imminent mental health need, which allows for it to be used for earlier intervention and detection of mental health concerns before they become crises.

The MHA Screening dataset collects information from a help-seeking population, meaning individuals access the mental health screening tools while searching for mental health resources and support online. This is a convenience sample, not a general sample of the U.S. population. As a result, users are more likely to screen at risk or with moderate-to-severe symptoms of mental health conditions than the general population. Thus, the population represented within this dataset differs from other national mental health datasets collected by federal agencies such as the Centers for Disease Control and Prevention (CDC) and the U.S. Census Bureau Household Pulse Survey, both of which survey a sample of the general U.S. population. This convenience sample allows MHA to understand the experiences of individuals with the highest need who were actively seeking help for their mental health, and therefore can be interpreted as a minimum unmet need for immediate resources and support across the U.S. When creating our local data dashboard, MHA and MHA Illinois evaluated the demographic breakdown of the Cook County data from MHA Screening against U.S. Census Data to better understand how the Cook County convenience sample differed from the general population.

One of the benefits of being an MHA affiliate is receiving data from MHA Screening. Affiliates can receive data from a custom URL (which captures all data from individuals accessing MHA Screening from your website), state-level data (which captures all data from individuals selecting your state on the demographic questions following each screen), and/or data from your local service area (which captures all data from individuals reporting a zip code within your catchment area on the demographic questions following each screen). If you are interested in receiving Screening data from MHA National, email Mika Sakamoto at [msakamoto@mhanational.org](mailto:msakamoto@mhanational.org).

As part of the optional demographic questions following each screen, MHA asks users to report their state and zip code. If you receive data from multiple counties and would like to map your data to the county or city level, you will need to download a dataset to match each zip code with a county or city name. For our mapping work, MHA National uses a zip code database created by Simple Maps, which you can purchase or download a free version [here](#).

**NOTE: Zip codes and county lines often do not line up perfectly.** Within the Simple Maps dataset, the column “county\_name” contains the name of the county that the majority of the zip code falls within. Some zip codes within this group cross into other counties. The column titled “county\_names\_all” has a full list of every county the zip code falls into.

MHA uses Tableau Prep to prepare and clean MHA Screening data for Tableau Desktop. This cleaning process can also be replicated in R, however, the process within this guide is designed for Tableau Prep.

**NOTE: The processes within this guide are used to clean data for a dashboard reflecting final screen results, which can be built from a monthly summary file. Suicidal ideation data is taken from question 9 of the PHQ-9 depression screen. If you would like to create a dashboard reflecting data on suicidal ideation, you will also need to receive an item-level depression report each month. This will need to be requested separately. To request this data, email Mika Sakamoto at [msakamoto@mhanational.org](mailto:msakamoto@mhanational.org).**

## **Creating Dashboards: What you should consider before you get started**

User privacy is the most important consideration whenever you are debating whether to release MHA Screening data publicly. Any identifiable information (such as names, email addresses, home addresses, or phone numbers) must be immediately removed from the data. Even without this information, users may be identifiable with a combination of their demographic information and zip code. For example, if a zip code only has 50 residents, knowing an individual’s age, gender, race/ethnicity, and special population information may allow others to identify them. We always want to protect users from having their individual mental health screening information publicly known. As a best practice, MHA has only allowed one demographic variable to be included at the zip code level. In the Cook County, Illinois local dashboard, we only allow users to explore zip code level data by age group. Larger geographic areas (like states) can include more demographic variables, as it would be more difficult to identify any one individual at the state level.

During the creation of the State and County data dashboard, MHA National was advised by epidemiologists to only include geographic areas in analyses if they had more than 5 individuals with a “positive” result. This data suppression step is included as the final step in the Public-Facing Tableau Prep flow only.

Considering the MHA Screening program accommodates screening and demographic data from millions of users across 11 screens, it is also essential to use local context to narrow down key areas to focus on. Identifying key populations that may be more at risk for mental health conditions and/or lack access to adequate care can inform what data would be useful to present in your catchment area.

**NOTE: Tableau dashboards do not protect raw data. Users of your publicly available dashboard always have the ability to download the dataset you have loaded into Tableau. Make sure that you are not loading in any data that you would not want others to be able to view and use for their own purposes.**

MHA affiliates may also want to limit the amount of data they make publicly available in order to create interest for partnerships or additional funding. A publicly available dashboard can be a useful tool for sharing high-level aggregated information about mental health needs in a catchment area. If outside organizations would like more information or technical assistance on how to use the information available, affiliates can use that as an opportunity to create new partnerships.

If your affiliate does want to create and publish a public-facing dashboard, MHA National is happy to provide technical assistance if there are any concerns about privacy or liability issues. We would also like to help promote your dashboard and keep track of how MHA Screening data is being used by affiliates. Once you have published your dashboard, please let us know by emailing Maddy Reinert at [mreinert@mhanational.org](mailto:mreinert@mhanational.org).

**Not all Tableau dashboards need to be public.** Your affiliate can follow the steps outlined throughout this document to map your data and keep it unpublished for internal use only. A private dashboard may be useful because it can allow your affiliate to map more demographic information and more granular information than you can share publicly.

## Using Tableau to Build a Local Data Dashboard

### Tableau Software

MHA uses the data visualization software Tableau to analyze MHA Screening data and create dashboards to explore local findings, both for affiliates who want to know more about mental health within their catchment areas and for the public to view rates of mental health conditions at the state and county level.

There are three versions of Tableau that MHA uses to create a local data dashboard: Tableau Prep, Tableau Desktop, and Tableau Reader.

- **Tableau Prep** is used to clean and aggregate MHA Screening data to the city and/or county level. Tableau Prep requires the user to purchase a license for use.
- **Tableau Desktop** is used to create maps of mental health conditions using MHA Screening data and organize them into a cohesive dashboard. Tableau Desktop requires the user to purchase a license for use.
- **Tableau Reader** is a free software that allows users to open and view pre-packaged dashboards without purchasing a license. However, Tableau Reader only allows the user to view dashboards. It cannot be used to analyze data, edit dashboards, or create new dashboards.


### Pricing

To follow this process and create a mapping dashboard, at least one staff member must purchase a Tableau Creator license. This license will grant access to both Tableau Prep and Tableau Desktop. Pricing for a Tableau license for both products can be found [here](#). At the time of publication of this toolkit, one Tableau license costs \$75 per month (\$900 per year). Tableau does occasionally offer discounted licenses to nonprofit organizations. Before purchasing a Tableau license, contact Tableau Sales to see if you could obtain a discount [here](#).

**If you are interested in creating a mapping dashboard for internal use and do not want to purchase a Tableau license, please email Maddy Reinert at [mreinert@mhanational.org](mailto:mreinert@mhanational.org) to discuss how MHA National may support this work.**

### Key terminology for Tableau:

- **Visualization:** A visualization is the graph, table, map, or other visual representation of your data.
- **Worksheet:** A worksheet refers to the window where you create your visualization. Worksheets are represented as tabs at the bottom of each Tableau file. To create a new

worksheet, click this icon at the bottom of your Tableau screen.  Each worksheet can only contain one visualization. On each worksheet, there will be a column to the left of the view with each of the variables in your dataset. The top portion of the column contains blue variables called Dimensions, and the bottom portion of the column contains green variables called Measures.

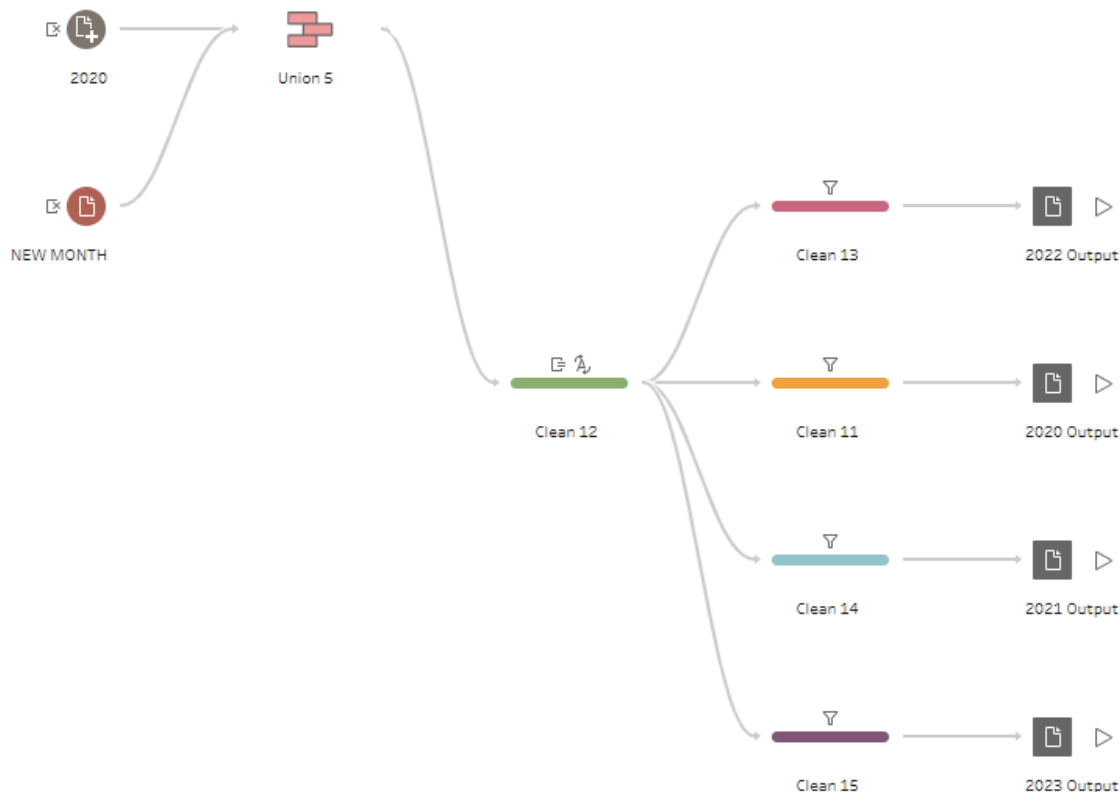
- **Dimensions:** Dimensions are categorical and string variables. Examples of dimensions are gender, race/ethnicity, and household income.

- **Measures:** Measures are continuous and/or numerical variables. Examples of measures are count, latitude, and longitude. Any calculated variables you create (for example, number per 100,000 people) will also be under Measures.
- **Dashboard:** A dashboard is where you can display multiple visualizations on one page. You cannot edit a visualization beyond basic formatting on the dashboard. To do so, you will need to return to the worksheet where you created the visualization. To create a new



dashboard, click this icon at the bottom of your Tableau screen.

- **Prep Flow:** A prep flow is a file using Tableau Prep software. The flow refers to the file containing the cleaning process for your data. It is referred to as a “flow” because it is a series of steps connected by arrows from your initial data set to your cleaned output.



## Common Troubleshooting Issues

If you are unable to open a Tableau file:

1. **Check that the Tableau file is saved as a Tableau Packaged Workbook (.twbx) file.** When you create a new dashboard on Tableau Desktop it will automatically save as a Tableau Workbook (.twb) file. Tableau Desktop can open Tableau Workbook (.twb) files, but Tableau Reader is only able to open Tableau Packaged Workbook (.twbx) files. To save a Tableau Workbook (.twb) file as a Tableau Packaged Workbook (.twb) file, select Tableau Packaged Workbook from the “Save as Type” dropdown menu when saving the file.

If your Tableau Prep Flow can’t run and you see red exclamation points on some steps:



1. **Check that your variable names match those in the steps listed under “Changes.”** MHA National has programmed the steps of the data cleaning process already, but unfortunately Tableau codes those steps under specific variable names. To change a variable’s name, either change it in your Excel file or double click on the variable name in any of the cleaning steps and rename it. Tableau Prep will let you know where the problem is in the flow on the Alerts button in the top right corner.
2. **Rename the “Logs” file in your Tableau Prep Repository.** After you have used Tableau Prep several times, it can begin to glitch. If the Tableau Prep flow is taking exceptionally long to run or if you get an error that says your flow cannot run without a specific reason, Tableau Prep may just need you to clear up some memory. Go to the location of your Tableau Prep Repository (assigned when you download Tableau Prep) and rename the folder “Logs.” Once you open Tableau Prep again, it will automatically create a new “Logs” folder and you can delete the old one.

If you open a Tableau file and the visualizations are blank:

1. **Make sure that filters are turned off or adjusted.** If you open your Tableau file and some visualizations are blank, there may be a filter hiding the data. For example, the demographic questions asked through MHA Screening have changed over time. If date is used as a filter in your file, it may be filtering to a date prior to when the variable was collected, and therefore the visualization will be blank.
2. **If you have recently added new data to the file, make sure the variable names have not changed.** Visualizations are built using specific variables, and these visualizations will only update if they are able to find the variables you have coded when building them. For example, if you build a visualization using the variable “Household Income,” it can only use data under that name. If you upload a new data file and the variable name has changed to “Income,” your visualization will appear blank. If Tableau cannot find a variable, there will be a red exclamation point next to the variable name in the left-hand column of your worksheet.

If you try these fixes and they do not work, or you have a separate problem that is not listed above, please contact Maddy Reinert at [mreinert@mhanational.org](mailto:mreinert@mhanational.org) for technical assistance.

## Cleaning Your Data with the Affiliate Tableau Prep Flow

MHA National has created a Public-Facing Tableau Prep Flow and a Private-Facing Tableau Prep Flow for affiliates to clean and convert their monthly screening data into a file appropriate for mapping. Both Prep Flows are designed to make it easy for you to update your mapping dashboard each time you receive monthly or quarterly data.

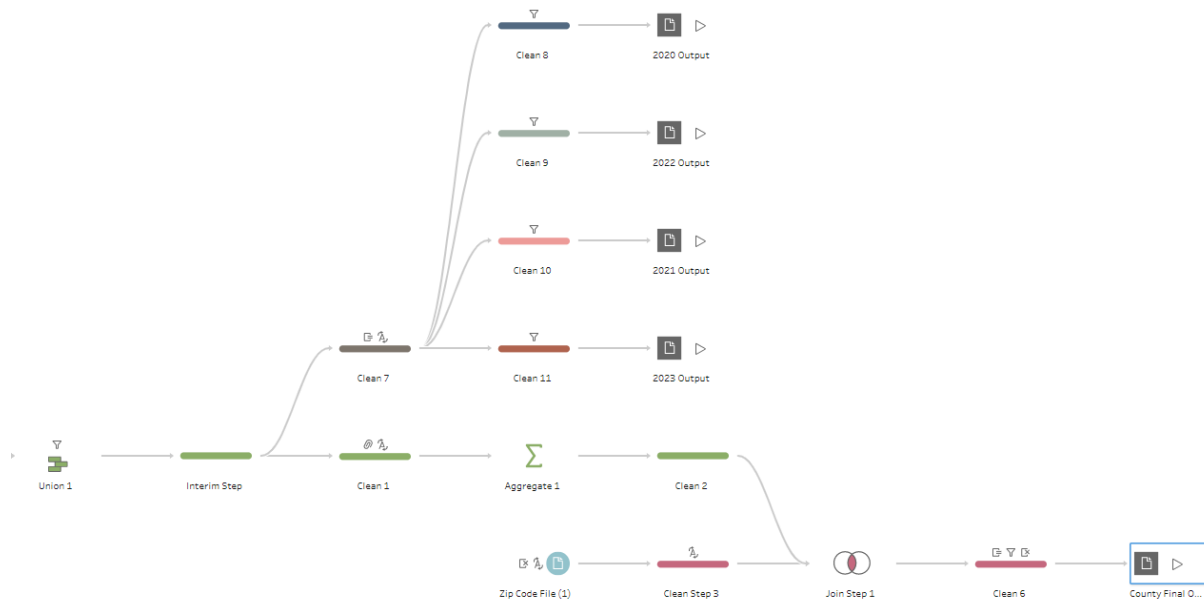
The Private-Facing Tableau Prep file is designed to clean your data but maintain all demographic variables. The output from this Prep Flow is meant to create dashboards for affiliate internal use **only**. This Private-Facing Tableau Prep Flow can be found on [the Affiliate Resource Center here](#).

The Public-Facing Tableau Prep file is designed to clean your data, remove most demographic variables, and aggregate data to the county level. It also has data suppression built into the cleaning process. The output from this Prep Flow is meant to create dashboards for public use. This Public-Facing Tableau Prep Flow can be found on [the Affiliate Resource Center here](#).

To use these files, you will need to have a Tableau Prep license. For more information on how to get a license for Tableau and pricing, refer to the Tableau Software section above on page 7.

### The Private-Facing Dashboard Prep Flow

Once you have opened the Tableau Prep flow, you will see the following flow.



### Step 1: Connecting Your Data

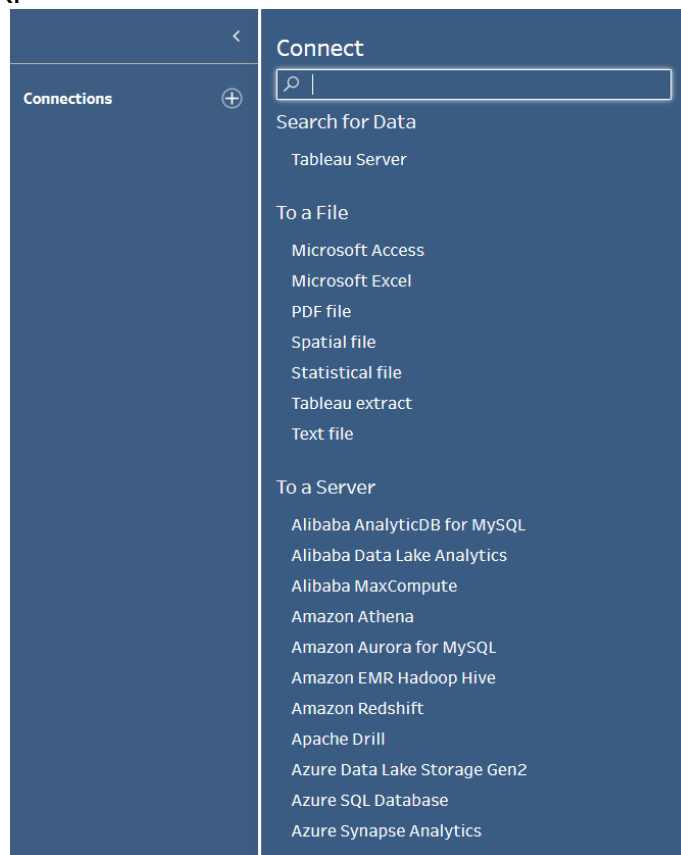
The first thing you must do is connect your data to the Tableau Prep file. The file is designed to clean your data using three inputs:

1. Zip code file: A dataset linking zip codes with a county name. For our mapping work, MHA National uses a zip code database

- created by Simple Maps, which you can purchase or download a free version [here](#).
2. Overall file: A file containing all data for the time period you want to map (for example, a file containing all of your affiliate’s data from 2020-2022).
  3. New file: A file containing your most recent month or quarter of data (sent to you by MHA National). **NOTE: if you are creating a mapping dashboard for the first time, you will not need to add a new month or quarter to your data.** This is included to make it easy for you to update your mapping dashboard each time you receive new data.

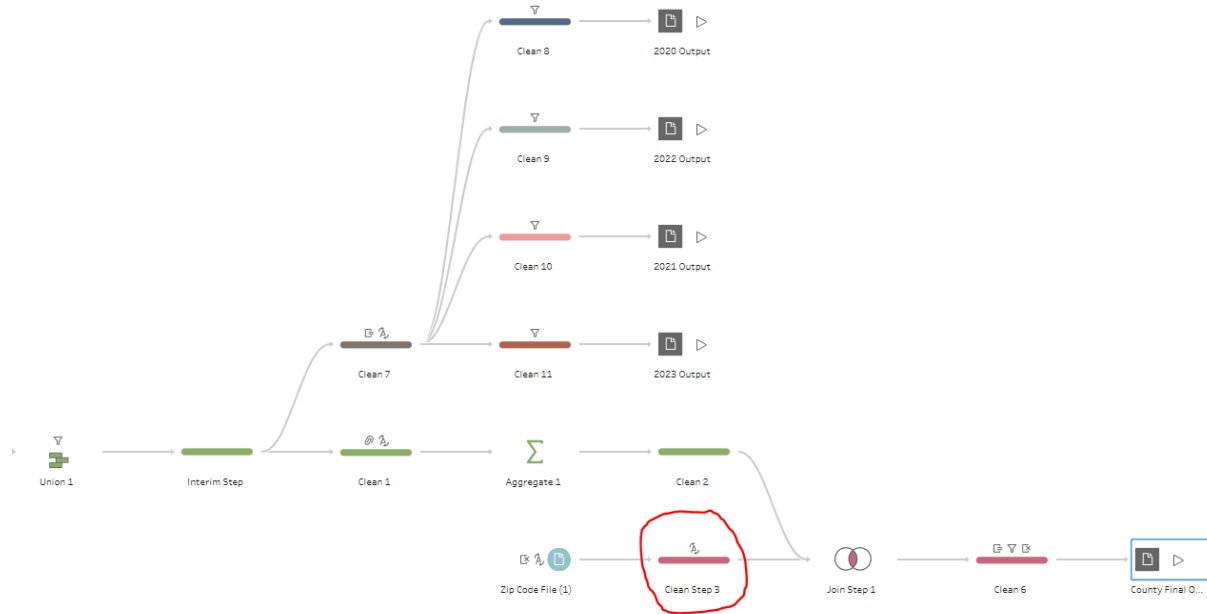
For example, if MHA National sends you your affiliate data for March 2023, your “overall file” would contain all your data MHA had previously sent you (for example, from 2020-February 2023) before the new month. Your “new file” would be the March 2023 data that MHA sent you at the beginning of the month.

To add these data sources, click the white plus sign next to “Connections” in the blue column on the left side of your screen. Click “Microsoft Excel” under “To a File.” Select the files you want to connect, and click OK.



Once you have connected to your data, click on each data file. You will see each of the sheets in your Excel file listed at the bottom of the blue column on the left of your screen under “Tables.” Click and drag the sheet to connect it to the flow. Your zip code file (linking zip codes to county names) should be dragged and connected to the step circled in red below (labeled

“Clean Step 3”). Click and drag the sheet and hover over the step. You will see an option for “Add” appear to the left. Drop the sheet on the “Add” option.



Click on your data file in the flow. Remove all variables in the data file except zip, lat, lng, city, state\_name, population, county\_name, and county\_names\_all. To remove a variable, hover over the variable in the “Field Name” list. Three icons will appear to the right of the variable name. Click the X to remove the variable (pictured below). You can also remove these variables by deleting them from your Excel file before connecting it to the Tableau Prep Flow.

Zip Code File

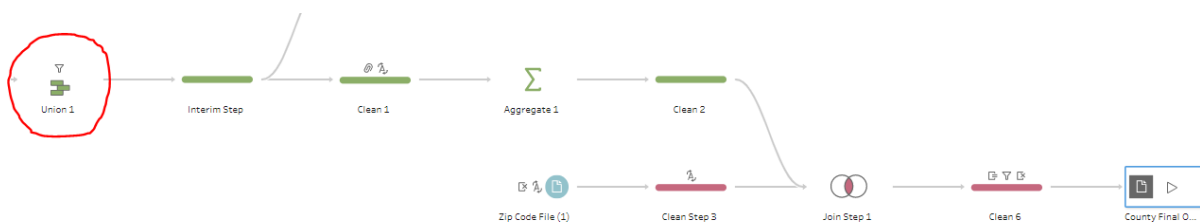
Remove fields you don't need and add filters to limit the data included in your flow. This can improve performance. For more cleaning options or to view your data, [add a Clean Step](#).

Fields included: 8 of 89

Type	Field Name	Changes	Preview
#	Source Row Number		1, 2, 3
Abc	zip		00501, 00544, 00601
#	lat		40.81308, 40.81322, 18.18027
#	lng		-73.04639, -73.04929, -66.75266
Abc	city		Holtsville, Adjuntas
Abc	state_id		NY, PR
Abc	state_name		New York, Puerto Rico
Abc	zcta		FALSE, TRUE
#	parent_zcta		11, 742, null
#	population		null, 17, 126
#	density		null, 102.6
#	county_fips		36, 103, 72, 001
Abc	county_name		Suffolk, Adjuntas
Abc	county_weights		{{"36103": 100}, {"72001": 98.73, "72141": 1.27}}
Abc	county_names_all		Suffolk, Adjuntas Utuado
Abc	county_fips_all		36103, 72001 72141
Abc	imprecise		FALSE
Abc	military		FALSE
Abc	timezone		America/New_York, America/Puerto_Rico
#	age_median		null, 43.7

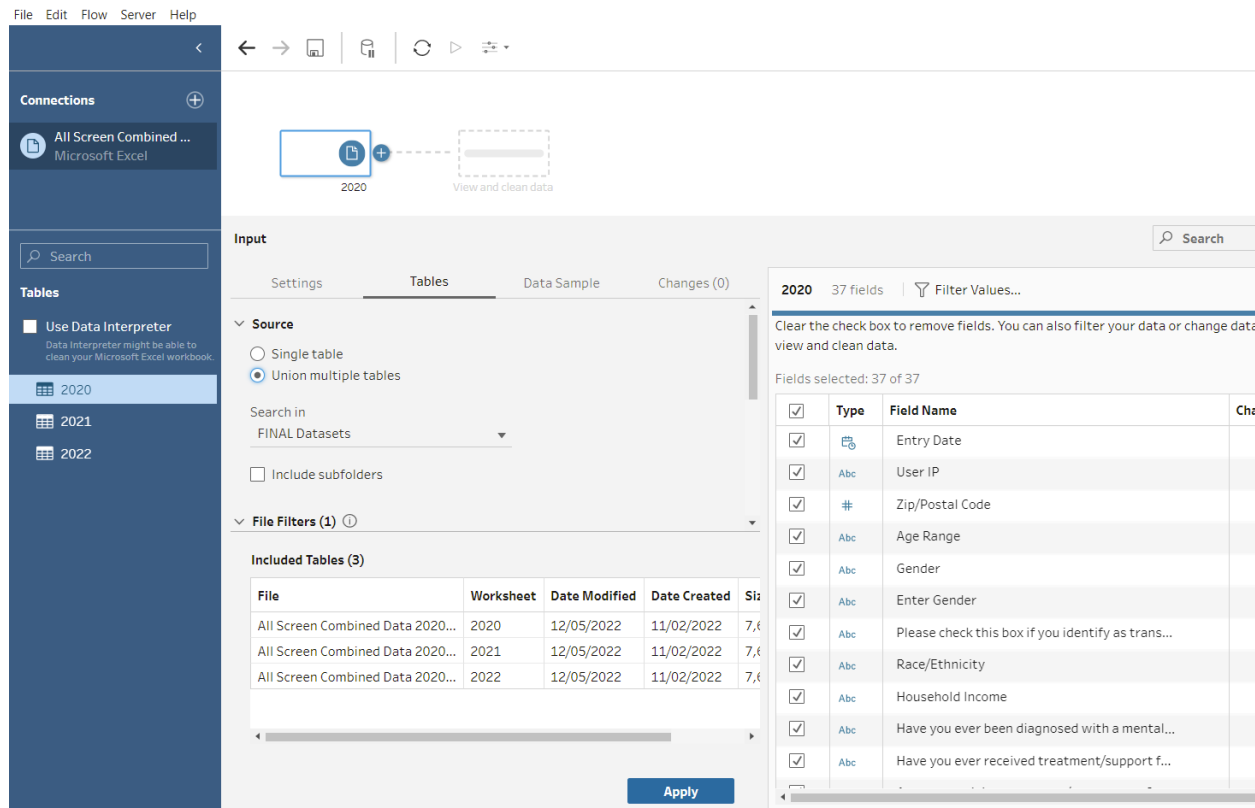
Tableau initially reads zip codes as a number, and trims leading or ending zeroes. Click the # symbol in the column “Type” on the left side of the zip variable. Select “String” from the drop-down menu.

Click and drag the sheet containing all previous data for your affiliate to connect it to the flow. This file should be dragged and connected to the step circled in red below (labeled “Union 1”). Click and drag the sheet and hover over the step. You will see an option for “Add” appear to the left. Drop the sheet on the “Add” option.



If you would like to use multiple sheets of data (for example, in the screenshot below, if you would like to clean all data from 2020-2022 together despite them being saved in different sheets), click and drag the first sheet into the blank view. A gray field with four options will appear: Settings, Tables, Data Sample, and Changes. Select “Tables.” Under “Sources,” you will see two options: “Single Table” and “Union Multiple Tables.” Select “Union Multiple Tables.” In the field “Included Tables,” you should now see each of the sheets in your Excel data file

listed. To combine the data from all sheets in Tableau Prep, click the blue button labeled “Apply.”

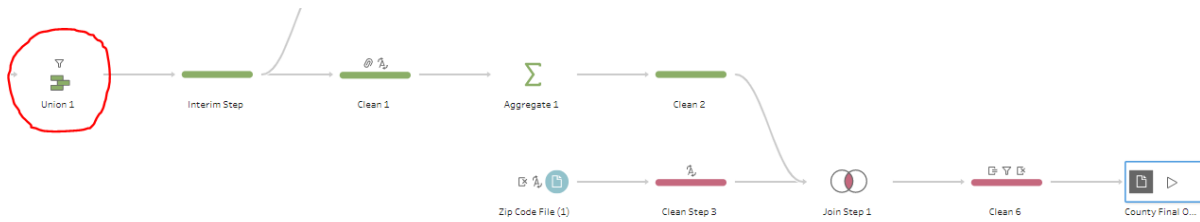


**NOTE: Tableau Prep combines data from multiple sheets by matching variable names and stacking the data from each sheet underneath the other. To be able to combine multiple sheets of data, the variable names (or column names in your Excel file) must match across sheets.**

If you have two of the same variables that are named differently in one file, Tableau will count them as separate variables. This may duplicate records of screens, which would make your counts in your mapping dashboard inaccurate.

If your Excel file only contains one sheet, or if you would like to only clean one sheet of data, select “Single Table.” You should see each of the variables in your Excel sheet displayed in the fields list on the right.

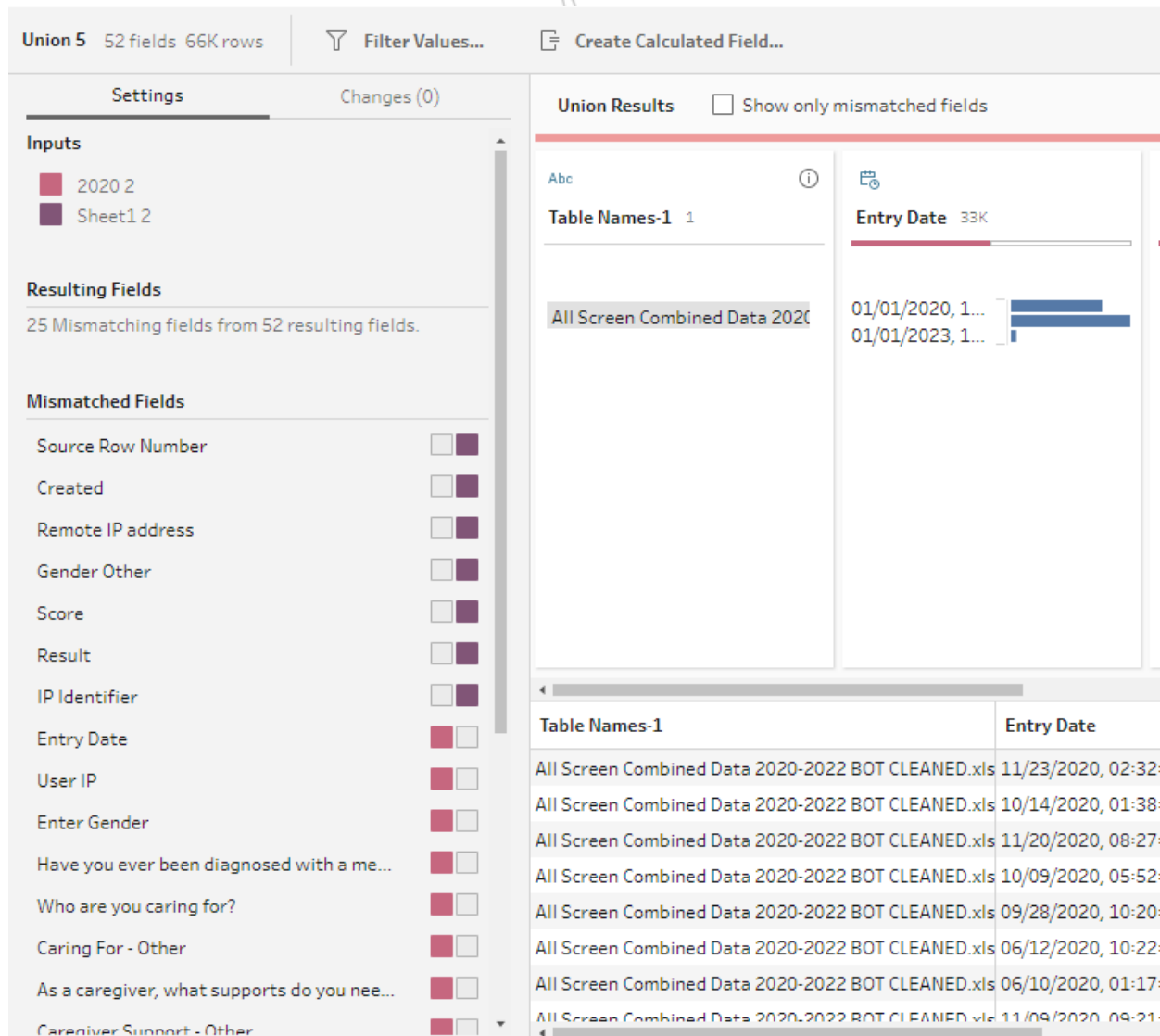
Click and drag the sheet containing your new month or quarter of data for your affiliate to connect it to the flow. This file should be dragged and connected to the same step circled in red below (labeled “Union 1”). Click and drag the sheet and hover over the step. You will see an option for “Add” appear to the left. Drop the sheet on the “Add” option.



## Step 2: Creating a Union

Once you have both your monthly and full datasets connected to the step circled above, click on the step (labeled “Union 1”). A Union step means you are telling Tableau to combine two datasets together on matching variables. Tableau combines these datasets vertically, meaning it adds the new data into the columns below data that already exists (as if you were entering new rows of data into existing columns in an Excel file).

**A Union step requires that the columns in both datasets have the same name, so Tableau knows where to put the data. Make sure you have renamed the columns in both files to match before loading them into Tableau Prep.** If you did not rename the columns before loading the data in and/or prefer to do it in Tableau Prep, you can manually tell Tableau which columns are the same. When you click on your Union step, there will be a box to the left labeled “Mismatched Fields.”



The screenshot displays the Tableau interface for a Union of two datasets. The top bar shows 'Union 5' with 52 fields and 66K rows. The 'Settings' pane on the left includes 'Inputs' (2020 2, Sheet1 2), 'Resulting Fields' (25 mismatching fields from 52 resulting fields), and a list of 'Mismatched Fields' with checkboxes. The 'Union Results' pane on the right shows a preview of the data, including a table with columns 'Table Names-1' and 'Entry Date'.

Table Names-1	Entry Date
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/23/2020, 02:32:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	10/14/2020, 01:38:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/20/2020, 08:27:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	10/09/2020, 05:52:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	09/28/2020, 10:20:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	06/12/2020, 10:22:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	06/10/2020, 01:17:...
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/09/2020, 09:21:...

In the screenshot above, for example, “Created” and “Entry Date” are both date fields. To tell Tableau to combine the data in those two columns, click on one of the variable names. Once it is selected, hover over the other variable name. A gray + should appear to the right of the variable name. Click the + to tell Tableau to combine those variables. Continue doing this to match each of your mismatched variables.

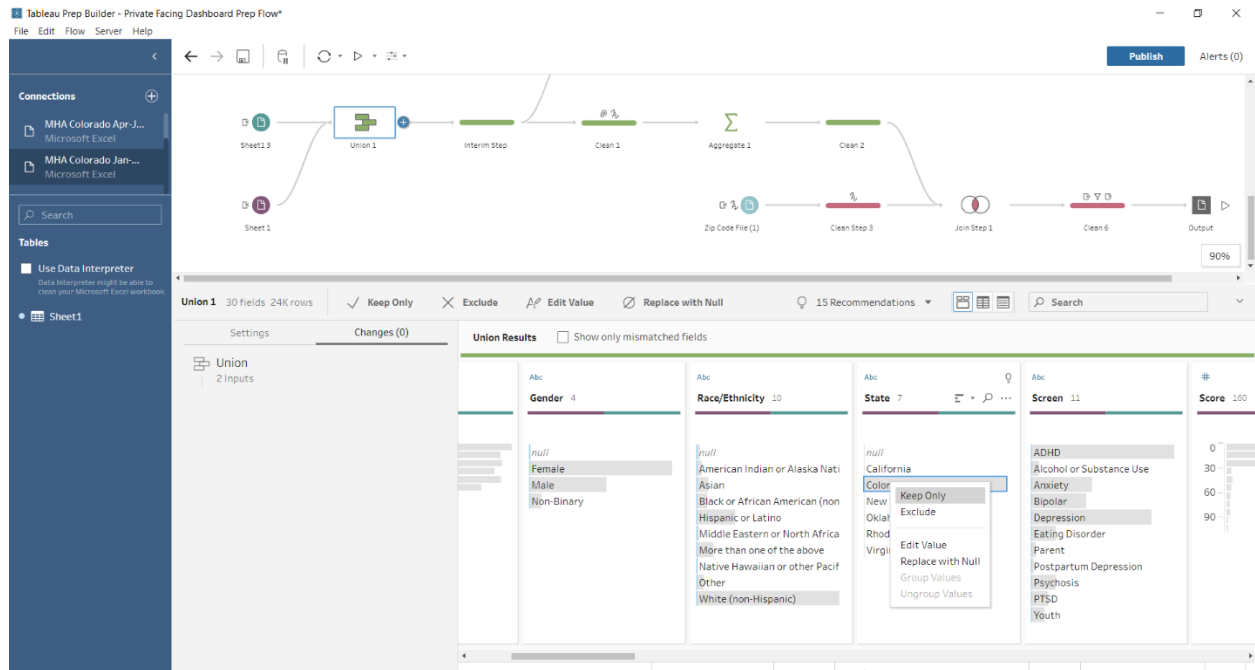
If you have variables that only exist in one dataset and not the other, you can leave them in your mismatched variables. Tableau will simply add them as their own separate columns.

### Step 3: Filter Your Data

Sometimes users on MHA Screening will enter a zip code and state that do not match each other (for example, a zip code from California, but report their state is Illinois). In that case, we are unable to confirm which is the user’s real location (California or Illinois) and may be counting their data in the wrong place. To ensure that we are mapping data correctly, we must keep only data from the state that matches the zip code catchment area we are mapping.



On the same “Union 1” step, in the “State” variable box, right click on your state (for example, Illinois) and click “Keep Only” from the drop-down menu. This removes all data where someone has entered a different state or has not entered an answer to State from the dataset.



#### Step 4: Set your Outputs

At the end of each flow, you will see a gray “play” button. This represents your Output, or the files that Tableau will save with your final cleaned data.

An Output contains several options:

- **Name:** Under Name, type what you would like your file to be titled.
- **Location:** Type in the box or click the “Browse” button to choose the file location where you would like your output file to be saved.
- **Output type:** In Tableau, Output type automatically defaults to a Tableau Data Extract (.hyper). This kind of file is only usable in Tableau. To view the file outside of Tableau, you will need to change the output type to either an Excel file or a CSV file. For our purposes, we converted the Output to an Excel file by selecting Microsoft Excel from the Output type dropdown list.
- **Worksheet:** If you have changed your Output type from a Tableau Data Extract file to a Microsoft Excel file, you will need to assign a worksheet name (this will just appear as the sheet name within your Excel workbook). To assign a worksheet name, click the dropdown under “Worksheet” and type the name. Select “Create New Worksheet” with the worksheet name.

- **Write Options:** This tells Tableau whether you would like to create a new table or add to an existing table. We have selected “Create table,” which will generate a new file with the name you have written each time you run the flow. This will rewrite the Excel file each time you run this flow again.

**NOTE: Always check the Write Options before running your flow.** The “Create table” option will replace the file you have named in the steps above, which can result in lost data if you did not want to replace your existing file. The “Append to table” option will add to your existing file, which can result in duplicate data or overcounting if you are running your entire dataset and want to rewrite your existing file.

**ALL SCREENS Final Output** 0 fields

**Save output to**

File

Browse

**Name**

ALL Screens Final Output

**Location**

S:\Departments\\_Programming\Screening\Affiliate Materials\Affiliate & Partner Screening Intro\Affiliate Tableau Mapping Training

**Output type**

Microsoft Excel (.xlsx)

**Worksheet**

2020-2022 Combined

**Write Options**

Select an option to create or update your output table.

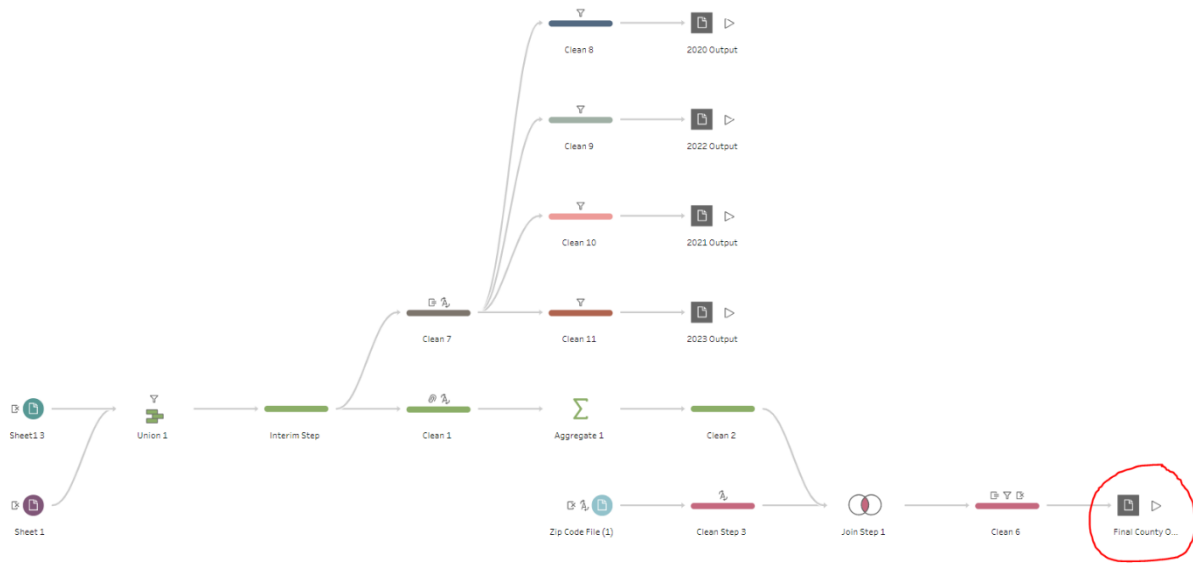
**Full refresh**

Create table

Run Flow

An explanation of each Output in the Tableau Prep Flow is below:

1. **Final County Output:** This Output contains all your cleaned data with added columns for city, county name, and population. It also has a count for positive, negative, and total results for each row, which will make it easier to map your data.



**2. 2020 Output, 2021 Output, 2022 Output, and 2023 Output:** These outputs save all your data into one complete file. Notice on each of these outputs, the Name of the file should be the same, but the Worksheet names are different. What this is doing is creating one Excel file with each year of your data on a different Sheet. This ensures that your overall data file is updated each time you receive a new month or quarter of data. After you run this once, you will only need to run the most recent year (2023 Output) each time you run this prep flow.



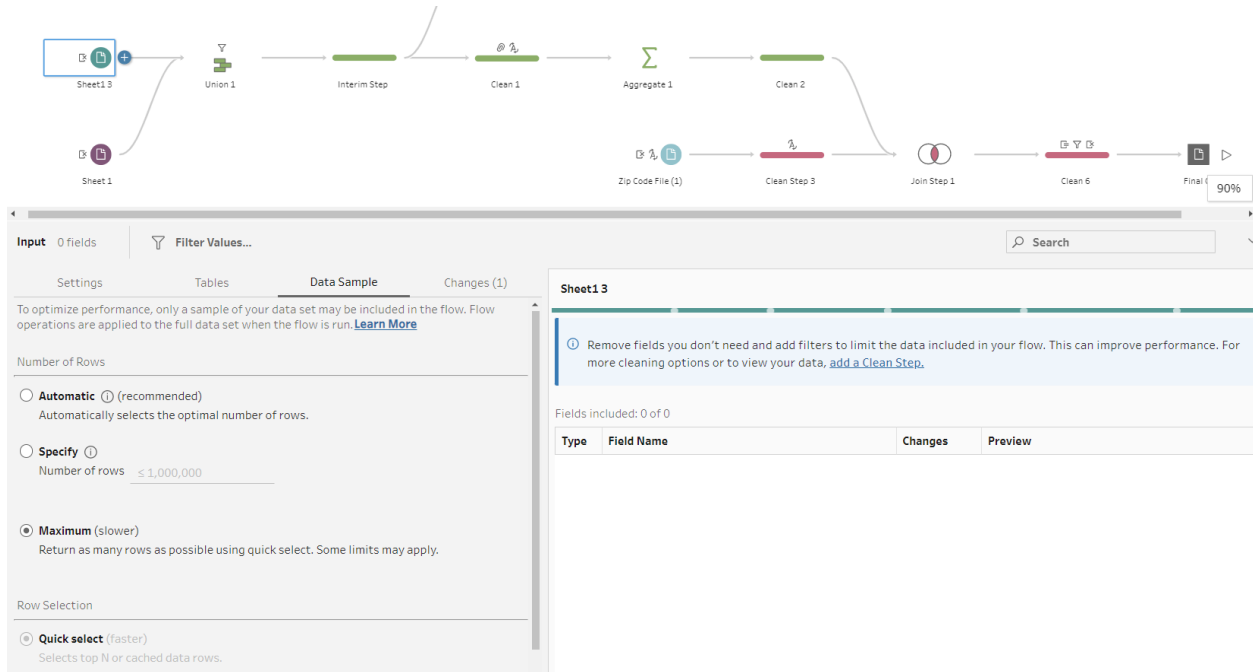
For example, if MHA National sends you your affiliate data for March 2023, your overall file (labeled 2020 in the screenshot above) would contain all your data from 2020-February 2023,

and you would be loading in your March 2023 data (labeled NEW MONTH in the screenshot above). If you run the outputs circled in red above, Tableau will create one file that contains all of your data from 2020-March 2023, meaning it will create a combined file between your previous data file and the new March 2023 file. Then when you receive your next month of data, you can attach that overall file created from the output (in the place of the file labeled 2020 in the screenshot above) and the April 2023 data will become your file labeled NEW MONTH in the screenshot above). This output step should make it easier to keep a running total file that you can use each time you update your mapping dashboard.

#### Step 5: Running your Tableau Prep Flow

The cleaning steps throughout the rest of the Tableau Prep Flow have been created for you in advance to follow the cleaning process that MHA National follows. If you would like to keep the same cleaning process, you can run your Prep Flow now. **For an explanation of each of the steps in the cleaning process, please refer to the section “Appendix A: Full Private-Facing Prep Flow Description” on page 95.**

**NOTE:** Tableau Prep automatically samples all connected datasets to free up bandwidth when creating your flow. **Before you run your Prep flow, to ensure that it cleans all data within your data file (and not just a sampled portion), click the “Data Sample” option next to “Tables.” Under “Select the amount of data you would like to include in the flow,” there are three options: Default sample amount, Use all data, and Fixed number of rows. Select “Use all data.”** Do this for each of the datasets you have connected at the beginning of your flow.

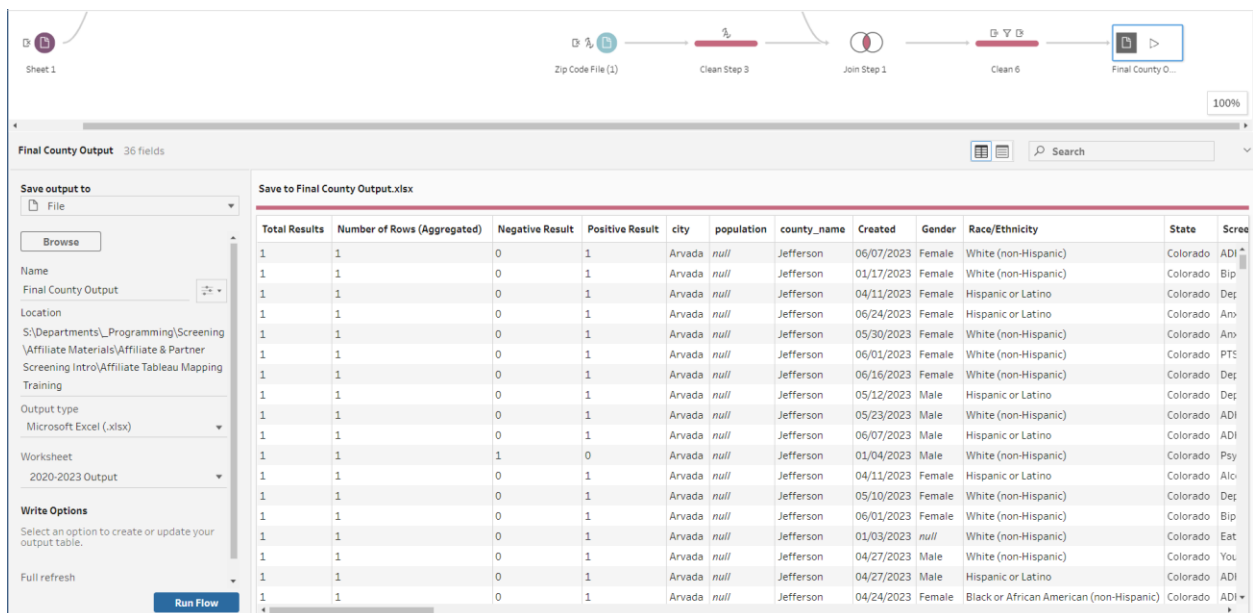


The screenshot shows a Tableau Prep Flow pipeline. It starts with two input sheets: Sheet 13 and Sheet 1. These are combined in a 'Union 1' step. The flow then proceeds through an 'Interim Step', 'Clean 1', 'Aggregate 1', and 'Clean 2'. A second path starts from 'Zip Code File (1)', goes through 'Clean Step 3', and joins the main flow at 'Join Step 1'. This is followed by 'Clean 6' and finally a 'Final' output step which is 90% complete.

Below the flow, the 'Data Sample' tab is active. It provides instructions on optimizing performance by using a data sample. It offers three options for the number of rows: 'Automatic' (recommended), 'Specify' (with a field for 'Number of rows' set to ≤ 1,000,000), and 'Maximum' (slower). There are also options for 'Row Selection': 'Quick select' (faster) and 'Maximum' (slower).

The 'Sheet 13' output view is shown, displaying a table with columns: Type, Field Name, Changes, and Preview. The table is currently empty, with 'Fields included: 0 of 0'.

To run all outputs in your Tableau Prep Flow, click the play symbol at the top of the screen. Otherwise, you can run individual outputs by clicking the play symbol next to them, or selecting the blue button labeled “Run Flow” at the bottom of your Output view.



The screenshot shows the 'Final County Output' view, which is 100% complete. It displays a data table with the following columns: Total Results, Number of Rows (Aggregated), Negative Result, Positive Result, city, population, county\_name, Created, Gender, Race/Ethnicity, State, and Screen. The table contains 18 rows of data.

Total Results	Number of Rows (Aggregated)	Negative Result	Positive Result	city	population	county_name	Created	Gender	Race/Ethnicity	State	Screen
1	1	0	1	Arvada	null	Jefferson	06/07/2023	Female	White (non-Hispanic)	Colorado	ADI
1	1	0	1	Arvada	null	Jefferson	01/17/2023	Female	White (non-Hispanic)	Colorado	Bip
1	1	0	1	Arvada	null	Jefferson	04/11/2023	Female	Hispanic or Latino	Colorado	Dep
1	1	0	1	Arvada	null	Jefferson	06/24/2023	Female	Hispanic or Latino	Colorado	Anx
1	1	0	1	Arvada	null	Jefferson	05/30/2023	Female	White (non-Hispanic)	Colorado	Anx
1	1	0	1	Arvada	null	Jefferson	06/01/2023	Female	White (non-Hispanic)	Colorado	PTS
1	1	0	1	Arvada	null	Jefferson	06/16/2023	Female	White (non-Hispanic)	Colorado	Dep
1	1	0	1	Arvada	null	Jefferson	05/12/2023	Male	Hispanic or Latino	Colorado	Dep
1	1	0	1	Arvada	null	Jefferson	05/23/2023	Male	White (non-Hispanic)	Colorado	ADI
1	1	0	1	Arvada	null	Jefferson	06/07/2023	Male	Hispanic or Latino	Colorado	ADI
1	1	1	0	Arvada	null	Jefferson	01/04/2023	Male	White (non-Hispanic)	Colorado	Psy
1	1	0	1	Arvada	null	Jefferson	04/11/2023	Female	Hispanic or Latino	Colorado	Alco
1	1	0	1	Arvada	null	Jefferson	05/10/2023	Female	White (non-Hispanic)	Colorado	Dep
1	1	0	1	Arvada	null	Jefferson	06/01/2023	Female	White (non-Hispanic)	Colorado	Bip
1	1	0	1	Arvada	null	Jefferson	01/03/2023	null	White (non-Hispanic)	Colorado	Eat
1	1	0	1	Arvada	null	Jefferson	04/27/2023	Male	White (non-Hispanic)	Colorado	You
1	1	0	1	Arvada	null	Jefferson	04/27/2023	Male	Hispanic or Latino	Colorado	ADI
1	1	0	1	Arvada	null	Jefferson	04/24/2023	Female	Black or African American (non-Hispanic)	Colorado	ADI

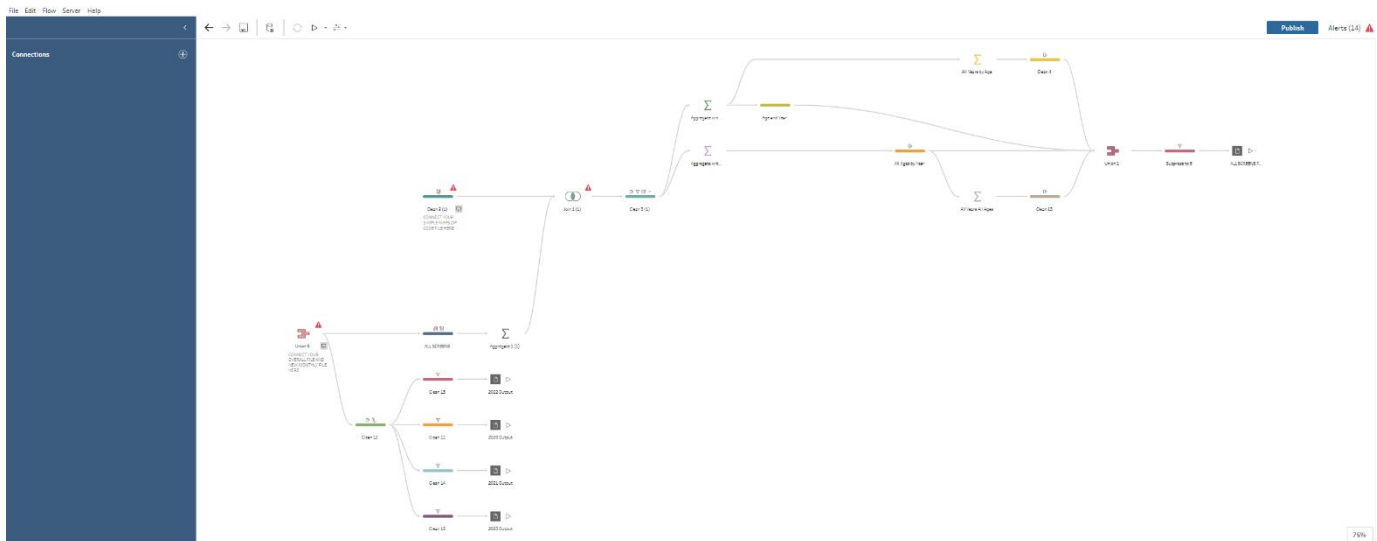
On the left, the 'Save output to' section is visible, showing options for file name, location, output type (Microsoft Excel (.xlsx)), and worksheet (2020-2023 Output). A 'Run Flow' button is at the bottom.

**NOTE:** If you have run these outputs before, Tableau will ask if you would like to “Replace the files” or “Cancel.” If you click “Replace,” you will be overwriting the last file you created with this Prep flow. If you would like to keep the previous file for any reason, simply click on your Outputs and rename the file under “Name.”

## Congratulations! You have run your Tableau Prep Flow!

### The Public-Facing Dashboard Prep Flow

Once you have opened the Tableau Prep flow, you will see the following flow.



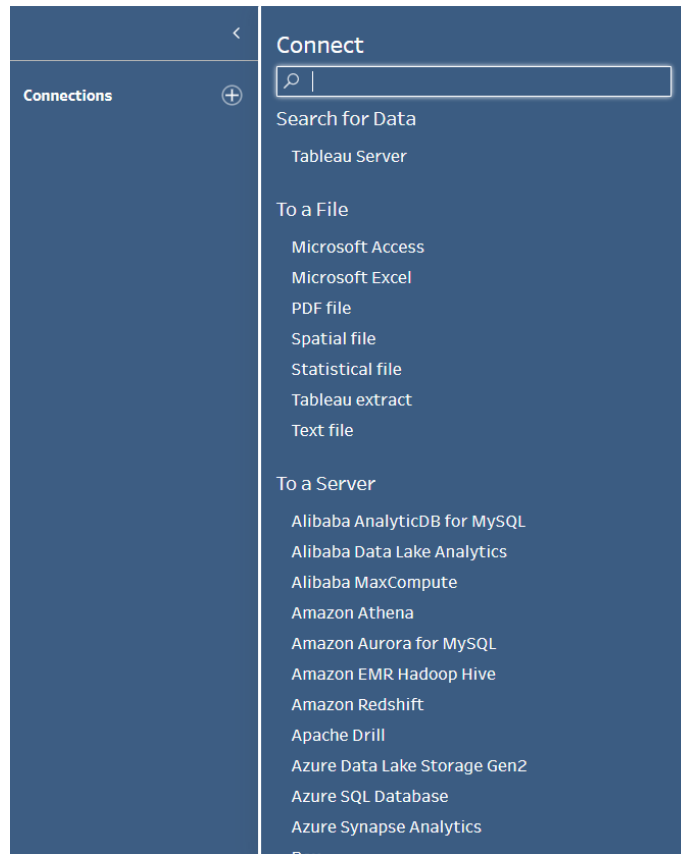
#### Step 1: Connecting Your Data

The first thing you must do is connect your data to the Tableau Prep file. The file is designed to clean your data using three inputs:

4. Zip code file: A dataset linking zip codes with a county name. For our mapping work, MHA National uses a zip code database created by Simple Maps, which you can purchase or download a free version [here](#).
5. Overall file: A file containing all data for the time period you want to map (for example, a file containing all of your affiliate’s data from 2020-2022).
6. New file: A file containing your most recent month or quarter of data (sent to you by MHA National). **NOTE: if you are creating a mapping dashboard for the first time, you will not need to add a new month or quarter to your data.** This is included to make it easy for you to update your mapping dashboard each time you receive new data.

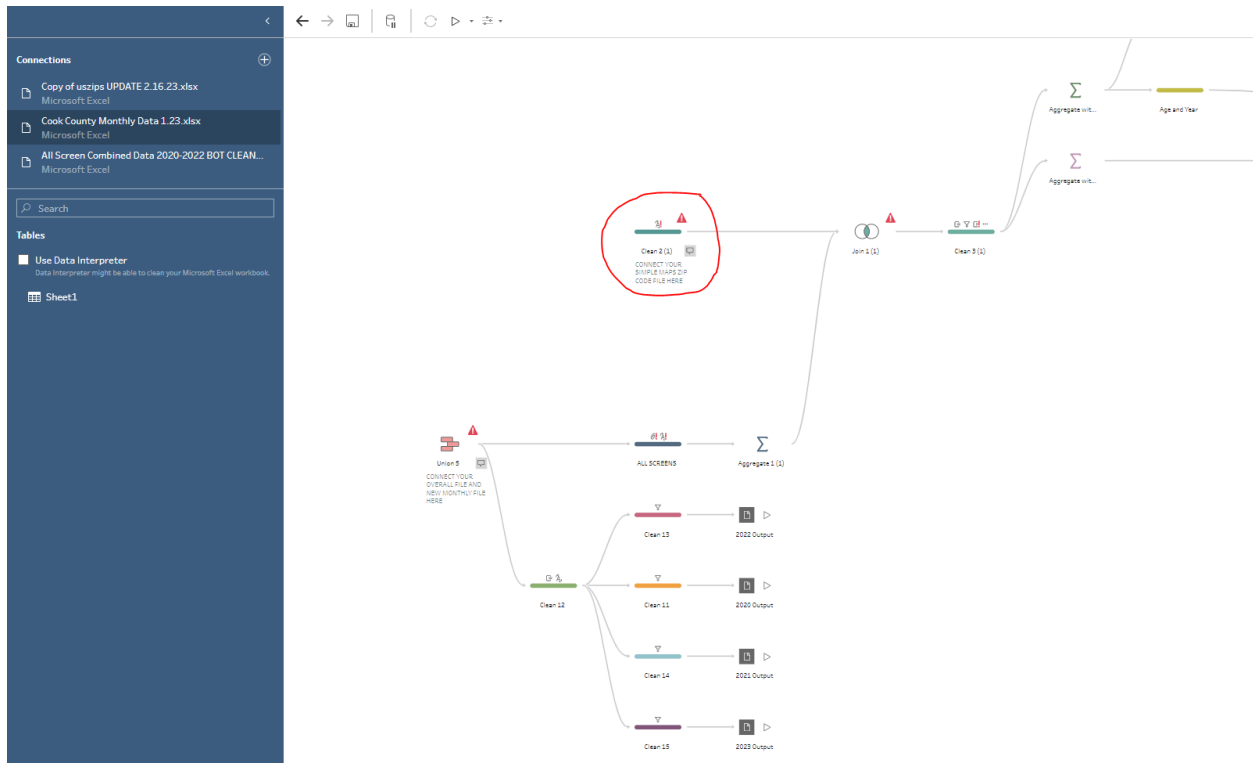
For example, if MHA National sends you your affiliate data for March 2023, your “overall file” would contain all your data MHA had previously sent you (for example, from 2020-February 2023) before the new month. Your “new file” would be the March 2023 data that MHA sent you at the beginning of the month.

To add these data sources, click the white plus sign next to “Connections” in the blue column on the left side of your screen. Click “Microsoft Excel” under “To a File.” Select the files you want to connect, and click OK.



Once you have connected to your data, click on each data file. You will see each of the sheets in your Excel file listed in the blue column on the left of your screen. Click and drag the sheet to connect it to the flow. Your zip code file (linking zip codes to county names) should be dragged and connected to the step circled in red below (labeled "Clean 2"). Click and drag the sheet and hover over the step. You will see an option for "Add" appear to the left. Drop the sheet on the "Add" option.





Click on your data file in the flow. Remove all variables in the data file except zip, lat, lng, city, state\_name, population, county\_name, and county\_names\_all. To remove a variable, hover over the variable in the “Field Name” list. Three icons will appear to the right of the variable name. Click the X to remove the variable (pictured below). You can also remove these variables by deleting them from your Excel file before connecting it to the Tableau Prep Flow.

Publish Alerts (13) ▲

Join 1 (1) → Clean 3 (1) → Aggregate Tra... → All Years by Age → Clean 14 → Union 3 → All Years All Ages → Clean 13

Search

**Zip Code File**

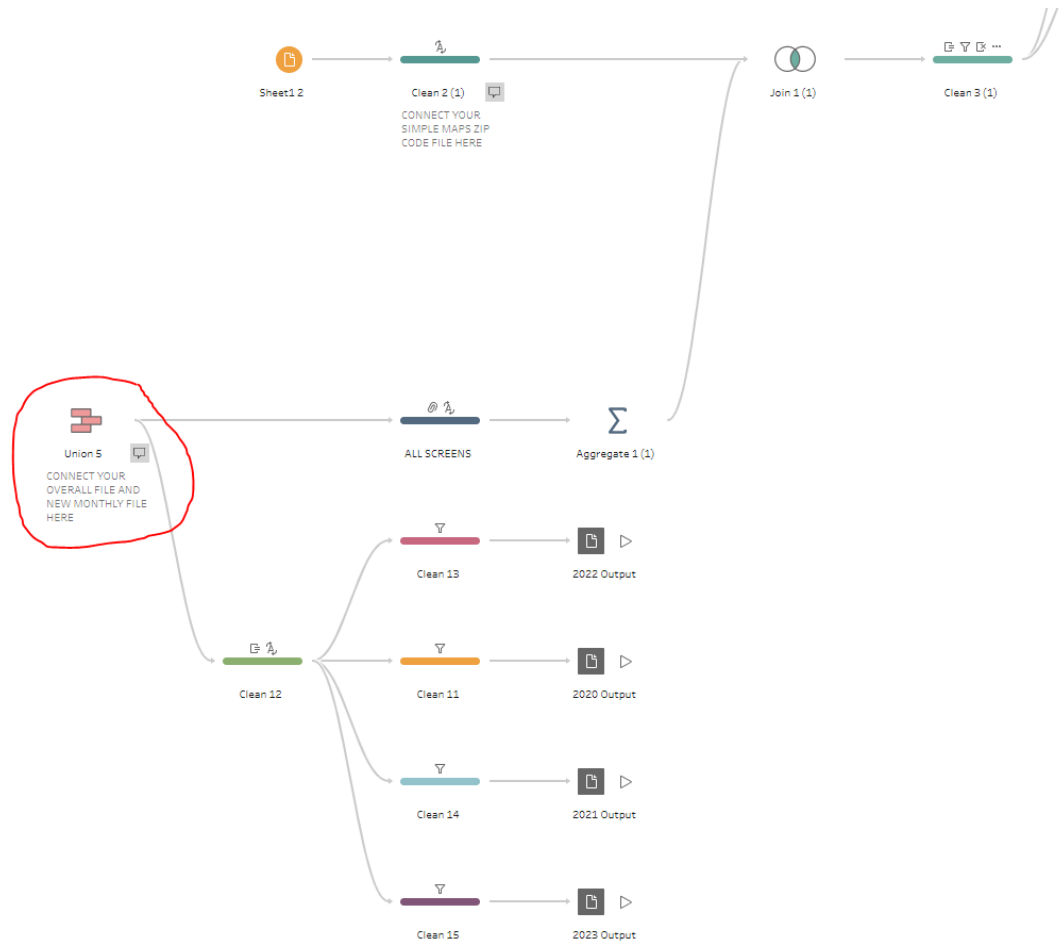
○ Remove fields you don't need and add filters to limit the data included in your flow. This can improve performance. For more cleaning options or to view your data, [add a Clean Step](#).

Fields included: 8 of 89

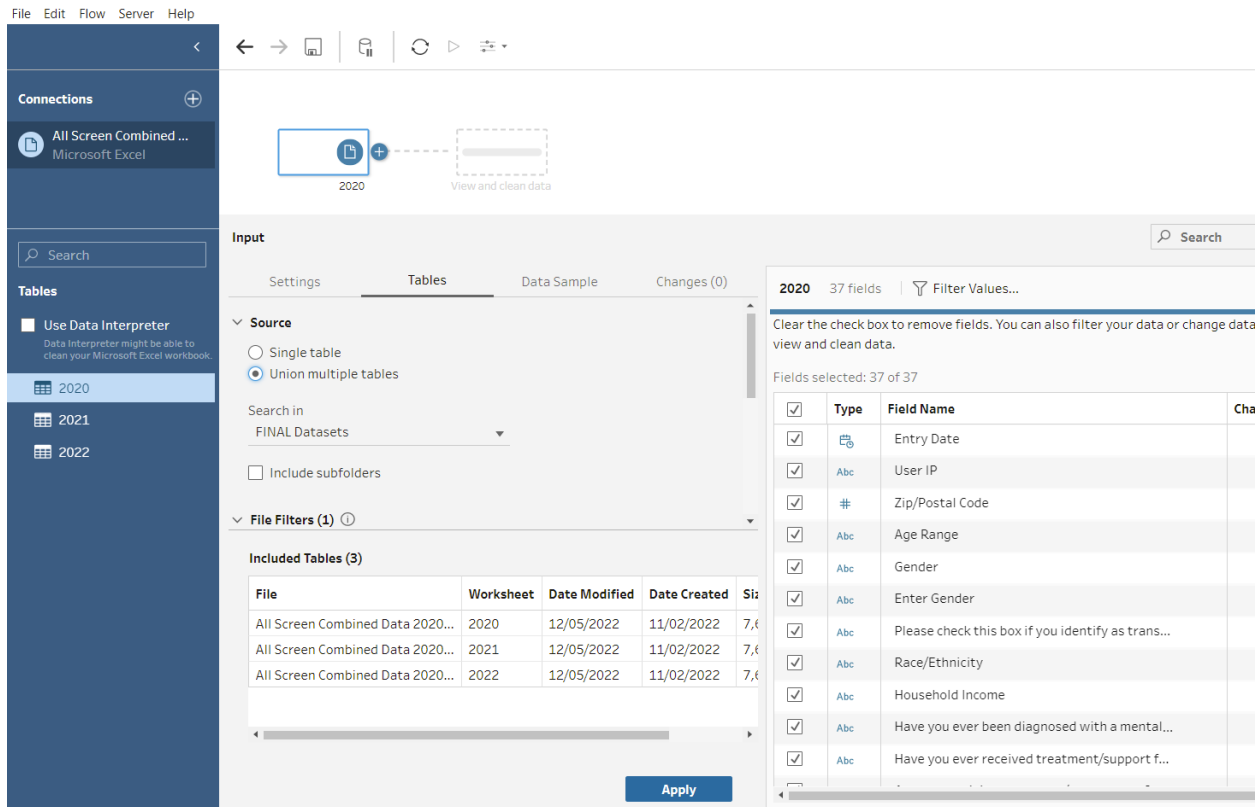
Type	Field Name	Changes	Preview
#	Source Row Number		1, 2, 3
Abc	zip		00501, 00544, 00601
#	lat		40.81308, 40.81322, 18.18027
#	lng		-73.04639, -73.04929, -66.75266
Abc	city		Holtsville, Adjuntas
Abc	state_id		NY, PR
Abc	state_name		New York, Puerto Rico
Abc	zcta		FALSE, TRUE
#	parent_zcta		11, 742, null
#	population		null, 17, 126
#	density		null, 102.6
#	county_fips		36, 103, 72, 001
Abc	county_name		Suffolk, Adjuntas
Abc	county_weights		{{"36103": 100}, {"72001": 90.73, "72141": 1.27}}
Abc	county_names_all		Suffolk, Adjuntas Utahdo
Abc	county_fips_all		36103, 72001 72141
Abc	imprecise		FALSE
Abc	military		FALSE
Abc	timezone		America/New_York, America/Puerto_Rico
#	age_median		null, 43.7

Tableau initially reads zip codes as a number, and trims leading or ending zeroes. Click the # symbol in the column “Type” next to the zip variable. Select “String” from the drop-down menu.

Click and drag the sheet containing all previous data for your affiliate to connect it to the flow. This file should be dragged and connected to the step circled in red below (labeled “Union 5”). Click and drag the sheet and hover over the step. You will see an option for “Add” appear to the left. Drop the sheet on the “Add” option.



If you would like to use multiple sheets of data (for example, in the screenshot below, if you would like to clean all data from 2020-2022 together despite them being saved in different sheets), click and drag the first sheet into the blank view. A gray field with four options will appear: Settings, Tables, Data Sample, and Changes. Select “Tables.” Under “Sources,” you will see two options: “Single Table” and “Union Multiple Tables.” Select “Union Multiple Tables.” In the field “Included Tables,” you should now see each of the sheets in your Excel data file listed. To combine the data from all sheets in Tableau Prep, click the blue button labeled “Apply.”

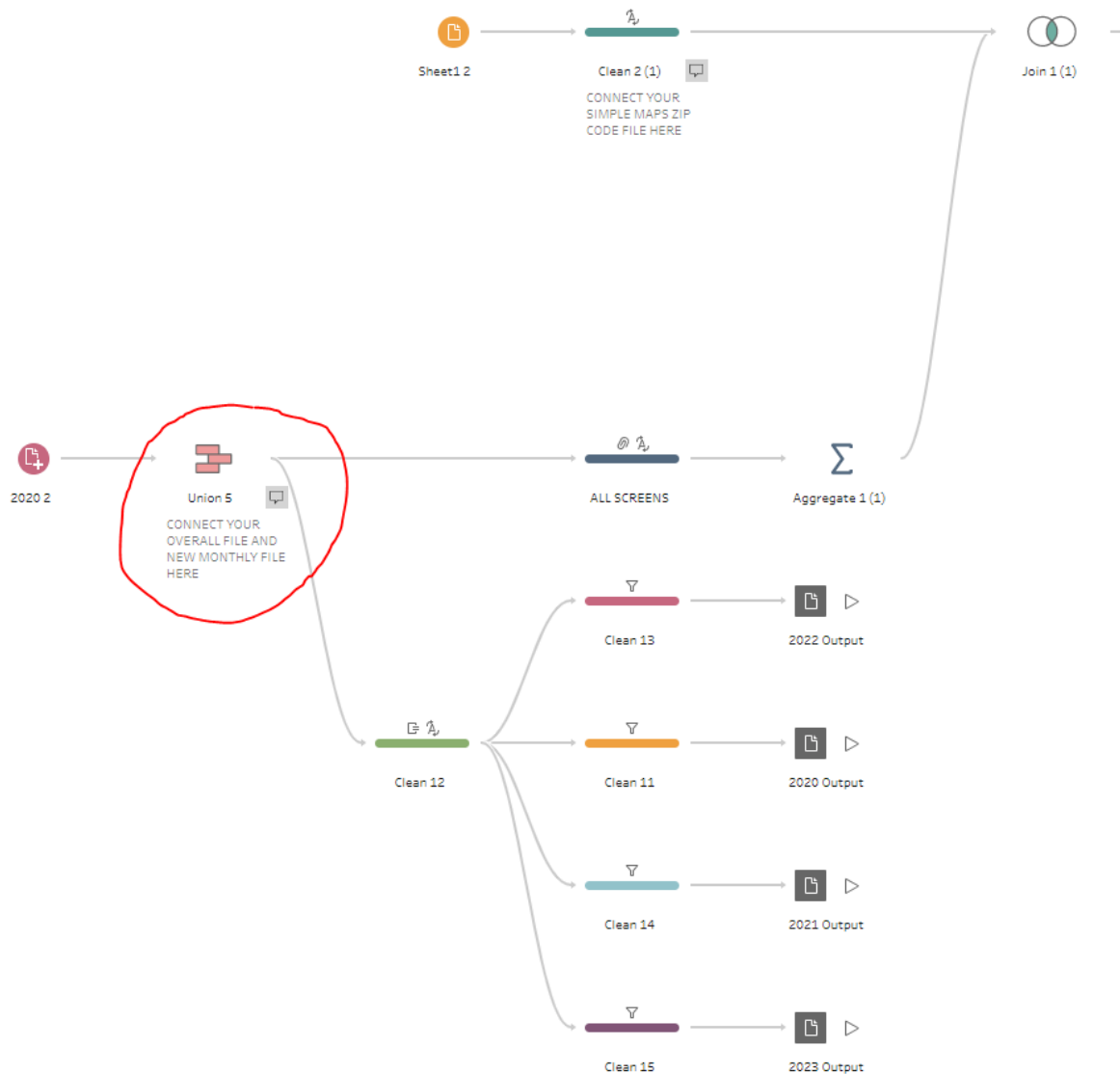


**NOTE: Tableau Prep combines data from multiple sheets by matching variable names and stacking the data from each sheet underneath the other. To be able to combine multiple sheets of data, the variable names (or column names in your Excel file) must match across sheets.**

If you have two of the same variables that are named differently in one file, Tableau will count them as separate variables. This may duplicate records of screens, which would make your counts in your mapping dashboard inaccurate.

If your Excel file only contains one sheet, or if you would like to only clean one sheet of data, select “Single Table.” You should see each of the variables in your Excel sheet displayed in the fields list on the right.

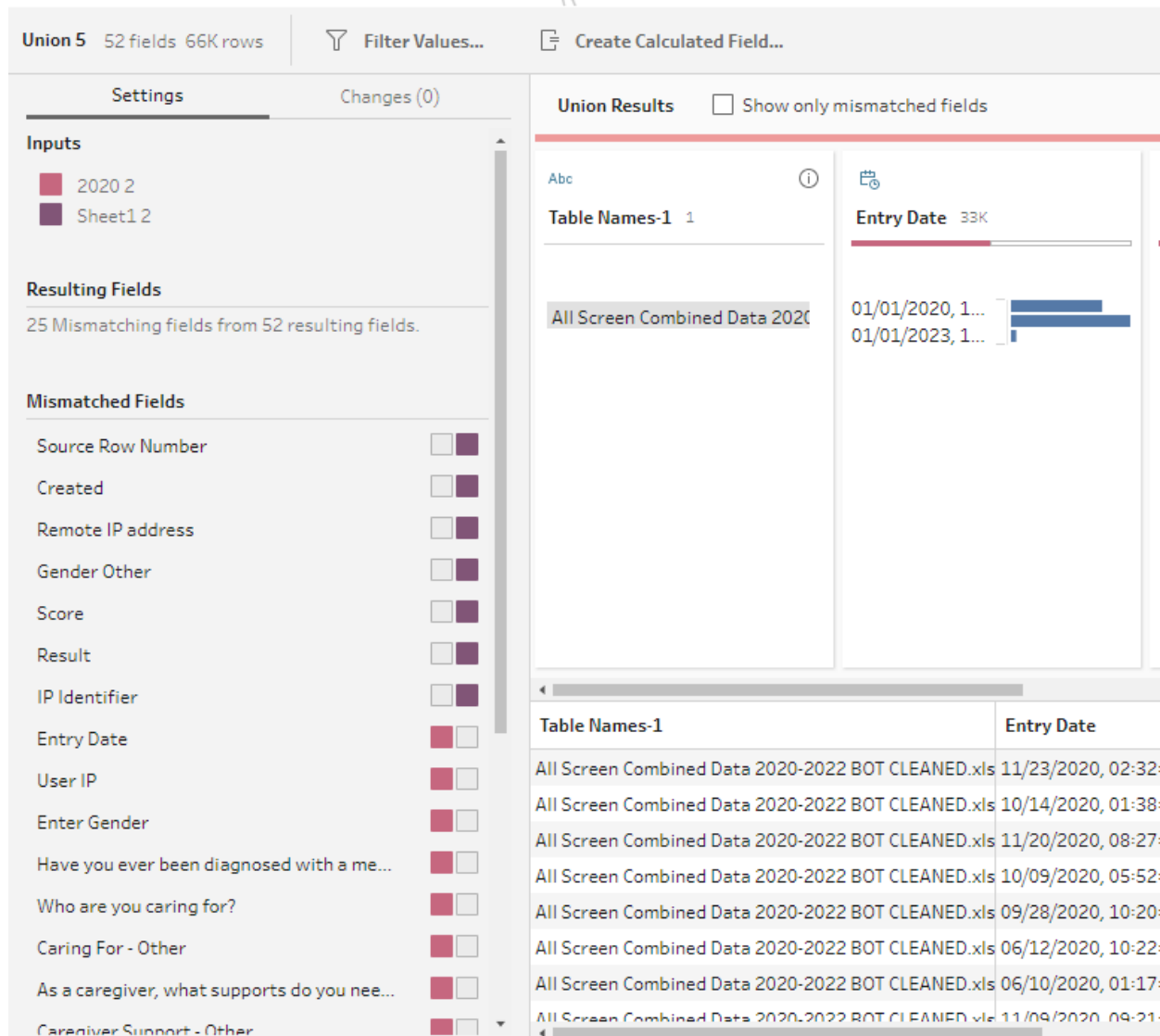
Click and drag the sheet containing your new month or quarter of data for your affiliate to connect it to the flow. This file should be dragged and connected to the same step circled in red below (labeled “Union 5”). Click and drag the sheet and hover over the step. You will see an option for “Add” appear to the left. Drop the sheet on the “Add” option.



## Step 2: Creating a Union

Once you have both your monthly and full data sets connected to the step circled above, click on the step (labeled “Union 5”). A Union step means you are telling Tableau to combine two datasets together on matching variables. Tableau combines these datasets vertically, meaning it adds the new data into the columns below data that already exists (as if you were entering new rows of data into existing columns in an Excel file).

**A Union step requires that the columns in both datasets are named the same, so Tableau knows where to put the data. Make sure you have renamed the columns in both files to match before loading them into Tableau Prep.** If you did not rename the columns before loading the data in and/or prefer to do it in Tableau Prep, you can manually tell Tableau which columns are the same. When you click on your Union step, there will be a box to the left labeled “Mismatched Fields.”



**Union 5** 52 fields 66K rows

Filter Values... Create Calculated Field...

**Settings** Changes (0)

**Inputs**

- 2020 2
- Sheet1 2

**Resulting Fields**

25 Mismatching fields from 52 resulting fields.

**Mismatched Fields**

- Source Row Number
- Created
- Remote IP address
- Gender Other
- Score
- Result
- IP Identifier
- Entry Date
- User IP
- Enter Gender
- Have you ever been diagnosed with a me...
- Who are you caring for?
- Caring For - Other
- As a caregiver, what supports do you nee...
- Caregiver Support - Other

**Union Results**  Show only mismatched fields

Table Names-1 1

**Entry Date** 33K

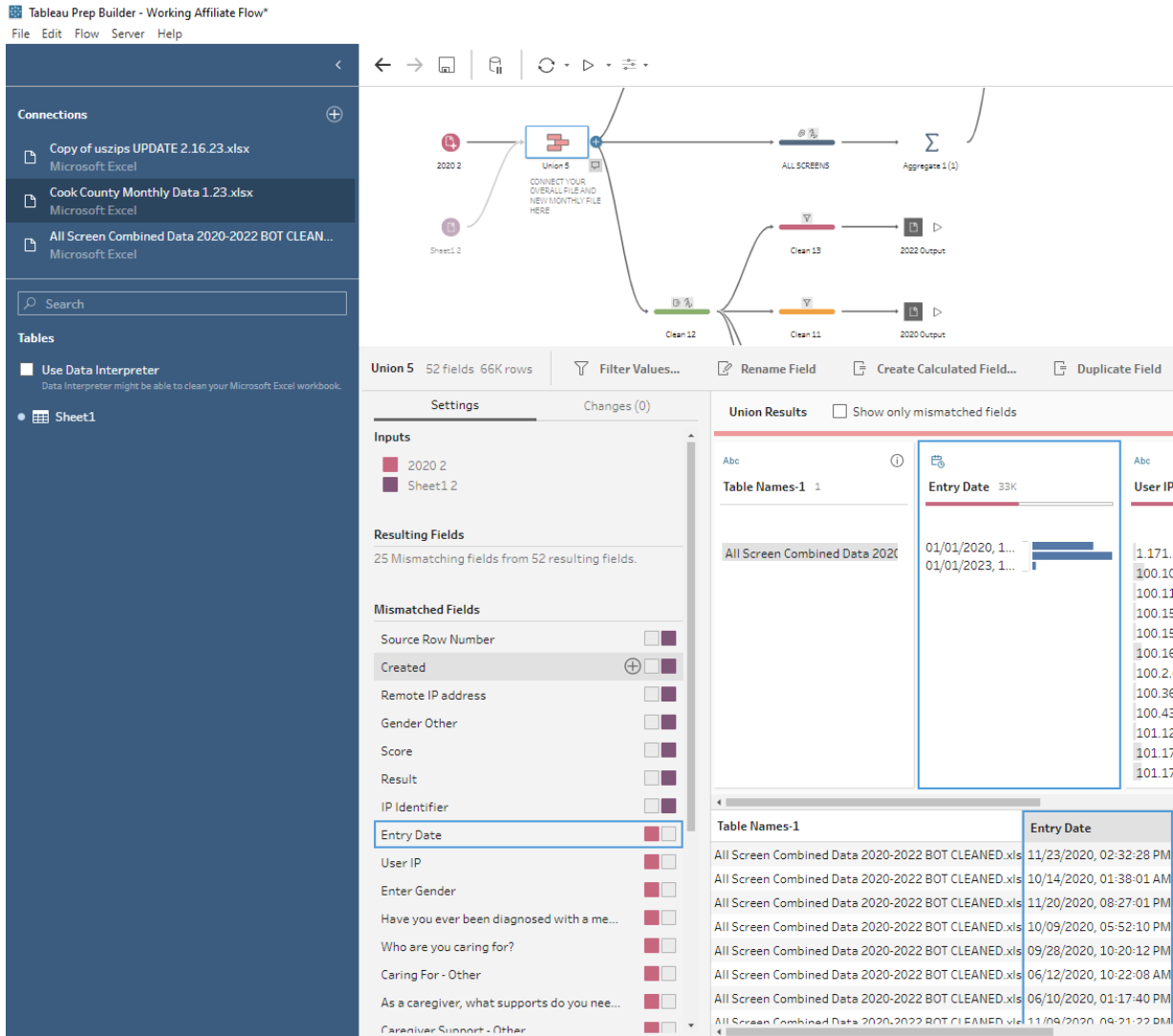
Table Names-1	Entry Date
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/23/2020, 02:32:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	10/14/2020, 01:38:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/20/2020, 08:27:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	10/09/2020, 05:52:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	09/28/2020, 10:20:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	06/12/2020, 10:22:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	06/10/2020, 01:17:
All Screen Combined Data 2020-2022 BOT CLEANED.xls	11/09/2020, 09:21:

In the screenshot above, for example, “Created” and “Entry Date” are both date fields. To tell Tableau to combine the data in those two columns, click on one of the variable names. Once it is selected, hover over the other variable name. A gray + should appear to the right of the variable name. Click the + to tell Tableau to combine those variables. Continue doing this to match each of your mismatched variables.

If you have variables that only exist in one dataset and not the other, you can leave them in your mismatched variables. Tableau will simply add them as their own separate columns.

Tableau Prep Builder - Working Affiliate Flow\*

File Edit Flow Server Help



Connections

- Copy of uszips UPDATE 2.16.23.xlsx (Microsoft Excel)
- Cook County Monthly Data 1.23.xlsx (Microsoft Excel)
- All Screen Combined Data 2020-2022 BOT CLEAN... (Microsoft Excel)

Tables

- Use Data Interpreter (Data Interpreter might be able to clean your Microsoft Excel workbook.)
- Sheet1

Union 5: 52 fields, 66K rows

Settings

Inputs

- 2020 2
- Sheet1 2

Resulting Fields

25 Mismatching fields from 52 resulting fields.

Mismatched Fields

- Source Row Number
- Created
- Remote IP address
- Gender Other
- Score
- Result
- IP Identifier
- Entry Date
- User IP
- Enter Gender
- Have you ever been diagnosed with a me...
- Who are you caring for?
- Caring For - Other
- As a caregiver, what supports do you nee...
- Caregiver Support - Other

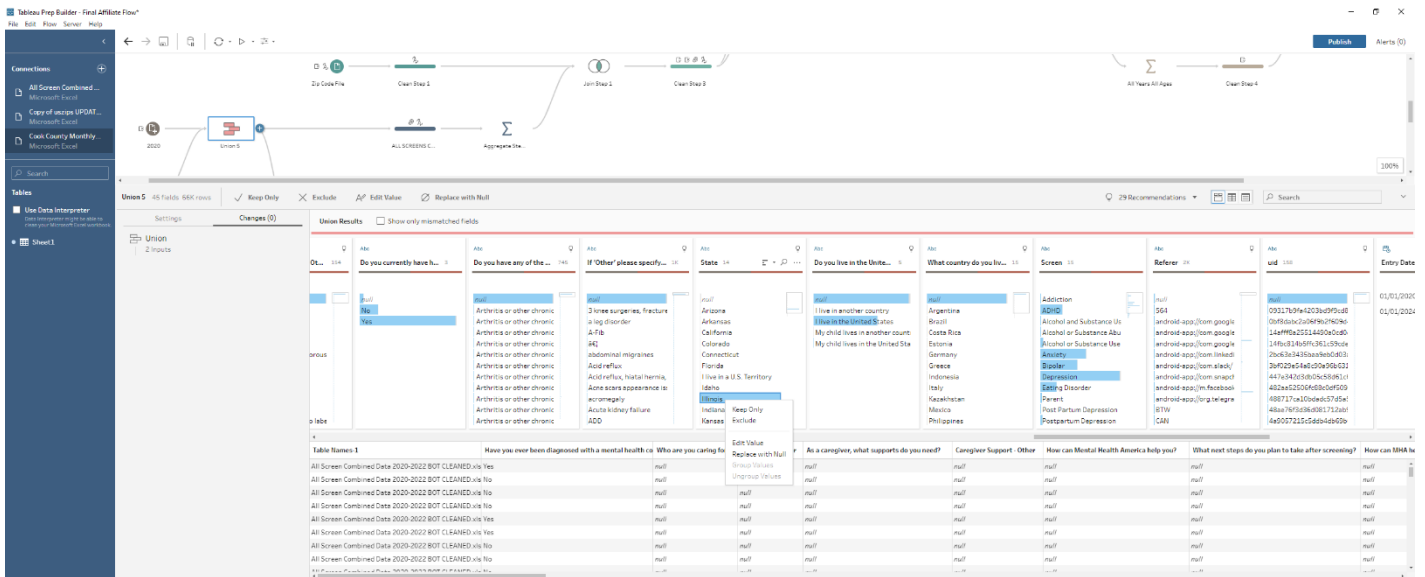
Union Results

Table Names-1	Entry Date	User IP
All Screen Combined Data 2020-2022 BOT CLEANED.xls	01/01/2020, 1...	1.171.
All Screen Combined Data 2020-2022 BOT CLEANED.xls	01/01/2023, 1...	100.10
		100.11
		100.15
		100.15
		100.16
		100.2.
		100.36
		100.43
		101.12
		101.17
		101.17


### Step 3: Filter Your Data

Sometimes users on MHA Screening will enter a zip code and state that do not match each other (for example, a zip code from California, but report their state is Illinois). In that case, we are unable to confirm which is the user's real location (California or Illinois) and may be counting their data in the wrong place. To ensure that we are mapping data correctly, we must keep only data from the state that matches the zip code catchment area we are mapping.

On the same "Union 5" step, in the "State" variable box, right click on your state (for example, Illinois) and click "Keep Only" from the drop-down menu. This removes all data where someone has entered a different state or has not entered an answer to State from the dataset.



### Step 4: Set your Outputs

At the end of each of the flows, you will see a gray “play” button.  These represent your Outputs, or the files that Tableau will save with your final cleaned data.

Each Output contains several options:

- **Name:** Under Name, type what you would like your file to be titled.
- **Location:** Type in the box or click the “Browse” button to choose the file location where you would like your output file to be saved.
- **Output type:** In Tableau, Output type automatically defaults to a Tableau Data Extract (.hyper). This kind of file is only usable in Tableau. To view the file outside of Tableau, you will need to change the output type to either an Excel file or a CSV file. For our purposes, we converted the Output to an Excel file by selecting Microsoft Excel from the Output type dropdown list.
- **Worksheet:** If you have changed your Output type from a Tableau Data Extract file to a Microsoft Excel file, you will need to assign a worksheet name (this will just appear as the sheet name within your Excel workbook). To assign a worksheet name, click the dropdown under “Worksheet” and type the name. Select “Create New Worksheet” with the worksheet name.
- **Write Options:** This tells Tableau whether you would like to create a new table or add to an existing table. We have selected “Create table,” which will generate a new file with the name you have written each time you run the flow. This will rewrite the Excel file each time you run this flow again.

**NOTE: Always check the Write Options before running your flow.** The “Create table” option will replace the file you have named in the steps above, which can result in lost data if you did not want to replace your existing file. The “Append to table” option will add to your existing file, which can result in duplicate data or overcounting if you are running your entire dataset and want to rewrite your existing file.



**ALL SCREENS Final Output** 0 fields

**Save output to**

File

Browse

**Name**

ALL Screens Final Output

**Location**

S:\Departments\\_Programming\Screening\Affiliate Materials\Affiliate & Partner Screening Intro\Affiliate Tableau Mapping Training

**Output type**

Microsoft Excel (.xlsx)

**Worksheet**

2020-2022 Combined

**Write Options**

Select an option to create or update your output table.

**Full refresh**

Create table

Run Flow

An explanation of each Output in the Tableau Prep Flow is below:

1. **ALL SCREENS Final Output:** This Output contains 9 columns –
  - Positive Result: The count of individuals with a “positive” result on the a from each zip code.

- Negative Result: The count of individuals with a “negative” result on a screen from each zip code.
- Total Result: The total count of individuals who took a screen from each zip code.
- Year: Contains each year of data and “All Years.”
- Age: Contains “Adults (Over 18)”, “Youth (Under 18)”, and “All Ages.”
- City: The city name that the zip code is in.
- County Name: The county that the majority of the zip code is in.
- Population: The population of each zip code.
- Zip/Postal Code: The zip code entered when taking a screen.
- Screen: Which screen the data represents.

These values are aggregated to the zip code level for each screen and do not represent individual users. For example, in the screenshot below, the first row tells you that 15 adults took the anxiety screen in the zip code 60501 over all years within the dataset. 10 of them got a “positive” result, meaning moderate to severe anxiety, and 5 got a “negative” result, meaning minimal to mild anxiety.

ALL SCREENS Final Output 9 fields

Save output to: File

Name: ALL Screens Final Output

Location: S:\Departments\\_Programming\Screening\Affiliate Materials\Affiliate & Partner Screening Intro\Affiliate Tableau Mapping Training

Output type: Microsoft Excel (.xlsx)

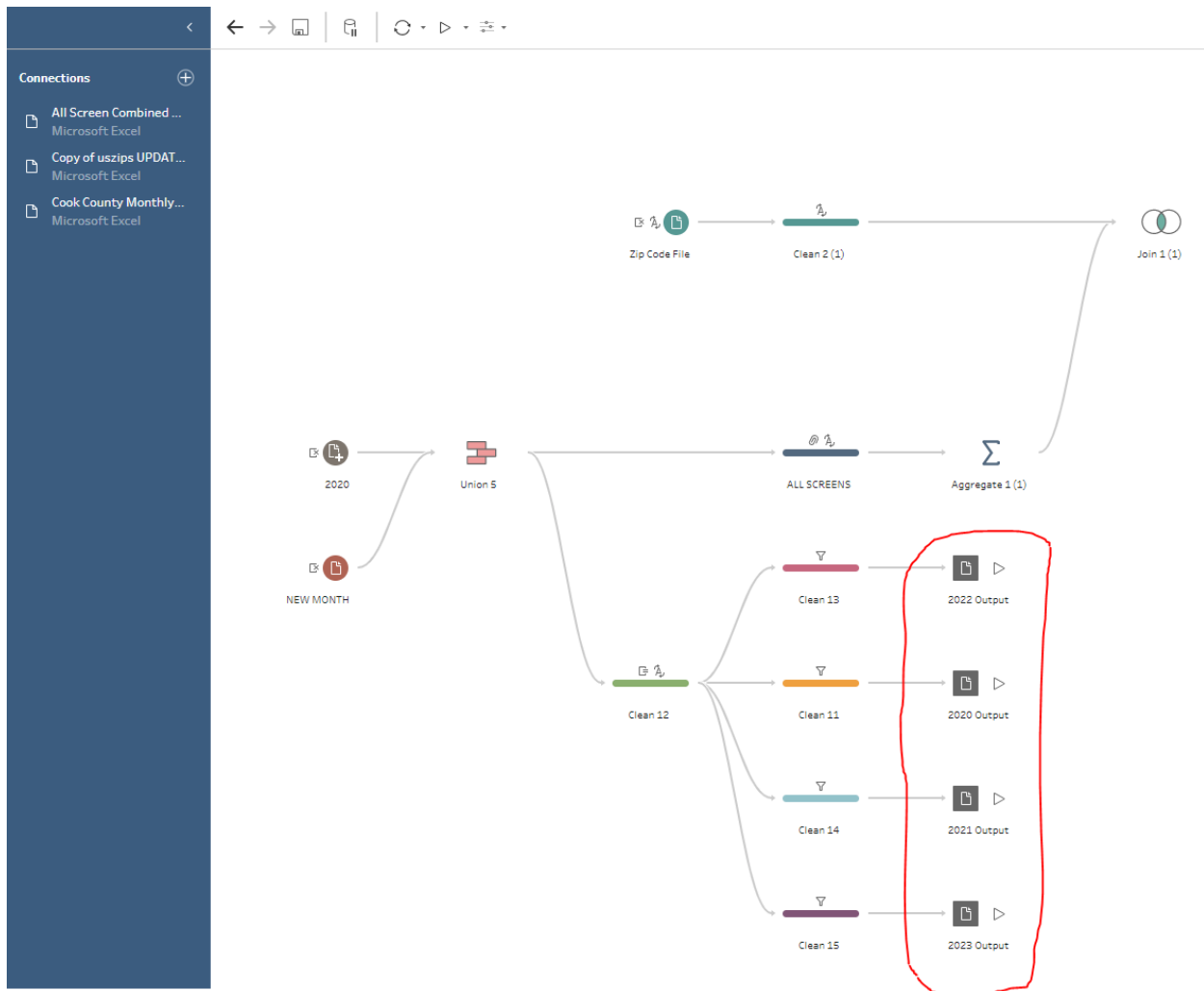
Worksheet: 2020-2022 Combined

Write Options: Select an option to create or update your output table. Full refresh: Create table

Run Flow

Positive Result	Negative Result	Total Results	Year	Age	city	population	Zip/Postal Code	Screen
10	5	15	All Years	Adults (Over 18)	Summit Argo	11,772	60501	Anxiety
21	6	27	All Years	Adults (Over 18)	Westchester	16,837	60154	Anxiety
64	22	86	All Years	Adults (Over 18)	Arlington Heights	29,622	60005	Depression
6	1	7	All Years	Youth (Under 18)	Chicago	53,282	60613	Youth
9	0	9	All Years	Youth (Under 18)	Park Forest	21,549	60466	Youth
6	0	6	All Years	Youth (Under 18)	Midlothian	14,666	60445	Eating Disorder
22	6	28	All Years	Adults (Over 18)	Chicago	61,861	60609	Psychosis
12	8	20	All Years	Adults (Over 18)	Hoffman Estates	16,391	60192	Bipolar
5	6	11	All Years	Adults (Over 18)	Westchester	16,837	60154	Bipolar
15	5	20	All Years	Youth (Under 18)	Chicago	69,357	60620	Youth
7	0	7	All Years	Adults (Over 18)	Lyons	10,647	60534	Eating Disorder
11	0	11	All Years	Adults (Over 18)	Streamwood	39,683	60107	Eating Disorder
10	0	10	All Years	Youth (Under 18)	Chicago	43,729	60659	Eating Disorder
12	4	16	All Years	Youth (Under 18)	Chicago	28,751	60655	Youth
6	2	8	All Years	Youth (Under 18)	Homewood	20,351	60430	Youth
5	1	6	All Years	Youth (Under 18)	Hanover Park	37,545	60133	ADHD
50	12	62	All Years	Adults (Over 18)	Chicago	44,972	60660	ADHD
19	0	19	All Years	Youth (Under 18)	Elk Grove Village	33,048	60007	ADHD
11	1	12	All Years	Adults (Over 18)	Evergreen Park	19,884	60805	ADHD
40	17	57	All Years	Adults (Over 18)	Chicago	83,689	60608	Psychosis

**2. 2020 Output, 2021 Output, 2022 Output, and 2023 Output:** These outputs save all your data into one complete file. Notice on each of these outputs, the Name of the file should be the same, but the Worksheet names are different. What this is doing is creating one Excel file with each year of your data on a different Sheet. This ensures that your overall data file is updated each time you receive a new month or quarter of data. After you run this once, you will only need to run the most recent year (2023 Output) each time you run this prep flow.

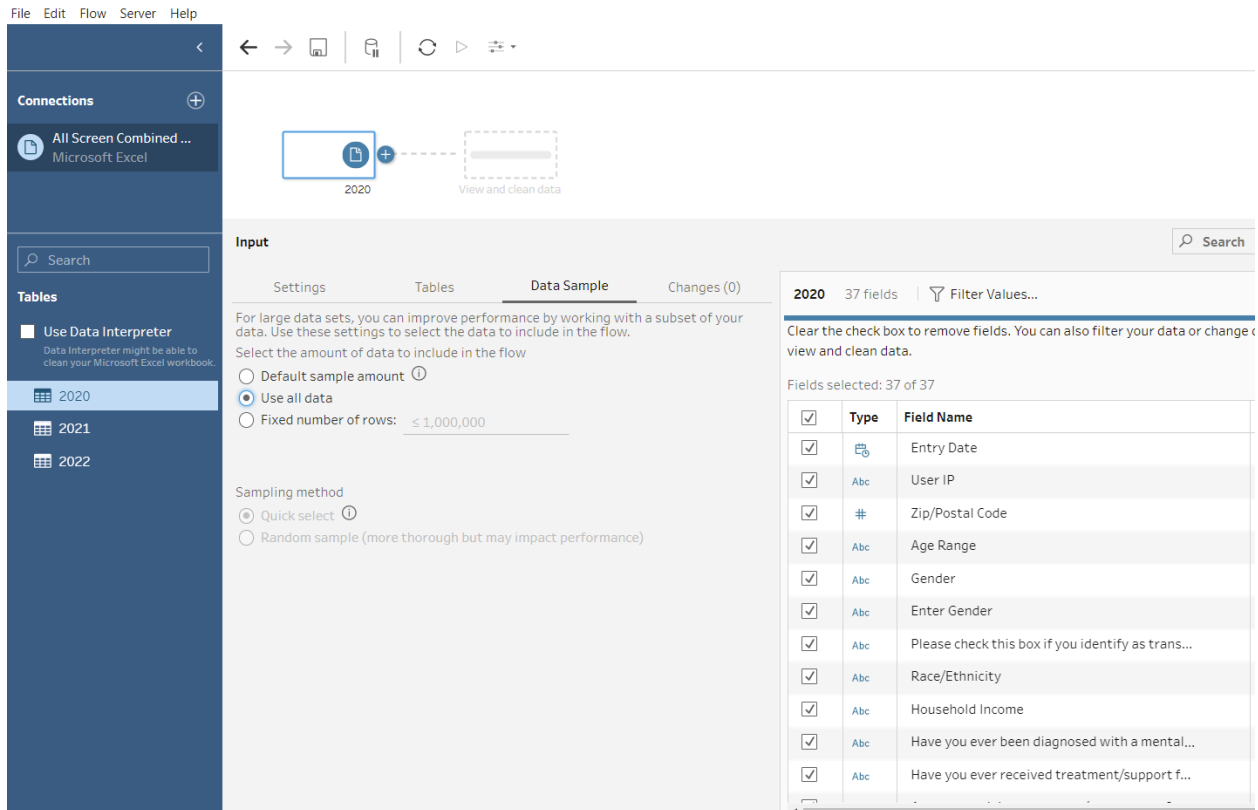


For example, if MHA National sends you your affiliate data for March 2023, your overall file (labeled 2020 in the screenshot above) would contain all your data from 2020-February 2023, and you would be loading in your March 2023 data (labeled NEW MONTH in the screenshot above). If you run the outputs circled in red above, Tableau will create one file that contains all of your data from 2020-March 2023, meaning it will create a combined file between your previous data file and the new March 2023 file. Then when you receive your next month of data, you can attach that overall file created from the output (in the place of the file labeled 2020 in the screenshot above) and the April 2023 data will become your file labeled NEW MONTH in the screenshot above). This output step should make it easier to keep a running total file that you can use each time you update your mapping dashboard.

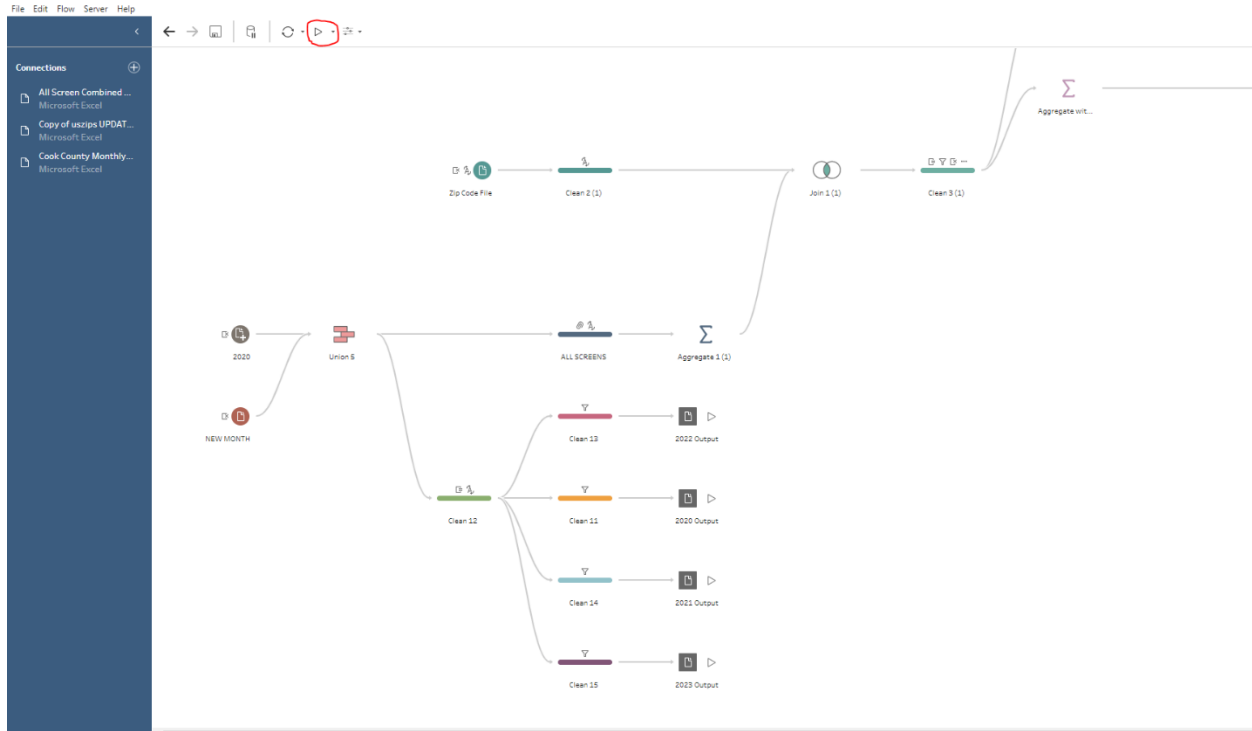
### Step 5: Running your Tableau Prep Flow

The cleaning steps throughout the rest of the Tableau Prep Flow have been created for you in advance to follow the cleaning process that MHA National follows. If you would like to keep the same cleaning process, you can run your Prep Flow now. **For an explanation of each of the steps in the cleaning process, please refer to the section “Appendix B: Full Public Facing Prep Flow Description” on page 101.**

**NOTE:** Tableau Prep automatically samples all connected datasets to free up bandwidth when creating your flow. **Before you run your Prep flow, to ensure that it cleans all data within your data file (and not just a sampled portion), click the “Data Sample” option next to “Tables.” Under “Select the amount of data you would like to include in the flow,” there are three options: Default sample amount, Use all data, and Fixed number of rows. Select “Use all data.”** Do this for each of the datasets you have connected at the beginning of your flow.



To run your Tableau Prep Flow, click the Play symbol at the top of the screen. Otherwise, you can run individual outputs by clicking the play symbol next to them, or selecting the blue button labeled “Run Flow” at the bottom of your Output view.



ALL SCREENS Final Output 9 fields

Save output to: File

Name: ALL Screens Final Output

Location: S:\Departments\_Programming\Screening\Affiliate Materials\Affiliate & Partner Screening Intro\Affiliate Tableau Mapping Training

Output type: Microsoft Excel (.xlsx)

Worksheet: 2020-2022 Combined

Write Options: Create table

Run Flow

Positive Result	Negative Result	Total Results	Year	Age	city	population	Zip/Postal Code	Screen
10	5	15	All Years	Adults (Over 18)	Summit Argo	11,772	60501	Anxiety
21	6	27	All Years	Adults (Over 18)	Westchester	16,837	60154	Anxiety
64	22	86	All Years	Adults (Over 18)	Arlington Heights	29,622	60005	Depression
6	1	7	All Years	Youth (Under 18)	Chicago	53,282	60613	Youth
9	0	9	All Years	Youth (Under 18)	Park Forest	21,549	60466	Youth
6	0	6	All Years	Youth (Under 18)	Midlothian	14,666	60445	Eating Disorder
22	6	28	All Years	Adults (Over 18)	Chicago	61,861	60609	Psychosis
12	8	20	All Years	Adults (Over 18)	Hoffman Estates	16,391	60192	Bipolar
5	6	11	All Years	Adults (Over 18)	Westchester	16,837	60154	Bipolar
15	5	20	All Years	Youth (Under 18)	Chicago	69,357	60620	Youth
7	0	7	All Years	Adults (Over 18)	Lyons	10,647	60534	Eating Disorder
11	0	11	All Years	Adults (Over 18)	Streamwood	39,683	60107	Eating Disorder
10	0	10	All Years	Youth (Under 18)	Chicago	43,729	60659	Eating Disorder
12	4	16	All Years	Youth (Under 18)	Chicago	28,751	60655	Youth
6	2	8	All Years	Youth (Under 18)	Homewood	20,351	60430	Youth
5	1	6	All Years	Youth (Under 18)	Hanover Park	37,545	60133	ADHD
50	12	62	All Years	Adults (Over 18)	Chicago	44,972	60660	ADHD
19	0	19	All Years	Youth (Under 18)	Elk Grove Village	33,048	60007	ADHD
11	1	12	All Years	Adults (Over 18)	Evergreen Park	19,884	60805	ADHD
40	17	57	All Years	Adults (Over 18)	Chicago	83,689	60608	Psychosis

**NOTE:** If you have run these outputs before, Tableau will ask if you would like to “Replace the files” or “Cancel.” If you click “Replace,” you will be overwriting the last file you created with this Prep flow. If you would like to keep the previous file for any reason, simply click on your Outputs and rename the file under “Name.”

**Congratulations! You have run your Tableau Prep Flow!**

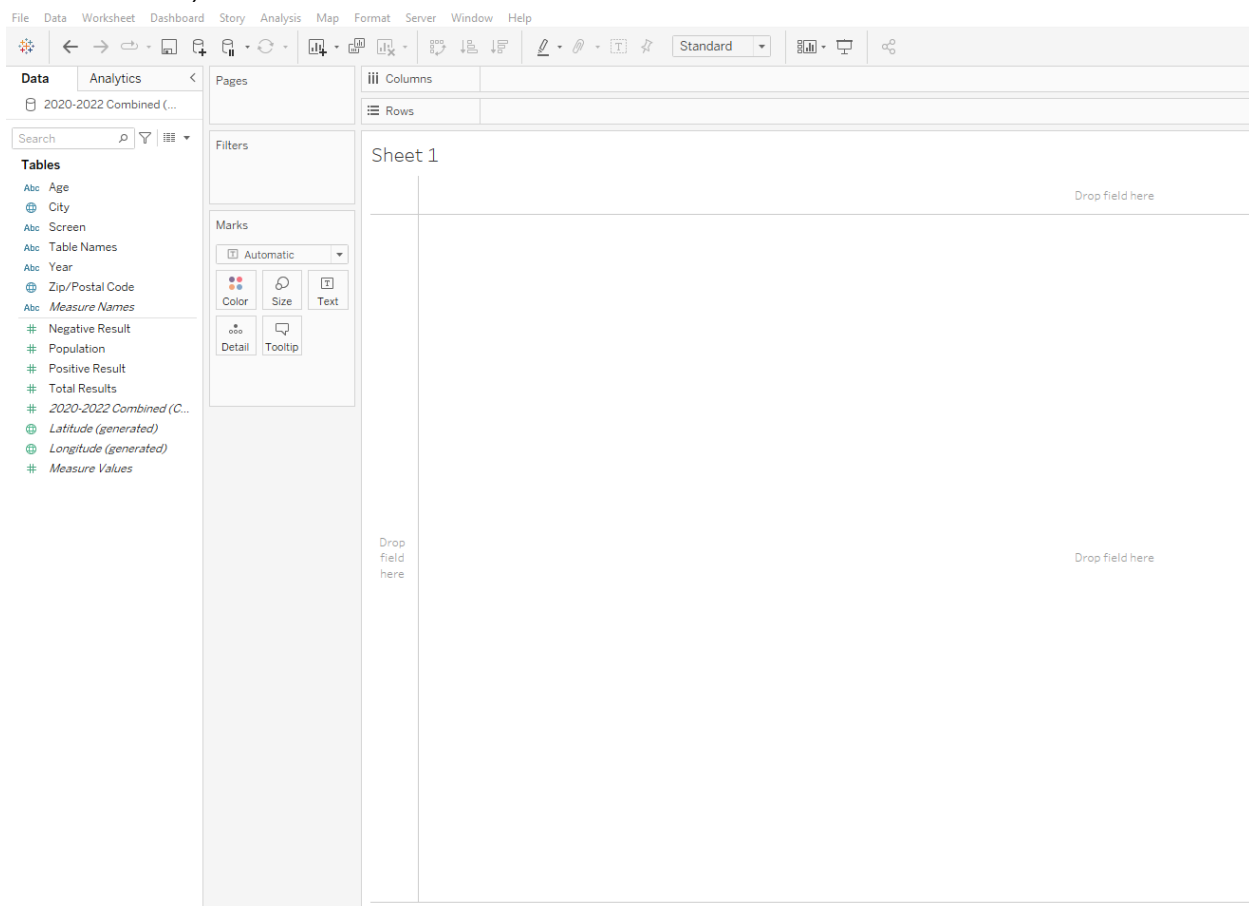
# Creating a Public or Private Mapping Dashboard with Tableau Desktop

MHA uses Tableau Desktop to map the MHA Screening data and create data dashboards. This process can also be done in geospatial software like ArcGIS, but the following instructions are only for Tableau Desktop.

## Creating Your Private-Facing Dashboard

### Step 1: Connecting to your Tableau Prep output

- Open Tableau Desktop and click “Connect to Data” written in blue in the top left corner of the screen. Click “Microsoft Excel” under “Connect To a File”, and select the “ALL SCREENS Final Output” output (from the Public-Facing Tableau Prep Flow) or the “Final County Output” output (from the Private-Facing Tableau Prep Flow) you saved on your computer. At the bottom of your screen, click the Orange Box that says “Sheet 1.”
- On the left sidebar, there will be two sets of variables under Tables. One set of variables is in blue text. These are your **Dimensions** (also known as Measure Names). The lower set of variables are in green text. These are your **Values** (also known as Measure Values).



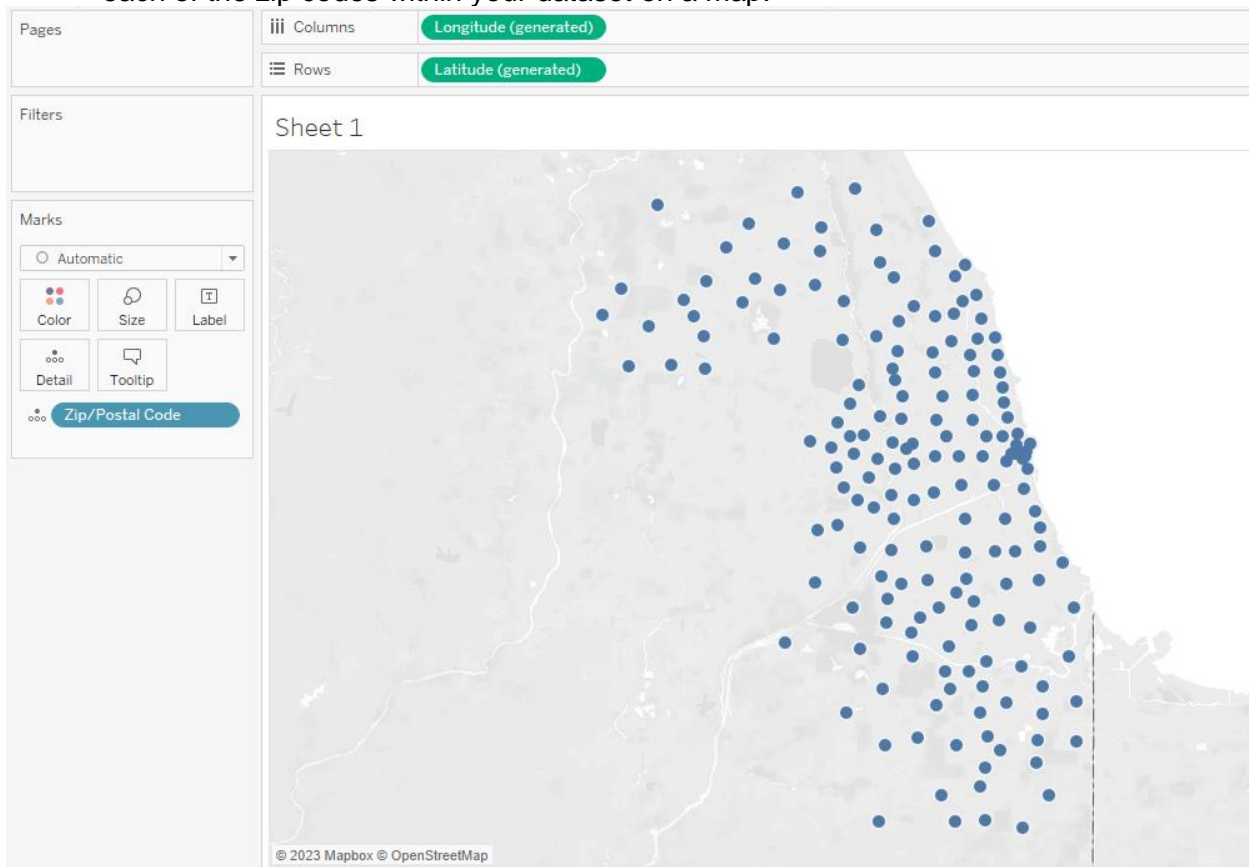
### Step 2: Creating a condition-specific map

- **Create a calculated field for the rate of positive results per 100,000 people in the population.** Right click in the blank area under your Measure Values and select “Create Calculated Field.” Name the calculated field “# per 100K” and write:

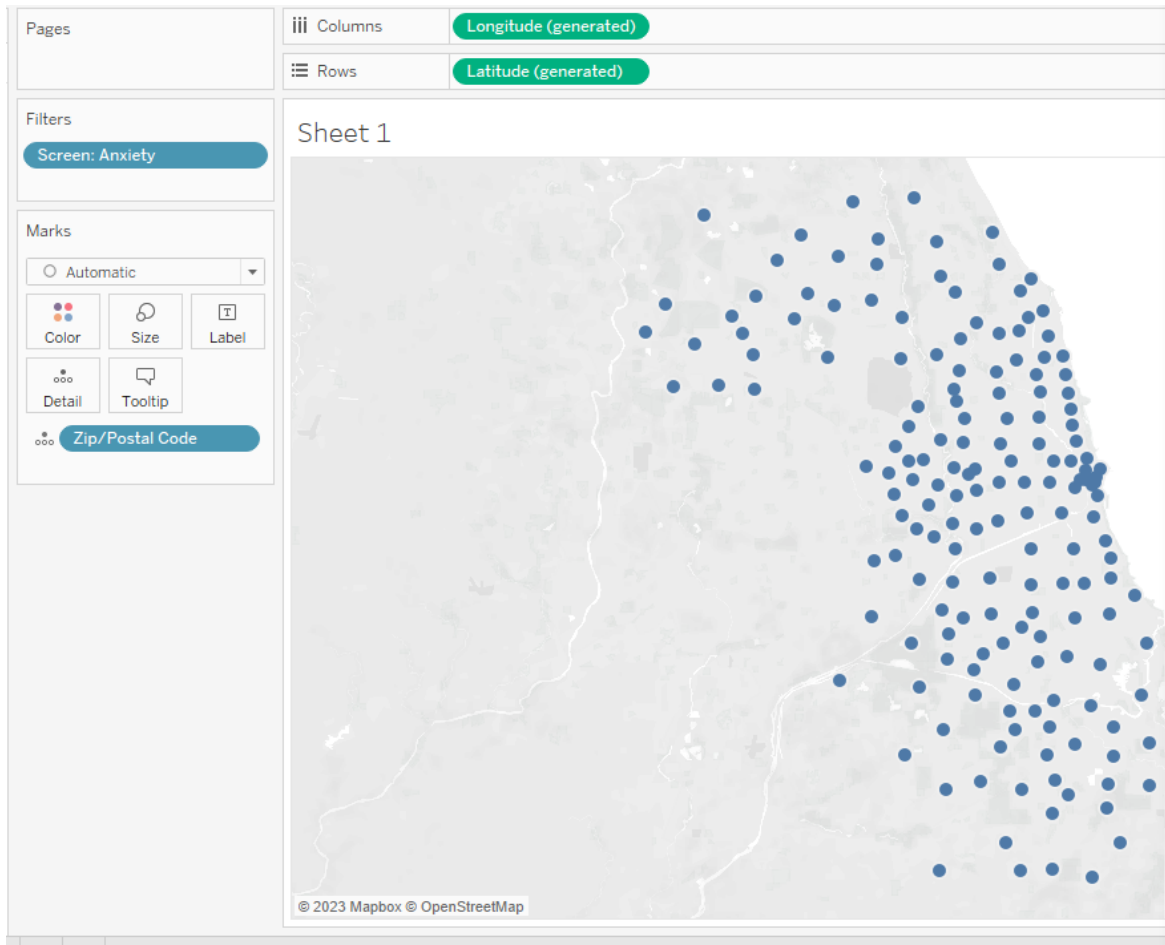
$\text{sum}([\text{Positive Result}]) / \text{ATTR}([\text{Population}]) * 100000$

Click “OK.” This is dividing the zip code level population by the total number of positive results and multiplying that rate by 100,000. For example, this may give you a rate of 729. This means for every 100,000 people in the population in that area, there are 729 who would get a positive result.

- **Map your data by ZIP code:** Click the “Zip Code” variable under your Dimensions (the top blue section of the left sidebar) and drag it into the view. This automatically plots each of the zip codes within your dataset on a map.

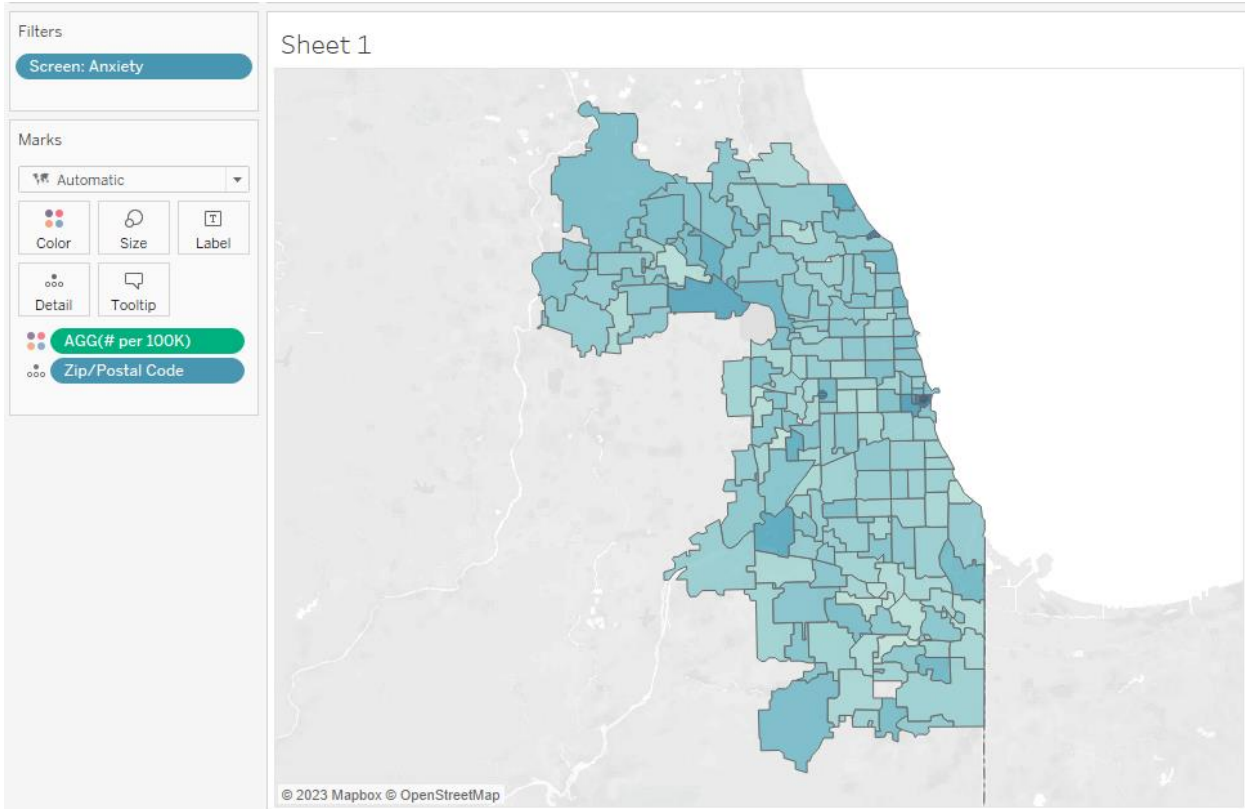


- **Set a filter for screen:** Click the variable “Screen” from the Dimensions section and drag it into the box to the left of the view titled “Filters.” This allows you to filter which screen you want to create the map for. For example, check the box next to “Anxiety” to create a map of anxiety rates by zip code. Click “OK.” You will now only be viewing results from the anxiety screen.

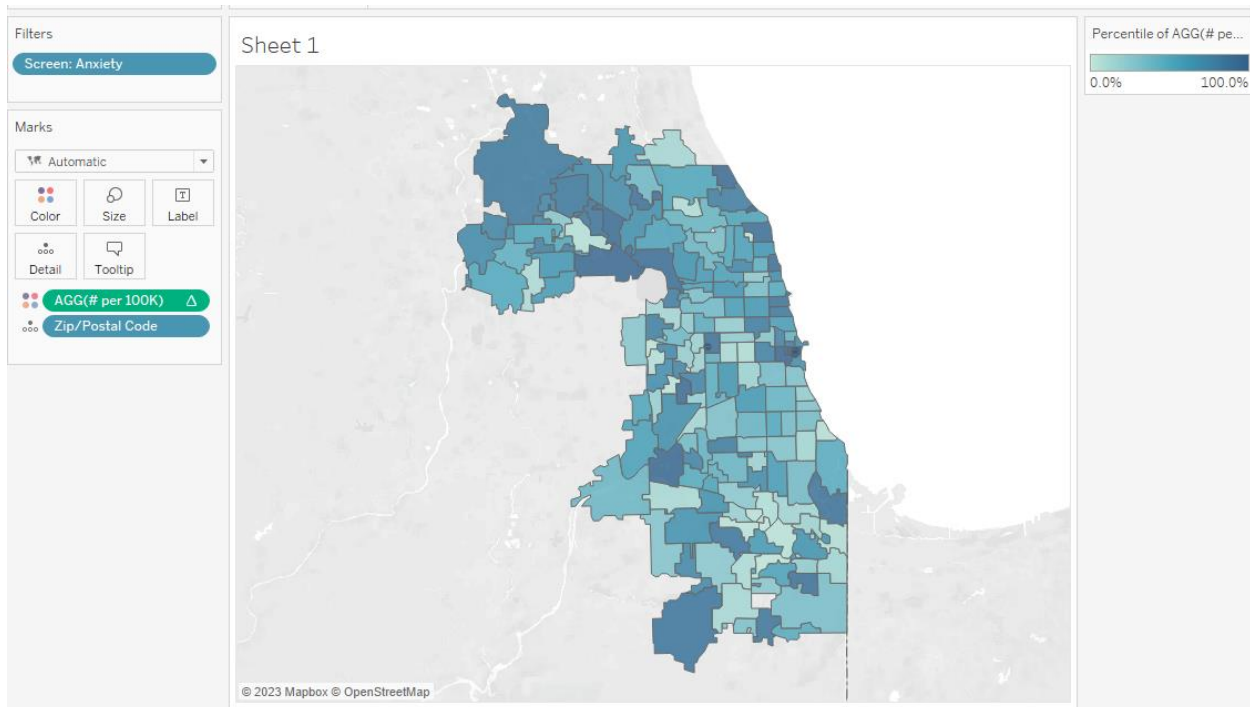


- Map your calculated field (# per 100K):** Click the “# per 100K” calculated field you created from your Measure Values section on the left and drag it to the box labeled “Color” in the “Marks” box. This will assign a color to each zip code based on the # per 100K calculation. Usually most zip codes will appear as the same color at this stage because it is mapping the raw rate per 100K, which often has a very extensive range based on the differences in population between zip codes.





- **Change color to map by percentile:** Rather than viewing the map colored by the raw “# per 100K,” we want to color code the zip codes based on how they compare to one another, which we can do by transforming them into percentiles. Right click the green bar in your Marks card that says “AGG(# per 100K).” Select “Quick Table Calculation” and “Percentile.” You should now see the color-coding change to include more of a range of colors.

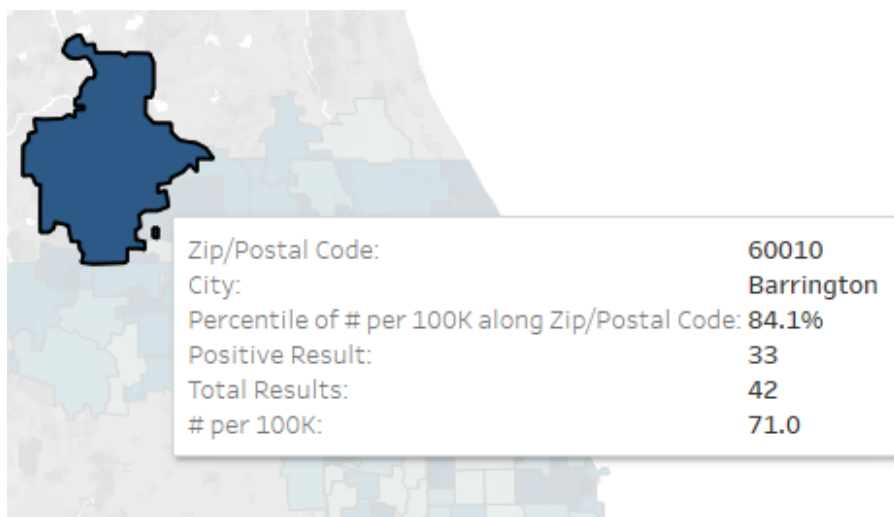


- Separate color-coding into quartiles:** You will see from the legend to the right of your map that the color code automatically displays as a gradient rather than distinct categories. It can be difficult to decipher which zip codes are darker than others when colors are displayed in a gradient. It is often more useful to view zip codes colored in distinct categories (like quartiles for example), rather than a continuous gradient from 0 to 100%. To change the color code, click on the box labeled “Color” in the Marks box. Click “Edit Colors.” In the box that appears, check “Stepped Color” and change the value to 4 steps. Click “OK.” Now your data will be color coded by quartile.

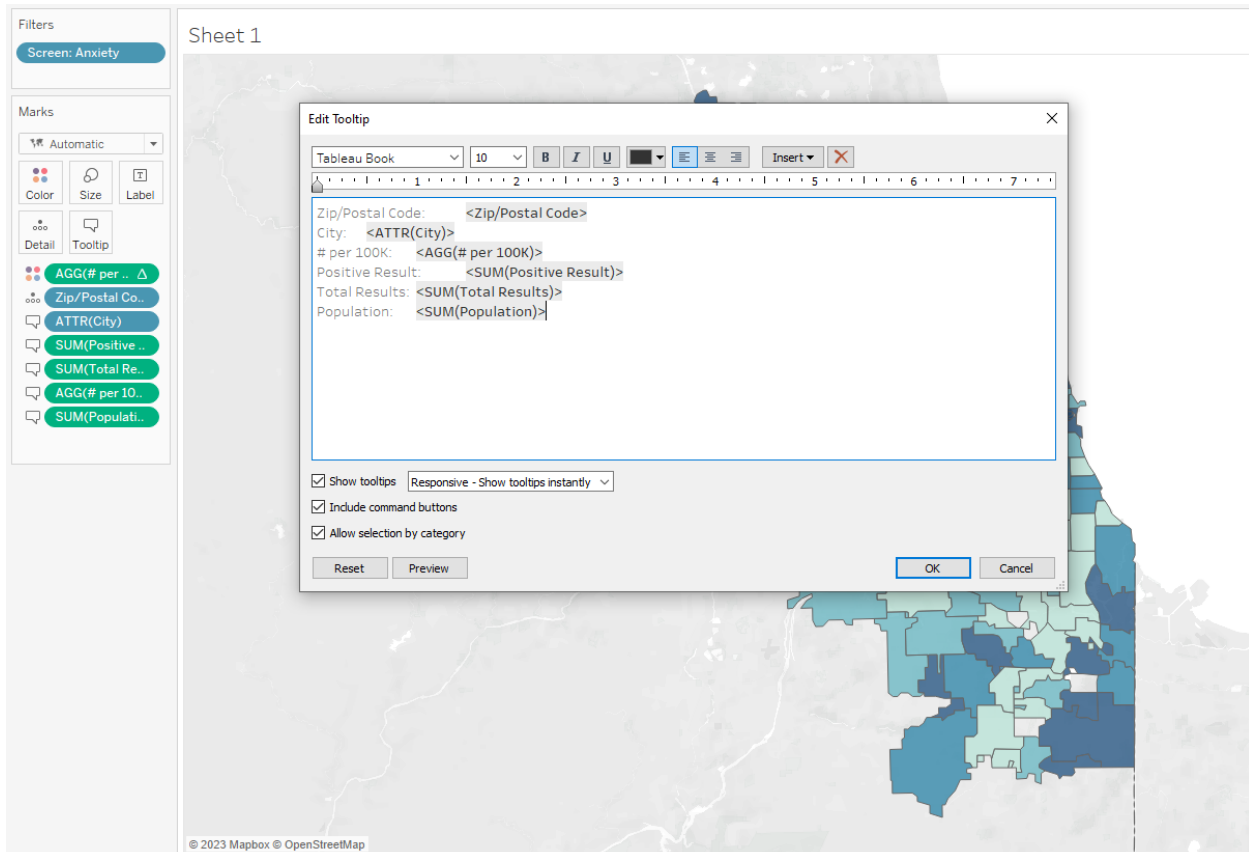
  - NOTE:** Under “Palette,” you can choose what you would like your color palette to be. If you want to change to a custom color, click the square to the right of the color palette. This will open the option to “Select color.”
- Filter Null values from your data:** If you used the Private-Facing Dashboard Prep Flow, data suppression was not built in to cleaning your data. This means that there may be zip codes on your map that have 0 “positive” results. These will still be color coded and appear on your map in the lightest color. To make sure you are only mapping zip codes with at least one positive result, click and drag “Positive Result” to the Filters box. Select “Sum” and click “Next.” Click the box labeled “At least” and set the lower range of your data to 1. Click “OK.” Now zip codes will only appear on your map if they contain any data for positive results. If you used the Public-Facing Dashboard Prep Flow, data suppression was built in so that it only keeps data for zip codes that had 5 or more positive results, so you can skip this step.
- Adding to your Tooltip:** When you hover over each zip code, you will see the Zip/Postal Code and the Percentile of # per 100K displayed. The box that appears when you hover over zip code areas is called the Tooltip. If you would like to add information to this display, click and drag variables from the list on the left side to the “Tooltip” box in the Marks section. For the Cook County dashboard for example, we included City from the top Dimensions section, and Positive Result, Total Result, Population, and # per

100K from the bottom Measure Values section. When you hover over each zip code, you should see all the information you dragged to the Tooltip displayed.

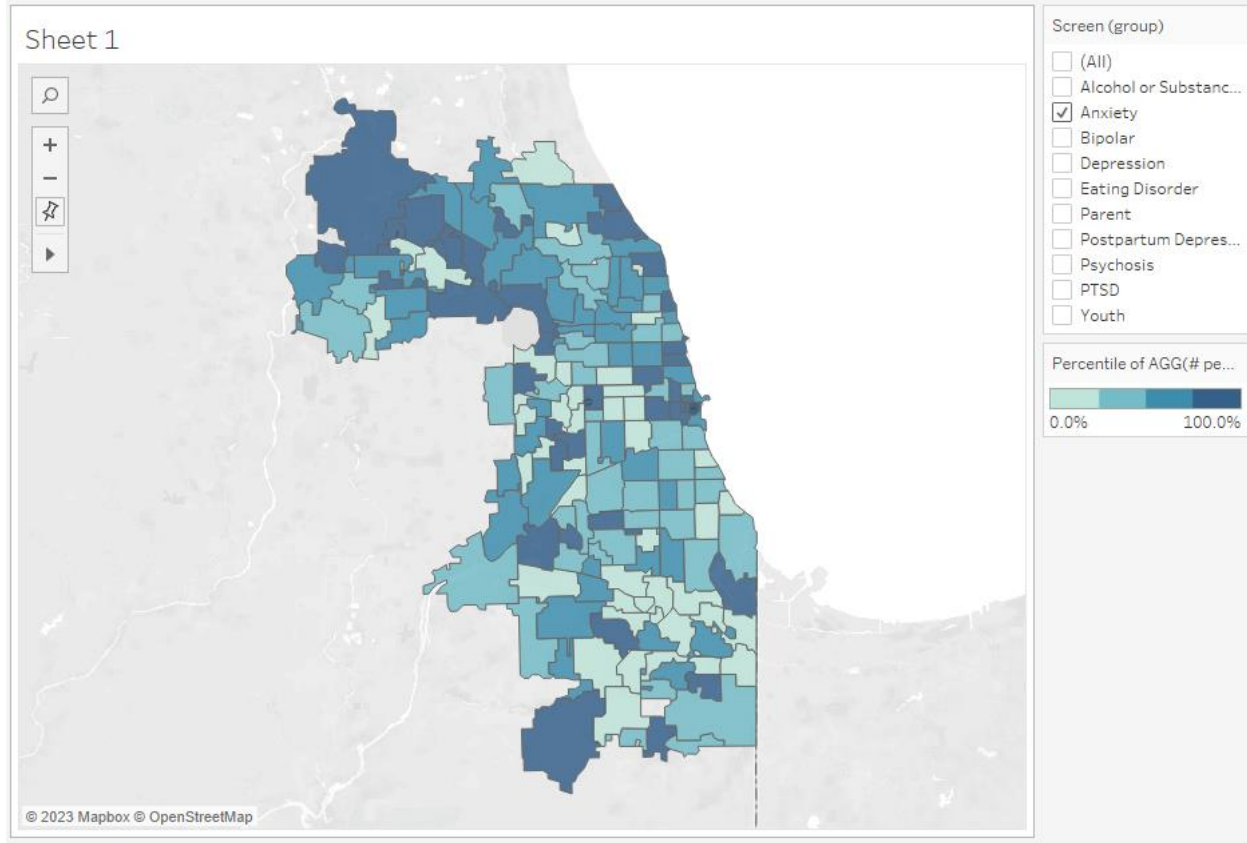
**NOTE:** If you include Population in your Tooltip, make sure that it is displayed as an Attribute, not a Sum. When you drag it to the Tooltip, you will either see ATTR(Population) or SUM(Population). Often it will default to displaying the Sum, which will overcount the population in each zip code. In your data file, the zip code population is listed for each screen, so if you display the SUM(Population), it will add the population for that zip code 11 times (one for each screen). Displaying the population as an Attribute is telling Tableau to display the value that is written for that zip code for population, not sum it for all screens.



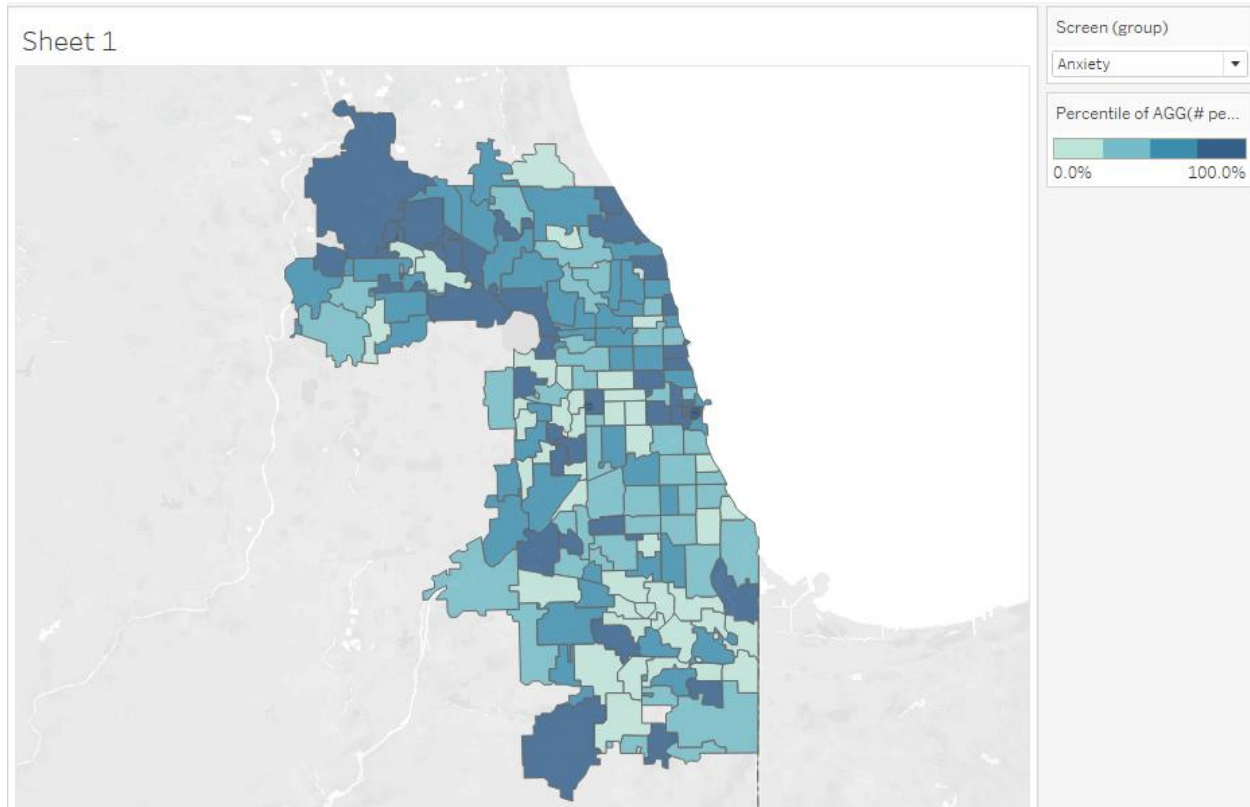
- **Editing your Tooltip:** If you'd like to edit the information displayed in the Tooltip, click the box labeled "Tooltip" in the Marks section. This will open an "Edit Tooltip" box. Here you can change fonts, change the order of displayed elements, and remove elements that you do not want shown in the view. When you're done editing, click "OK."



- Add an option to view your screen filter:** To map results from other screens, right click the blue bar labeled “Screen” in the Filters box. Select “Show Filter.” The filter will automatically appear as a series of check boxes to the right of your map.



- Reformat this filter to a dropdown menu:** To ensure you are not double counting individuals, you will only want to view the map for one screen at a time. To make the filter as easy to use as possible, click the down arrow in the top right of the filter and select “Single value dropdown.” Click the down arrow again, and select “Customize” and “Show ‘All’ Value.” This will only allow you to select one screen to view at a time. If you select another screen from the drop down, you should see your map change to display your zip codes color coded based on the positive rate of that screen per 100,000 people.



- **Add Population filter:** Sometimes the SimpleMaps file has zip codes listed but does not have a population for them. This means that that zip code exists, but is not a zip code tabulation area (ZCTA) as defined by the Census Bureau. Without a Population value, Tableau is unable to calculate the “# per 100K” indicator. If you see zip codes with blank values for “# per 100K,” you can either search for the population of that zip code on the [Census Bureau Data portal here](#) or create a Population filter to exclude zip codes that did not have a population listed. To create a population filter, click the variable “Population” from the Measures section and drag it into the box to the left of the view titled “Filters.” Click “Sum” and click “Next.” Click the box labeled “At least” and then change the minimum value from 0 to 1. Click OK.
- **Change your map background:** If you’d like to change the background of your map (from the light gray and white background), select Map in the top toolbar and hover over “Background Maps.” There are several options of map backgrounds for you to choose. MHA National uses the “Normal” map background in each of our dashboards.
- **Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 1 at the bottom of your screen. For example, you can name this worksheet “# per 100K Map.”


If you’d like, you can add any other filters to your data, based on what you want to know from your demographics. For example, if you add a filter for Race/Ethnicity, you can view the # per 100K for each zip code by race/ethnicity, if you add a filter for Age, you can view the # per 100K by age group, etc.

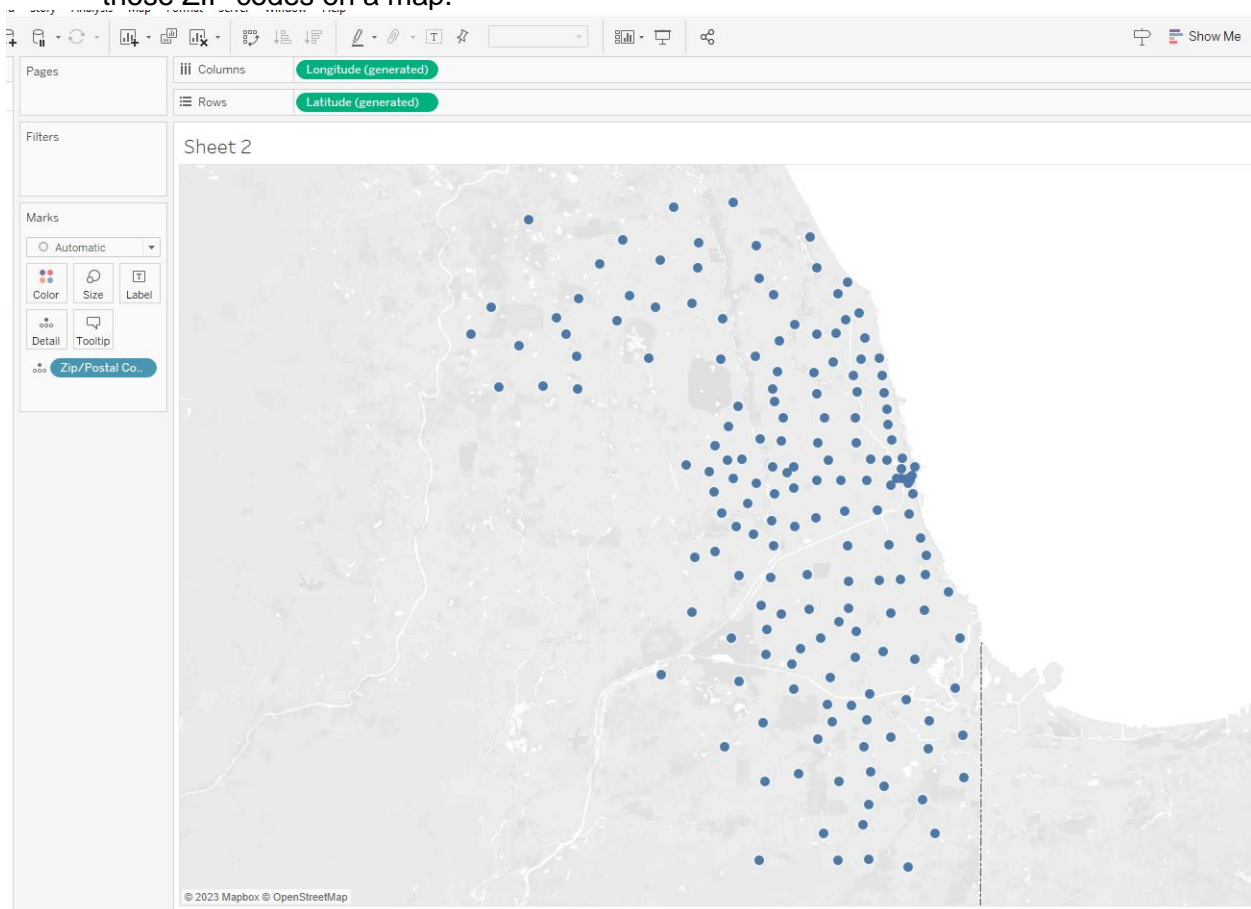


**NOTE:** If you'd like to change the name of any of the options in your dropdown filters, right click on the variable (under the Dimensions section) and select "Aliases." Under "Value (Alias)," you can click on any of the options and rename them. This will not change your underlying data, just how the option is displayed. For example, under "Age," in MHA National's dashboard, we have changed the label "Null" to "No Age Information Provided."

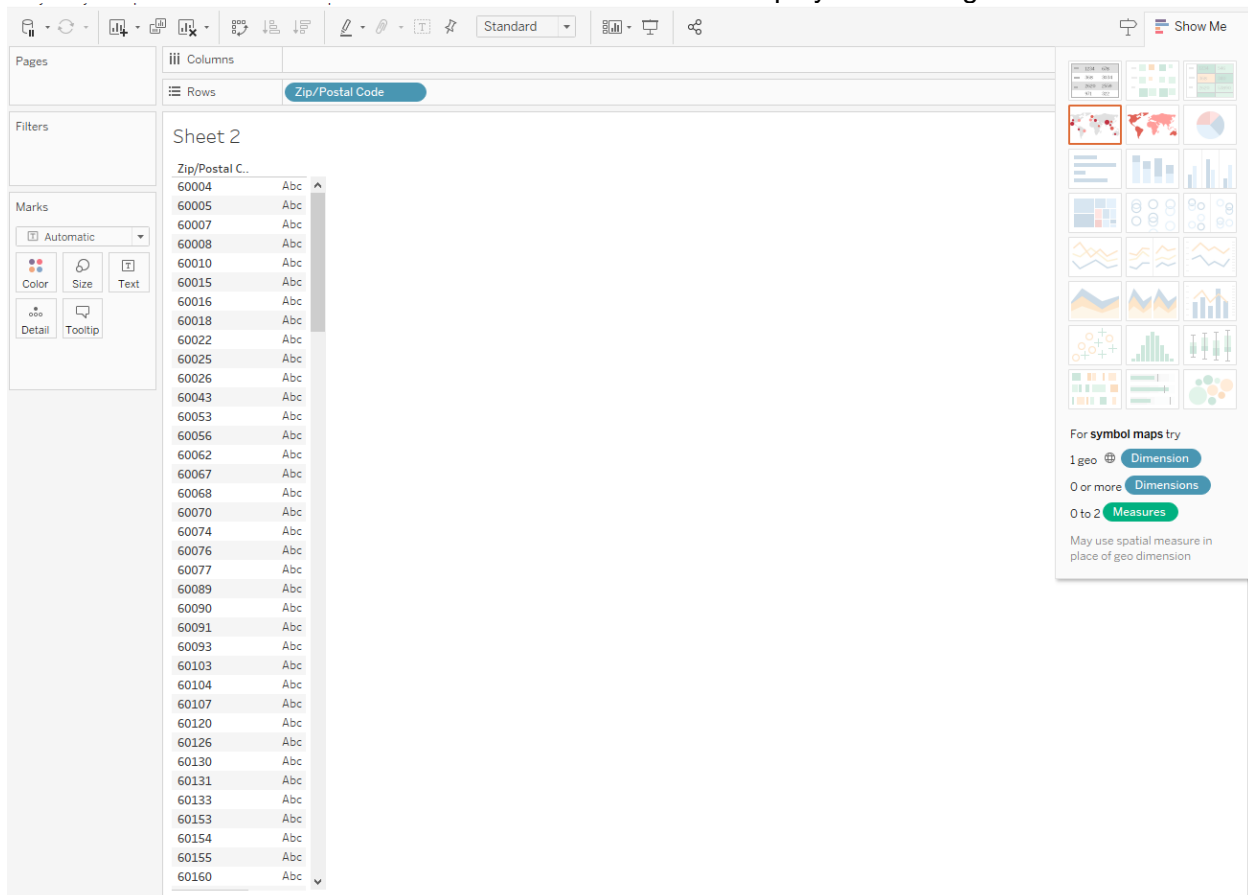
If you'd like to change the order of the options on your dropdown filters, right click on the variable (under the Dimensions section) and select "Default Properties" and "Sort." Under "Sort by" select "Manual." Now you will be able to move your options in whatever order you'd like them to be shown in.

### Step 3: Creating a Data Table View

- Click this icon  to the right of the "Sheet 1" tab at the bottom of your screen. This will create a new worksheet.
- **Add ZIP/Postal Code into the view:** Click the "ZIP/Postal Code" variable under the Dimensions section and drag it into the center of the view. Tableau will automatically plot those ZIP codes on a map.



- Change the view from a map to a table:** Click the button at the top right of the view labeled “Show Me.” You will see a table as the first option under the options that appear. Click the Table icon. Your ZIP codes will now be displayed in a single column.



- Add a column for City to your table.** Click the variable “City” from the Dimensions section on the left of your screen and drag it next to the blue pill labeled “ZIP/Postal Code” in the Rows section. The city name for each ZIP code will appear in a column to the right in your table.

**NOTE:** You can click and drag these blue pills to rearrange them if you’d prefer your variables to appear in a different order. You can also click and drag pills to switch them between rows and columns in your table.

- Add “# per 100K” to your table:** Click and drag the variable “# per 100K” from the Measures section on the left to your table. Drop it where you see the column labeled “Abc.”



Pages

Columns

Rows

Zip/Postal Code City

Filters

Sheet 2

Zip/Postal C. City

Zip/Postal C.	City	
60004	Arlington Heights	3,288
60005	Arlington Heights	3,325
60007	Elk Grove Village	5,295
60008	Rolling Meadows	2,466
60010	Barrington	3,556
60015	Deerfield	2,822
60016	Des Plaines	2,523
60018	Des Plaines	3,364
60022	Glencoe	2,577
60025	Glenview	2,744
60026	Glenview	1,288
60043	Kenilworth	784
60053	Morton Grove	2,656
60056	Mount Prospect	2,973
60062	Northbrook	3,263
60067	Palatine	3,146
60068	Park Ridge	2,955
60070	Prospect Heights	2,066
60074	Palatine	3,290
60076	Skokie	2,994
60077	Skokie	3,294
60089	Buffalo Grove	3,087
60090	Wheeling	2,298
60091	Wilmette	3,305
60093	Winnetka	3,317
60103	Bartlett	3,221
60104	Bellwood	1,938
60107	Streamwood	3,662
60120	Elgin	3,383
60126	Elmhurst	2,532
60130	Forest Park	1,483
60131	Franklin Park	2,808
60133	Hanover Park	3,050
60153	Maywood	1,813
60154	Westchester	2,685
60155	Broadview	1,761
60160	Melrose Park	2,321

Marks

Automatic

Color Size Text

Detail Tooltip

AGG(# per 10..)

- Add Positive Results to your table:** In MHA National’s public facing dashboards, we have included both the number of people scoring at risk per 100K (“# per 100K”) and the raw number of people who scored at risk on the screen (“Positive Result”). This allows people to understand both the rate of risk in comparison to the population and the sample size of each ZIP code. To add “Positive Result” to your table, click “Positive Result” in the Measures section and drag it on to the # per 100K column. Now you will see “AGG(# per 100K)” and “SUM(Positive Result)” appear in a new box titled “Measure Values.” If you’d like to add additional Measures to your table, you can drag and drop them into that “Measure Values” box.

Pages

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Filters

Measure Names

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Marks

Automatic

Color Size Text

Detail Tooltip

Measure Values

AGG(# per 100K)

SUM(Positive Result)

Columns: Measure Names

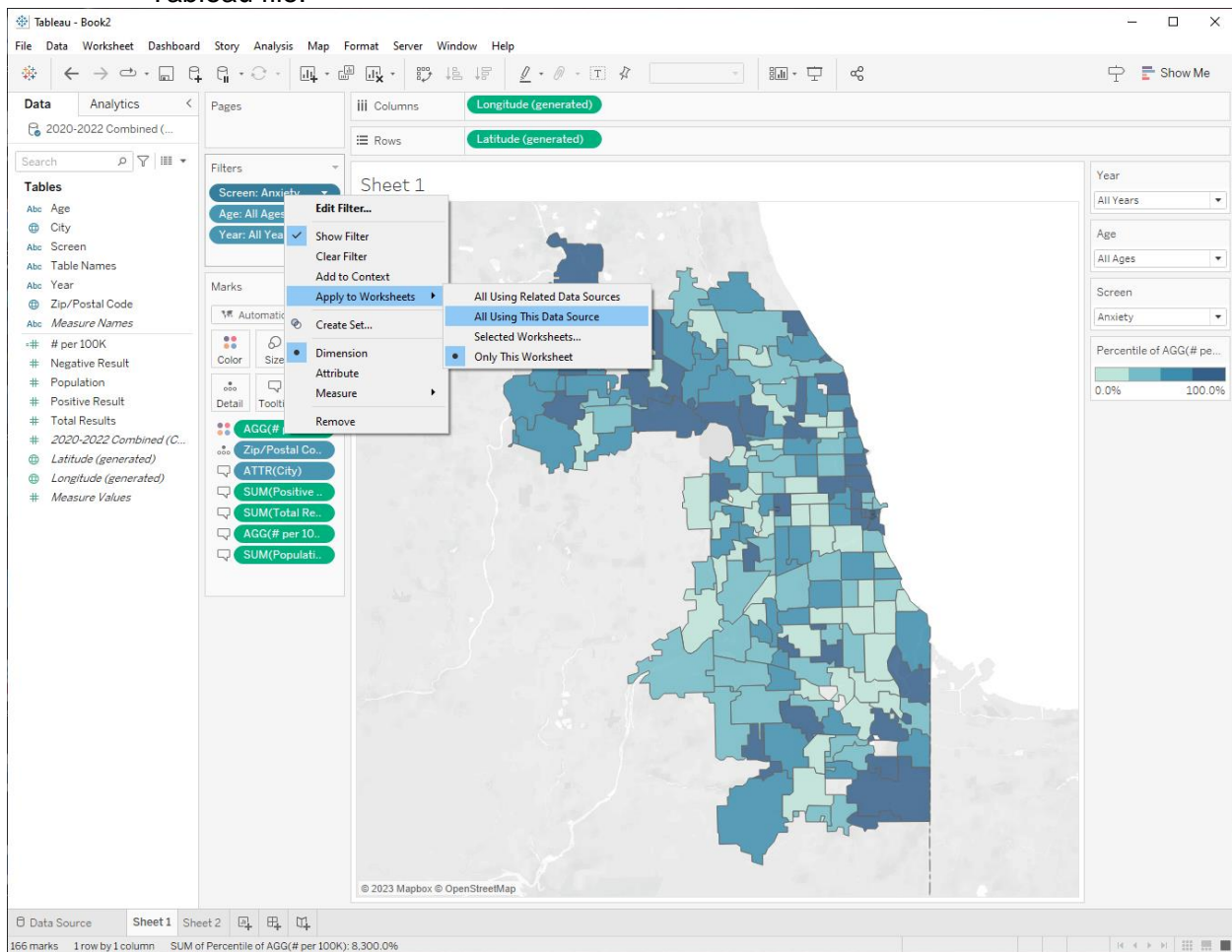
Rows: Zip/Postal Code City

### Sheet 2


Zip/Postal C..	City	# per 1..	Positiv..
60004	Arlington Heights	3,288	1,721
60005	Arlington Heights	3,325	985
60007	Elk Grove Village	5,295	1,750
60008	Rolling Meadows	2,466	572
60010	Barrington	3,556	1,676
60015	Deerfield	2,822	781
60016	Des Plaines	2,523	1,568
60018	Des Plaines	3,364	981
60022	Glencoe	2,577	220
60025	Glenview	2,744	1,158
60026	Glenview	1,288	183
60043	Kenilworth	784	19
60053	Morton Grove	2,656	664
60056	Mount Prospect	2,973	1,692
60062	Northbrook	3,263	1,368
60067	Palatine	3,146	1,227
60068	Park Ridge	2,955	1,168
60070	Prospect Heights	2,066	328
60074	Palatine	3,290	1,239
60076	Skokie	2,994	1,001
60077	Skokie	3,294	963
60089	Buffalo Grove	3,087	1,327
60090	Wheeling	2,298	897
60091	Wilmette	3,305	917
60093	Winnetka	3,317	676
60103	Bartlett	3,221	1,363
60104	Bellwood	1,938	364
60107	Streamwood	3,662	1,453
60120	Elgin	3,383	1,726
60126	Elmhurst	2,532	1,211
60130	Forest Park	1,483	212
60131	Franklin Park	2,808	517
60133	Hanover Park	3,050	1,145
60153	Maywood	1,813	427
60154	Westchester	2,685	452
60155	Broadview	1,761	141
60160	Melrose Park	2,321	590

- **Apply the Screen, Population, Positive Result, # per 100K, and any other filters you have created to this sheet:** Each of these worksheets you are creating will be displayed together to create your public-facing dashboard. To make your dashboard as easy to use as possible, we recommend having one filter displayed on your dashboard that controls all worksheets. For example, on the Cook County public

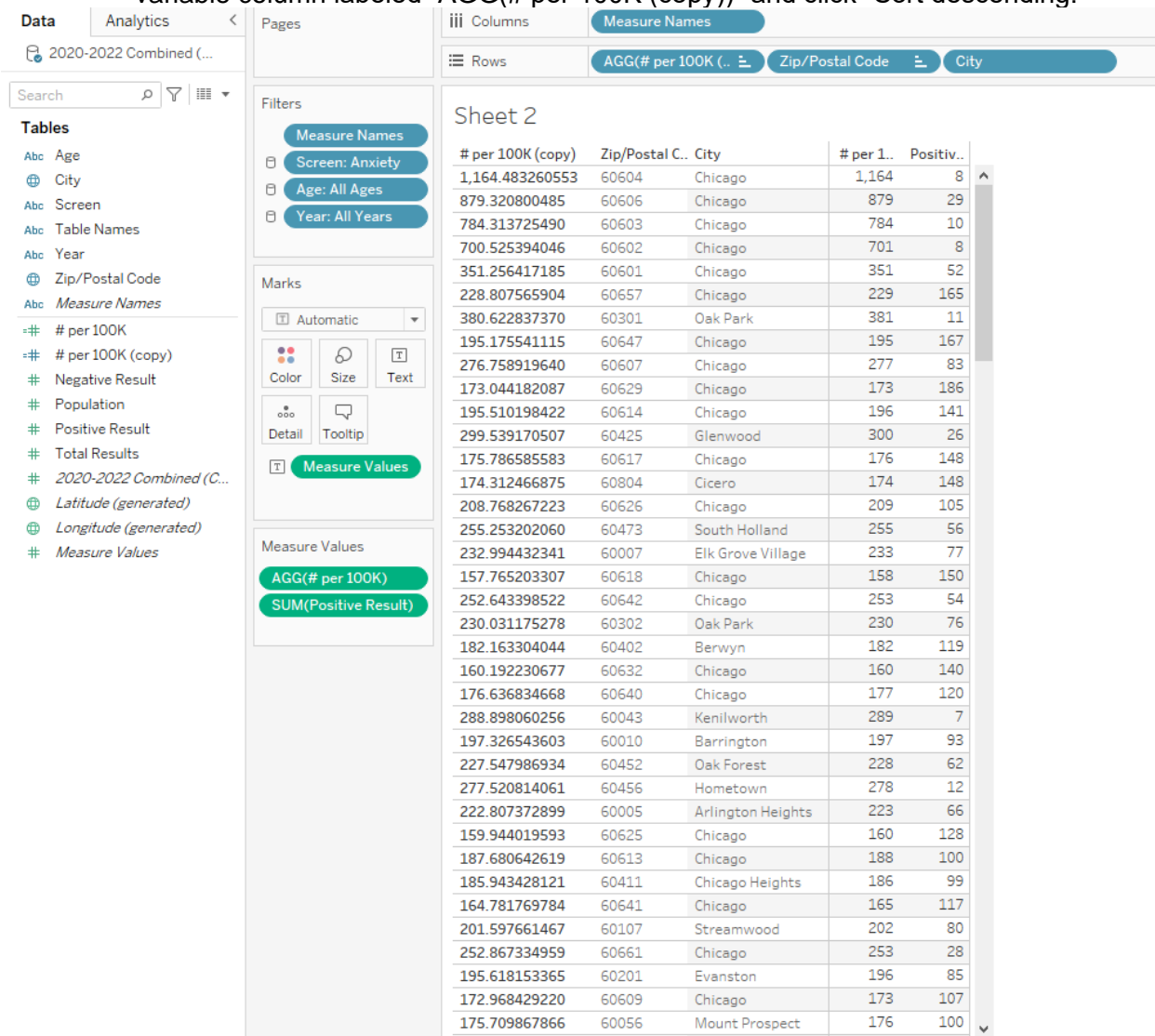
dashboard, there is one dropdown filter for Screen and one dropdown filter for Age. If you use either of these filters the data in both the map and table change. This is simpler than having a Screen and Age filter for the map, and a Screen and Age filter for the table. **This is also why you may see blanks listed under # per 100K, even though we fixed that on the previous map sheet.** We now need to tell Tableau that the filters we created for Sheet 1 (the map) also apply to Sheet 2 (the table). To do so, go to Sheet 1, and right click on the green pill labeled “SUM(Population)” in the Filters box. Select “Apply to Worksheets” and “Selected Worksheets” and select “Sheet 2.” This tells Tableau to apply this filter to Sheet 2 with your table. Follow the same process for each of the other filters except the Screen filter. The Screen filter will need to be used in other worksheets in addition to the map and table. Right click on the blue pill labeled “Screen:Anxiety” and select “Apply to Worksheets” and “All using this datasource.” This will apply that filter to every worksheet you create in your Tableau file.



- **Create a dummy variable to sort your data:** Navigate back to your table. You may notice that your table is sorted by ZIP code (from lowest number to highest number) not from the highest “# per 100K” to the lowest “# per 100K.” Usually, to re-sort your

data, you can click the sort icon  above the columns bar. If you click that icon, you will notice the table sort ZIP codes from those with the largest # per 100K to the smallest # per 100K. However, if you navigate back to Sheet 1 and change one of

the filters (for example, select Depression as the screen instead of Anxiety) and go back to your table, you will see it is no longer sorted from largest to smallest. Tableau is better at automatically sorting discrete variables or Dimensions (like ZIP/Postal Code) than it is at sorting calculated, continuous variables or Measures (like # per 100K). To ensure that the table correctly sorts every time a filter is changed, you must create a discrete dummy variable of “# per 100K.” Right click on “# per 100K” in your Measures column and select “Duplicate.” Now you will see another Measure labeled “# per 100K (copy).” Right click on that Measure and select “Convert to Discrete.” You will now see the =# symbol next to the Measure name turn blue (like a Dimension) rather than green. Click and drag “# per 100K (copy)” to the Rows column and drop it in front of ZIP/Postal Code. Right click on the dummy variable column labeled “AGG(# per 100K (copy))” and click “Sort descending.”



Sheet 2

# per 100K (copy)	Zip/Postal C...	City	# per 100K	Positiv..
1,164.483260553	60604	Chicago	1,164	8
879.320800485	60606	Chicago	879	29
784.313725490	60603	Chicago	784	10
700.525394046	60602	Chicago	701	8
351.256417185	60601	Chicago	351	52
228.807565904	60657	Chicago	229	165
380.622837370	60301	Oak Park	381	11
195.175541115	60647	Chicago	195	167
276.758919640	60607	Chicago	277	83
173.044182087	60629	Chicago	173	186
195.510198422	60614	Chicago	196	141
299.539170507	60425	Glenwood	300	26
175.786585583	60617	Chicago	176	148
174.312466875	60804	Cicero	174	148
208.768267223	60626	Chicago	209	105
255.253202060	60473	South Holland	255	56
232.994432341	60007	Elk Grove Village	233	77
157.765203307	60618	Chicago	158	150
252.643398522	60642	Chicago	253	54
230.031175278	60302	Oak Park	230	76
182.163304044	60402	Berwyn	182	119
160.192230677	60632	Chicago	160	140
176.636834668	60640	Chicago	177	120
288.898060256	60043	Kenilworth	289	7
197.326543603	60010	Barrington	197	93
227.547986934	60452	Oak Forest	228	62
277.520814061	60456	Hometown	278	12
222.807372899	60005	Arlington Heights	223	66
159.944019593	60625	Chicago	160	128
187.680642619	60613	Chicago	188	100
185.943428121	60411	Chicago Heights	186	99
164.781769784	60641	Chicago	165	117
201.597661467	60107	Streamwood	202	80
252.867334959	60661	Chicago	253	28
195.618153365	60201	Evanston	196	85
172.968429220	60609	Chicago	173	107
175.709867866	60056	Mount Prospect	176	100

- **Hide your dummy variable:** Now Tableau will always sort your data from the largest “# per 100K” to smallest “# per 100K,” even when the filters are changed. However, you need to hide the dummy variable from view. Right click on the blue pill “AGG(# per 100K (copy))” in the Rows bar. You will see there are checks next to “Show Header” and “Include in Tooltip.” Click on “Show Header” to remove the check. You will now see the dummy variable disappear from your table. Remember that your

Tooltip is what a user sees if they hover over your data in the view. If you hover over one of the entries for # per 100K in the table, for example, you will see City, ZIP/Postal Code, # per 100K (copy), and # per 100K. Right click on the blue pill “AGG(# per 100K (copy))” in the Rows bar and click on “Include in Tooltip” to remove the check. Now you will no longer see # per 100K (copy) when you hover over the values in the table.

- **Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 2 at the bottom of your screen. For example, you can name this worksheet “# per 100K Table.”

#### Step 4: Creating Interactive Titles for your Dashboard

- On the Cook County public facing dashboard, you will see that as you change the filters to view the results of different screens, the titles on the dashboard change. For example, when Anxiety is selected on the screen filter, the title of the dashboard reads:

### **Mental Health Risk Assessments** A Zip Code Level View of Anxiety in Cook County, IL

And the Map and Table titles read:

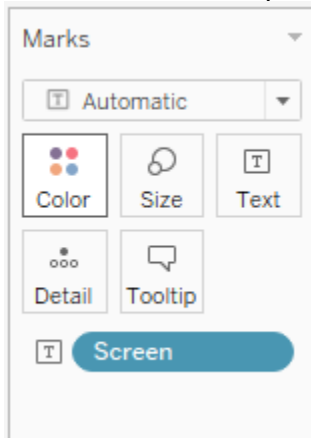
## **Anxiety Map**

## **Anxiety Table**

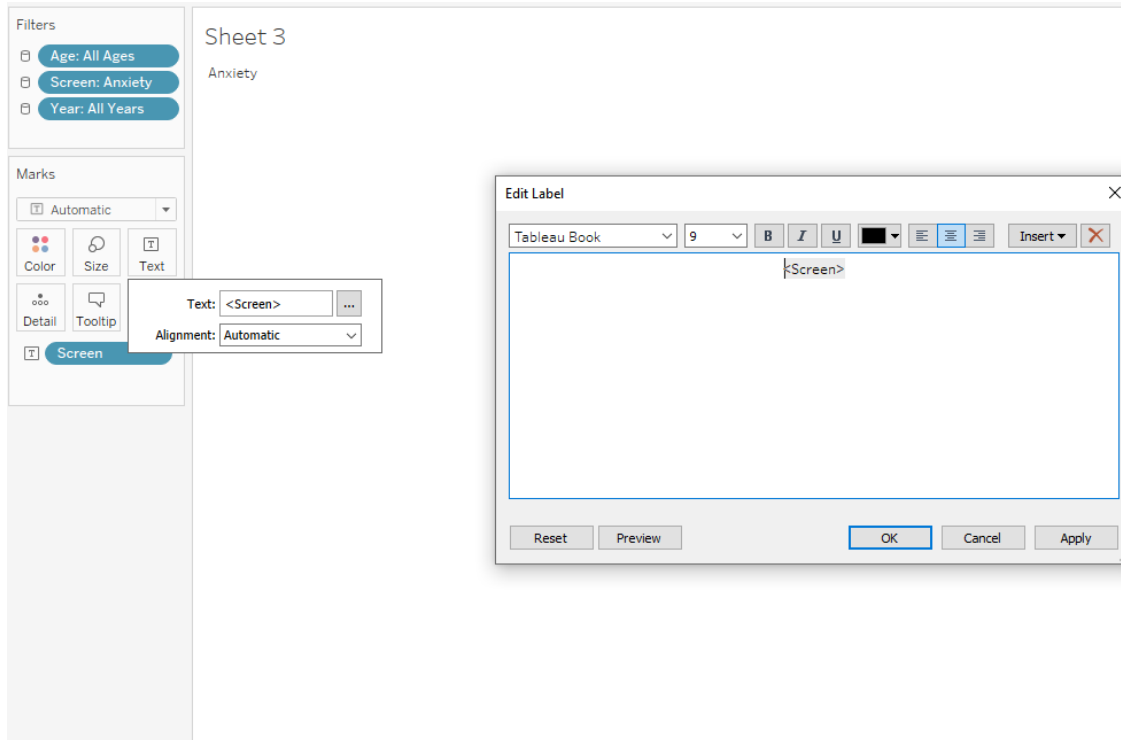
If you select a different screen from the dropdown menu, those titles change to reflect the Screen that is selected. To create interactive titles for your dashboard, add a new Sheet

using the add sheet button  at the bottom of the screen.

- **Add the “Screen” variable to your view:** Click the variable “Screen” under Dimensions and drop it over the box labeled “Text” in the Marks section.




- **Edit the text of your title:** Now you will just see the name of the screen in small black text in your view. To edit this text, click the box labeled “Text” in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box.



- Type and format your title:** Here you can add what you would like the title of your dashboard to be. However, it is important that you keep that variable <Screen> in the title. That tells Tableau to change that word to whichever Screen is selected at the time. If you'd like, copy and paste the following text as your title:

## Mental Health Risk Assessments A Zip Code Level View of <Screen> in [PLACE]


- Remove the Tooltip:** Tableau always automatically creates a Tooltip that will appear if someone hovers over your title. Here the Tooltip will say "Screen: Anxiety." To clear that Tooltip, click the Tooltip box in the marks section. This will open a text box. Clear the text from that text box and click OK. Now nothing will appear when someone hovers their mouse over your title.
- Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 3 at the bottom of your screen. For example, you can name this worksheet "Dashboard Title."
- Create an interactive map title:** To create an interactive title for your map, add a new

Sheet using the add sheet button  at the bottom of the screen. Again, click the variable "Screen" under Dimensions and drop it over the box labeled "Text" in the Marks section. To edit this text, click the box labeled "Text" in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box. Here you can add what you would like the title of your map to be. If you'd like, copy and paste the following text as your title:

### <Screen> Map

Clear the Tooltip on this sheet using the same steps as above.


- **Name your worksheet:** Double click where it says Sheet 4 at the bottom of your screen. For example, you can name this worksheet “Map Title.”
- **Create an interactive table title:** To create an interactive title for your table, add a new

Sheet using the add sheet button  at the bottom of the screen. Again, click the variable “Screen” under Dimensions and drop it over the box labeled “Text” in the Marks section. To edit this text, click the box labeled “Text” in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box. Here you can add what you would like the title of your table to be. If you’d like, copy and paste the following text as your title:

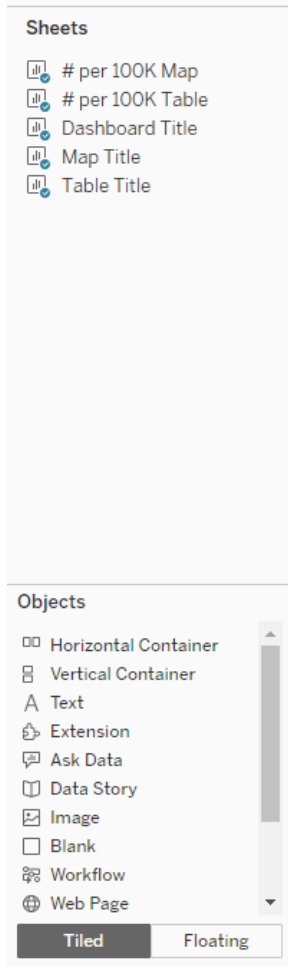
### <Screen> Table

- **Name your worksheet:** Double click where it says Sheet 5 at the bottom of your screen. For example, you can name this worksheet “Table Title.”

#### Step 5: Assembling Your Dashboard

- Now you are ready to assemble your dashboard. Click the add dashboard button at the bottom of your screen: 
- **Add Sheets to your dashboard:** When you open a new dashboard, you will see a large blank space and a list of your available worksheets in a bar on the left side of your screen. To assemble your worksheets, you click and drag them from the left column to the blank space. First, drag your Dashboard Title sheet to the blank space. You will see that each time you drag a sheet into the view, Tableau will highlight a space in gray where that sheet will go. This is called a “tiled” view. You can see the option for a “tiled” view at the bottom left of your screen under “Objects.” Tableau has pre-set tiles that can make it easy to format your dashboard. The other option is a “floating” view, meaning that you can drag and drop sheets anywhere on the dashboard, with no pre-set formatting. Generally, we start with a tiled view, as it helps ensure a clean design to your dashboard.

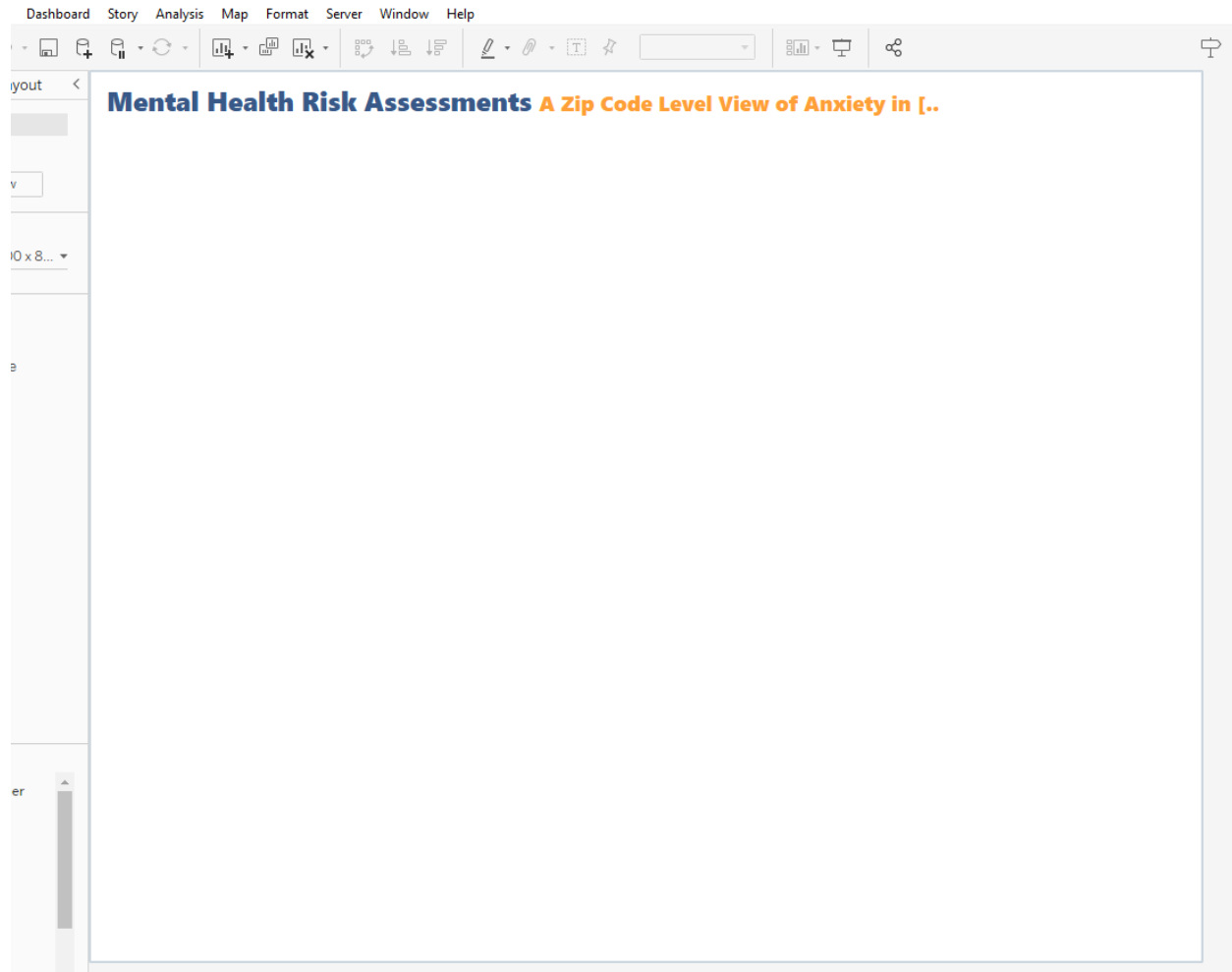




**NOTE: To remove sheets from your dashboard at any time, click on the sheet and click the X that appears in the top right corner.**

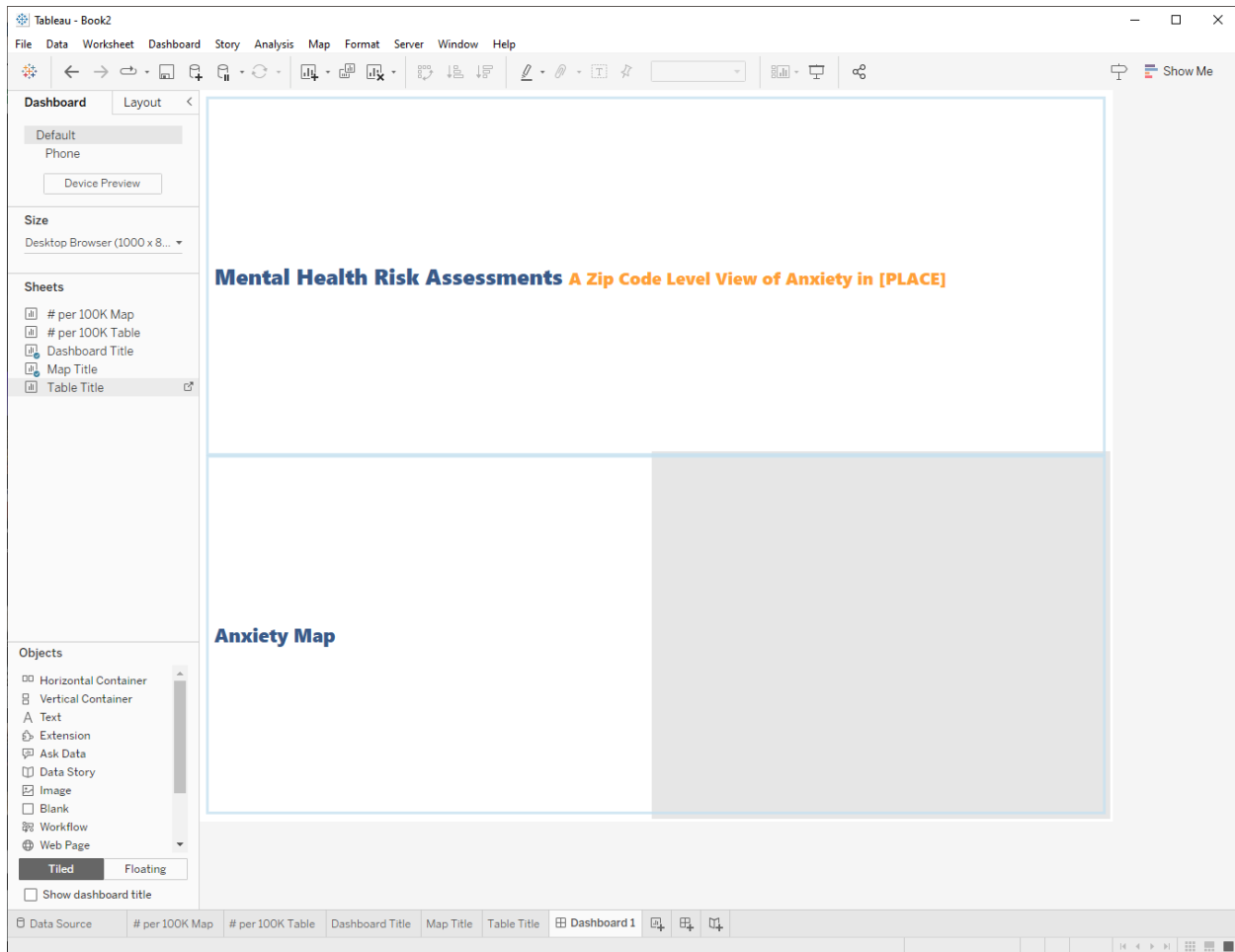
- **Hide titles of your Sheets:** Each worksheet has a title that you have assigned. For example, you may see “Dashboard Title” above your title in the blank field. To hide these titles, right click on “Dashboard Title” and select “Hide Title.”
- **Set Sheets to Entire View:** You may also see that your sheets are cut off in the view. For example, Tableau may not be displaying your full title.



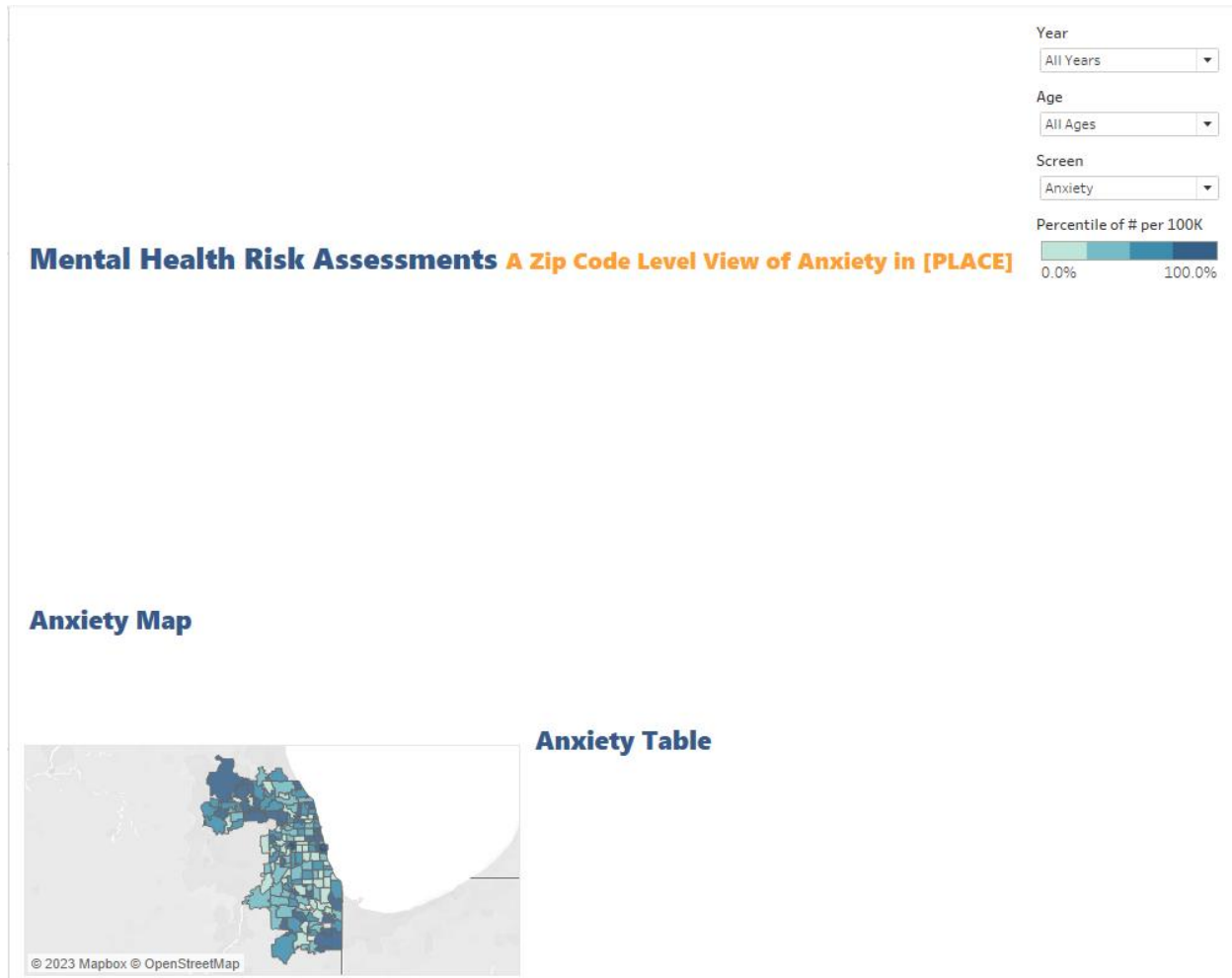


In the toolbar at the top of your screen, you should see a dropdown menu labeled “Standard.” Click that dropdown and select “Entire View.” This is telling Tableau to display the entire contents of your worksheet on the dashboard.

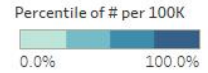
- **Add your Map title to the dashboard:** Drag the Map Title to the blank view. You will see Tableau give you an option to drop this view next to the dashboard title or underneath it. Drop the Map Title sheet underneath the dashboard title. Again, right click on “Map Title” and select “Hide Title.” In the toolbar at the top of your screen, click the dropdown labeled “Standard” and select “Entire View.”
- **Add your Table title to the dashboard:** Drag the Table title to the view. Drop the Table Title sheet to the bottom right of the Map Title sheet. Again, right click on “Table Title” and select “Hide Title.” In the toolbar at the top of your screen, click the dropdown labeled “Standard” and select “Entire View.”



- Add your Map to the dashboard:** Drag the # per 100K Map sheet to the view. Drop the sheet underneath your Map Title. Again, right click on the sheet title and select “Hide Title.” You will also see each of the filters and the color legend appear on the right side of your dashboard.



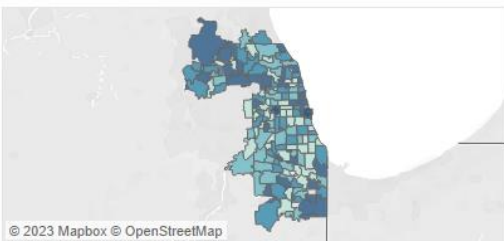
- **Move your filters to the center of the dashboard:** Click and drag your filters (like the Screen filter) to place them horizontally between your dashboard title and your map and table titles.



## Mental Health Risk Assessments **A Zip Code Level View of Anxiety in [PLACE]**

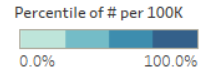
Screen: 
 Year: 
 Age:

### Anxiety Map



### Anxiety Table

- Add your Table to the dashboard:** Drag the # per 100K Table sheet to the view. Drop the sheet underneath your Table Title. Again, right click on the sheet title and select "Hide Title." In the toolbar at the top of your screen, click the dropdown labeled "Standard" and select "Fit Width." This tells Tableau to fit your Tableau to the width of the box you've placed it in.

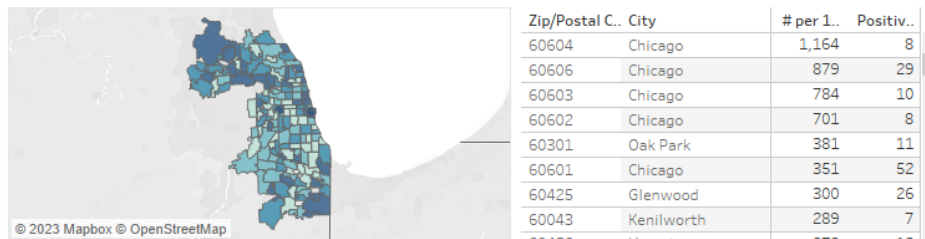


## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Screen: Anxiety | Year: All Years | Age: All Ages

### Anxiety Map

### Anxiety Table

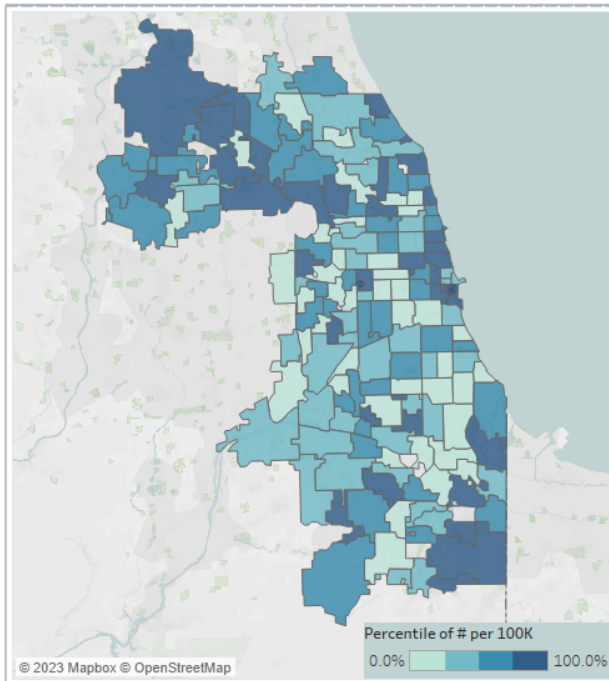


- **Reformatting your Dashboard:** You can adjust the size of each of the sheets on your dashboard by clicking and dragging their borders.
- **Moving your color legend:** You can also move the color legend for the map anywhere on your dashboard. In MHA National’s public facing dashboards, we often overlay the color legend on the map. To do so, you will need to change the color legend from a tiled object to a floating object. Click on your color legend and select the down arrow that appears in the bottom right corner. Select “Floating.” Now you can move the color legend anywhere on your dashboard. If you’d like to fill in the background of your legend or change the font, click the arrow and select “Format.” If you would like to change how the color legend is labeled, double click on the label and a text box will appear where you can change the title.

## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Screen: 
 Year: 
 Age:

### Anxiety Map



### Anxiety Table

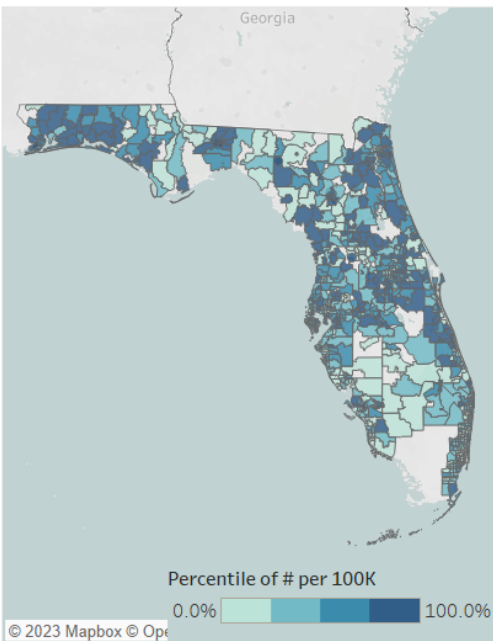
Zip/Postal C.	City	# per 100K	Positive Result
60604	Chicago	1,164	8
60606	Chicago	879	29
60603	Chicago	784	10
60602	Chicago	701	8
60301	Oak Park	381	11
60601	Chicago	351	52
60425	Glenwood	300	26
60043	Kenilworth	289	7
60456	Hometown	278	12
60607	Chicago	277	83
60473	South Holland	255	56
60661	Chicago	253	28
60642	Chicago	253	54
60633	Chicago	237	30
60022	Glencoe	234	20
60007	Elk Grove Village	233	77
60513	Brookfield	230	45
60302	Oak Park	230	76
60475	Steger	230	23
60657	Chicago	229	165
60452	Oak Forest	228	62
60005	Arlington Heights	223	66
60626	Chicago	209	105
60415	Chicago Ridge	208	30
60173	Schaumburg	207	29
60605	Chicago	206	66

- Delete the box your filters were in:** Even when you move your filters, sometimes Tableau will keep a blank column to the right of your dashboard. To delete this blank box, select it and click the X in the top right corner. Now your sheets should fill in the entire dashboard.

## Mental Health Risk Assessments **A Zip Code Level View of Anxiety in Florida**

Screen: Anxiety | Year: All Y... | Age: All A...

### Anxiety Map



### Anxiety Table

Zip/Post..	City	# per 1..	Positiv..
32013	Day	13,636	9
32616	Alachua	4,027	6
33438	Canal Point	1,392	6
33521	Coleman	1,007	6
32304	Tallahassee	940	431
33122	Miami	903	16
32511	Pensacola	851	11
32306	Tallahassee	712	13
32709	Christmas	611	8
33621	Tampa	539	14
33620	Tampa	527	25
32960	Vero Beach	520	120
33965	Fort Myers	514	13
33827	Babson Park	469	13
32301	Tallahassee	447	145
32962	Vero Beach	439	114
32925	Patrick Afb	435	7
32966	Vero Beach	433	82
34773	Saint Cloud	417	17
34747	Kissimmee	416	92
32212	Jacksonville	396	9
32113	Citra	383	19
32187	San Mateo	374	5
32310	Tallahassee	362	51

- **Add instructions for users to your dashboard:** It is important that you add instructions and explanations of what your user is viewing to your dashboard. You can add boxes of text anywhere within your dashboard by double-clicking the “Text” option under “Objects” in the left sidebar. When you double-click “Text,” a text box will appear. In MHA National’s data dashboards, we have included an instructions text box under each title and next to each available filter. For example, under the Dashboard title, we included:

“Use this dashboard to view MHA Screening data from individuals at the zip code level **within Cook County, Illinois in 2020-June 2023**. Use the drop down menus to filter the dashboard.”

Once you click OK, you can drag your text box anywhere on your dashboard.

Under the Map title, we included:

Hover over each zip code to see the number of people scoring at risk for the mental health condition selected above per 100,000 residents within that zip code. **Zip codes are colored by percentile. Darker colors indicate greater risk.**

Under the Table title, we included:

“By default, zip codes are listed in descending order (from zip codes with the highest number of individuals scoring at risk per 100K to lowest). Click on the axis to change the sort order.”

- **Label your filters:** MHA National also includes labels and instructions next to each of the available filters. Numbering these instructions can also guide your users through using your dashboard. For example, for your Screen filter, you can include a text box and arrange it next to the screen filter (as shown in the screenshot below). You can do the same for any other filters you have created in your dashboard. For the screen filter for example, you can write:

### 1. Select which type of mental health condition to view

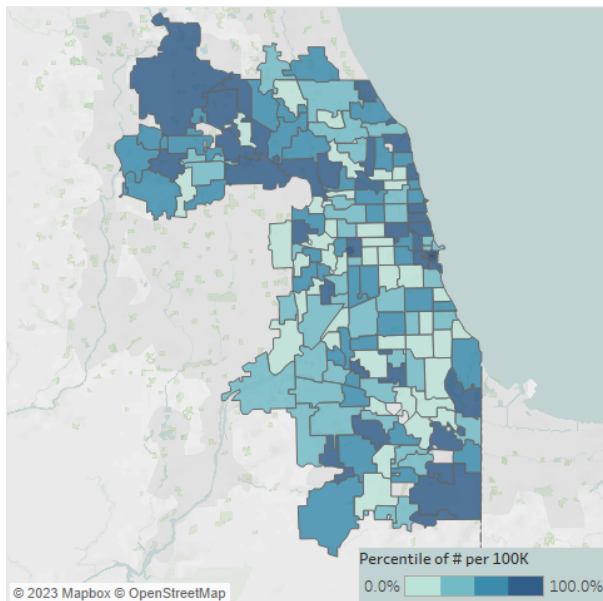
## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Use this dashboard to view MHA Screening data from individuals at the zip code level **within Cook County, Illinois in 2020-June 2023**. Use the drop down menus to filter the dashboard.

1. Select which type of mental health condition to view Screen  2. Select which year of data to view  3. Select which age range to view

### Anxiety Map

Hover over each zip code to see the number of people scoring at risk for Anxiety per 100,000 residents within that zip code. **Zip codes are colored by percentile. Darker colors indicate greater risk.**



### Anxiety Table

**By default, zip codes are listed in descending order (from zip codes with the highest number of individuals scoring at risk per 100K to lowest).** Click on the axis to change the sort order.

Zip/Postal C.	City	# per 100K	Positive Result
60604	Chicago	1,164	8
60606	Chicago	879	29
60603	Chicago	784	10
60602	Chicago	701	8
60301	Oak Park	381	11
60601	Chicago	351	52
60425	Glenwood	300	26
60043	Kenilworth	289	7
60456	Hometown	278	12
60607	Chicago	277	83
60473	South Holland	255	56
60661	Chicago	253	28
60642	Chicago	253	54
60633	Chicago	237	30
60022	Glencoe	234	20
60007	Elk Grove Village	233	77
60513	Brookfield	230	45
60302	Oak Park	230	76
60475	Steger	230	23
60657	Chicago	229	165
60452	Oak Forest	228	62
60005	Arlington Heights	223	66
60626	Chicago	209	105

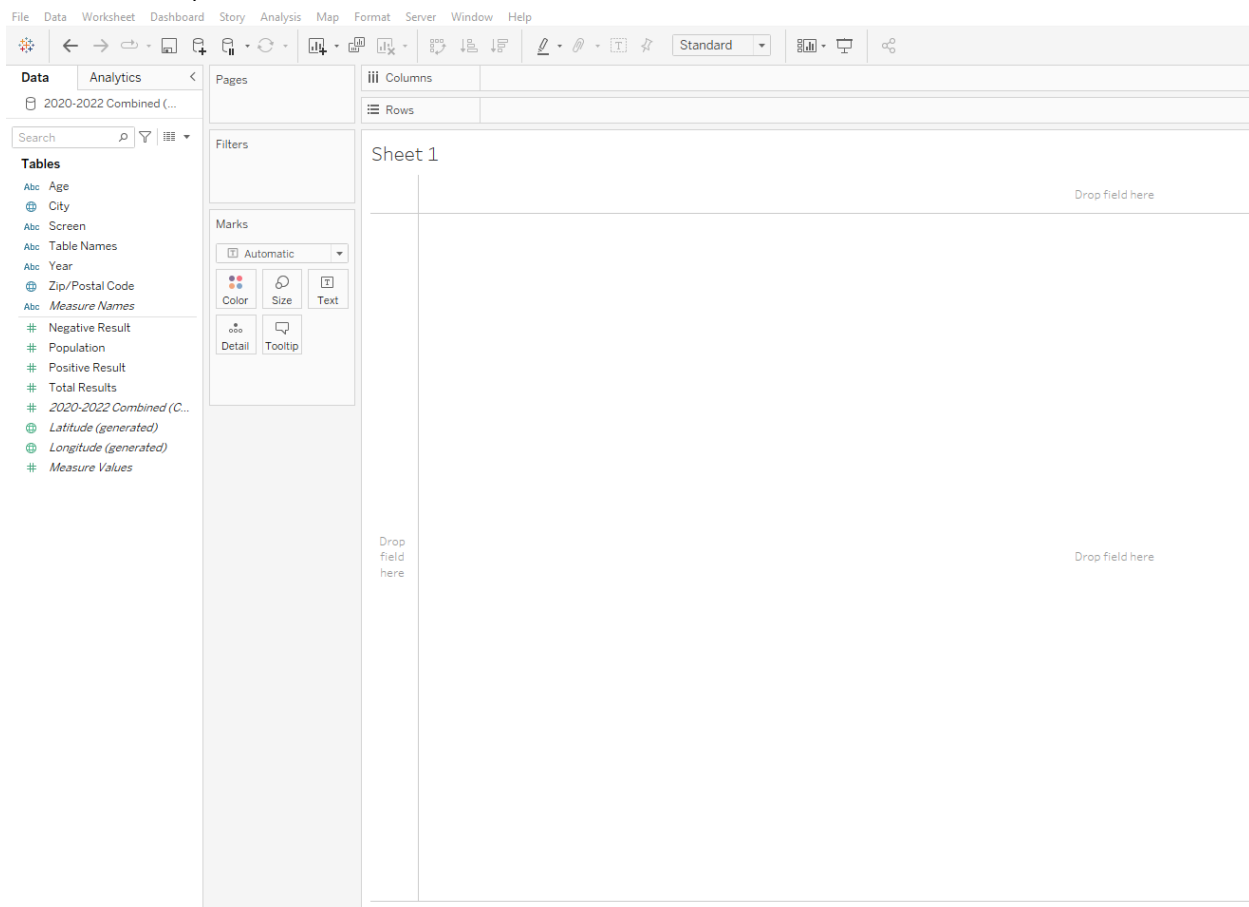
**Congratulations! Now you have created your own internal data mapping dashboard!**



## Creating Your Public-Facing Dashboard

### Step 1: Connecting to your Tableau Prep output

- Open Tableau Desktop and click “Connect to Data” written in blue in the top left corner of the screen. Click “Microsoft Excel” under “Connect To a File”, and select the “ALL SCREENS Final Output” output (from the Public-Facing Tableau Prep Flow) or the “Final County Output” output (from the Private-Facing Tableau Prep Flow) you saved on your computer. At the bottom of your screen, click the Orange Box that says “Sheet 1.”
- On the left sidebar, there will be two sets of variables under Tables. One set of variables is in blue text. These are your **Dimensions** (also known as Measure Names). The lower set of variables are in green text. These are your **Values** (also known as Measure Values).



### Step 2: Creating a condition-specific map

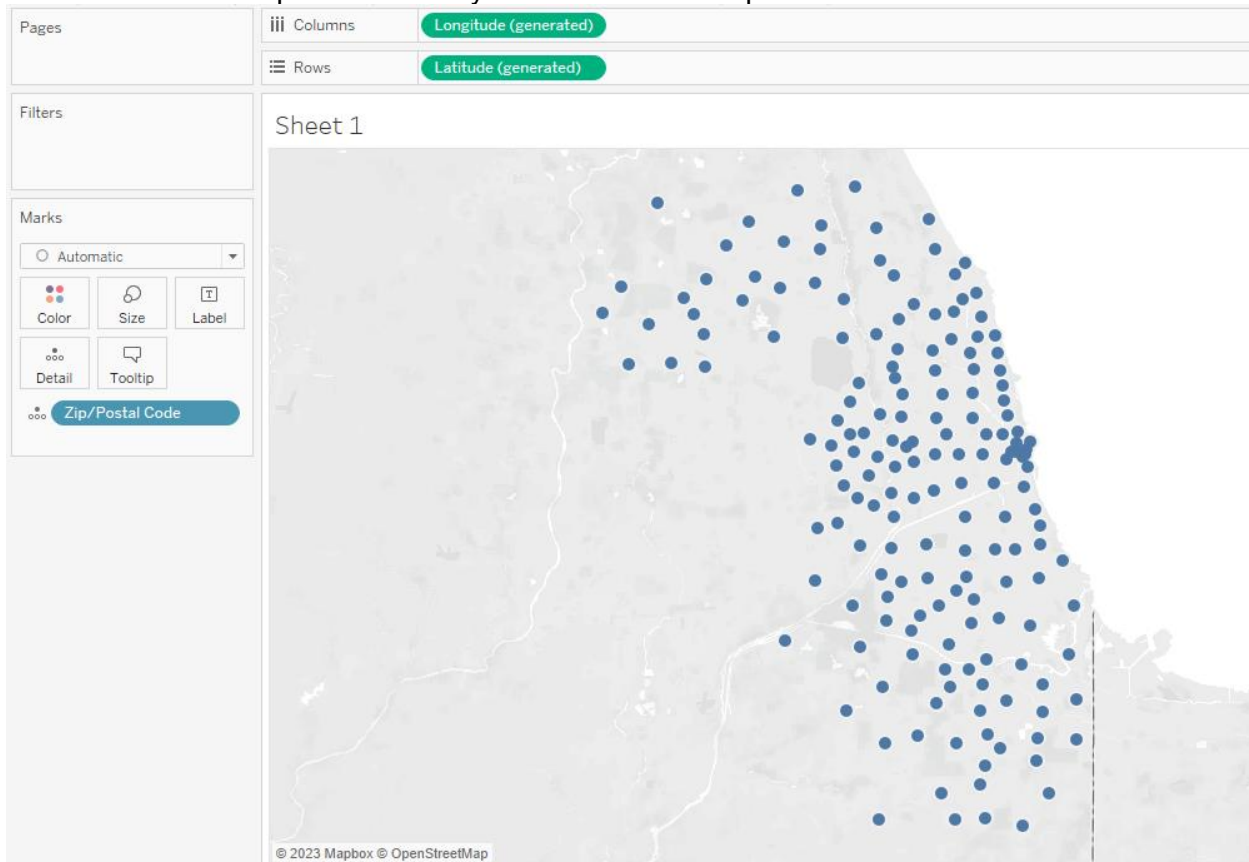
- **Create a calculated field for the rate of positive results per 100,000 people in the population.** Right click in the blank area under your Measure Values and select “Create Calculated Field.” Name the calculated field “# per 100K” and write:

`sum([Positive Result])/ATTR([Population])*100000`

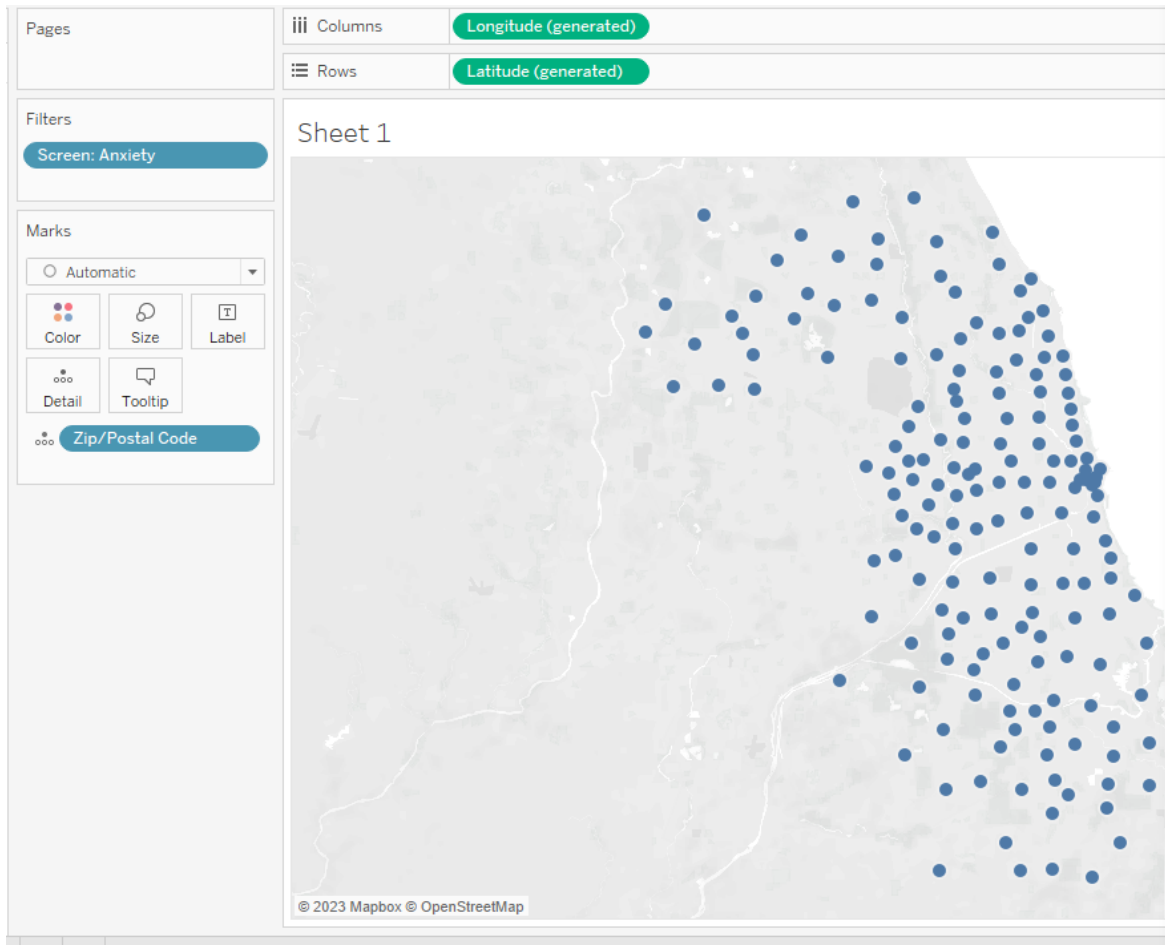
Click “OK.” This is dividing the zip code level population by the total number of positive results and multiplying that rate by 100,000. For example, this may give you a rate of

729. This means for every 100,000 people in the population in that area, there are 729 who would get a positive result.

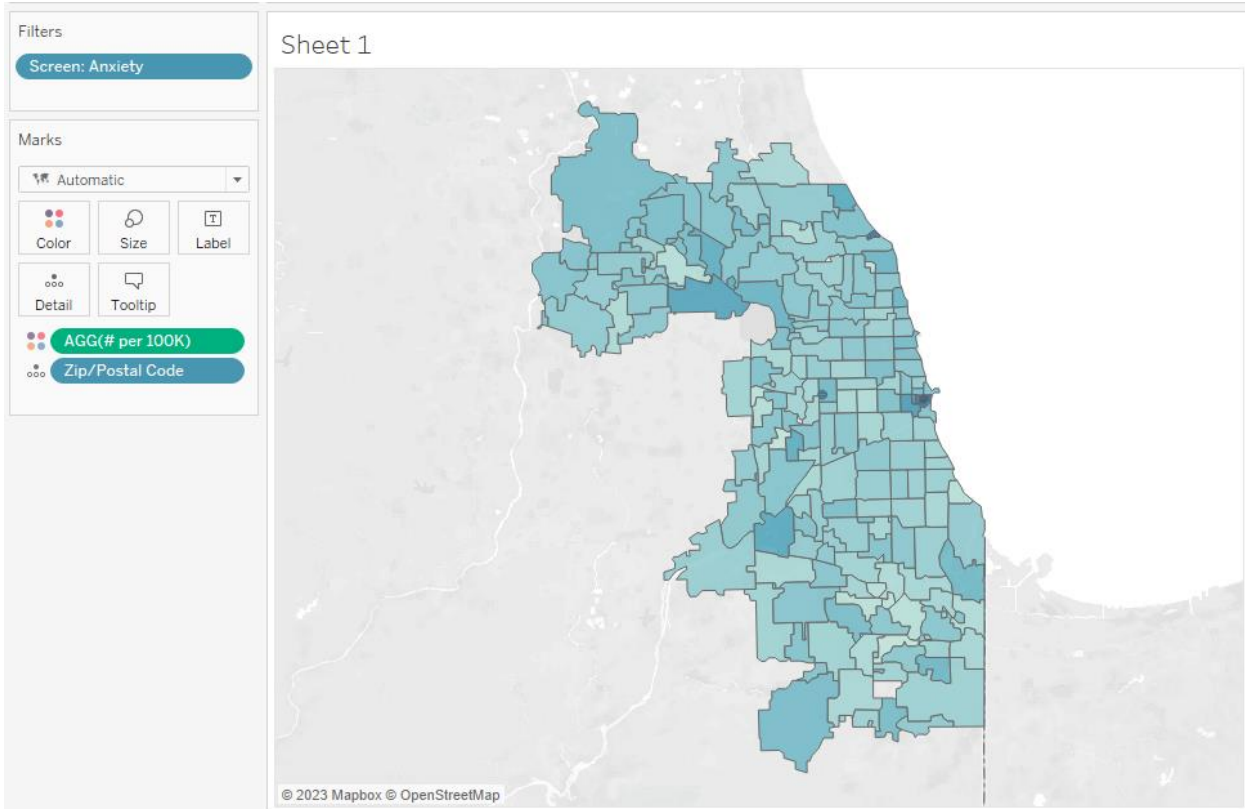
- **Map your data by ZIP code:** Click the “Zip Code” variable under your Dimensions (the top blue section of the left sidebar) and drag it into the view. This automatically plots each of the zip codes within your dataset on a map.



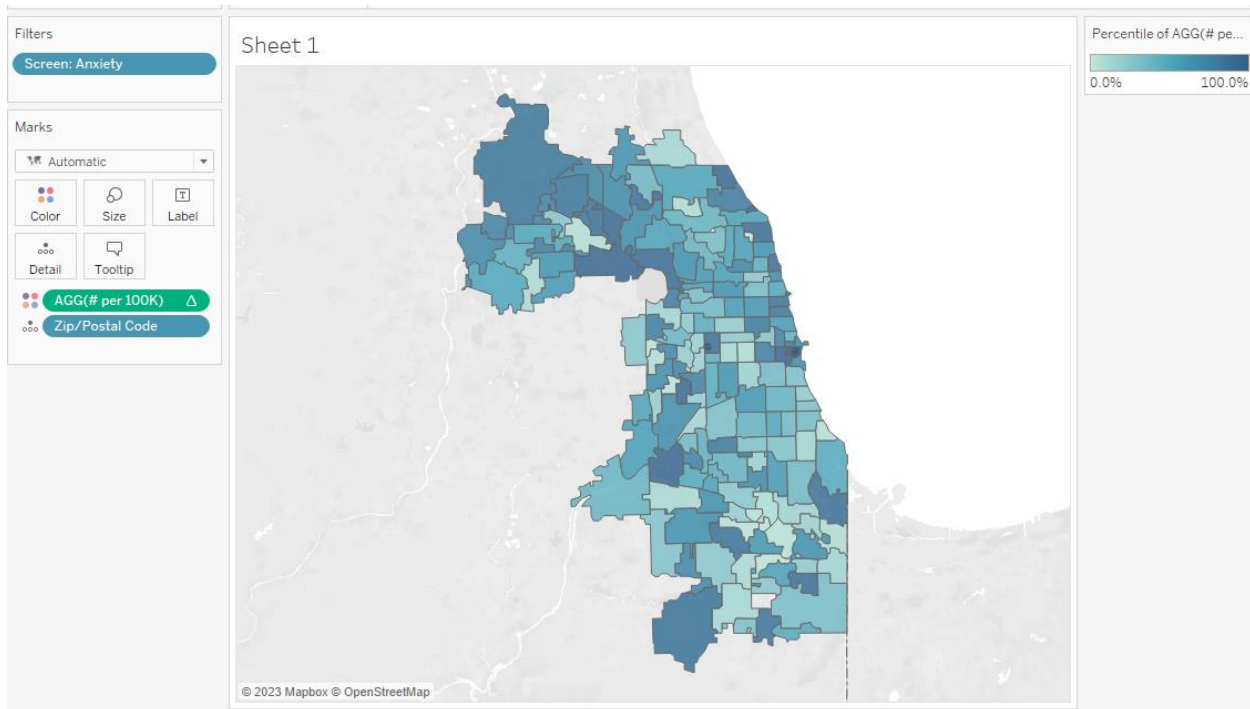
- **Set a filter for screen:** Click the variable “Screen” from the Dimensions section and drag it into the box to the left of the view titled “Filters.” This allows you to filter which screen you want to create the map for. For example, check the box next to “Anxiety” to create a map of anxiety rates by zip code. Click “OK.” You will now only be viewing results from the anxiety screen.



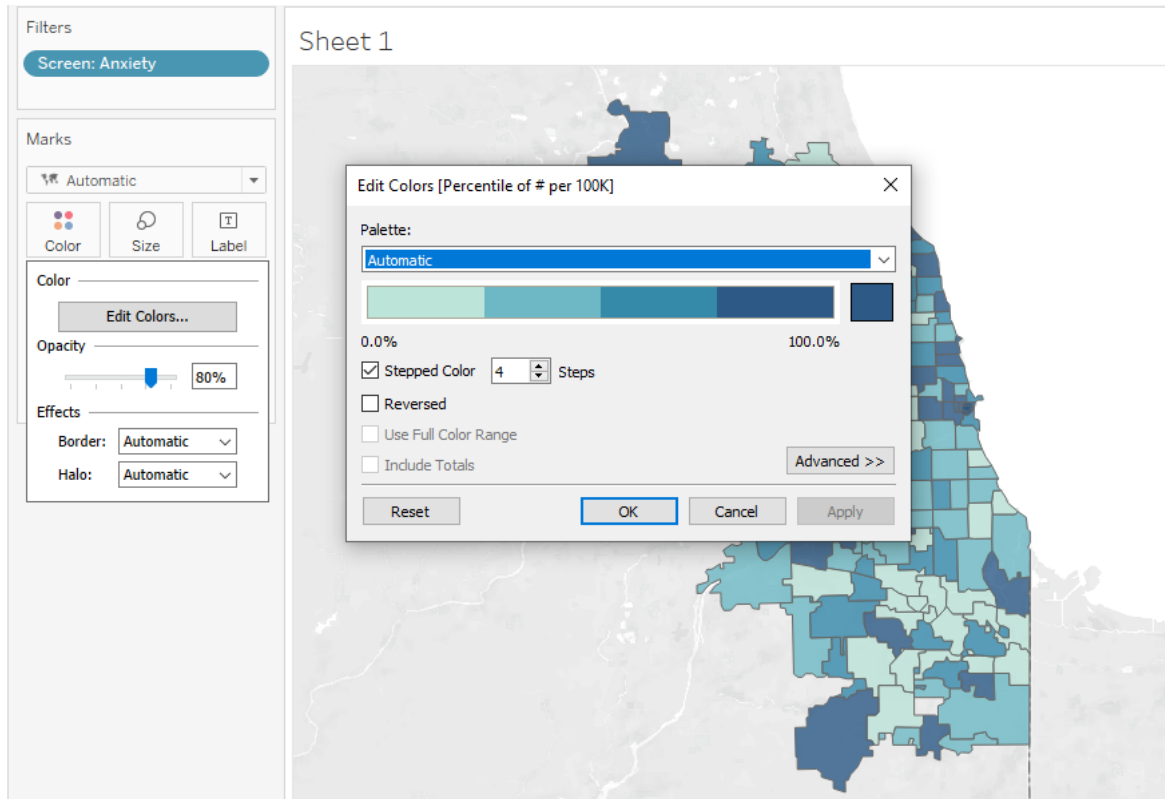
- Map your calculated field (# per 100K):** Click the “# per 100K” calculated field you created from your Measure Values section on the left and drag it to the box labeled “Color” in the “Marks” box. This will assign a color to each zip code based on the # per 100K calculation. Usually most zip codes will appear as the same color at this stage because it is mapping the raw rate per 100K, which often has a very extensive range based on the differences in population between zip codes.



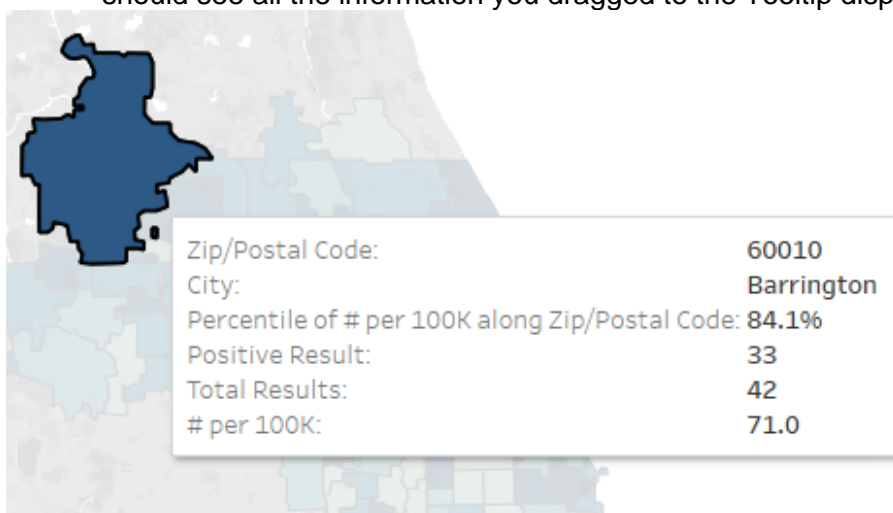
- Change color to map by percentile:** Rather than viewing the map colored by the raw “# per 100K,” we want to color code the zip codes based on how they compare to one another, which we can do by transforming them into percentiles. Right click the green bar in your Marks card that says “AGG(# per 100K).” Select “Quick Table Calculation” and “Percentile.” You should now see the color-coding change to include more of a range of colors.



- Separate color-coding into quartiles:** You will see from the legend to the right of your map that the color code automatically displays as a gradient rather than distinct categories. It can be difficult to decipher which zip codes are darker than others when colors are displayed in a gradient. It is often more useful to view zip codes colored in distinct categories (like quartiles for example), rather than a continuous gradient from 0 to 100%. To change the color code, click on the box labeled "Color" in the Marks box. Click "Edit Colors." In the box that appears, check "Stepped Color" and change the value to 4 steps. Click "OK." Now your data will be color coded by quartile.
  - NOTE:** Under "Palette," you can choose what you would like your color palette to be. If you want to change to a custom color, click the square to the right of the color palette. This will open the option to "Select color."

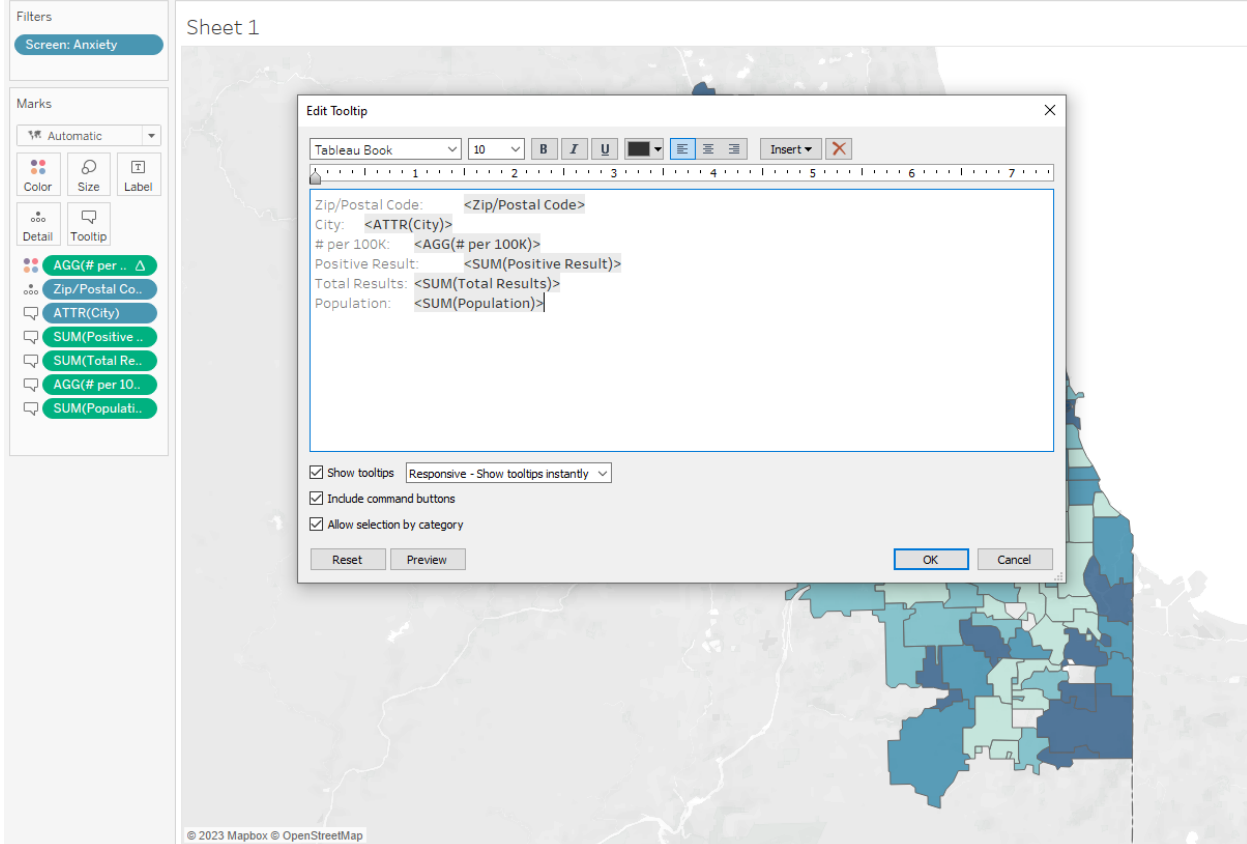


- Adding to your Tooltip:** When you hover over each zip code, you will see the Zip/Postal Code and the Percentile of # per 100K displayed. The box that appears when you hover over zip code areas is called the Tooltip. If you would like to add information to this display, click and drag variables from the list on the left side to the “Tooltip” box in the Marks section. For the Cook County dashboard for example, we included City from the top Dimensions section, and Positive Result, Total Result, Population, and # per 100K from the bottom Measure Values section. When you hover over each zip code, you should see all the information you dragged to the Tooltip displayed.

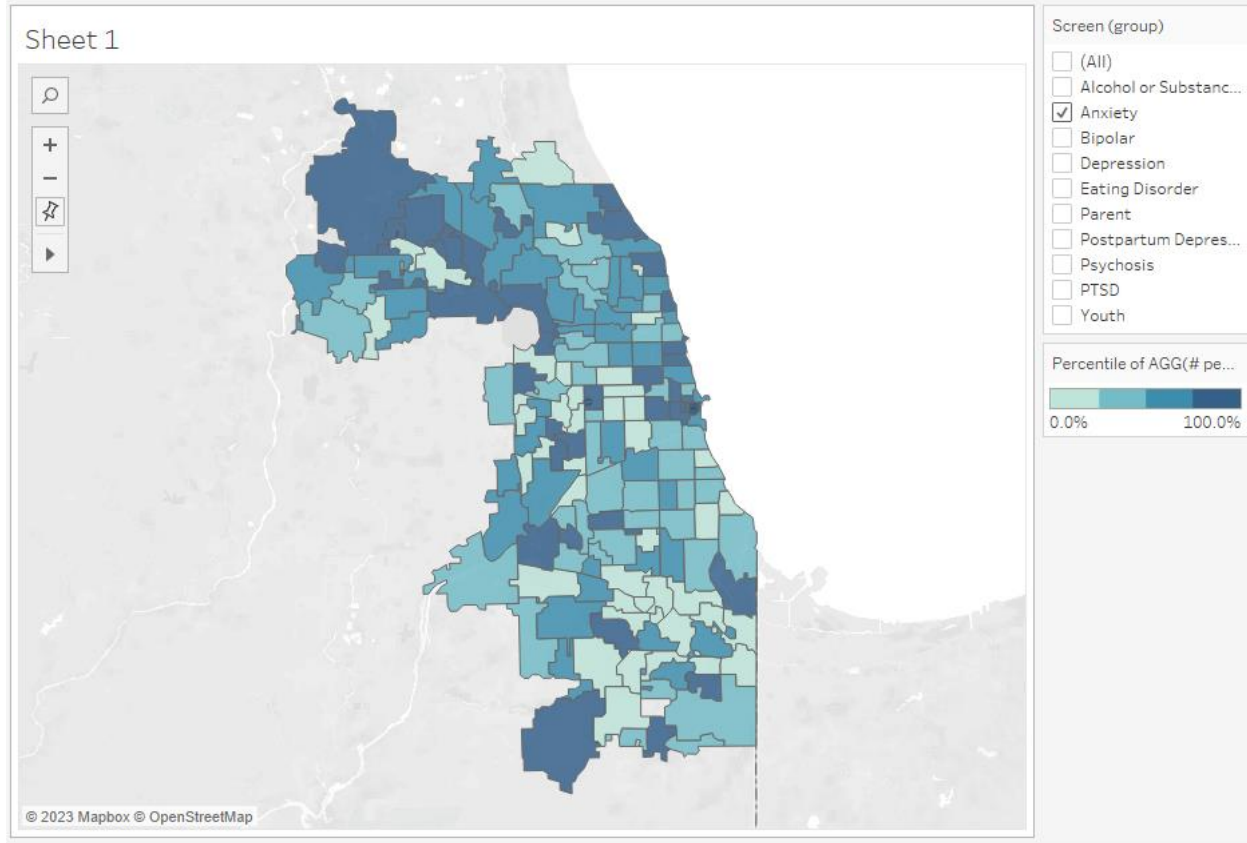


- Editing your Tooltip:** If you’d like to edit the information displayed in the Tooltip, click the box labeled “Tooltip” in the Marks section. This will open an “Edit Tooltip” box. Here

you can change fonts, change the order of displayed elements, and remove elements that you do not want shown in the view. When you're done editing, click "OK."

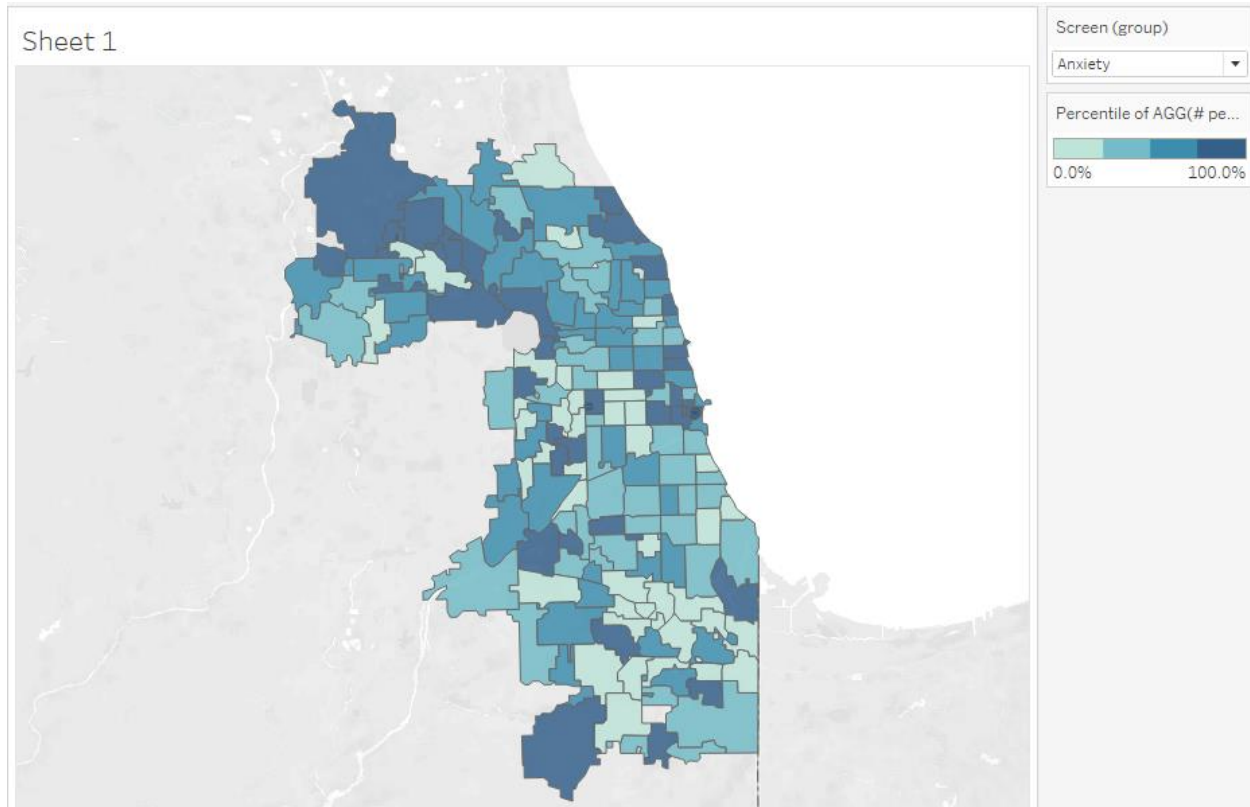


- **Add an option to view your screen filter:** To map results from other screens, right click the blue bar labeled "Screen" in the Filters box. Select "Show Filter." The filter will automatically appear as a series of check boxes to the right of your map.



- Reformat this filter to a dropdown menu:** To ensure you are not double counting individuals, you will only want to view the map for one screen at a time. To make the filter as easy to use as possible, click the down arrow in the top right of the filter and select “Single value dropdown.” Click the down arrow again, and select “Customize” and “Show ‘All’ Value.” This will only allow you to select one screen to view at a time. If you select another screen from the drop down, you should see your map change to display your zip codes color coded based on the positive rate of that screen per 100,000 people.





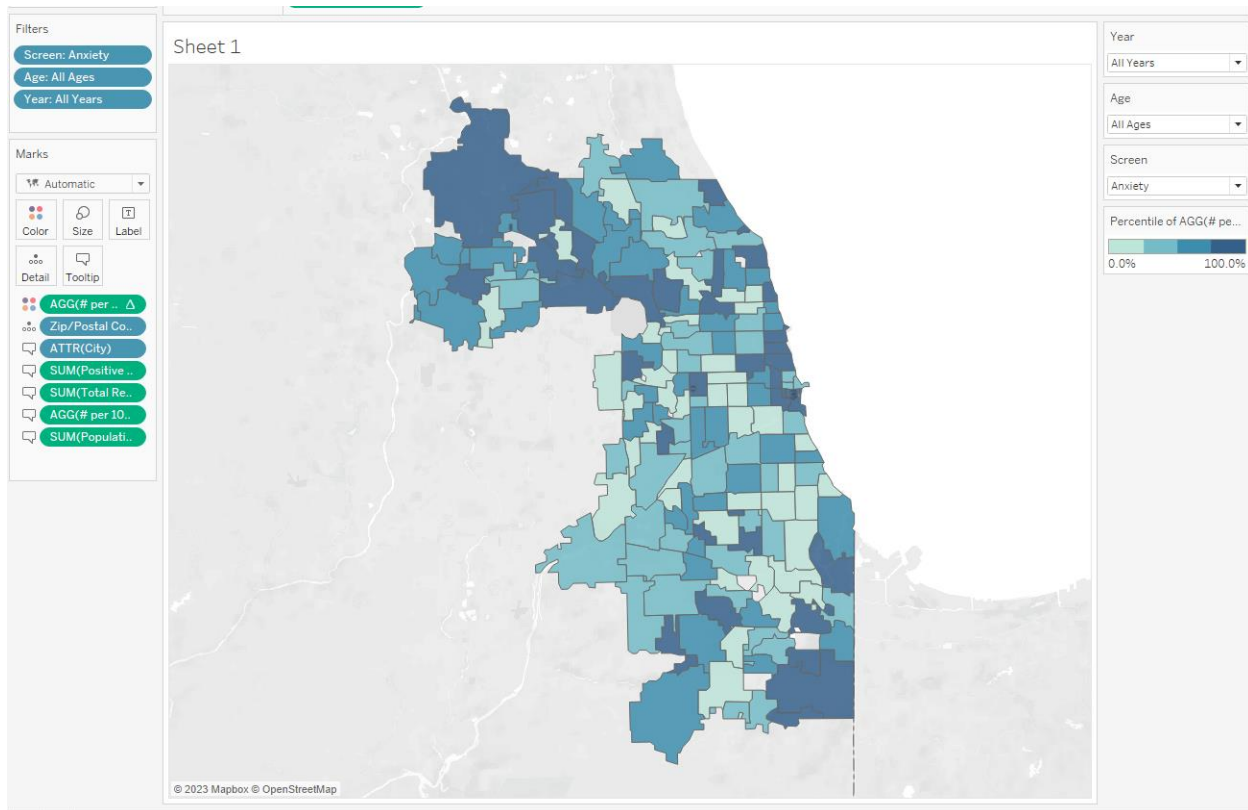
- Add Age Filter:** The output data from your Tableau Prep Flow has three options under “Age”: Adults (Over 18), Youth (Under 18), and All Ages. All Ages is a summary measure that totals the screening results from adults and youth. Without a filter for age, Tableau is displaying the sum of positive results for each zip code for adults, youth, and all ages. You must add an age filter to your view to ensure that only one of these age options is displaying at a time (otherwise you will be double counting results). Click the variable “Age” from the Dimensions section and drag it into the box to the left of the view titled “Filters.” Check the box next to “All Ages” and click “OK.” You will now only be viewing results of the anxiety screen from screeners of all ages within each ZIP code.

**NOTE:** If you’d like to change the name of any of the options in your dropdown filters, right click on the variable (under the Dimensions section) and select “Aliases.” Under “Value (Alias),” you can click on any of the options and rename them. This will not change your underlying data, just how the option is displayed. For example, under “Age,” in MHA National’s dashboard, we have changed the label “Null” to “No Age Information Provided.”

- Show Age filter:** Right click on the blue box titled “Age: All Ages” under “Filters.” Select “Show Filter.” The filter will automatically appear as a series of check boxes to the right of your map. To make the filter as easy to use as possible, click the down arrow in the top right of the filter and select “Single value dropdown.” Click the down arrow again, and select “Customize” and “Show ‘All’ Value.” This will only allow you to select one age option at a time. With that dropdown filter, you will be able to toggle between screening results for adults, youth, and across all ages.


- Add Year Filter:** The output data from your Tableau Prep Flow has five options under “Year”: 2020, 2021, 2022, 2023, and All Years. All Years is a summary measure that totals the screening results from each year of data. Without a filter for age, Tableau is displaying the sum of positive results for each zip code for each year and for all years. You must add a year filter to your view to ensure that only one of these options is displaying at a time (otherwise you will be double counting results). Click the variable “Year” from the Dimensions section and drag it into the box to the left of the view titled “Filters.” Check the box next to “All Years” and click “OK.” You will now only be viewing results of the anxiety screen from screeners of all ages across all years within each ZIP code.
- Show Year filter:** Right click on the blue box titled “Year: All Years” under “Filters.” Select “Show Filter.” The filter will automatically appear as a series of check boxes to the right of your map. To make the filter as easy to use as possible, click the down arrow in the top right of the filter and select “Single value dropdown.” Click the down arrow again and select “Customize” and “Show ‘All’ Value.” This will only allow you to select one year option at a time. With that dropdown filter, you will be able to toggle between screening results for each individual year and all years.

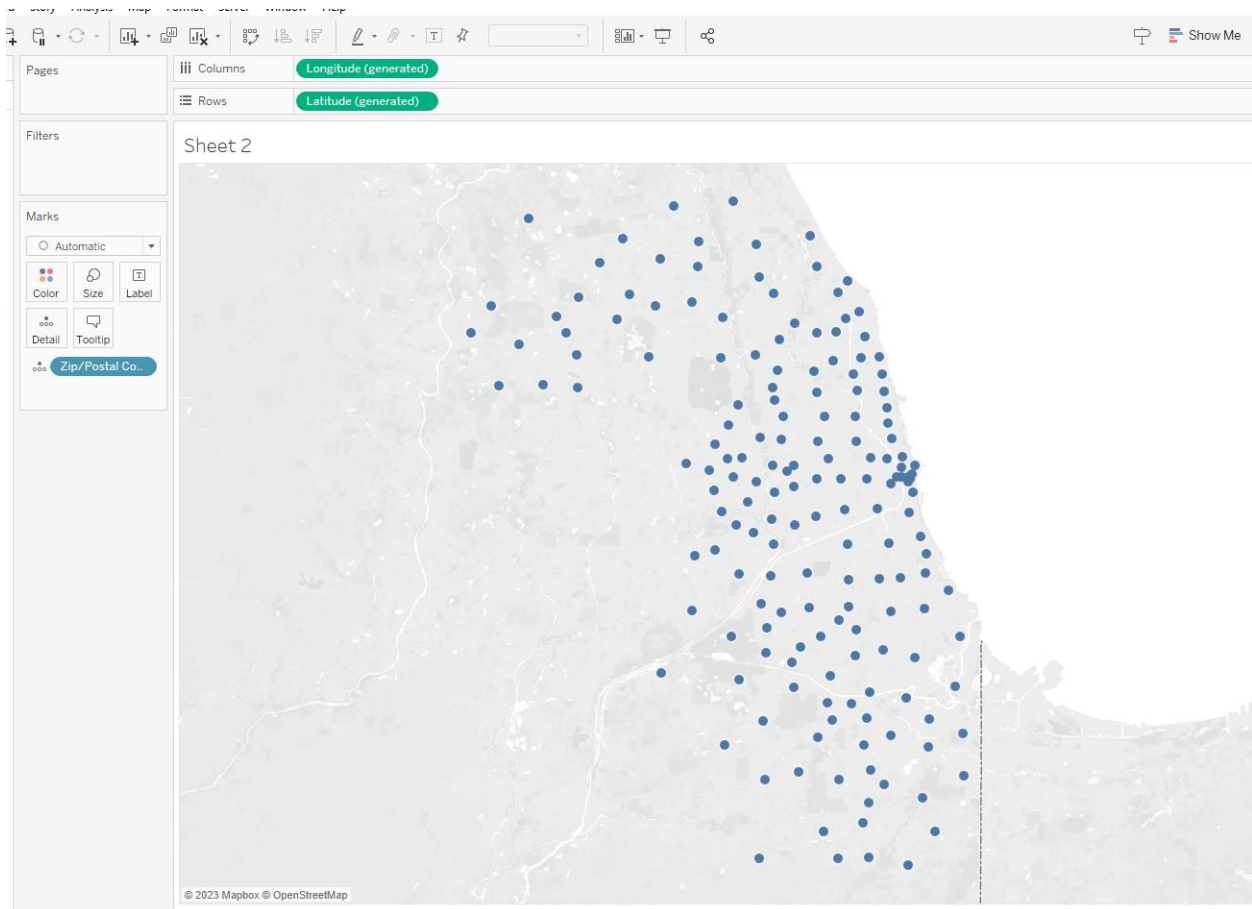
**NOTE:** If you’d like to change the order of the options on your dropdown filters, right click on the variable (under the Dimensions section) and select “Default Properties” and “Sort.” Under “Sort by” select “Manual.” Now you will be able to move your options in whatever order you’d like them to be shown in.



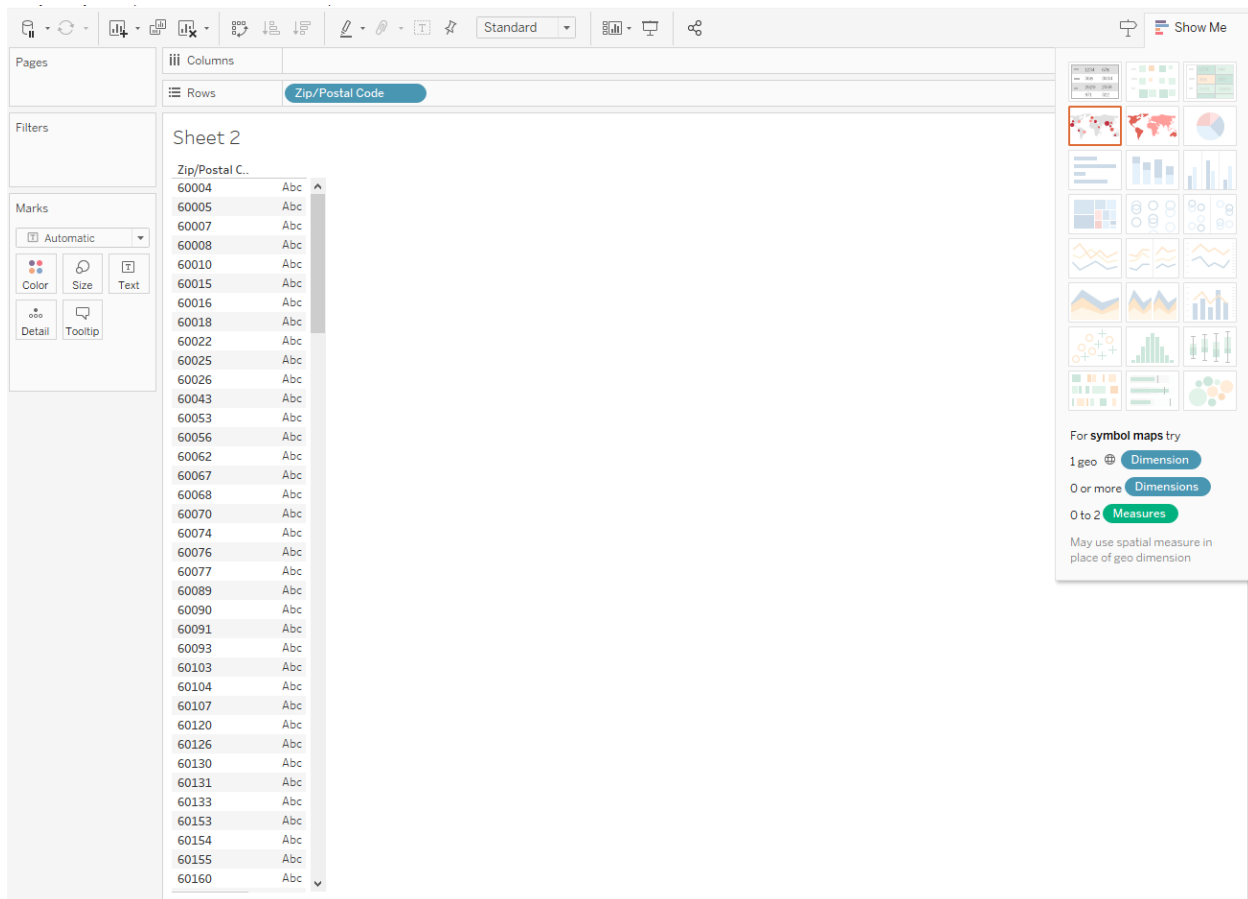
- **Add Population filter:** Sometimes the SimpleMaps file has zip codes listed but does not have a population for them. This means that that zip code exists, but is not a zip code tabulation area (ZCTA) as defined by the Census Bureau. Without a Population value, Tableau is unable to calculate the “# per 100K” indicator. If you see zip codes with blank values for “# per 100K,” you can either search for the population of that zip code on the [Census Bureau Data portal here](#) or create a Population filter to exclude zip codes that did not have a population listed. To create a population filter, click the variable “Population” from the Measures section and drag it into the box to the left of the view titled “Filters.” Click “Sum” and click “Next.” Click the box labeled “At least” and then change the minimum value from 0 to 1. Click OK.
- **Change your map background:** If you’d like to change the background of your map (from the light gray and white background), select Map in the top toolbar and hover over “Background Maps.” There are several options of map backgrounds for you to choose. MHA National uses the “Normal” map background in each of our dashboards.
- **Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 1 at the bottom of your screen. For example, you can name this worksheet “# per 100K Map.”

### Step 3: Creating a Data Table View

- Click this icon  to the right of the “Sheet 1” tab at the bottom of your screen. This will create a new worksheet.
- **Add ZIP/Postal Code into the view:** Click the “ZIP/Postal Code” variable under the Dimensions section and drag it into the center of the view. Tableau will automatically plot those ZIP codes on a map.



- Change the view from a map to a table:** Click the button at the top right of the view labeled “Show Me.” You will see a table as the first option under the options that appear. Click the Table icon. Your ZIP codes will now be displayed in a single column.



- Add a column for City to your table.** Click the variable “City” from the Dimensions section on the left of your screen and drag it next to the blue pill labeled “ZIP/Postal Code” in the Rows section. The city name for each ZIP code will appear in a column to the right in your table.

**NOTE:** You can click and drag these blue pills to rearrange them if you’d prefer your variables to appear in a different order. You can also click and drag pills to switch them between rows and columns in your table.

- Add “# per 100K” to your table:** Click and drag the variable “# per 100K” from the Measures section on the left to your table. Drop it where you see the column labeled “Abc.”

Pages

Columns

Rows

Zip/Postal Code City

Filters

Sheet 2

Zip/Postal C.. City

Zip/Postal C..	City	
60004	Arlington Heights	3,288
60005	Arlington Heights	3,325
60007	Elk Grove Village	5,295
60008	Rolling Meadows	2,466
60010	Barrington	3,556
60015	Deerfield	2,822
60016	Des Plaines	2,523
60018	Des Plaines	3,364
60022	Glencoe	2,577
60025	Glenview	2,744
60026	Glenview	1,288
60043	Kenilworth	784
60053	Morton Grove	2,656
60056	Mount Prospect	2,973
60062	Northbrook	3,263
60067	Palatine	3,146
60068	Park Ridge	2,955
60070	Prospect Heights	2,066
60074	Palatine	3,290
60076	Skokie	2,994
60077	Skokie	3,294
60089	Buffalo Grove	3,087
60090	Wheeling	2,298
60091	Wilmette	3,305
60093	Winnetka	3,317
60103	Bartlett	3,221
60104	Bellwood	1,938
60107	Streamwood	3,662
60120	Elgin	3,383
60126	Elmhurst	2,532
60130	Forest Park	1,483
60131	Franklin Park	2,808
60133	Hanover Park	3,050
60153	Maywood	1,813
60154	Westchester	2,685
60155	Broadview	1,761
60160	Melrose Park	2,321

Marks

Automatic

Color Size Text

Detail Tooltip

AGG(# per 10..)

- Add Positive Results to your table:** In MHA National's public facing dashboards, we have included both the number of people scoring at risk per 100K ("# per 100K") and the raw number of people who scored at risk on the screen ("Positive Result"). This allows people to understand both the rate of risk in comparison to the population and the sample size of each ZIP code. To add "Positive Result" to your table, click "Positive Result" in the Measures section and drag it on to the # per 100K column. Now you will see "AGG(# per 100K)" and "SUM(Positive Result)" appear in a new box titled "Measure Values." If you'd like to add additional Measures to your table, you can drag and drop them into that "Measure Values" box.

Pages

---

Filters

Measure Names

---

Marks

Automatic

Color Size Text

Detail Tooltip

Measure Values

AGG(# per 100K)

SUM(Positive Result)

Columns: Measure Names

Rows: Zip/Postal Code City

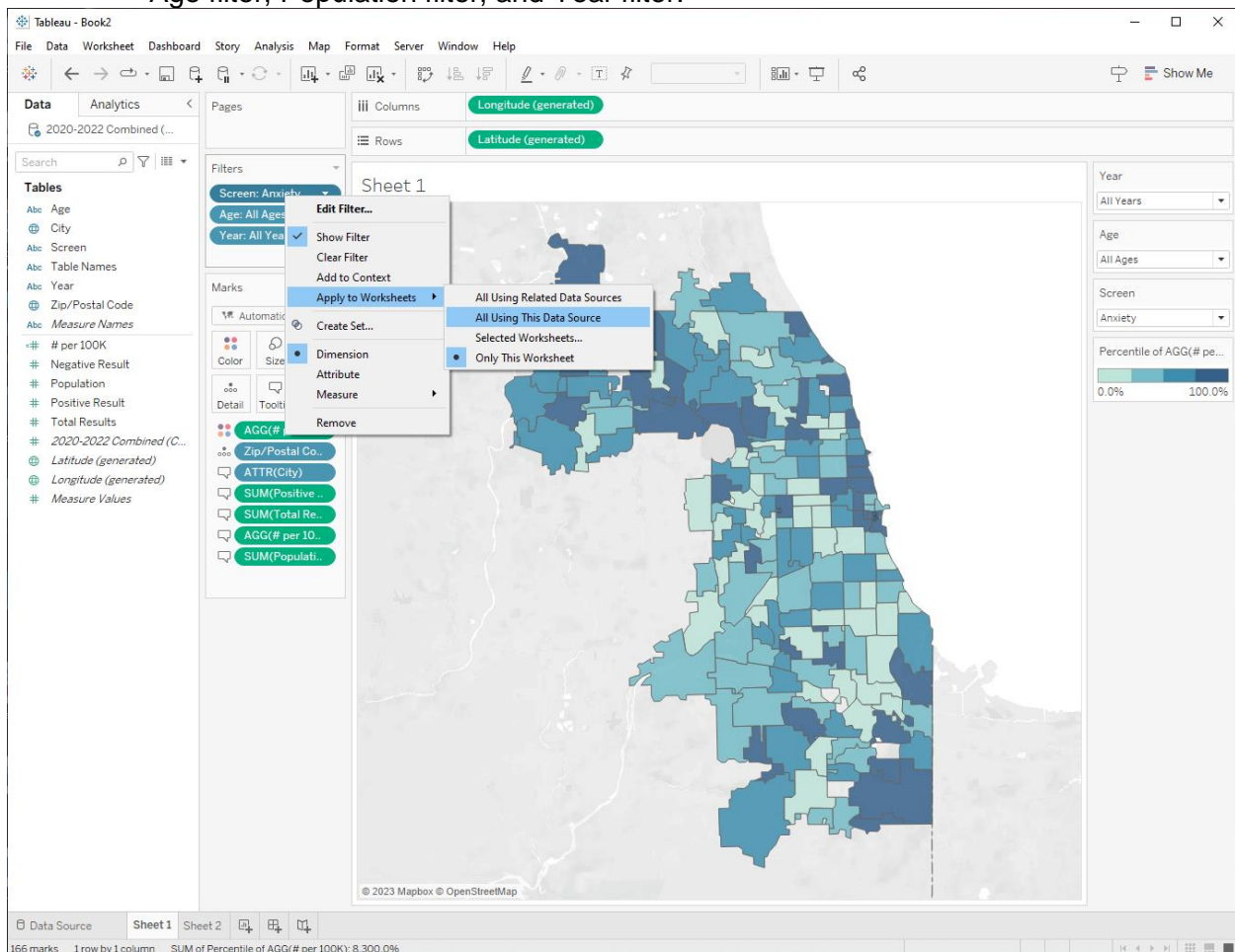
### Sheet 2

Zip/Postal C..	City	# per 1..	Positiv..
60004	Arlington Heights	3,288	1,721
60005	Arlington Heights	3,325	985
60007	Elk Grove Village	5,295	1,750
60008	Rolling Meadows	2,466	572
60010	Barrington	3,556	1,676
60015	Deerfield	2,822	781
60016	Des Plaines	2,523	1,568
60018	Des Plaines	3,364	981
60022	Glencoe	2,577	220
60025	Glenview	2,744	1,158
60026	Glenview	1,288	183
60043	Kenilworth	784	19
60053	Morton Grove	2,656	664
60056	Mount Prospect	2,973	1,692
60062	Northbrook	3,263	1,368
60067	Palatine	3,146	1,227
60068	Park Ridge	2,955	1,168
60070	Prospect Heights	2,066	328
60074	Palatine	3,290	1,239
60076	Skokie	2,994	1,001
60077	Skokie	3,294	963
60089	Buffalo Grove	3,087	1,327
60090	Wheeling	2,298	897
60091	Wilmette	3,305	917
60093	Winnetka	3,317	676
60103	Bartlett	3,221	1,363
60104	Bellwood	1,938	364
60107	Streamwood	3,662	1,453
60120	Elgin	3,383	1,726
60126	Elmhurst	2,532	1,211
60130	Forest Park	1,483	212
60131	Franklin Park	2,808	517
60133	Hanover Park	3,050	1,145
60153	Maywood	1,813	427
60154	Westchester	2,685	452
60155	Broadview	1,761	141
60160	Melrose Park	2,321	590

- Apply the Screen, Age, Population, and Year filters to this sheet:** Each of these worksheets you are creating will be displayed together to create your public-facing dashboard. To make your dashboard as easy to use as possible, we recommend having one filter displayed on your dashboard that controls all worksheets. For example, on the Cook County public dashboard, there is one dropdown filter for



Screen and one dropdown filter for Age. If you use either of these filters the data in both the map and table change. This is simpler than having a Screen and Age filter for the map, and a Screen and Age filter for the table. We now need to tell Tableau that the Screen, Age, Population and Year filters we created for Sheet 1 (the map) also apply to Sheet 2 (the table). To do so, go to Sheet 1, and right click on the blue pill labeled “Screen: Anxiety” in the Filters box. Select “Apply to Worksheets” and “All Using this Datasource.” This tells Tableau to apply this filter to all worksheets created within this workbook using this same set of data. Follow the same process for the Age filter, Population filter, and Year filter.



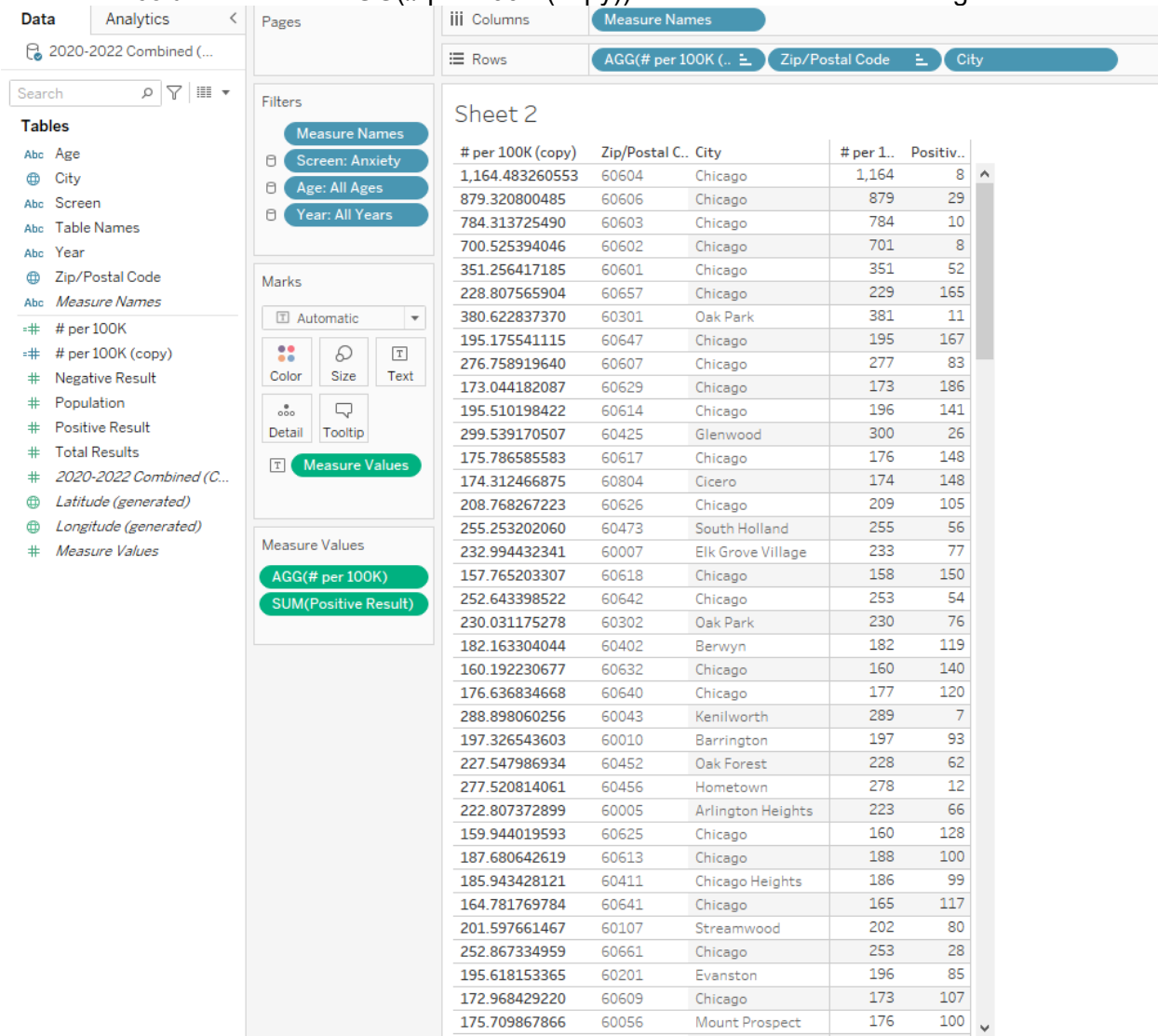
- **Create a dummy variable to sort your data:** You may notice that your table is sorted by ZIP code (from lowest number to highest number) not from the highest “# per 100K” to the lowest “# per 100K.” Usually, to re-sort your data, you can click the



sort icon above the columns bar. If you click that icon, you will notice the table sort ZIP codes from those with the largest # per 100K to the smallest # per 100K. However, if you navigate back to Sheet 1 and change one of the filters (for example, select 2021 as the Year of data as opposed to All Years) and go back to your table, you will see it is no longer sorted from largest to smallest. Tableau is better at automatically sorting discrete variables or Dimensions (like ZIP/Postal Code) than it is at sorting calculated, continuous variables or Measures (like # per 100K). To ensure that the table correctly sorts every time a filter is changed, you must create a



discrete dummy variable of “# per 100K.” Right click on “# per 100K” in your Measures column and select “Duplicate.” Now you will see another Measure labeled “# per 100K (copy).” Right click on that Measure and select “Convert to Discrete.” You will now see the =# symbol next to the Measure name turn blue (like a Dimension) rather than green. Click and drag “# per 100K (copy)” to the Rows column and drop it in front of ZIP/Postal Code. Right click on the dummy variable column labeled “AGG(# per 100K (copy))” and click “Sort descending.”



# per 100K (copy)	Zip/Postal C.	City	# per 100K	Positiv..
1,164.483260553	60604	Chicago	1,164	8
879.320800485	60606	Chicago	879	29
784.313725490	60603	Chicago	784	10
700.525394046	60602	Chicago	701	8
351.256417185	60601	Chicago	351	52
228.807565904	60657	Chicago	229	165
380.622837370	60301	Oak Park	381	11
195.175541115	60647	Chicago	195	167
276.758919640	60607	Chicago	277	83
173.044182087	60629	Chicago	173	186
195.510198422	60614	Chicago	196	141
299.539170507	60425	Glenwood	300	26
175.786585583	60617	Chicago	176	148
174.312466875	60804	Cicero	174	148
208.768267223	60626	Chicago	209	105
255.253202060	60473	South Holland	255	56
232.994432341	60007	Elk Grove Village	233	77
157.765203307	60618	Chicago	158	150
252.643398522	60642	Chicago	253	54
230.031175278	60302	Oak Park	230	76
182.163304044	60402	Berwyn	182	119
160.192230677	60632	Chicago	160	140
176.636834668	60640	Chicago	177	120
288.898060256	60043	Kenilworth	289	7
197.326543603	60010	Barrington	197	93
227.547986934	60452	Oak Forest	228	62
277.520814061	60456	Hometown	278	12
222.807372899	60005	Arlington Heights	223	66
159.944019593	60625	Chicago	160	128
187.680642619	60613	Chicago	188	100
185.943428121	60411	Chicago Heights	186	99
164.781769784	60641	Chicago	165	117
201.597661467	60107	Streamwood	202	80
252.867334959	60661	Chicago	253	28
195.618153365	60201	Evanston	196	85
172.968429220	60609	Chicago	173	107
175.709867866	60056	Mount Prospect	176	100

- Hide your dummy variable:** Now Tableau will always sort your data from the largest “# per 100K” to smallest “# per 100K,” even when the filters are changed. However, you need to hide the dummy variable from view. Right click on the blue pill “AGG(# per 100K (copy))” in the Rows bar. You will see there are checks next to “Show Header” and “Include in Tooltip.” Click on “Show Header” to remove the check. You will now see the dummy variable disappear from your table. Remember that your Tooltip is what a user sees if they hover over your data in the view. If you hover over one of the entries for # per 100K in the table, for example, you will see City, ZIP/Postal Code, # per 100K (copy), and # per 100K. Right click on the blue pill “AGG(# per 100K (copy))” in the Rows bar and click on “Include in Tooltip” to remove

- the check. Now you will no longer see # per 100K (copy) when you hover over the values in the table.
- **Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 2 at the bottom of your screen. For example, you can name this worksheet “# per 100K Table.”

Step 4: Creating Interactive Titles for your Dashboard

- On the Cook County public facing dashboard, you will see that as you change the filters to view the results of different screens, the titles on the dashboard change. For example, when Anxiety is selected on the screen filter, the title of the dashboard reads:

**Mental Health Risk Assessments A Zip Code Level View of Anxiety in Cook County, IL**

And the Map and Table titles read:

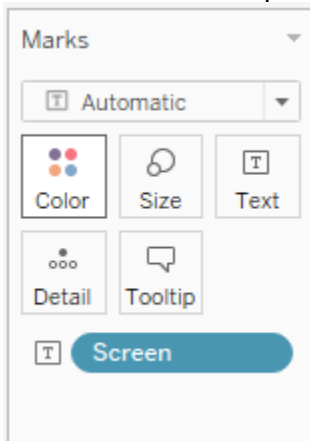
**Anxiety Map**

**Anxiety Table**

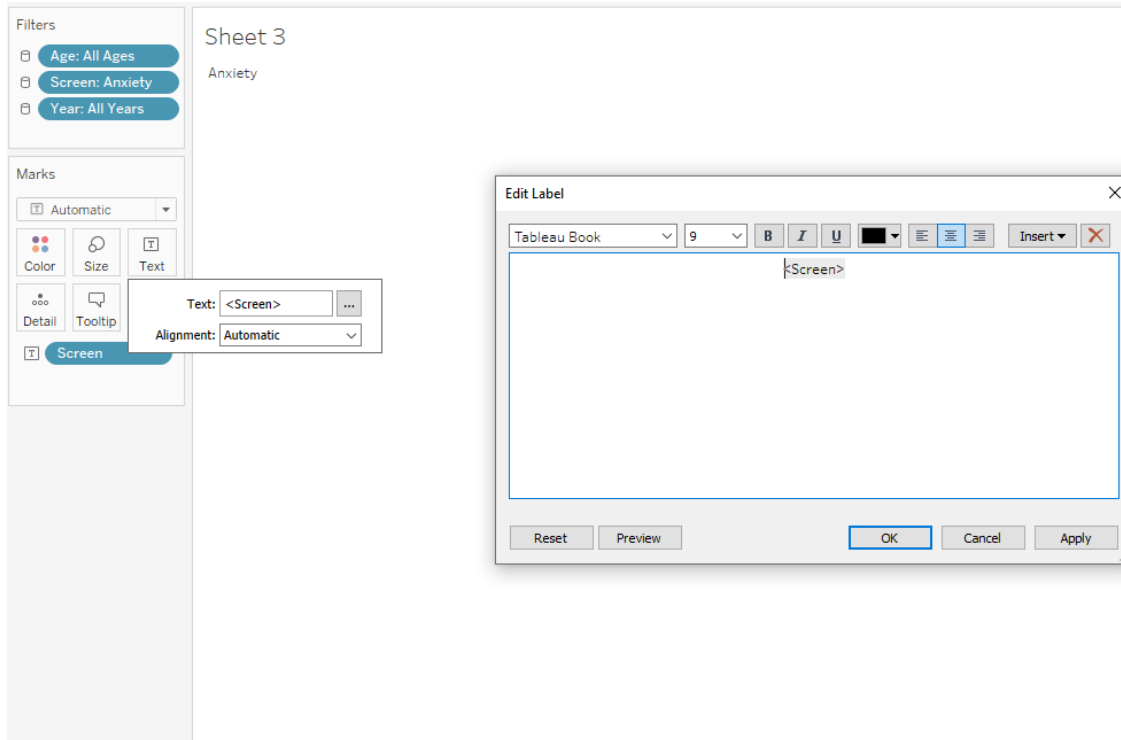
If you select a different screen from the dropdown menu, those titles change to reflect the Screen that is selected. To create interactive titles for your dashboard, add a new Sheet

using the add sheet button  at the bottom of the screen.

- **Add the “Screen” variable to your view:** Click the variable “Screen” under Dimensions and drop it over the box labeled “Text” in the Marks section.




- **Edit the text of your title:** Now you will just see the name of the screen in small black text in your view. To edit this text, click the box labeled “Text” in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box.



- **Type and format your title:** Here you can add what you would like the title of your dashboard to be. However, it is important that you keep that variable <Screen> in the title. That tells Tableau to change that word to whichever Screen is selected at the time. If you'd like, copy and paste the following text as your title:

## Mental Health Risk Assessments A Zip Code Level View of <Screen> in [PLACE]


- **Remove the Tooltip:** Tableau always automatically creates a Tooltip that will appear if someone hovers over your title. Here the Tooltip will say "Screen: Anxiety." To clear that Tooltip, click the Tooltip box in the marks section. This will open a text box. Clear the text from that text box and click OK. Now nothing will appear when someone hovers their mouse over your title.
- **Name your worksheet:** Naming your worksheets as you go will make it easier to create your dashboard. To name a worksheet, double click where it says Sheet 3 at the bottom of your screen. For example, you can name this worksheet "Dashboard Title."
- **Create an interactive map title:** To create an interactive title for your map, add a new

Sheet using the add sheet button  at the bottom of the screen. Again, click the variable "Screen" under Dimensions and drop it over the box labeled "Text" in the Marks section. To edit this text, click the box labeled "Text" in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box. Here you can add what you would like the title of your map to be. If you'd like, copy and paste the following text as your title:

### <Screen> Map

Clear the Tooltip on this sheet using the same steps as above.


- **Name your worksheet:** Double click where it says Sheet 4 at the bottom of your screen. For example, you can name this worksheet “Map Title.”
- **Create an interactive table title:** To create an interactive title for your table, add a new

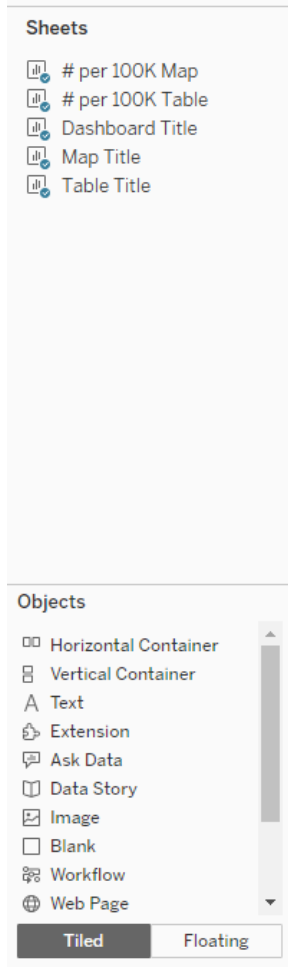
Sheet using the add sheet button  at the bottom of the screen. Again, click the variable “Screen” under Dimensions and drop it over the box labeled “Text” in the Marks section. To edit this text, click the box labeled “Text” in the Marks section, and click the three dots next to Text: <Screen>. This will open a text box. Here you can add what you would like the title of your table to be. If you’d like, copy and paste the following text as your title:

### <Screen> Table

- **Name your worksheet:** Double click where it says Sheet 5 at the bottom of your screen. For example, you can name this worksheet “Table Title.”

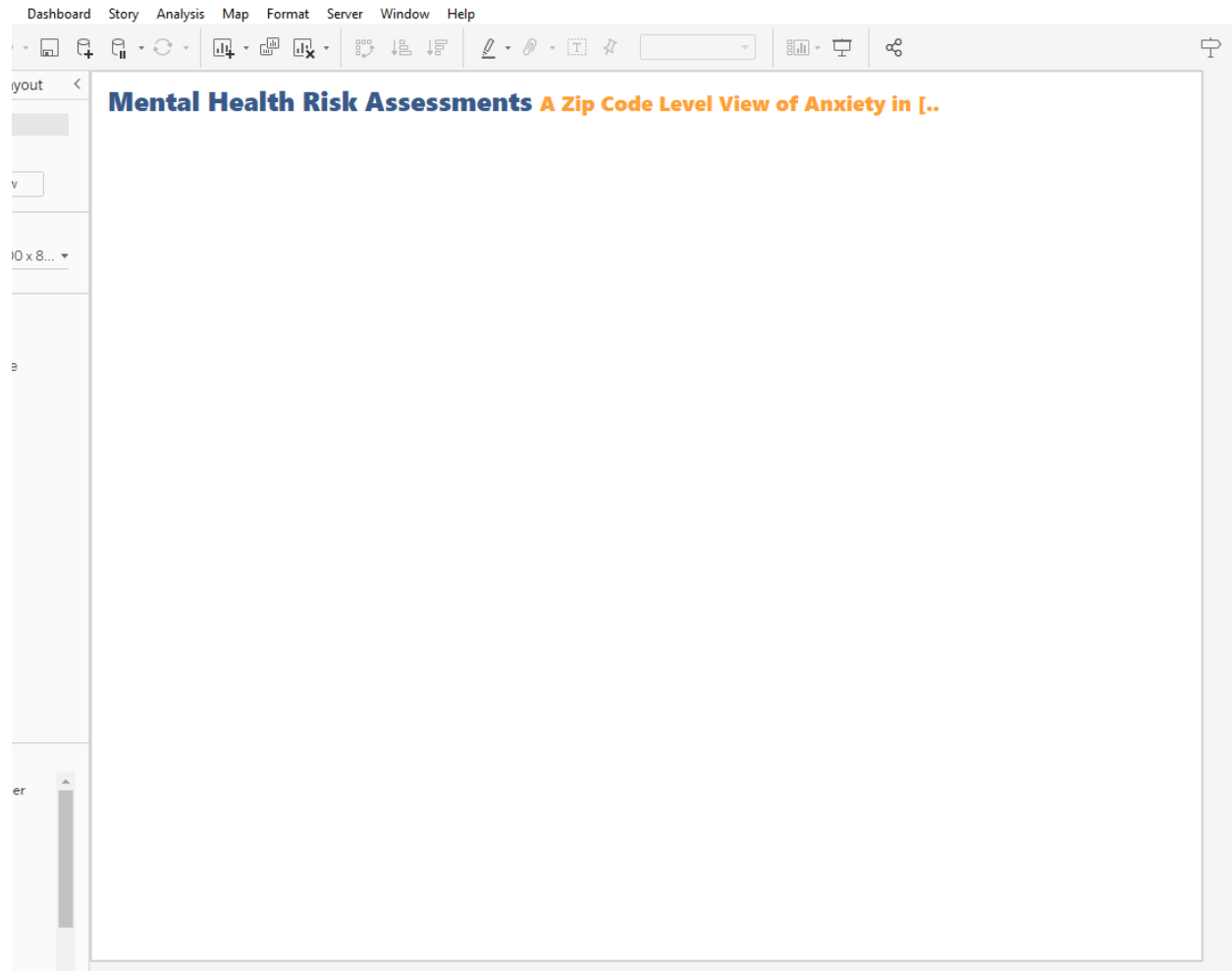
#### Step 5: Assembling Your Dashboard

- Now you are ready to assemble your dashboard. Click the add dashboard button at the bottom of your screen, next to the add sheet button. 
- **Add Sheets to your dashboard:** When you open a new dashboard, you will see a large blank space and a list of your available worksheets in a bar on the left side of your screen. To assemble your worksheets, you click and drag them from the left column to the blank space. First, drag your Dashboard Title sheet to the blank space. You will see that each time you drag a sheet into the view, Tableau will highlight a space in gray where that sheet will go. This is called a “tiled” view. You can see the option for a “tiled” view at the bottom left of your screen under “Objects.” Tableau has pre-set tiles that can make it easy to format your dashboard. The other option is a “floating” view, meaning that you can drag and drop sheets anywhere on the dashboard, with no pre-set formatting. Generally, we start with a tiled view, as it helps ensure a clean design to your dashboard.



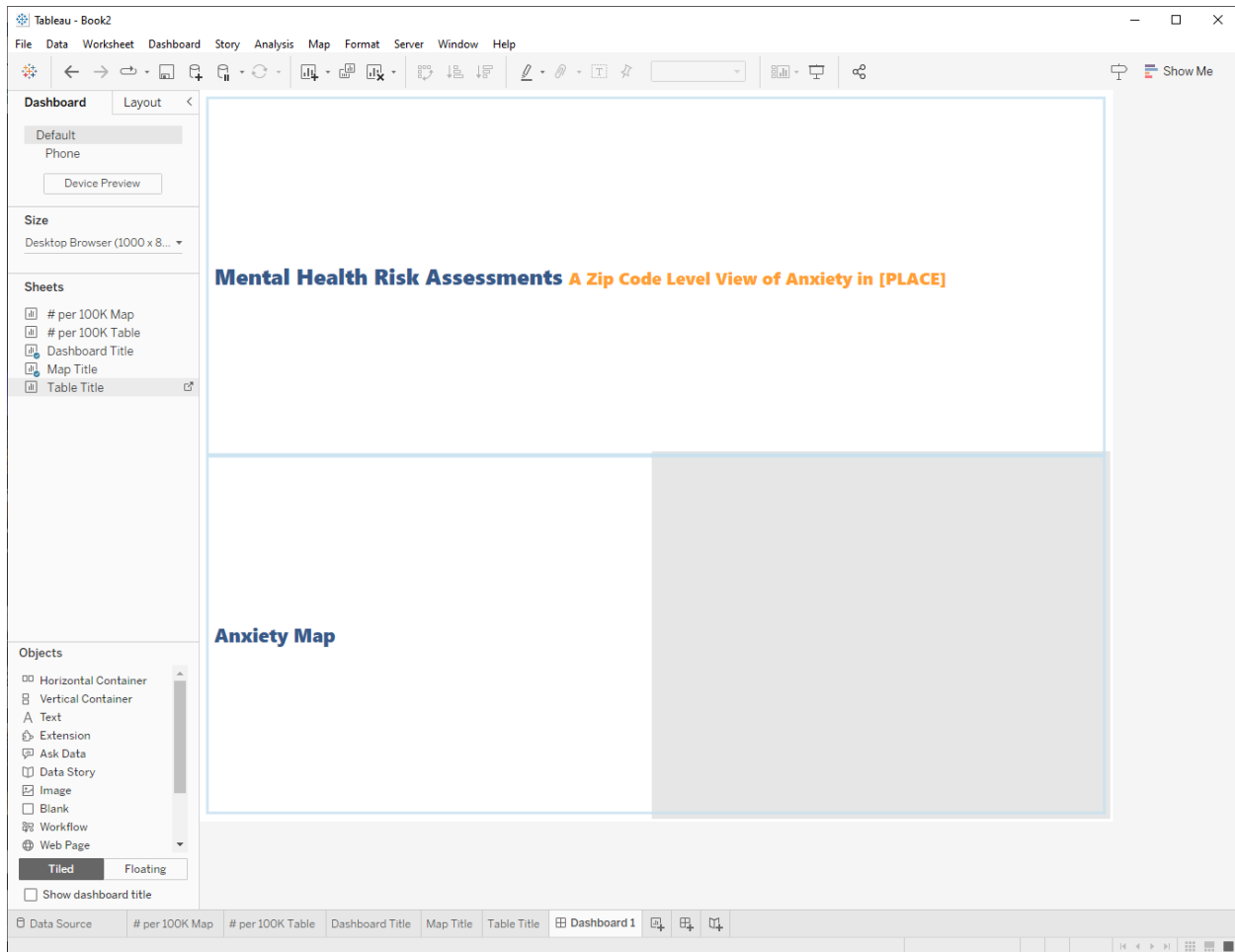
**NOTE: To remove sheets from your dashboard at any time, click on the sheet and click the X that appears in the top right corner.**

- **Hide titles of your Sheets:** Each worksheet has a title that you have assigned. For example, you may see “Dashboard Title” above your title in the blank field. To hide these titles, right click on “Dashboard Title” and select “Hide Title.”
- **Set Sheets to Entire View:** You may also see that your sheets are cut off in the view. For example, Tableau may not be displaying your full title.



In the toolbar at the top of your screen, you should see a dropdown menu labeled “Standard.” Click that dropdown and select “Entire View.” This is telling Tableau to display the entire contents of your worksheet on the dashboard.

- **Add your Map title to the dashboard:** Drag the Map Title to the blank view. You will see Tableau give you an option to drop this view next to the dashboard title or underneath it. Drop the Map Title sheet underneath the dashboard title. Again, right click on “Map Title” and select “Hide Title.” In the toolbar at the top of your screen, click the dropdown labeled “Standard” and select “Entire View.”
- **Add your Table title to the dashboard:** Drag the Table title to the view. Drop the Table Title sheet to the bottom right of the Map Title sheet. Again, right click on “Table Title” and select “Hide Title.” In the toolbar at the top of your screen, click the dropdown labeled “Standard” and select “Entire View.”

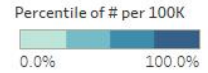


- Add your Map to the dashboard:** Drag the # per 100K Map sheet to the view. Drop the sheet underneath your Map Title. Again, right click on the sheet title and select “Hide Title.” You will also see each of the filters (Year, Age, and Screen) and the color legend appear on the right side of your dashboard.



- **Move your filters to the center of the dashboard:** Click and drag your Screen, Year, and Age filters to place them horizontally between your dashboard title and your map and table titles.

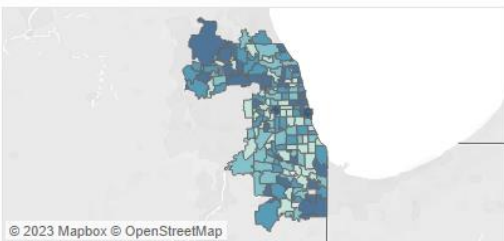




## Mental Health Risk Assessments **A Zip Code Level View of Anxiety in [PLACE]**

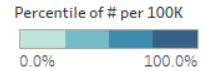
Screen: Anxiety | Year: All Years | Age: All Ages

### Anxiety Map



### Anxiety Table

- Add your Table to the dashboard:** Drag the # per 100K Table sheet to the view. Drop the sheet underneath your Table Title. Again, right click on the sheet title and select “Hide Title.” In the toolbar at the top of your screen, click the dropdown labeled “Standard” and select “Fit Width.” This tells Tableau to fit your Tableau to the width of the box you’ve placed it in.

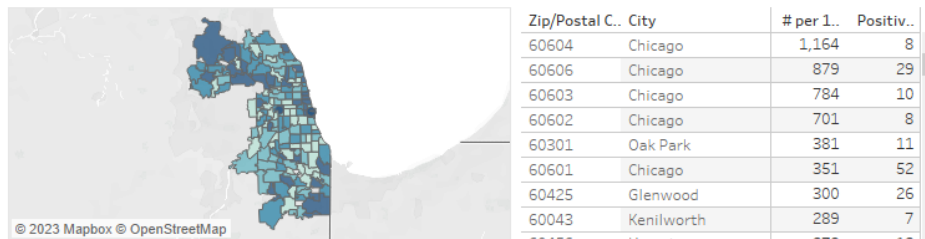


## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Screen: Anxiety | Year: All Years | Age: All Ages

### Anxiety Map

### Anxiety Table

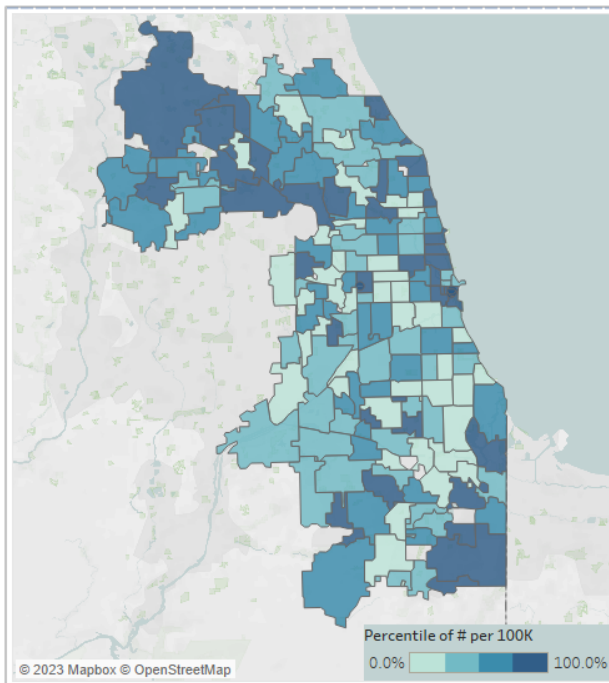


- **Reformatting your Dashboard:** You can adjust the size of each of the sheets on your dashboard by clicking and dragging their borders.
- **Moving your color legend:** You can also move the color legend for the map anywhere on your dashboard. In MHA National’s public facing dashboards, we often overlay the color legend on the map. To do so, you will need to change the color legend from a tiled object to a floating object. Click on your color legend and select the down arrow that appears in the bottom right corner. Select “Floating.” Now you can move the color legend anywhere on your dashboard. If you’d like to fill in the background of your legend or change the font, click the arrow and select “Format.” If you would like to change how the color legend is labeled, double click on the label and a text box will appear where you can change the title.

## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Screen:  Year:  Age:

### Anxiety Map



### Anxiety Table

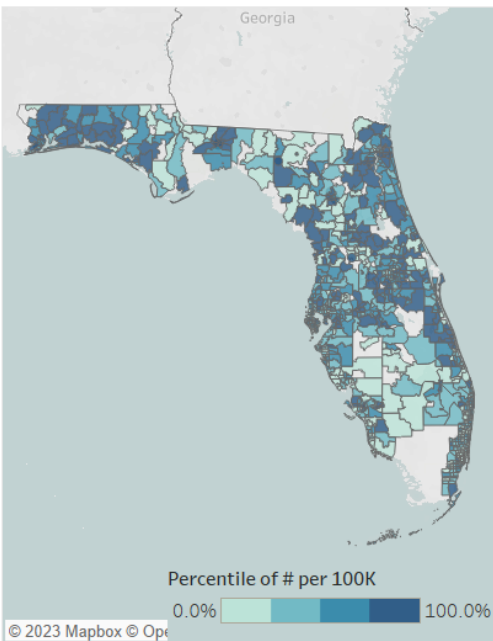
Zip/Postal C.	City	# per 100K	Positive Result
60604	Chicago	1,164	8
60606	Chicago	879	29
60603	Chicago	784	10
60602	Chicago	701	8
60301	Oak Park	381	11
60601	Chicago	351	52
60425	Glenwood	300	26
60043	Kenilworth	289	7
60456	Hometown	278	12
60607	Chicago	277	83
60473	South Holland	255	56
60661	Chicago	253	28
60642	Chicago	253	54
60633	Chicago	237	30
60022	Glencoe	234	20
60007	Elk Grove Village	233	77
60513	Brookfield	230	45
60302	Oak Park	230	76
60475	Steger	230	23
60657	Chicago	229	165
60452	Oak Forest	228	62
60005	Arlington Heights	223	66
60626	Chicago	209	105
60415	Chicago Ridge	208	30
60173	Schaumburg	207	29
60605	Chicago	206	66

- Delete the box your filters were in:** Even when you move your filters, sometimes Tableau will keep a blank column to the right of your dashboard. To delete this blank box, select it and click the X in the top right corner. Now your sheets should fill in the entire dashboard.

## Mental Health Risk Assessments **A Zip Code Level View of Anxiety in Florida**

Screen: Anxiety | Year: All Y... | Age: All A...

### Anxiety Map



### Anxiety Table

Zip/Post..	City	# per 1..	Positiv..
32013	Day	13,636	9
32616	Alachua	4,027	6
33438	Canal Point	1,392	6
33521	Coleman	1,007	6
32304	Tallahassee	940	431
33122	Miami	903	16
32511	Pensacola	851	11
32306	Tallahassee	712	13
32709	Christmas	611	8
33621	Tampa	539	14
33620	Tampa	527	25
32960	Vero Beach	520	120
33965	Fort Myers	514	13
33827	Babson Park	469	13
32301	Tallahassee	447	145
32962	Vero Beach	439	114
32925	Patrick Afb	435	7
32966	Vero Beach	433	82
34773	Saint Cloud	417	17
34747	Kissimmee	416	92
32212	Jacksonville	396	9
32113	Citra	383	19
32187	San Mateo	374	5
32310	Tallahassee	362	51

- **Add instructions for users to your dashboard:** It is important that you add instructions and explanations of what your user is viewing to your dashboard. You can add boxes of text anywhere within your dashboard by double-clicking the “Text” option under “Objects” in the left sidebar. When you double-click “Text,” a text box will appear. In MHA National’s data dashboards, we have included an instructions text box under each title and next to each available filter. For example, under the Dashboard title, we included:

“Use this dashboard to view MHA Screening data from individuals at the zip code level **within Cook County, Illinois in 2020-June 2023**. Use the drop down menus to filter the dashboard.”

Once you click OK, you can drag your text box anywhere on your dashboard.

Under the Map title, we included:

Hover over each zip code to see the number of people scoring at risk for the mental health condition selected above per 100,000 residents within that zip code. **Zip codes are colored by percentile. Darker colors indicate greater risk.**

Under the Table title, we included:

“By default, zip codes are listed in descending order (from zip codes with the highest number of individuals scoring at risk per 100K to lowest). Click on the axis to change the sort order.”

- **Label your filters:** MHA National also includes labels and instructions next to each of the available filters. Numbering these instructions can also guide your users through using your dashboard. For example, for the filters above, you can include three text boxes and arrange them next to their respective filters (as shown in the screenshot below):

1. Select which type of mental health condition to view
2. Select which year of data to view
3. Select which age range to view

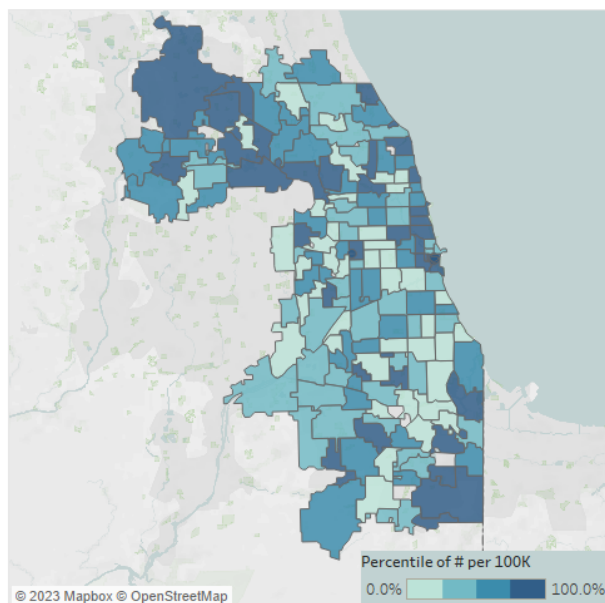
## Mental Health Risk Assessments A Zip Code Level View of Anxiety in [PLACE]

Use this dashboard to view MHA Screening data from individuals at the zip code level **within Cook County, Illinois in 2020-June 2023**. Use the drop down menus to filter the dashboard.

1. Select which type of mental health condition to view  2. Select which year of data to view  3. Select which age range to view

### Anxiety Map

Hover over each zip code to see the number of people scoring at risk for Anxiety per 100,000 residents within that zip code. **Zip codes are colored by percentile. Darker colors indicate greater risk.**



### Anxiety Table

**By default, zip codes are listed in descending order (from zip codes with the highest number of individuals scoring at risk per 100K to lowest).** Click on the axis to change the sort order.

Zip/Postal C.	City	# per 100K	Positive Result
60604	Chicago	1,164	8
60606	Chicago	879	29
60603	Chicago	784	10
60602	Chicago	701	8
60301	Oak Park	381	11
60601	Chicago	351	52
60425	Glenwood	300	26
60043	Kenilworth	289	7
60456	Hometown	278	12
60607	Chicago	277	83
60473	South Holland	255	56
60661	Chicago	253	28
60642	Chicago	253	54
60633	Chicago	237	30
60022	Glencoe	234	20
60007	Elk Grove Village	233	77
60513	Brookfield	230	45
60302	Oak Park	230	76
60475	Steger	230	23
60657	Chicago	229	165
60452	Oak Forest	228	62
60005	Arlington Heights	223	66
60626	Chicago	209	105

**Congratulations! Now you have created your own data mapping dashboard!**

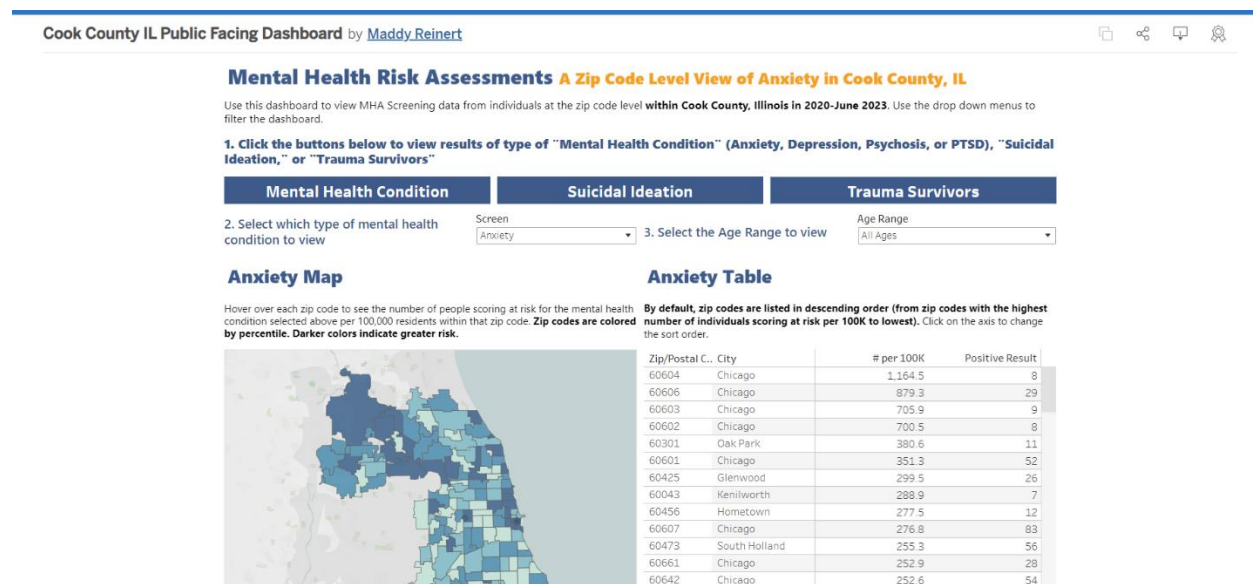
## Publishing Your Dashboard

**Only follow this step if your dashboard is public-facing. Check that there is no identifiable or raw data connected to your dashboard. Once you publish it to Tableau Public, any user can download the data from your dashboard.**

If you would like to make your public-facing dashboard publicly available to post to your website, select “Server” in the top toolbar, then select “Tableau Public,” and “Save to Tableau Public as.” Sign in or create a Tableau account. A box will appear that asks you to name your workbook. Name your workbook and press save.

**NOTE:** You will need to extract your datasets to publish your dashboard publicly. This version of Tableau is unable to host a live connection to your data. To extract your dataset, click the “Data Source” tab in the bottom toolbar. At the top of the screen, you will see “Connection” with two options: Live and Extract. Select “Extract.”

Your dashboard will now automatically open in your internet browser.



**Cook County IL Public Facing Dashboard** by [Maddy Reinert](#)

### Mental Health Risk Assessments A Zip Code Level View of Anxiety in Cook County, IL

Use this dashboard to view MHA Screening data from individuals at the zip code level within Cook County, Illinois in 2020-June 2023. Use the drop down menus to filter the dashboard.

1. Click the buttons below to view results of type of “Mental Health Condition” (Anxiety, Depression, Psychosis, or PTSD), “Suicidal Ideation,” or “Trauma Survivors”

2. Select which type of mental health condition to view

3. Select the Age Range to view


**Anxiety Map**

Hover over each zip code to see the number of people scoring at risk for the mental health condition selected above per 100,000 residents within that zip code. Zip codes are colored by percentile. Darker colors indicate greater risk.

**Anxiety Table**

By default, zip codes are listed in descending order (from zip codes with the highest number of individuals scoring at risk per 100K to lowest). Click on the axis to change the sort order.

Zip/Postal C.	City	# per 100K	Positive Result
60604	Chicago	1,164.5	8
60606	Chicago	879.3	29
60603	Chicago	705.9	9
60602	Chicago	700.5	8
60301	Oak Park	380.6	11
60601	Chicago	351.3	52
60425	Glenwood	299.5	26
60043	Kenilworth	288.9	7
60456	Hometown	277.5	12
60607	Chicago	276.8	83
60473	South Holland	255.3	56
60661	Chicago	252.9	28
60642	Chicago	252.6	54

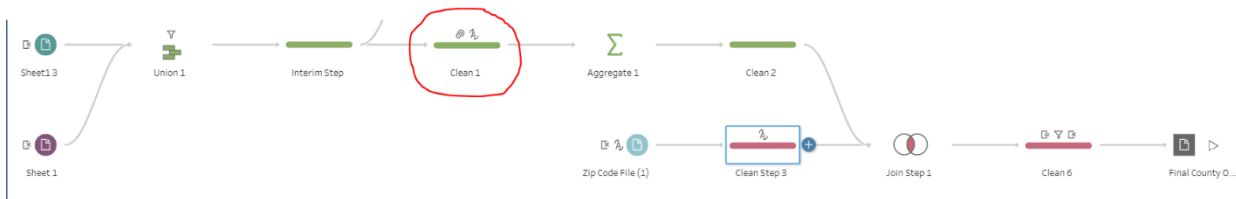
To embed your dashboard into your website, click the Share symbol  in the top right corner. This will open a dialogue box with the website code to embed your dashboard.

If the formatting is off or you notice something wrong with your dashboard, you can edit it directly in Tableau Public by selecting the “Edit” button in the top right corner. 

## Appendix A: Full Private-Facing Prep Flow Description

If you click on each of the steps of your Tableau Prep Flow, there are changes listed to the left of your data. This section walks through each of the cleaning steps in the flow and what changes occur on each one.

### 1. Clean Step 1:



- Reformats the variable “Zip/Postal Code” to a geographic variable.** When you load in your data, the variable titled “Zip/Postal Code” is often recognized as a number, not a zip code. In the ZIP/Postal code box, under “Data Role,” we have selected “Geographic,” then “ZIP Code/Postcode.” This reformats any zip codes that were written incorrectly (for example, where leading zeros may have been cut off, or any words that were written in the Zip/Postal Code field).
- Reformats the variable “Zip/Postal Code” to a String variable.** Although you have told Tableau that the Zip/Postal Code variable is a geographic variable in the first step, it is still formatted as a number (for example, the zip code 60004 is written as 60,004). In the Zip/Postal code box, under “Data Type,” we have selected “String.” This will remove commas and reformat them to look like zip codes.
- Reformats the variable “Entry Date” to remove the time a screen was taken.** Sometimes users will take the same screen multiple times in one day (for example, users may take the screen, go back, change some of their answers and submit again). Each submission is recorded as a unique entry because they have different time stamps in the variable “Entry Date.” In the data dashboard, it is important to clean out multiple submissions of the same screen from the same person, so an individual taking one screen multiple times in one day is not counted as multiple individuals. Removing the unique time stamps allows Tableau Prep to recognize and aggregate multiple entries from a single user in a single day as one entry. We have recoded the “Entry Date” variable to only include Date, not Date and Time.
- Recodes “User Result” into “Positive” and “Negative” categories.** Now Tableau will be able to remove cases where someone takes the same screen and gets the same result in the same day. However, when users take a screen multiple times, they will often change one or two answers and resubmit the screen. This may result in a different screen result. For example, a person may take the depression screen and get the result of “Severe Depression,” then may take the screen again and get “Moderately Severe Depression.” These two records would be kept separately because they have two different results, even though they are both considered “positive” screens. Counting multiple positive results for a single user will skew the number of people who appear to be at risk when building your dashboard. To avoid counting multiple positive results from a single user, we recoded the “User Result” variable to contain only “positive” and “negative” results. Each of the positive screen results were grouped into one variable titled “Positive or Moderate to Severe”, including: ADHD Likely, At Risk for Avoidant/Restrictive Food Intake Disorder, At Risk for Eating Disorder, At Risk for Emotional, Attentional, or Behavioral Difficulties, Bipolar Positive, Depression is probable, Likely Alcohol or Substance Use, Moderate Anxiety, Moderate Depression,



Moderately Severe Depression, Possible Risk for Psychosis, PTSD Positive, Severe Anxiety, and Severe Depression. Each of the “negative” screen results were grouped into one variable titled “Negative or Minimal to Mild,” including: ADHD unlikely, Bipolar Negative, Depression is highly possible, Depression is not likely, Depression is possible, Low Risk for Eating Disorder, Low Risk for Emotional, Attentional, or Behavioral Difficulties, Low/No Risk for Psychosis, Mild Anxiety, Mild Depression, PTSD Negative, and Unlikely Alcohol or Substance Use. Now if someone takes a screen and receives a Severe Depression result, then goes back and resubmits the screen and gets a Moderately Severe Depression result, these will be counted as one record of this person taking a depression screen and receiving a positive depression result that day.

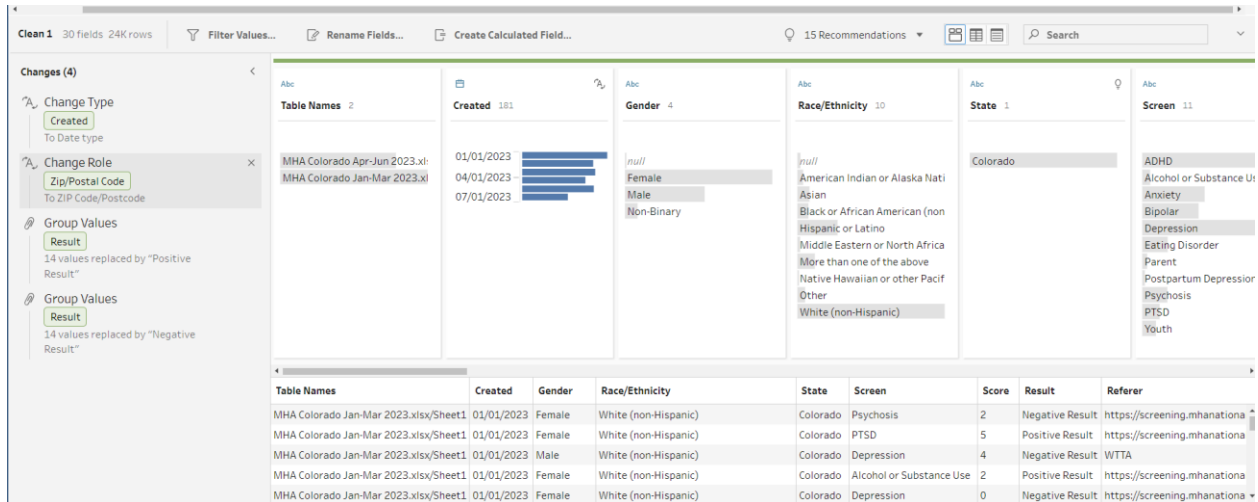


Table Names	Created	Gender	Race/Ethnicity	State	Screen	Score	Result	Referer
MHA Colorado Apr-Jun 2023.xlsx	01/01/2023	Female	White (non-Hispanic)	Colorado	Psychosis	2	Negative Result	https://screening.mhanationa
MHA Colorado Apr-Jun 2023.xlsx	04/01/2023	Male	White (non-Hispanic)	Colorado	PTSD	5	Positive Result	https://screening.mhanationa
MHA Colorado Apr-Jun 2023.xlsx	07/01/2023	Non-Binary	White (non-Hispanic)	Colorado	Depression	4	Negative Result	WTTA
MHA Colorado Jan-Mar 2023.xlsx/Sheet1	01/01/2023	Female	White (non-Hispanic)	Colorado	Alcohol or Substance Use	2	Positive Result	https://screening.mhanationa
MHA Colorado Jan-Mar 2023.xlsx/Sheet1	01/01/2023	Female	White (non-Hispanic)	Colorado	Depression	0	Negative Result	https://screening.mhanationa

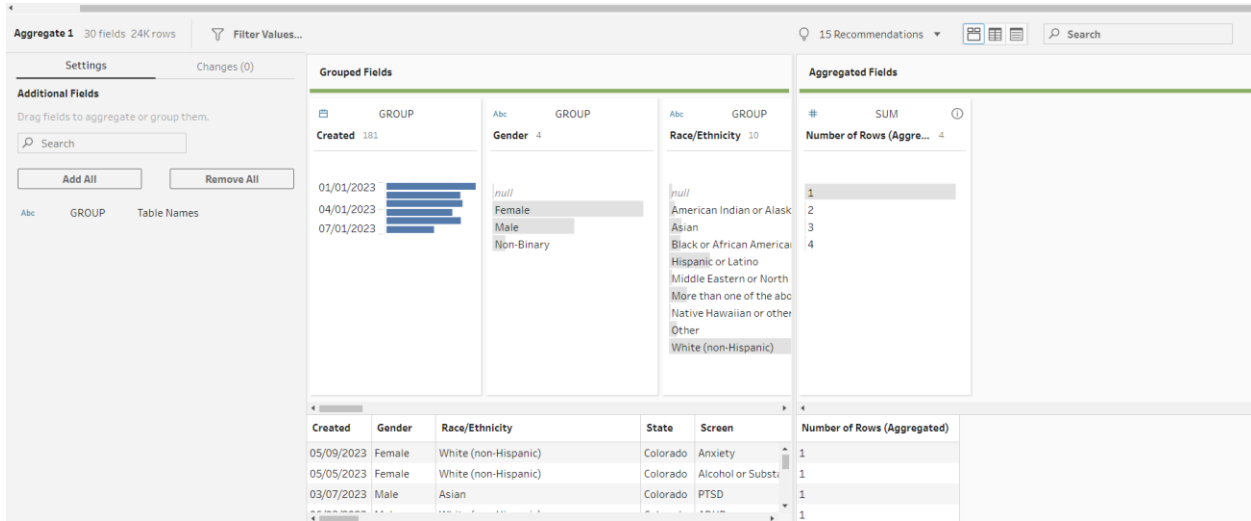
## 2. Aggregate Step 1:



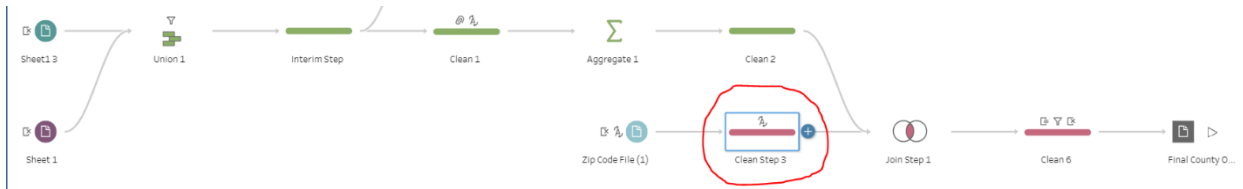
- Aggregates all duplicate screens into one single record.** In your Aggregate step, you should see all available variables to the left under “Additional Fields.” You will also see a space titled “Grouped Fields” and a space titled “Aggregated Fields.” Tableau will check all records for instances where all variables you place under “Grouped Fields” match, and if there is more than one record, will aggregate them into one record under “Aggregate Fields.” MHA has aggregated all variables in the “Grouped Fields” section. The variable “Number of Rows (Aggregated)” in the “Aggregate Fields” section tells Tableau to create a count. If all of the fields under Grouped Fields match for multiple records, they will be combined into one record. For example, if someone on 11/16/2020 takes the depression screen multiple times and puts in the same demographic information (age, race/ethnicity, gender, etc.) and gets a positive result multiple times (regardless of if they are moderate depression, moderately severe depression, or severe depression), they will be counted as one record of a person with that demographic information taking a depression screen and receiving a positive result. Initially, we



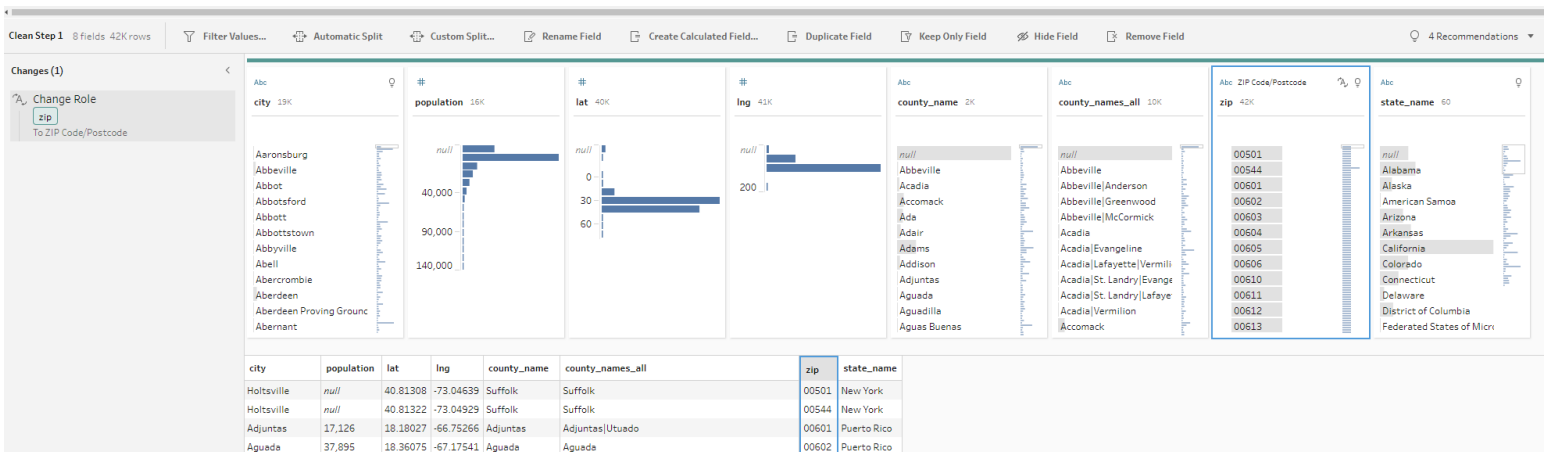
experimented with narrowing to one user by only keeping one record from each IP Identifier. However, we discovered that it was common to have several different screens under the same IP Identifier when people took screens in schools, at health fairs, or in libraries. We have determined that aggregating based on both IP Identifier and demographic information is the best methodology for keeping screens from institutional use while removing duplicate records from one individual.



### 3. Clean Step 3:

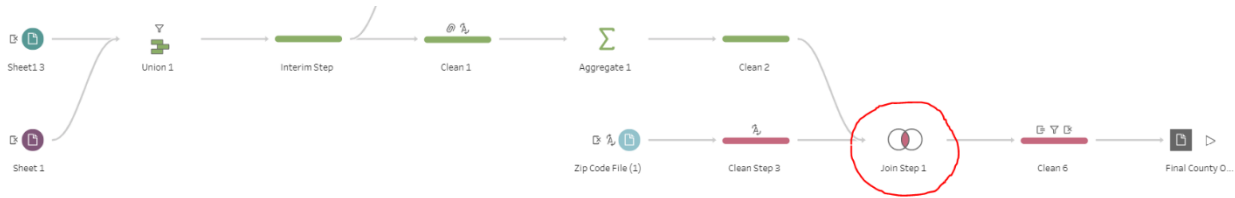


- Reformats the variable “zip” to a geographic variable.** In the previous step, you reformatted your zip variable to a String instead of a number. Tableau now recognizes this variable as a string of text. To tell Tableau to recognize it as a ZIP Code, under “Data Role,” we have selected “Geographic,” then “ZIP Code/Postcode.” This reformats

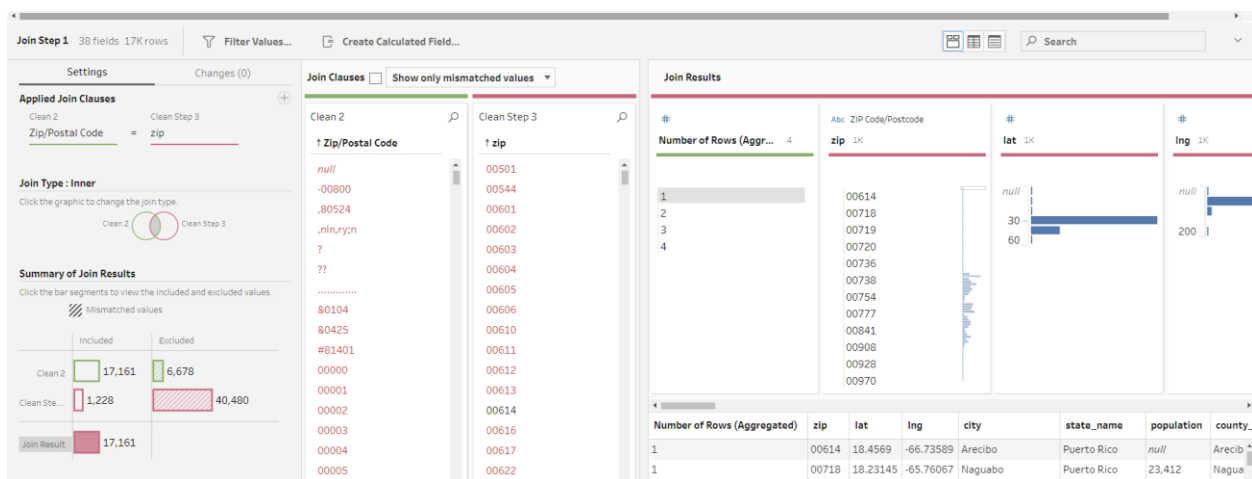


any zip codes that were written incorrectly (for example, where leading zeros may have been cut off, or any words that were written in the Zip/Postal Code field).

#### 4. Join Step 1:



- Join two datasets together.** A Join clause joins two datasets together horizontally, based on one or two shared fields. This is different from a Union, in which most columns are shared between two datasets. A Union is like adding new rows of data into an Excel file based on existing columns. A Join is like adding new columns into an Excel file. When you click on Join Step 1, in the toolbar on the left, under “Settings” there is a field that says “Applied Join Clauses.” This is where the matching variable between the two datasets is collected. You will see that the Simple Maps ZIP code file and your screening data are joined based on ZIP codes. This is telling Tableau that the variable ZIP/Postal Code from the MHA Screening dataset and the variable Zip from the Simple Maps dataset contain the same data (zip codes) and can be matched as a common field.. **NOTE: Here you will notice most of your data from Sheet 1 (the Simple Maps dataset) is excluded from the join. This is because your zip code database contains all zip codes in the country, and you are only keeping the data from those that match the data you have in your file.**



	Included	Excluded
Clean 2	17,161	6,678
Clean Ste...	1,228	40,480
<b>Join Result</b>	<b>17,161</b>	

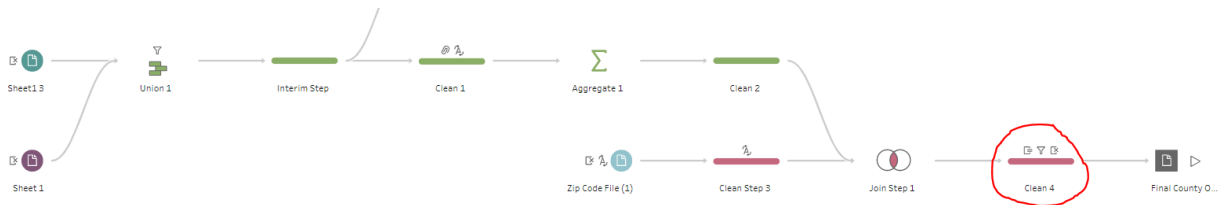
  

Number of Rows (Aggregated)	zip	lat	lng	city	state_name	population	county_
1	00614	18.4569	-66.73589	Arecibo	Puerto Rico	null	Arecib
1	00718	18.23145	-65.76067	Naguabo	Puerto Rico	23,412	Nagua

- NOTE: When you create a Join Clause, Tableau automatically chooses an inner join (depicted by the gray shading between the two Venn diagram circles below). This means that Tableau will only keep data where Zip/Postal Code (from the MHA Screening data) and zip (from the Simple Maps data) match. For this purpose, we need to use an inner join, as we only want to retain information from the Simple Maps file (like city and county name) for the data we have in the MHA Screening**

file. However, for other analyses, you can change your join clause to be a left, right, outer, or unmatched only join as well.

## 5. Clean Step 4:



- **Removes the variables county\_names\_all, lat, and lng.** These aren't necessary for Tableau to be able to map your data. Tableau automatically converts county names to latitude and longitude. Because zip codes and counties do not always line up perfectly, the county\_names\_all variable lists all counties that include that zip code. County name only lists the county that the zip code is primarily in. If you'd like to keep a record of all the counties the zip code touches, you can delete this step.
- **Removes the zip variable from the Simple Maps file.** Now both the Zip/Postal Code variable and the zip variable in your dataset contain the same information (because you matched all records in the join step above). We removed one of these variables to limit redundancies in your data.
- **Keeps only data where zip code and state match.** Sometimes people will enter a zip code and a state that do not match (for example, if the zip code they entered only exists in another state). In this case, we don't know which of their answers is their true location, so we want to remove those discrepancies from the dataset. This step creates a calculated field named "State Name Match," which is coded as:

```
[State]==[state_name]
```

This tells Tableau to create a variable with the result "True" if the state name from the zip code database and the state selected by the user match, and "False" if they do not. In the following step, it filters to keep only those entries where the result is "True."

- **Removes the state\_name variable from the Simple Maps file.** Like the zip variable, you now had two variables for state: State (from the MHA Screening data) and state\_name (from the Simple Maps file). We removed one of these variables to limit redundancies in your data.
- **Creates a "Positive Result" and a "Negative Result" calculated field.** It is easier for Tableau to calculate rates and map your data if it is a numerical variable. These steps assign a count to positive, negative, and total screen results using calculated fields. The field "Positive Result" is coded as:

```
IF [Result]="Positive Result"
THEN 1
ELSE 0
END
```

The field "Negative Result" is coded as:

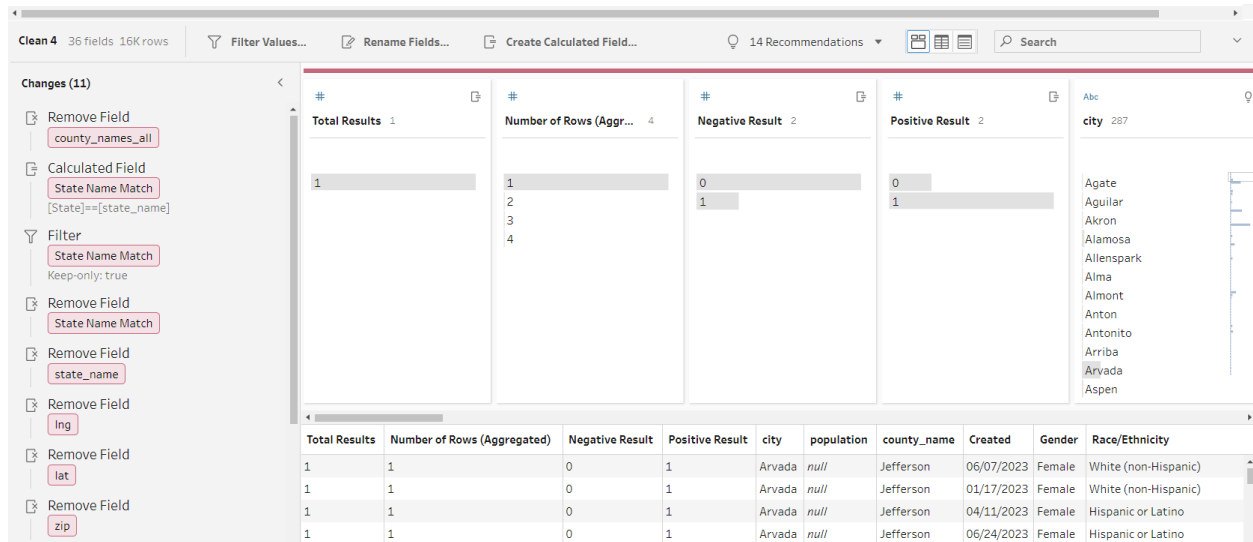
```

IF [Result]="Negative Result"
THEN 1
ELSE 0
END

```

- **Creates a “Total Results” calculated field.** To aggregate all results, we need to create a calculated field that allows us to count “Total Results.” The field “Total Results” is coded as:

[Positive Result] + [Negative Result]



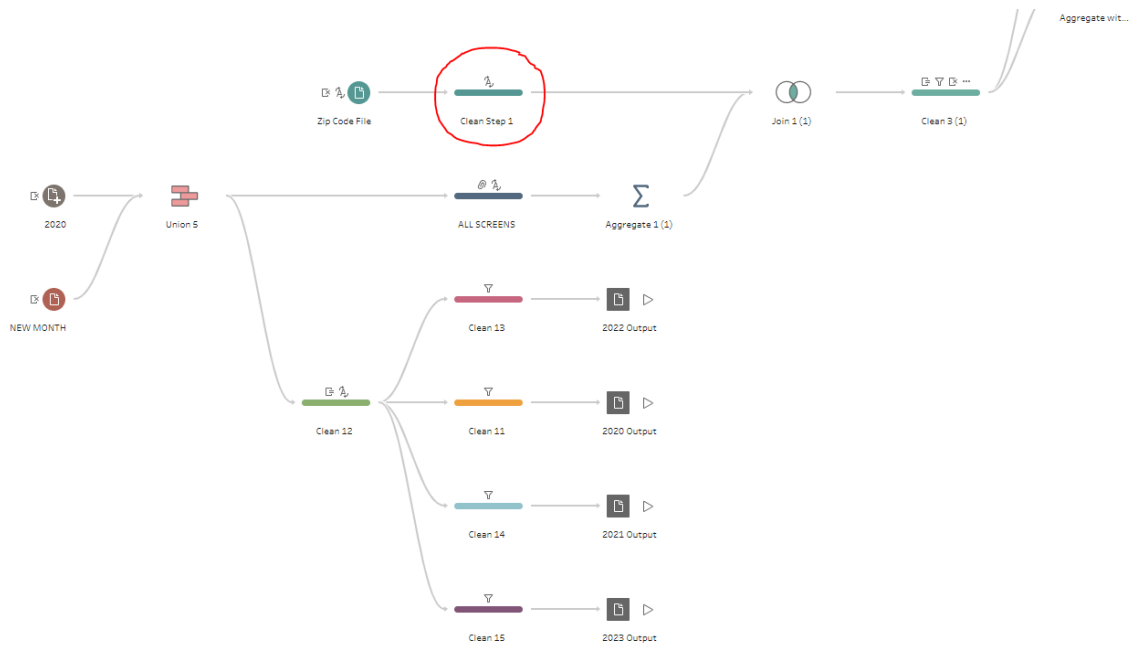
The screenshot shows a data visualization tool interface. On the left, a 'Changes (11)' panel lists several actions: 'Remove Field' for 'county\_names\_all', 'Calculated Field' for 'State Name Match' with the formula '[State]=[state\_name]', 'Filter' for 'State Name Match' with 'Keep-only: true', and several 'Remove Field' actions for 'State Name Match', 'state\_name', 'lng', 'lat', and 'zip'. The main workspace displays four calculated fields: 'Total Results 1', 'Number of Rows (Aggr... 4', 'Negative Result 2', and 'Positive Result 2'. Below these is a data table with columns: 'Total Results', 'Number of Rows (Aggregated)', 'Negative Result', 'Positive Result', 'city', 'population', 'county\_name', 'Created', 'Gender', and 'Race/Ethnicity'. The table contains four rows of data for the city of Arvada, all in Jefferson county.

Total Results	Number of Rows (Aggregated)	Negative Result	Positive Result	city	population	county_name	Created	Gender	Race/Ethnicity
1	1	0	1	Arvada	null	Jefferson	06/07/2023	Female	White (non-Hispanic)
1	1	0	1	Arvada	null	Jefferson	01/17/2023	Female	White (non-Hispanic)
1	1	0	1	Arvada	null	Jefferson	04/11/2023	Female	Hispanic or Latino
1	1	0	1	Arvada	null	Jefferson	06/24/2023	Female	Hispanic or Latino

## Appendix B: Full Public-Facing Prep Flow Description

If you click on each of the steps of your Tableau Prep Flow, there are changes listed to the left of your data. This section walks through each of the cleaning steps in the flow and what changes occur on each one.

### 1. Clean Step 1:



- Reformats the variable “zip” to a geographic variable.** In the previous step, you reformatted your zip variable to a String instead of a number. Tableau now recognizes this variable as a string of text. To tell Tableau to recognize it as a ZIP Code, under “Data Role,” we have selected “Geographic,” then “ZIP Code/Postcode.” This reformats any zip codes that were written incorrectly (for example, where leading zeros may have been cut off, or any words that were written in the Zip/Postal Code field).

Clean Step 1 8 fields 42K rows

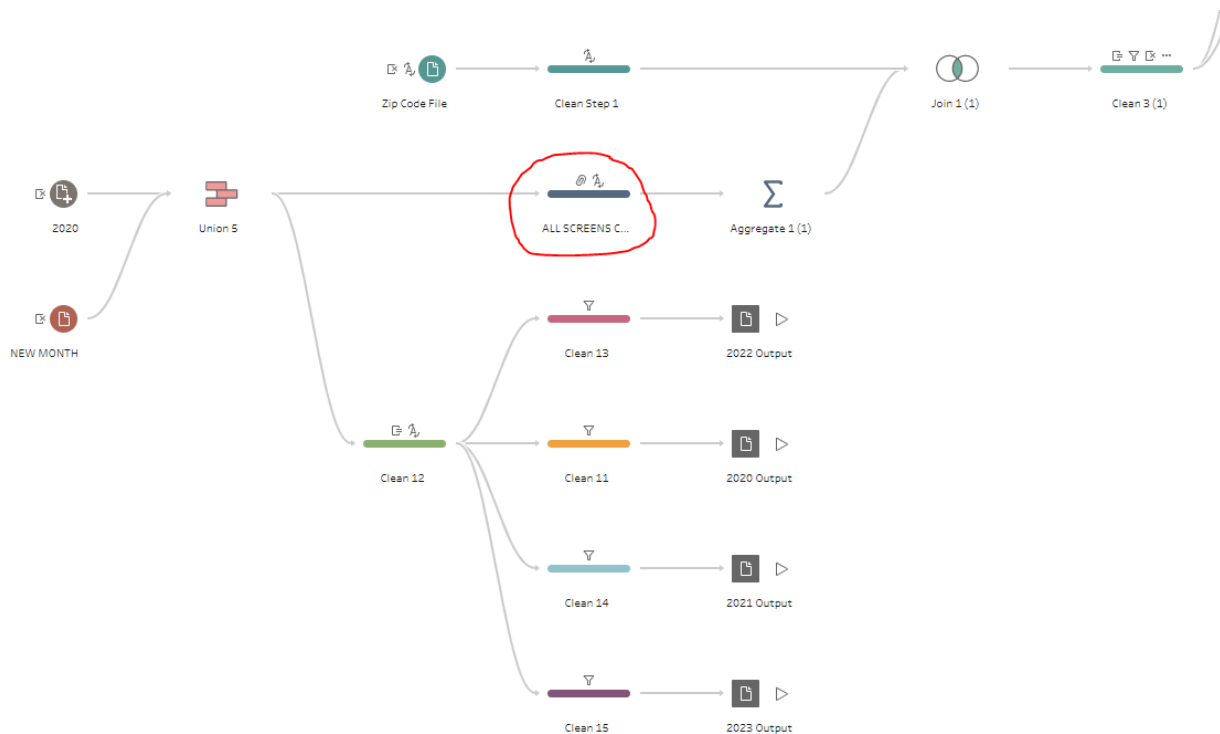
Filter Values... Automatic Split Custom Split... Rename Field Create Calculated Field... Duplicate Field Keep Only Field Hide Field Remove Field 4 Recommendations

Changes (1)

Change Role  
zip  
To ZIP Code/Postcode

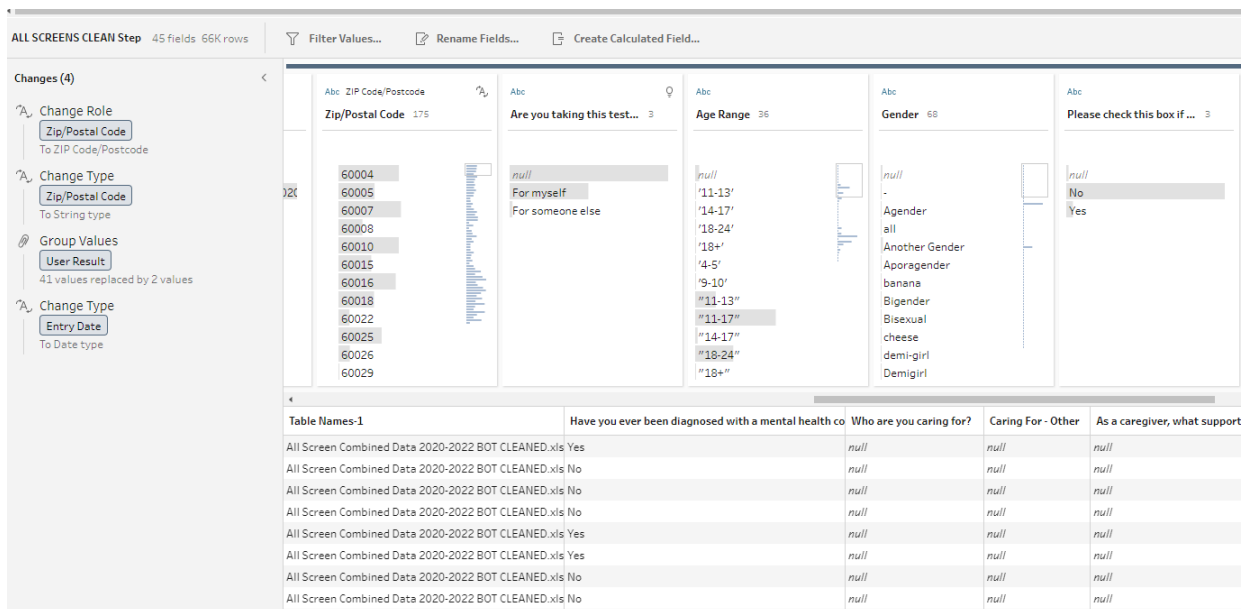
city	population	lat	lng	county_name	county_names_all	zip	state_name
Holtzville	null	40.81308	-73.04639	Suffolk	Suffolk	00501	New York
Holtzville	null	40.81322	-73.04929	Suffolk	Suffolk	00544	New York
Adjuntas	17,126	18.18027	-66.75266	Adjuntas	AdjuntasUtuaado	00601	Puerto Rico
Aguada	37,895	18.36075	-67.17541	Aguade	Aguade	00602	Puerto Rico

## 2. ALL SCREENS Clean Step:



- Reformats the variable “Zip/Postal Code” to a geographic variable.** When you load in your data, the variable titled “Zip/Postal Code” is often recognized as a number, not a zip code. In the ZIP/Postal code box, under “Data Role,” we have selected “Geographic,” then “ZIP Code/Postcode.” This reformats any zip codes that were written incorrectly (for example, where leading zeros may have been cut off, or any words that were written in the Zip/Postal Code field).
- Reformats the variable “Zip/Postal Code” to a String variable.** Although you have told Tableau that the Zip/Postal Code variable is a geographic variable in the first step, it is still formatted as a number (for example, the zip code 60004 is written as 60,004). In the Zip/Postal code box, under “Data Type,” we have selected “String.” This will remove commas and reformat them to look like zip codes.
- Reformats the variable “Entry Date” to remove the time a screen was taken.** Sometimes users will take the same screen multiple times in one day (for example, users may take the screen, go back, change some of their answers and submit again). Each submission is recorded as a unique entry because they have different time stamps in the variable “Entry Date.” In the data dashboard, it is important to clean out multiple submissions of the same screen from the same person, so an individual taking one screen multiple times in one day is not counted as multiple individuals. Removing the unique time stamps allows Tableau Prep to recognize and aggregate multiple entries from a single user in a single day as one entry. We have recoded the “Entry Date” variable to only include Date, not Date and Time.
- Recodes “User Result” into “Positive” and “Negative” categories.** Now Tableau will be able to remove cases where someone takes the same screen and gets the same result in the same day. However, when users take a screen multiple times, they will often change one or two answers and resubmit the screen. This may result in a different screen result. For example, a person may take the depression screen and get the result

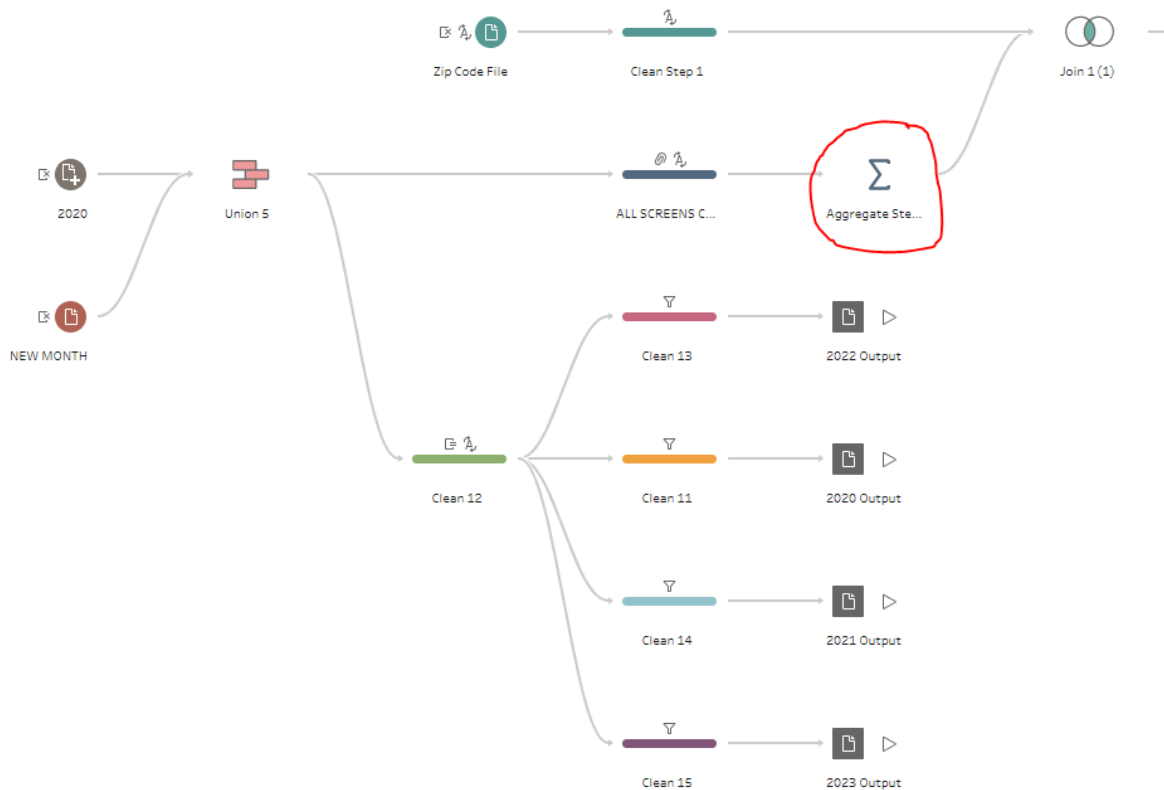
of “Severe Depression,” then may take the screen again and get “Moderately Severe Depression.” These two records would be kept separately because they have two different results, even though they are both considered “positive” screens. Counting multiple positive results for a single user will skew the number of people who appear to be at risk when building your dashboard. To avoid counting multiple positive results from a single user, we recoded the “User Result” variable to contain only “positive” and “negative” results. Each of the positive screen results were grouped into one variable titled “Positive or Moderate to Severe”, including: ADHD Likely, At Risk for Avoidant/Restrictive Food Intake Disorder, At Risk for Eating Disorder, At Risk for Emotional, Attentional, or Behavioral Difficulties, Bipolar Positive, Depression is probable, Likely Alcohol or Substance Use, Moderate Anxiety, Moderate Depression, Moderately Severe Depression, Possible Risk for Psychosis, PTSD Positive, Severe Anxiety, and Severe Depression. Each of the “negative” screen results were grouped into one variable titled “Negative or Minimal to Mild,” including: ADHD unlikely, Bipolar Negative, Depression is highly possible, Depression is not likely, Depression is possible, Low Risk for Eating Disorder, Low Risk for Emotional, Attentional, or Behavioral Difficulties, Low/No Risk for Psychosis, Mild Anxiety, Mild Depression, PTSD Negative, and Unlikely Alcohol or Substance Use. Now if someone takes a screen and receives a Severe Depression result, then goes back and resubmits the screen and gets a Moderately Severe Depression result, these will be counted as one record of this person taking a depression screen and receiving a positive depression result that day.



The screenshot shows a data management tool interface. On the left, a 'Changes (4)' sidebar lists several modifications: 'Change Role' (Zip/Postal Code to ZIP Code/Postcode), 'Change Type' (Zip/Postal Code to String type), 'Group Values' (User Result, 41 values replaced by 2 values), and another 'Change Type' (Entry Date to Date type). The main area displays four preview cards for 'Zip/Postal Code', 'Are you taking this test...', 'Age Range', and 'Gender'. Below these is a table with columns: 'Table Names-1', 'Have you ever been diagnosed with a mental health co', 'Who are you caring for?', 'Caring For - Other', and 'As a caregiver, what support'. The table contains 8 rows of data, with most values being 'null'.

Table Names-1	Have you ever been diagnosed with a mental health co	Who are you caring for?	Caring For - Other	As a caregiver, what support
All Screen Combined Data 2020-2022 BOT CLEANED.xls	Yes	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	No	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	No	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	Yes	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	Yes	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	No	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	No	null	null	null
All Screen Combined Data 2020-2022 BOT CLEANED.xls	No	null	null	null

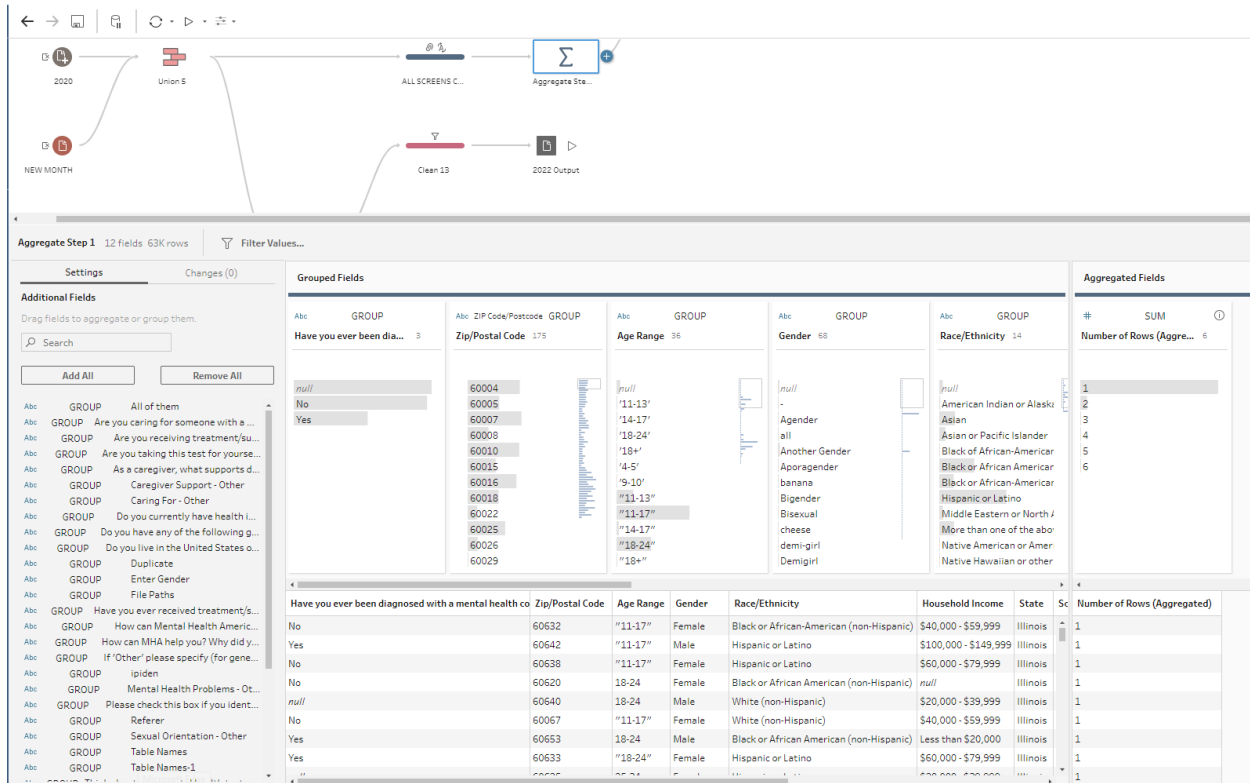
### 3. Aggregate Step 1:



- Aggregates all duplicate screens into one single record.** In your Aggregate step, you should see all available variables to the left under “Additional Fields.” You will also see a space titled “Grouped Fields” and a space titled “Aggregated Fields.” Tableau will check all records for instances where all variables you place under “Grouped Fields” match, and if there is more than one record, will aggregate them into one record under “Aggregate Fields.” MHA has aggregated the following variables in the “Grouped Fields” section: Entry Date, IP Identifier, Zip/Postal Code, Age Range, Gender, Race/Ethnicity, Household Income, State, Screen, and User Result. The variable “Number of Rows (Aggregated)” in the “Aggregate Fields” section tells Tableau to create a count. If all of the fields under Grouped Fields match for multiple records, they will be combined into one record. For example, if someone on 11/16/2020 takes the depression screen multiple times and puts in the same demographic information (age, race/ethnicity, gender, etc.) and gets a positive result multiple times (regardless of if they are moderate depression, moderately severe depression, or severe depression), they will be counted



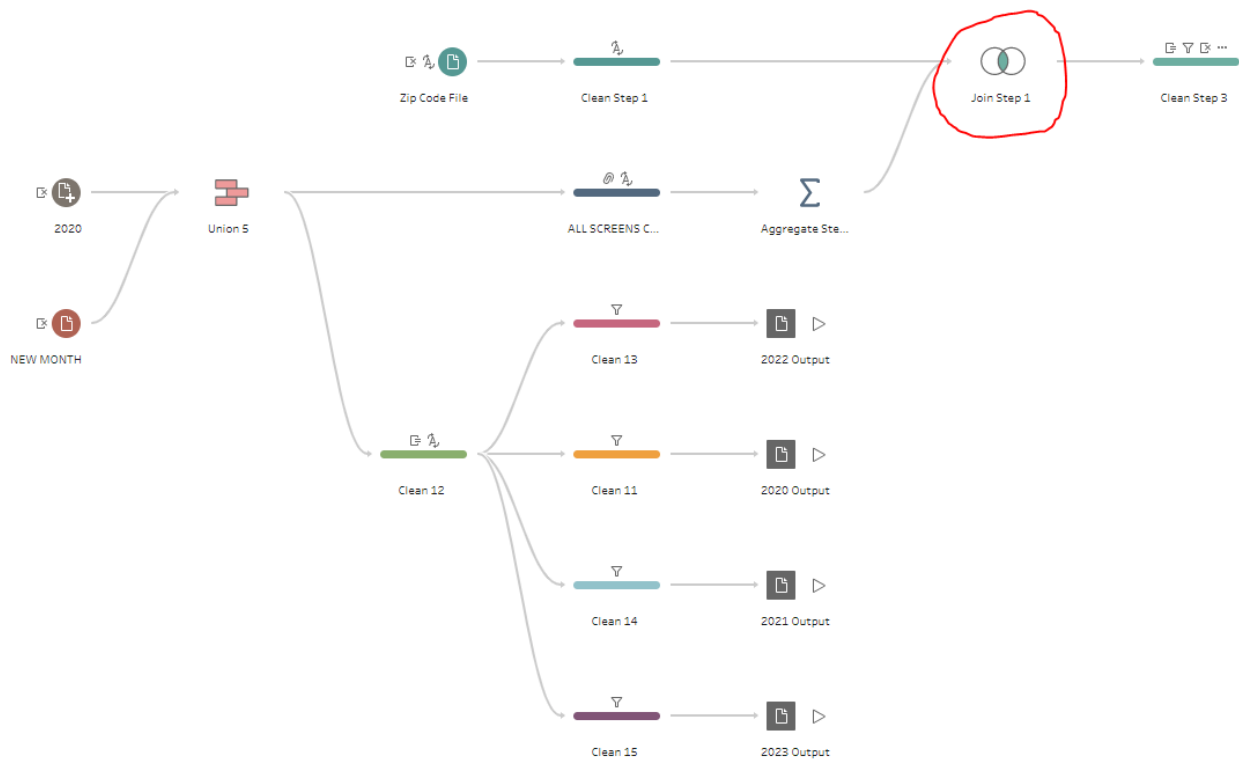
as one record of a person with that demographic information taking a depression screen and receiving a positive result. Initially, we experimented with narrowing to one user by only keeping one record from each IP Identifier. However, we discovered that it was common to have several different screens under the same IP Identifier when people took screens in schools, at health fairs, or in libraries. We have determined that aggregating based on both IP Identifier and demographic information is the best methodology for keeping screens from institutional use while removing duplicate records from one individual.



The screenshot shows a data workflow and an aggregated data table. The workflow includes steps for '2020', 'NEW MONTH', 'Union 5', 'ALL SCREENS C...', 'Aggregate Sta...', 'Clean 13', and '2022 Output'. The aggregated data table below shows the following columns: 'Have you ever been diagnosed with a mental health co', 'Zip/Postal Code', 'Age Range', 'Gender', 'Race/Ethnicity', 'Household Income', 'State', and 'Number of Rows (Aggregated)'. The table contains 10 rows of data.

Have you ever been diagnosed with a mental health co	Zip/Postal Code	Age Range	Gender	Race/Ethnicity	Household Income	State	Number of Rows (Aggregated)
No	60632	"11-17"	Female	Black or African-American (non-Hispanic)	\$40,000 - \$59,999	Illinois	1
Yes	60642	"11-17"	Male	Hispanic or Latino	\$100,000 - \$149,999	Illinois	1
No	60638	"11-17"	Female	Hispanic or Latino	\$60,000 - \$79,999	Illinois	1
No	60620	18-24	Female	Black or African American (non-Hispanic)	null	Illinois	1
null	60640	18-24	Male	White (non-Hispanic)	\$20,000 - \$39,999	Illinois	1
No	60067	"11-17"	Female	White (non-Hispanic)	\$40,000 - \$59,999	Illinois	1
Yes	60653	18-24	Male	Black or African American (non-Hispanic)	Less than \$20,000	Illinois	1
Yes	60633	"18-24"	Female	Hispanic or Latino	\$60,000 - \$79,999	Illinois	1
							1

#### 4. Join Step 1:



- Join two datasets together.** A Join clause joins two datasets together horizontally, based on one or two shared fields. This is different from a Union, in which most columns are shared between two datasets. A Union is like adding new rows of data into an Excel file based on existing columns. A Join is like adding new columns into an Excel file. When you click on Join Step 1, in the toolbar on the left, under “Settings” there is a field that says “Applied Join Clauses.” This is where the matching variable between the two datasets is collected. You will see that the Simple Maps ZIP code file and your screening data are joined based on ZIP codes. This is telling Tableau that the variable ZIP/Postal Code from the MHA Screening dataset and the variable Zip from the Simple Maps dataset contain the same data (zip codes) and can be matched as a common field.. **NOTE: Here you will notice most of your data from Sheet 1 (the Simple Maps dataset) is excluded from the join. This is because your zip code database contains all zip codes in the country, and you are only keeping the data from those that match the data you have in your file.**

Join 1 16 fields 14K rows | Filter Values... | Create Calculated Field...


**Settings** Changes (0)

**Applied Join Clauses**

Aggregate 1 Sheet1  
Zip/Postal Code = zip

**Join Type : Inner**

Click the graphic to change the join type.



**Summary of Join Results**

Click the bar segments to view the included and excluded values.

Mismatched values

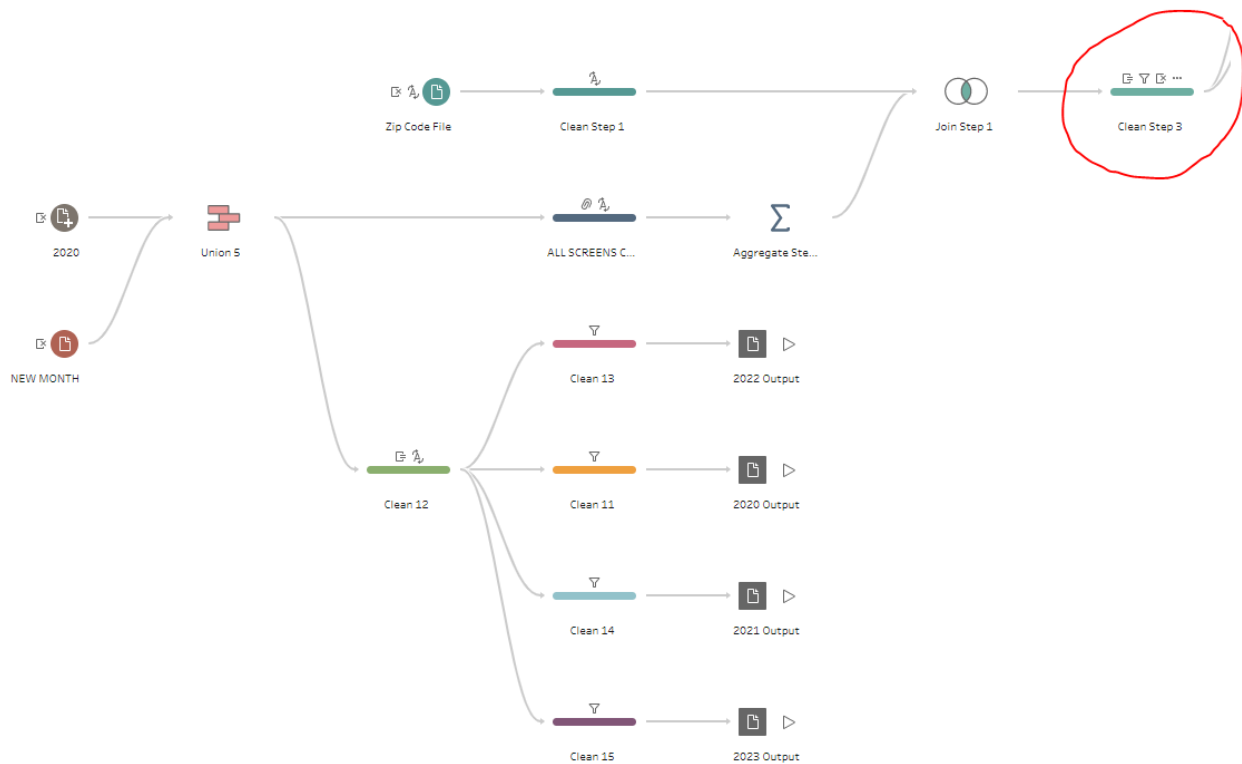
	Included	Excluded
Aggregat...	13,711	0
Sheet1	175	41,519

**Join Clauses**  Show only mismatched values

Aggregate 1	Sheet1
↑ Zip/Postal Code	↑ zip
60004	00501
60005	00544
60007	00601
60008	00602
60010	00603
60015	00604
60016	00605
60018	00606
60022	00610
60025	00611
60026	00612
60029	00613
60043	00614

- NOTE: When you create a Join Clause, Tableau automatically chooses an inner join (depicted by the gray shading between the two Venn diagram circles below). This means that Tableau will only keep data where Zip/Postal Code (from the MHA Screening data) and zip (from the Simple Maps data) match. For this purpose, we need to use an inner join, as we only want to retain information from the Simple Maps file (like city and county name) for the data we have in the MHA Screening file. However, for other analyses, you can change your join clause to be a left, right, outer, or unmatched only join as well.**

### 5. Clean Step 3:



- **Removes the zip variable from the Simple Maps file.** Now both the Zip/Postal Code variable and the zip variable in your dataset contain the same information (because you matched all records in the join step above). We removed one of these variables to limit redundancies in your data.
- **Keeps only data where zip code and state match.** Sometimes people will enter a zip code and a state that do not match (for example, if the zip code they entered only exists in another state). In this case, we don't know which of their answers is their true location, so we want to remove those discrepancies from the dataset. This step creates a calculated field named "State Name Match," which is coded as:

[State]==[state\_name]

This tells Tableau to create a variable with the result "True" if the state name from the zip code database and the state selected by the user match, and "False" if they do not. In the following step, it filters to keep only those entries where the result is "True."

- **Removes the state\_name variable from the Simple Maps file.** Like the zip variable, you now had two variables for state: State (from the MHA Screening data) and state\_name (from the Simple Maps file). We removed one of these variables to limit redundancies in your data.
- **Creates a "Positive Result" and a "Negative Result" calculated field.** In a public facing dashboard, users will be able to download the raw file that you feed into Tableau Desktop. Because of that, your output should only contain aggregated results by zip code or city, rather than containing one row for each individual screen taken. To

aggregate these results, we needed to create two calculated fields that allow us to count “Positive Results” and “Negative Results.” The field “Positive Result” is coded as:

```
IF [User Result]="Positive or Moderate to Severe"
THEN 1
ELSE 0
END
```

The field “Negative Result” is coded as:

```
IF [User Result]="Negative or Minimal to Mild"
THEN 1
ELSE 0
END
```

- **Creates a “Total Results” calculated field.** To aggregate all results, we needed to create a calculated field that allows us to count “Total Results.” The field “Total Results” is coded as:

```
[Positive Result] + [Negative Result]
```

- **Creates an Age Category:** This Prep Flow allows the option to present mapping data by age group. To present the data by age while protecting data privacy, we recoded the Age variable into a binary between Youth (Under 18) and Adults (Over 18). This allows your dashboard users to view rates of mental health conditions in each zip code separately for youth and adults. “Youth (Under 18)” includes the age categories: 4-5, 6-7, 8-10, 11-13, 14-15, 16-17, and 11-17. “Adults (Over 18)” includes the age categories: 18-24, 18+, 25-34, 35-44, 45-54, 55-64, and 65+.
- **Creates a variable for Year:** This Prep Flow also allows the option to present mapping data by year. This allows us to aggregate screening results to each year rather than have an individual row for each day. The field “Year” is coded as:

```
DATEPART('year',[Entry Date])
```

- **Reformats the Year variable to a string:** Tableau automatically recognizes the new calculated Year variable as a number. For example, this causes Tableau to write 2020 as 2,020. This step reformats the Year variable to a string to remove the additional comma.

Clean Step 3 22 fields 62K rows

Filter Values... Rename Fields... Create Calculated Field...

Changes (8)

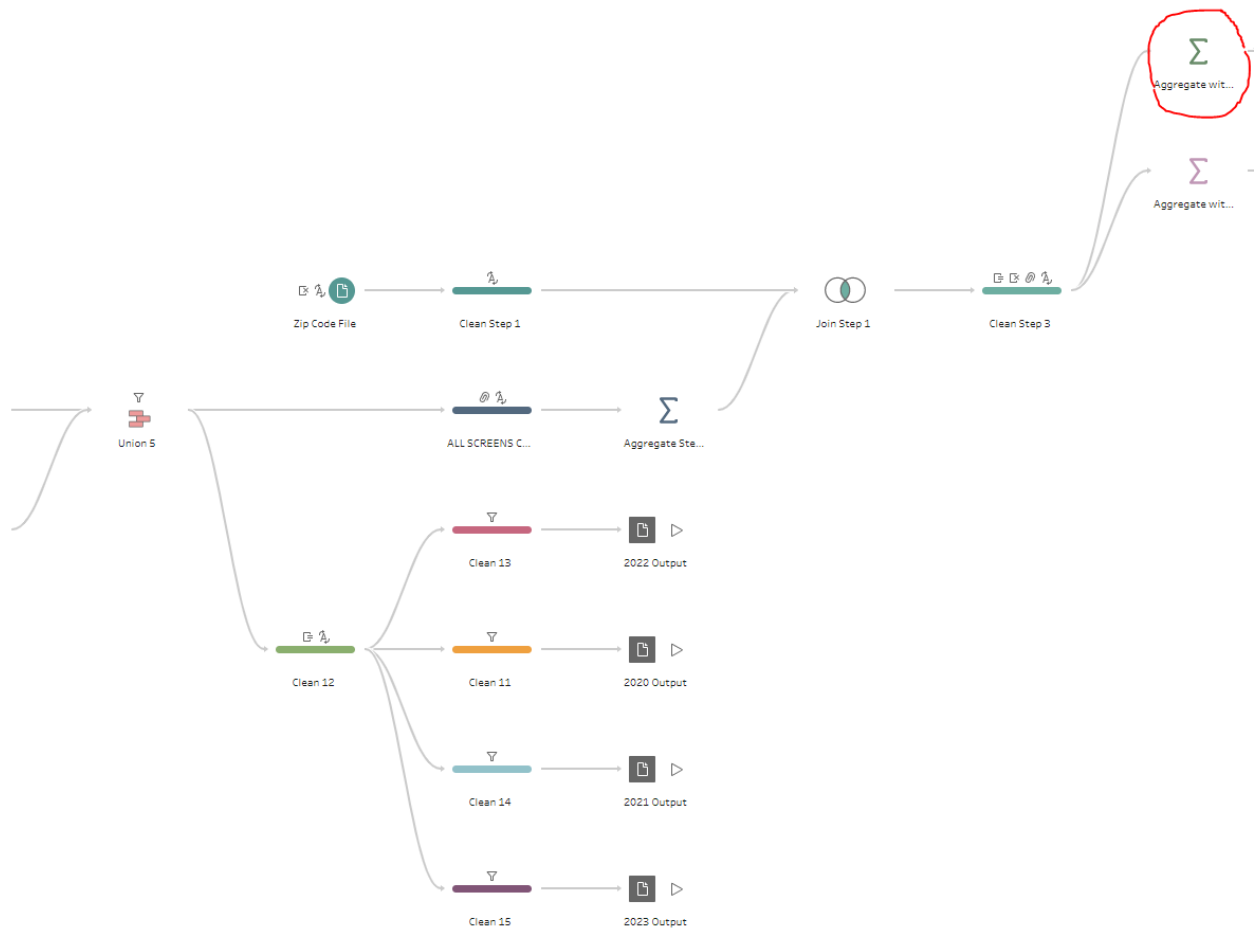
- Remove Field: zip
- Remove Field: state\_name
- Group Values: Age Range (35 values replaced by 2 values)
- Calculated Field: Positive Result (IF [User Result]="Positive or Moderate to Severe" THEN 1 ELSE 0)
- Calculated Field: Negative Result (IF [User Result]="Negative or Minimal to Mild" THEN 1 ELSE 0 END)
- Calculated Field: Total Results ([Positive Result]+[Negative Result])
- Calculated Field: Year (DATEPART('year',[Entry Date]))
- Change Type: Year (To String type)

#	#	#	#	Abc	Abc
Number of Rows (Aggr...	Positive Result	Negative Result	Total Results	Year	city
1	0	0	1	2020	
2	1	1		2021	
3				2022	
4				2023	
5					
6					

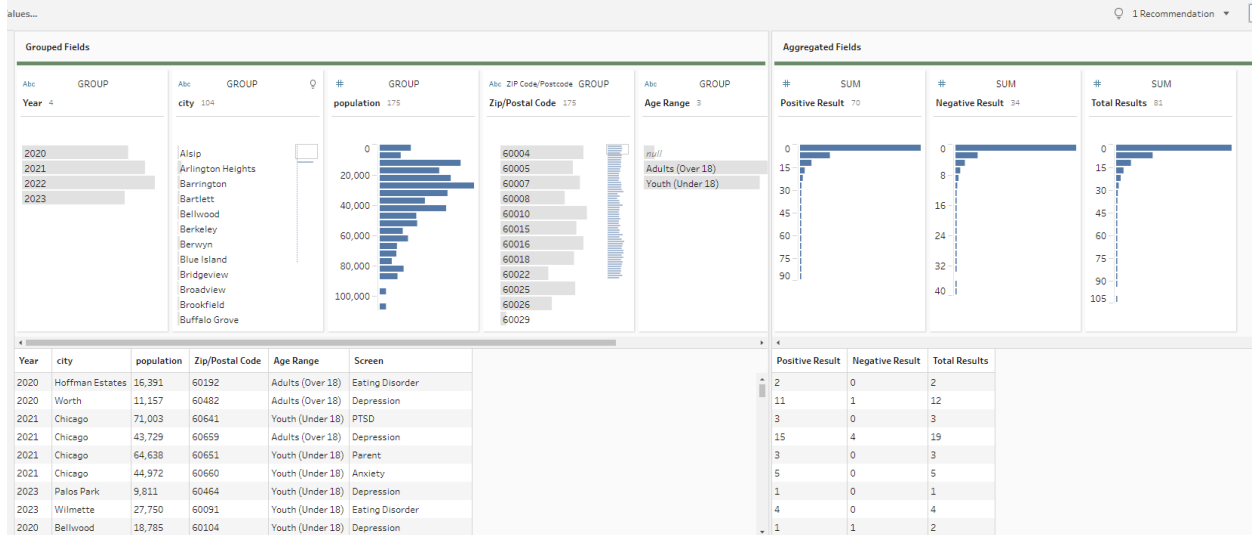
  

Number of Rows (Aggregated)	Positive Result	Negative Result	Total Results	Year	city	population	lat	lng	county_name	county_names_all	Have you e
1	1	0	1	2020	Berwyn	65,326	41.83237	-87.78983	Cook	Cook	No
1	1	0	1	2023	Chicago	54,650	41.90267	-87.68355	Cook	Cook	null
1	1	0	1	2021	Roselle	24,407	41.97976	-88.08937	DuPage	DuPage Cook	No
1	1	0	1	2021	Chicago	64,489	41.69166	-87.61828	Cook	Cook	Yes
1	1	0	1	2022	Skokie	33,432	42.03412	-87.72943	Cook	Cook	No
1	1	0	1	2023	Chicago	87,395	41.81141	-87.71348	Cook	Cook	null
1	1	0	1	2022	Rolling Meadows	23,191	42.0739	-88.0229	Cook	Cook	null
1	1	0	1	2023	South Holland	21,939	41.59733	-87.60115	Cook	Cook	null
1	1	0	1	2022	Riverdale	26,010	41.64967	-87.63013	Cook	Cook	No
1	0	1	1	2022	Palos Heights	14,039	41.66084	-87.79033	Cook	Cook	null

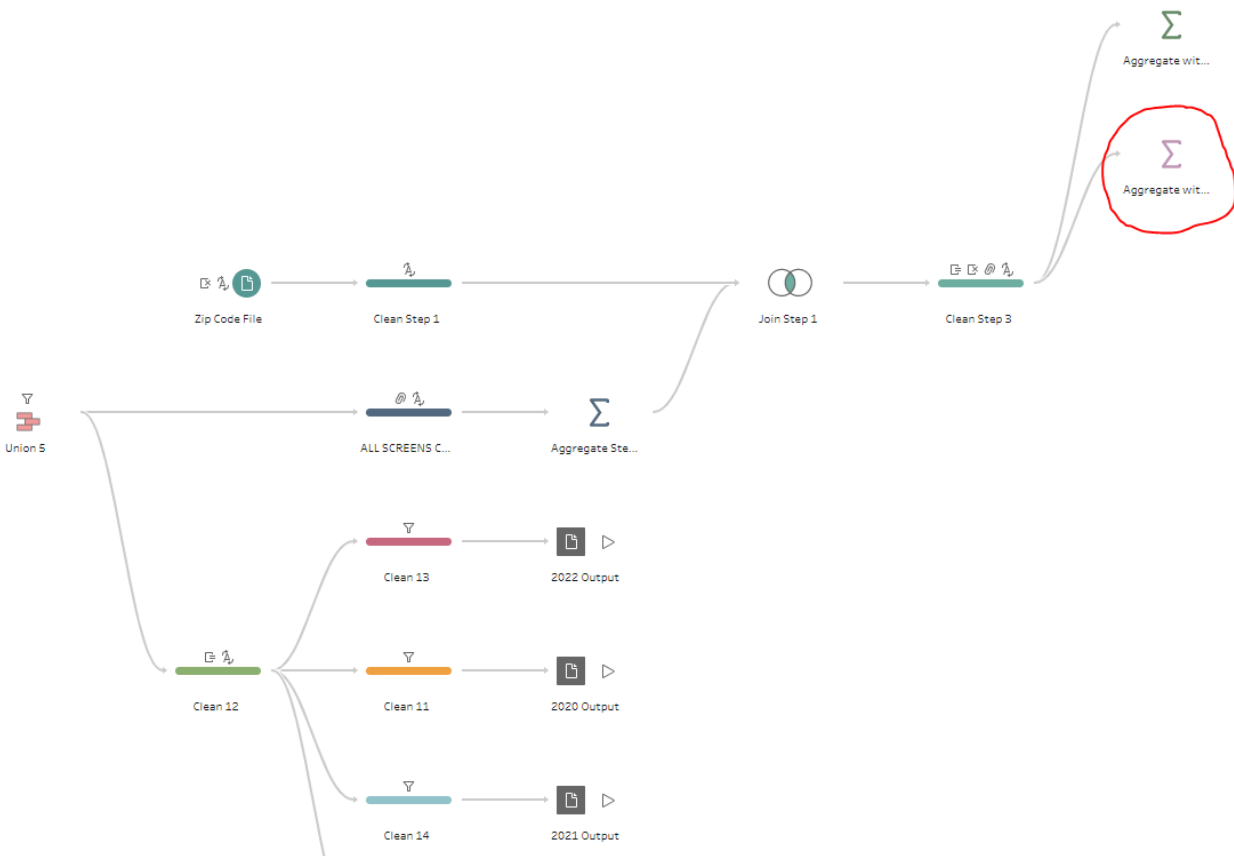
## 6. Aggregate with Age:



- Aggregates to count Positive, Negative, and Total Results by Age Group:** This step aggregates Positive, Negative, and Total Results for each screen by year, location, and age category.

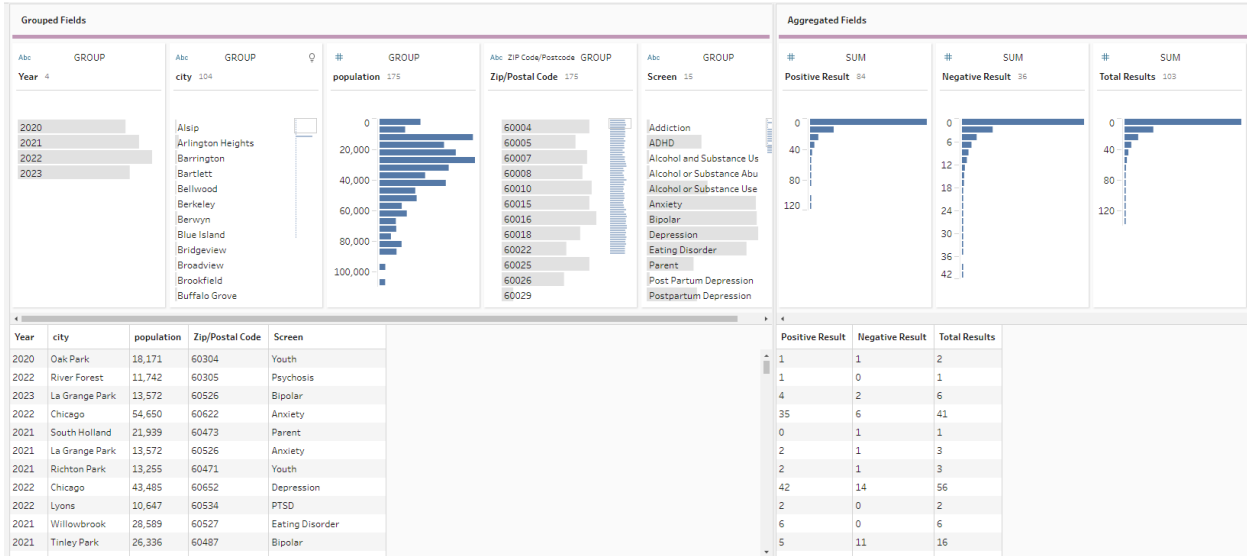


## 7. Aggregate without age:

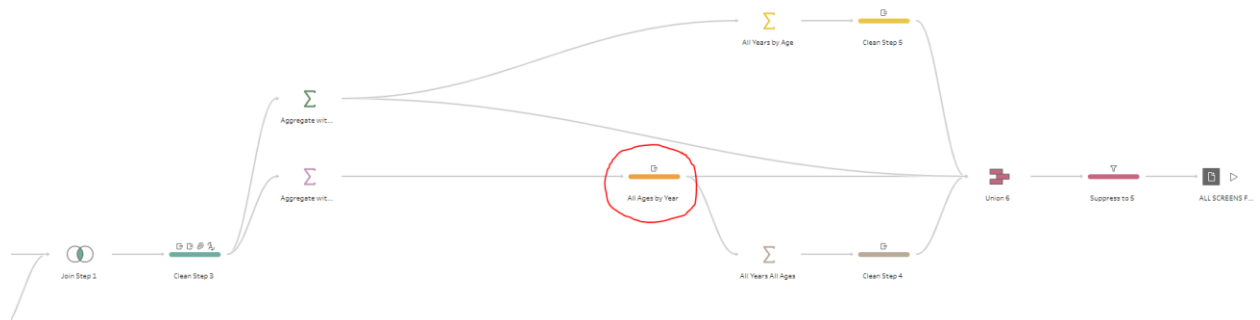


- Aggregates to count Positive, Negative, and Total Results by Age Group:** This step aggregates Positive, Negative, and Total Results for each screen by year and location. It does not include an Age category. This allows you to get total counts of positive, negative, and total results for each location, which we can view as the total number of results across “All Ages.”

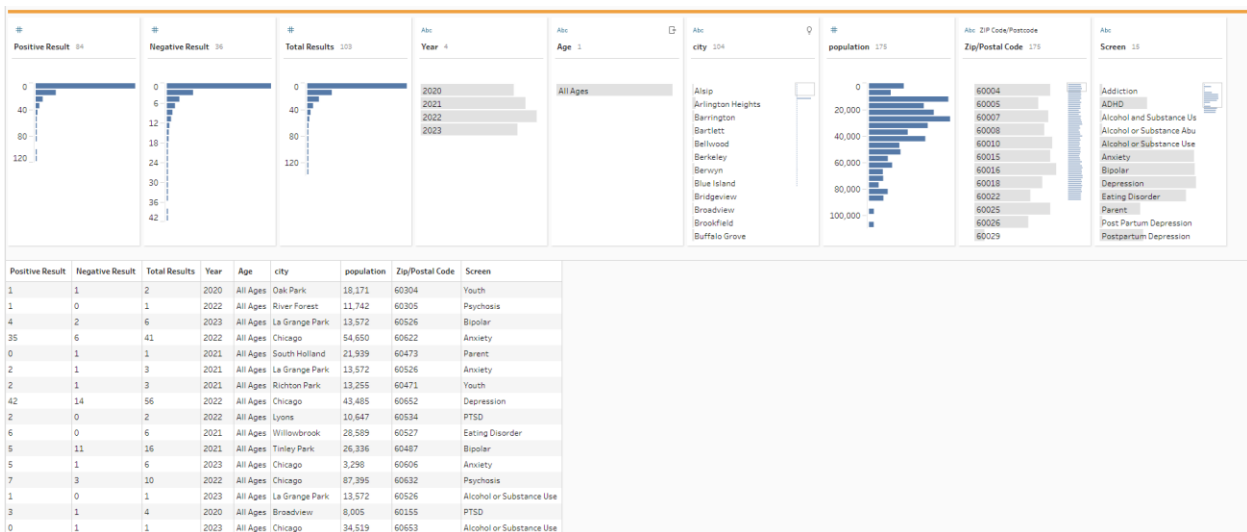




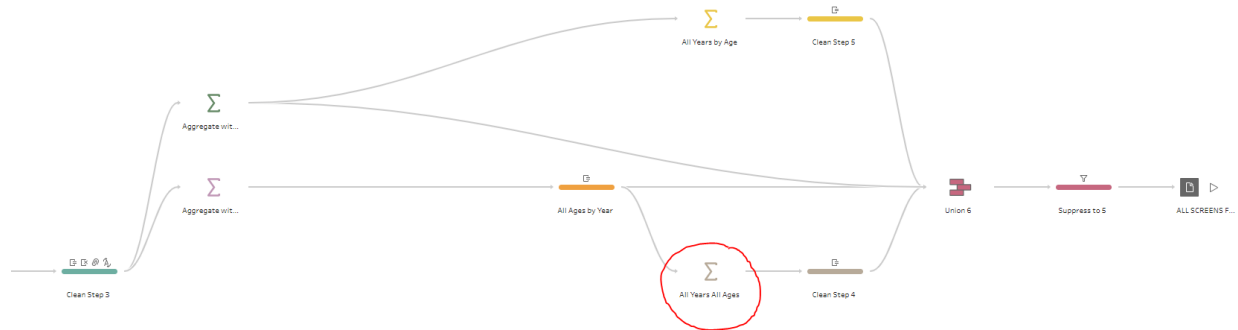
### 8. All Ages by Year:



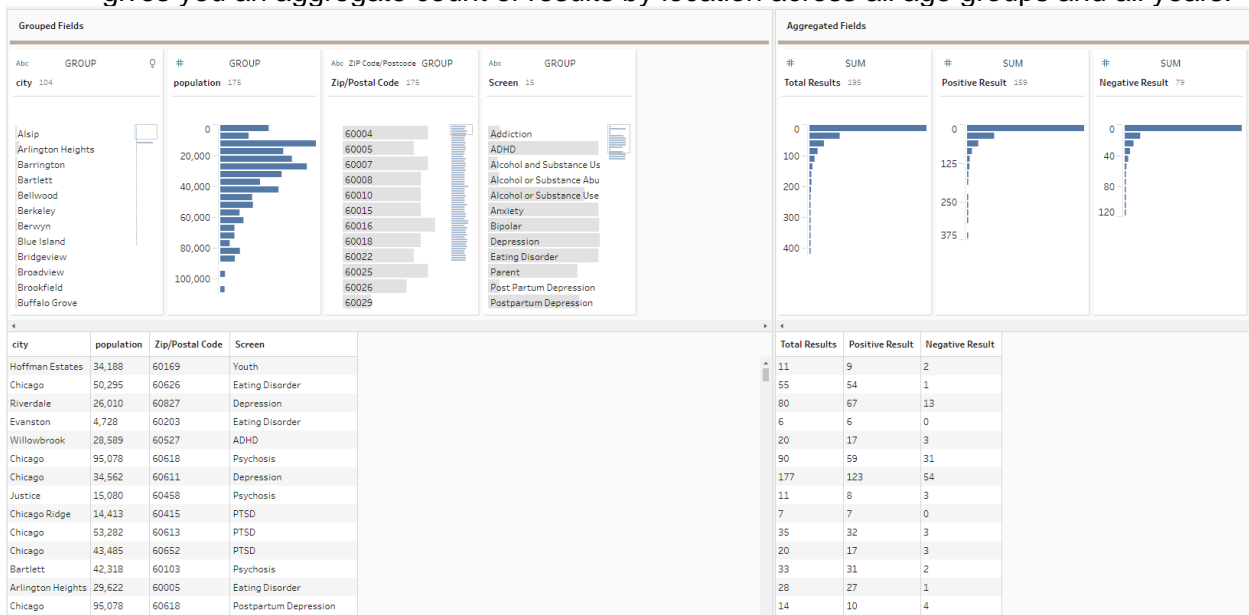
- Creates an “All Ages” label:** This calculated field creates an “Age” column that lists “All Ages” next to each year and location. This just labels these results as being the total number of results across all age categories for each year and location.



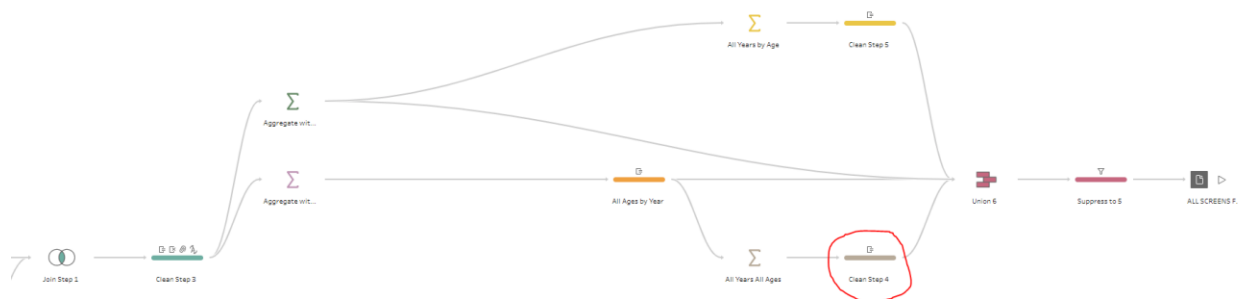
## 9. All Years All Ages:



- Aggregates Counts of Positive, Negative, and Total Results by location and screen.** This step creates an aggregate without the variable year. The output from this gives you an aggregate count of results by location across all age groups and all years.

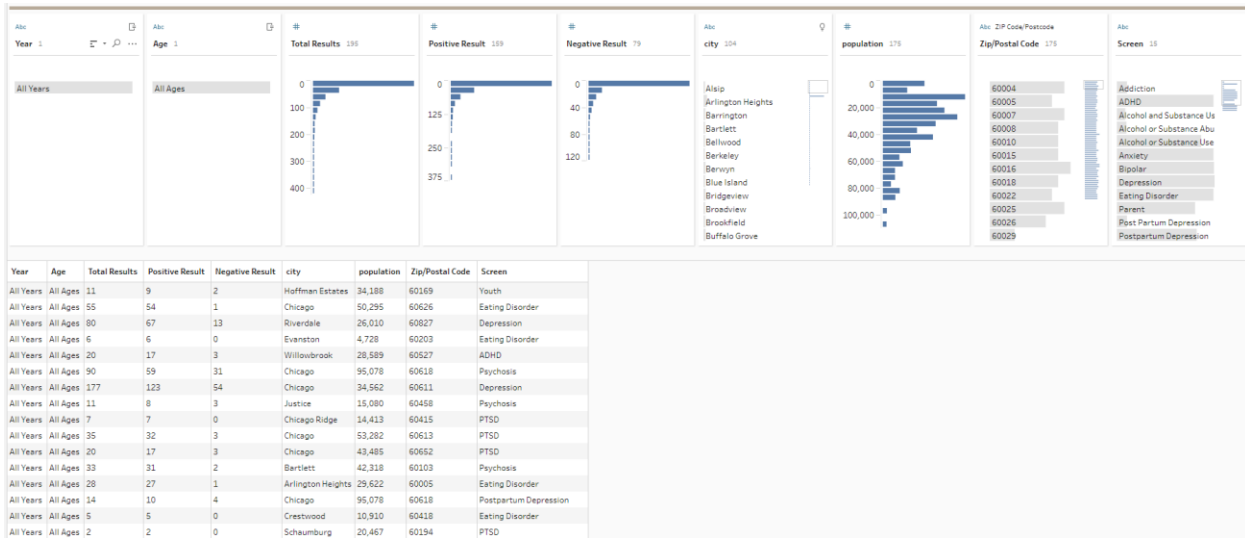


## 10. Clean Step 4:

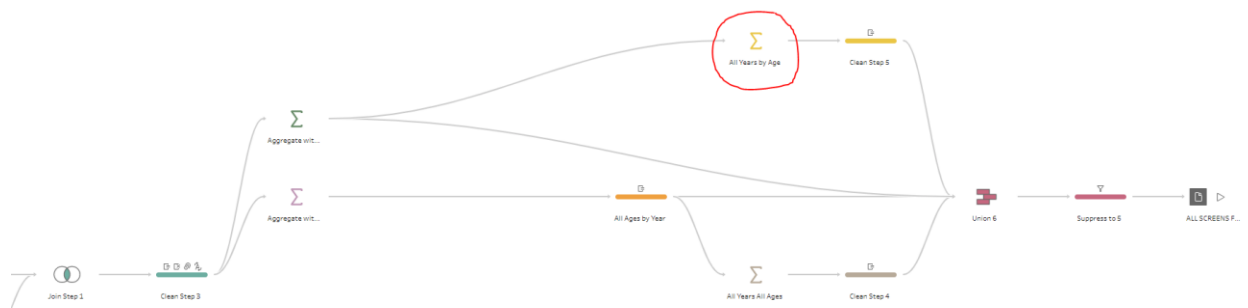


- Creates “All Ages” and “All Years” labels:** This clean step creates two calculated fields - an “Age” column that lists “All Ages” next to each location and a “Year” column

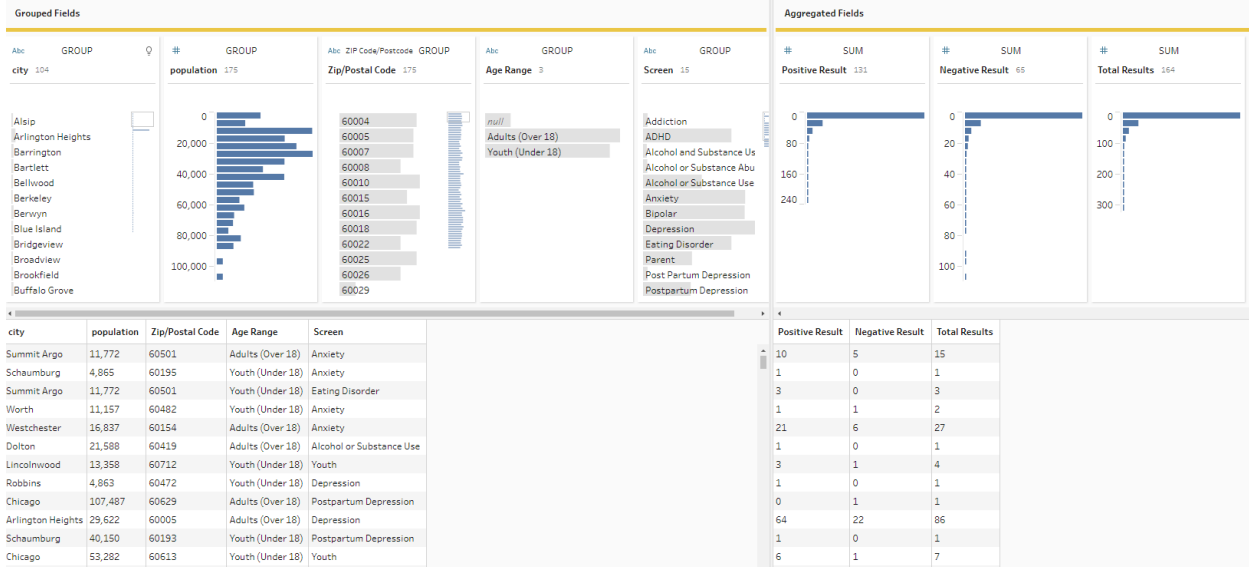
that lists “All Years” next to each location. This just labels these results as being the total number of results across all age categories and all years for each location.



### 11. All Years by Age:



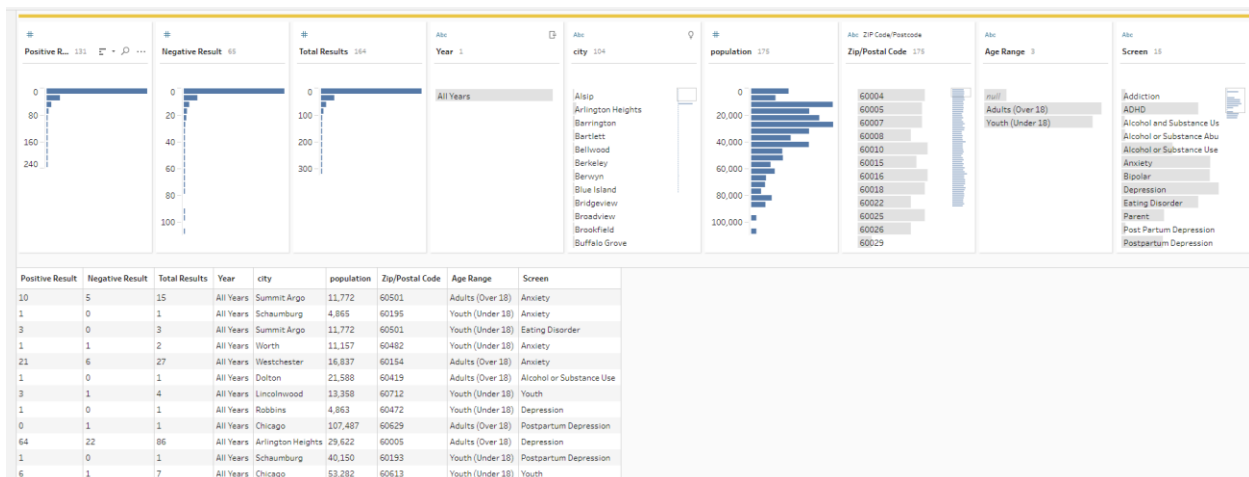
- **Aggregates Counts of Positive, Negative, and Total Results by age, location and screen.** This step creates an aggregate without the variable Year. The output from this gives you an aggregate count of results by location and age group across all years.



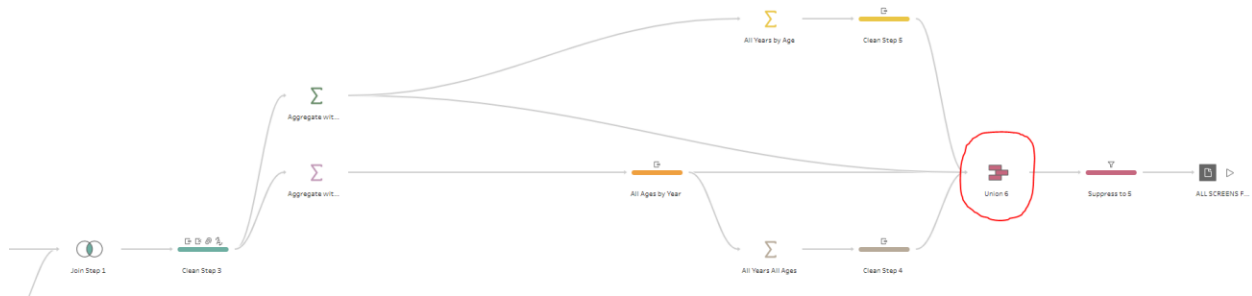
## 12. Clean Step 5:



- **Creates an “All Years” label:** This calculated field creates a “Year” column that lists “All Years” next to each location. This just labels these results as being the total number of results across all years for each age category and location.

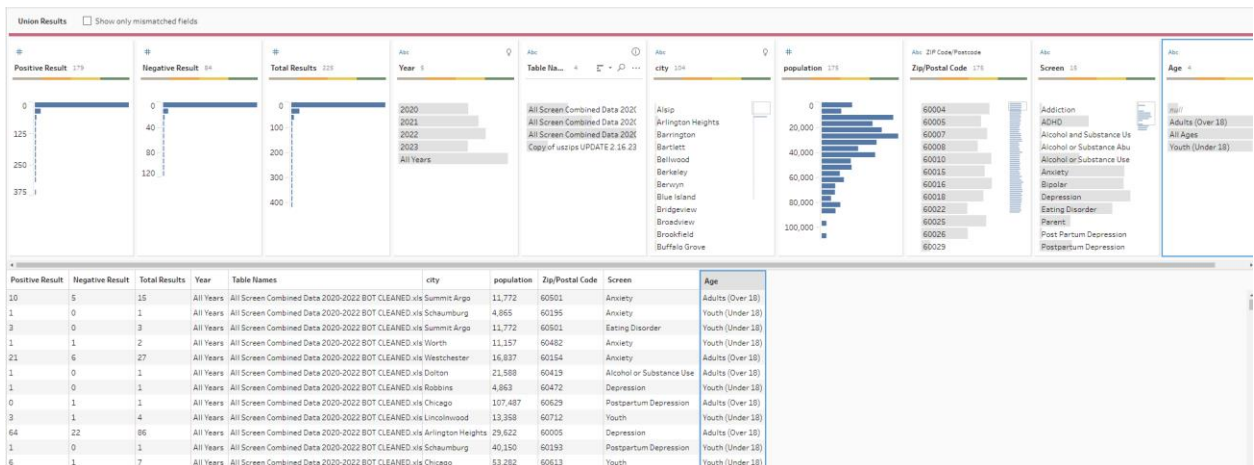


## 13. Union 6:

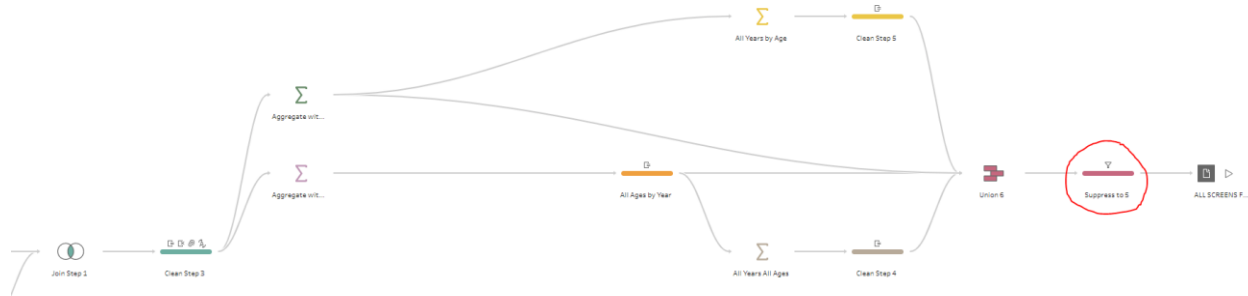


- Joins all datasets together into one Union:** A Union step means you are telling Tableau to combine multiple datasets together on matching variables. Tableau combines these datasets vertically, meaning it adds the new data into the columns below data that already exists (as if you were entering new data into existing columns in an Excel file). At this point in the flow, you have four sets of data:
  - All Years by Age:** A summary of results by location and age category across all years;
  - Data by Age and Year:** A summary of results by location, age category, and year;
  - All Ages by Year:** A summary of results by location and year across all ages;
  - All Years All Ages:** A summary of results by location across all ages and all years.

Each of these datasets have the same columns: Positive Result, Negative Result, Total Results, Year, City, Population, ZIP/Postal Code, Screen, and Age. This Union joins each of those summary datasets into one overall summary of your data.



## 14. Suppress to 5:



- Uses a filter to build in data suppression.** To create a public-facing data dashboard, you must also build in data suppression so users cannot access data from any one individual. In MHA National’s work creating our own public-facing data dashboard, we met with several epidemiologists who advised us that the standard for data suppression is to not show data for any area with fewer than five “positive” results. This step filters out any zip codes with fewer than 5 positive results from your dataset.

