Module 3 Introduction

DAP TOOLKIT MODULE III: DATA INTERPRETATION & APPLICATION

Cook County Department of Public Health & University of Illinois - Chicago School of Public Health

Data Ambassador Program (DAP)

Module 3: Data Interpretation & Application

Module 3 Contents:

Module 3 Learning Objectives:

1. Learn how to interpret counts and rates on the health atlas
2. Identify health disparities amongst racial/ethnic group
3. Be able to understand and interpret the purpose of scatter plots
4. Engage in applied case studies

Setting the Stage

Now, that you are familiar with the Cook County Health Atlas interface and navigation of various indicators, you are prepared to interpret indicators that you or your organization is interested in

Before we interpret the data, it is necessary for all Cook County Health Atlas users to understand the differences between **counts**, **rates**, and **age-adjusted rates**.

Interpreting Counts and Rates

COUNT

A **count** is the number of events or occurrences of a specific health outcome or condition.

For example,

- The number of suicide deaths within a population or georgraphic area
- The number of birthing mothers with high blood pressure
- The number of persons who hospitalized with falls
- The number of persons hospitalized with an opioid overdose

RATE

A **rate** is a unit of measurement to quantify the burden of disease or health outcome in a particular population or geographic area (ex. zip code)

For example,

(# of persons who died from a stroke)/(total # of residents in suburban Cook County)X100,000

Due to various health outcomes occurring based on a person's age, **age-adjusted rate** is calculated to account or control for the effects of age, which will allow you to make comparisons between populations.

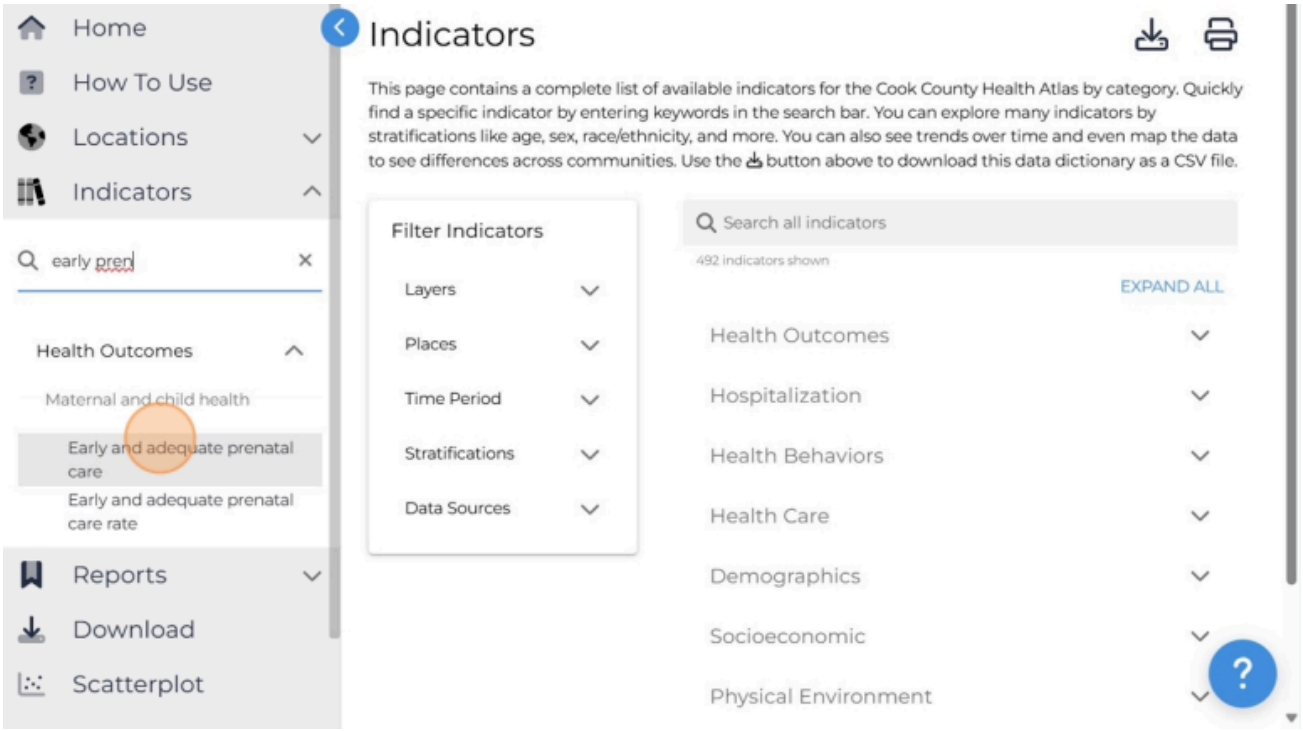
For example,

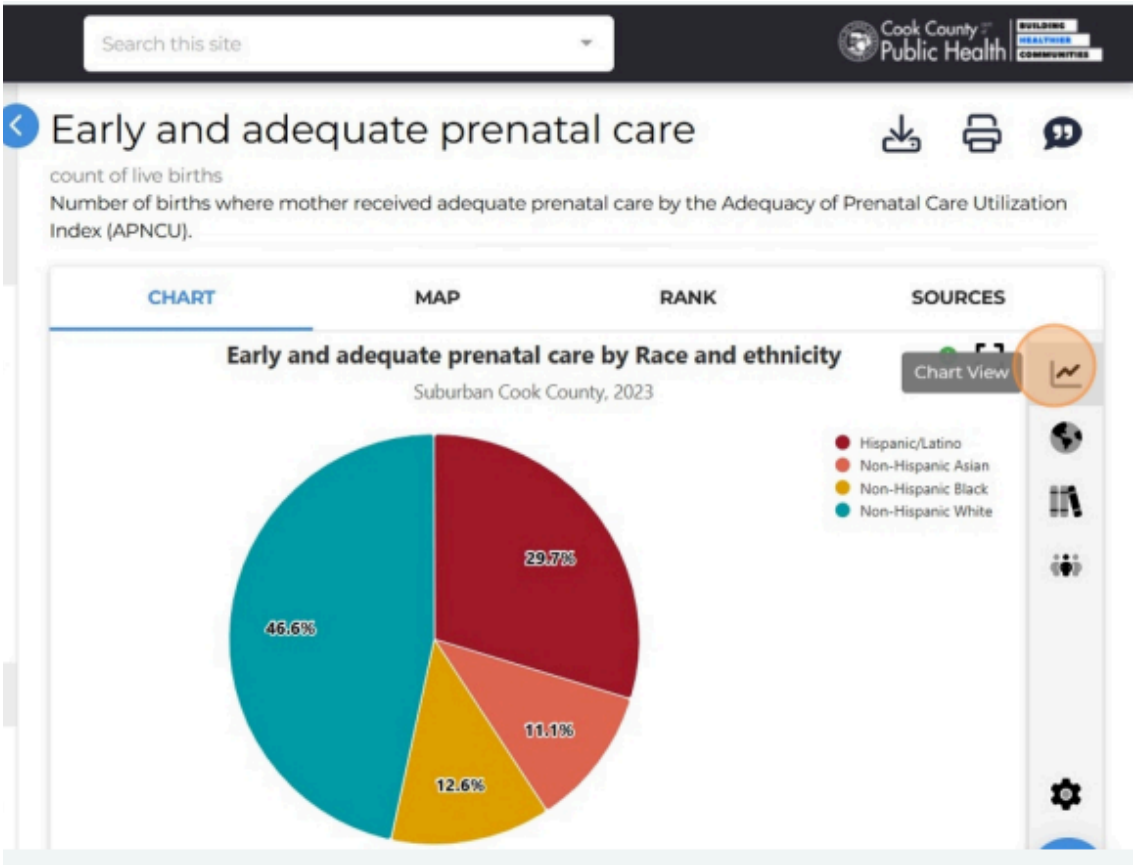
- Heart disease primarily affects older age groups compared to younger age groups

3.1 Interpretating Counts and Rates

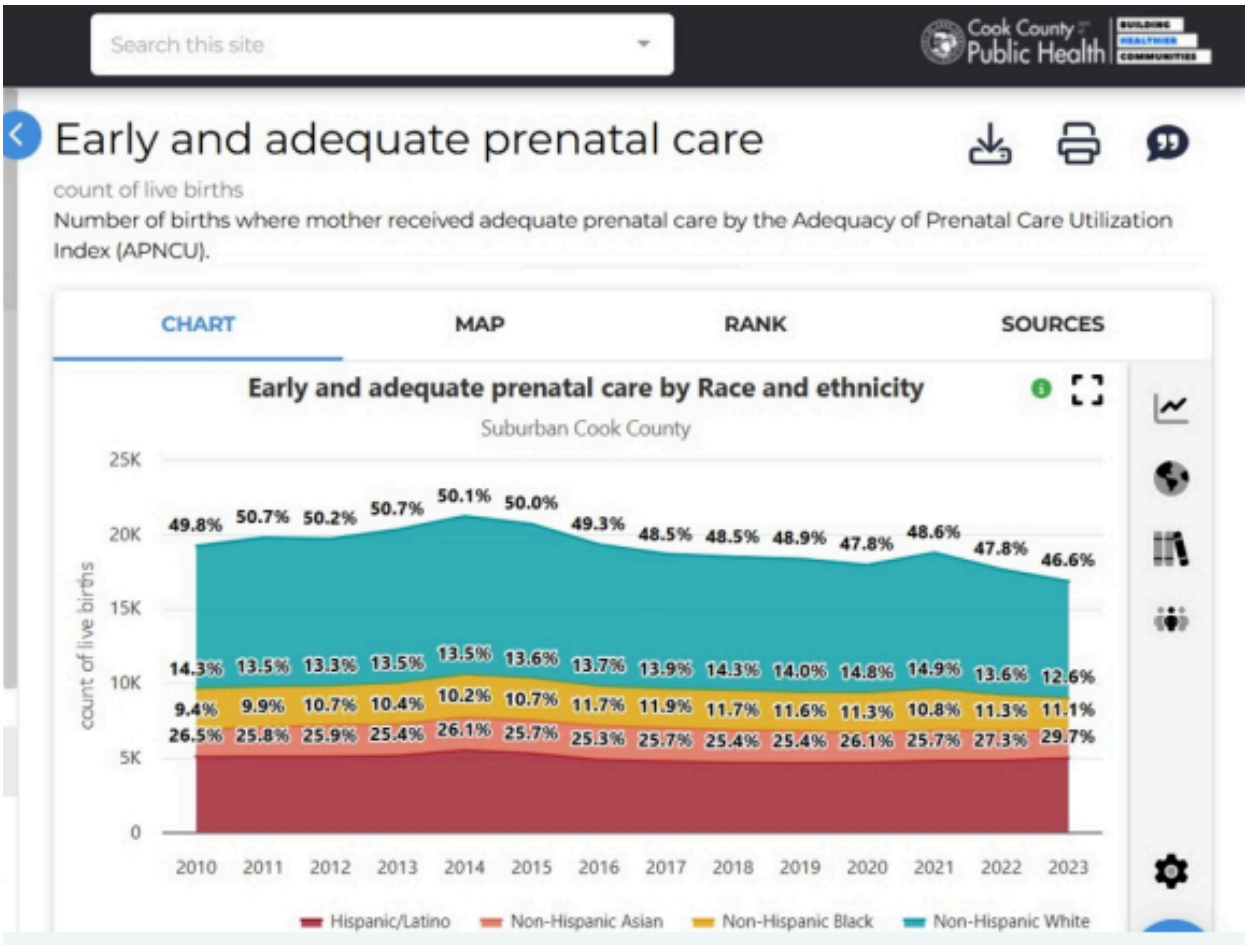
INTERPRETING COUNTS & RATES

Step 1: Use the steps from Activities 1 and 2 to display the default **pie chart** of the Atlas' "Early and adequate prenatal care" *count indicator* by race and ethnicity.

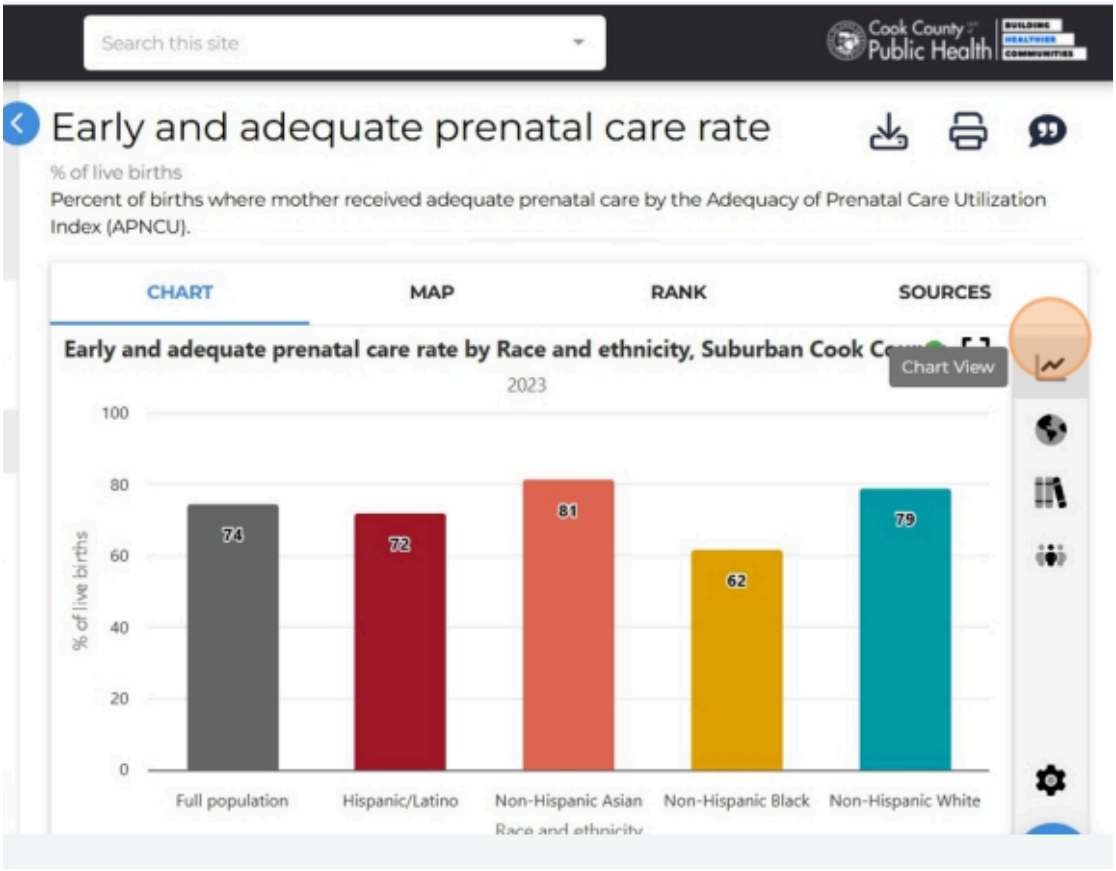




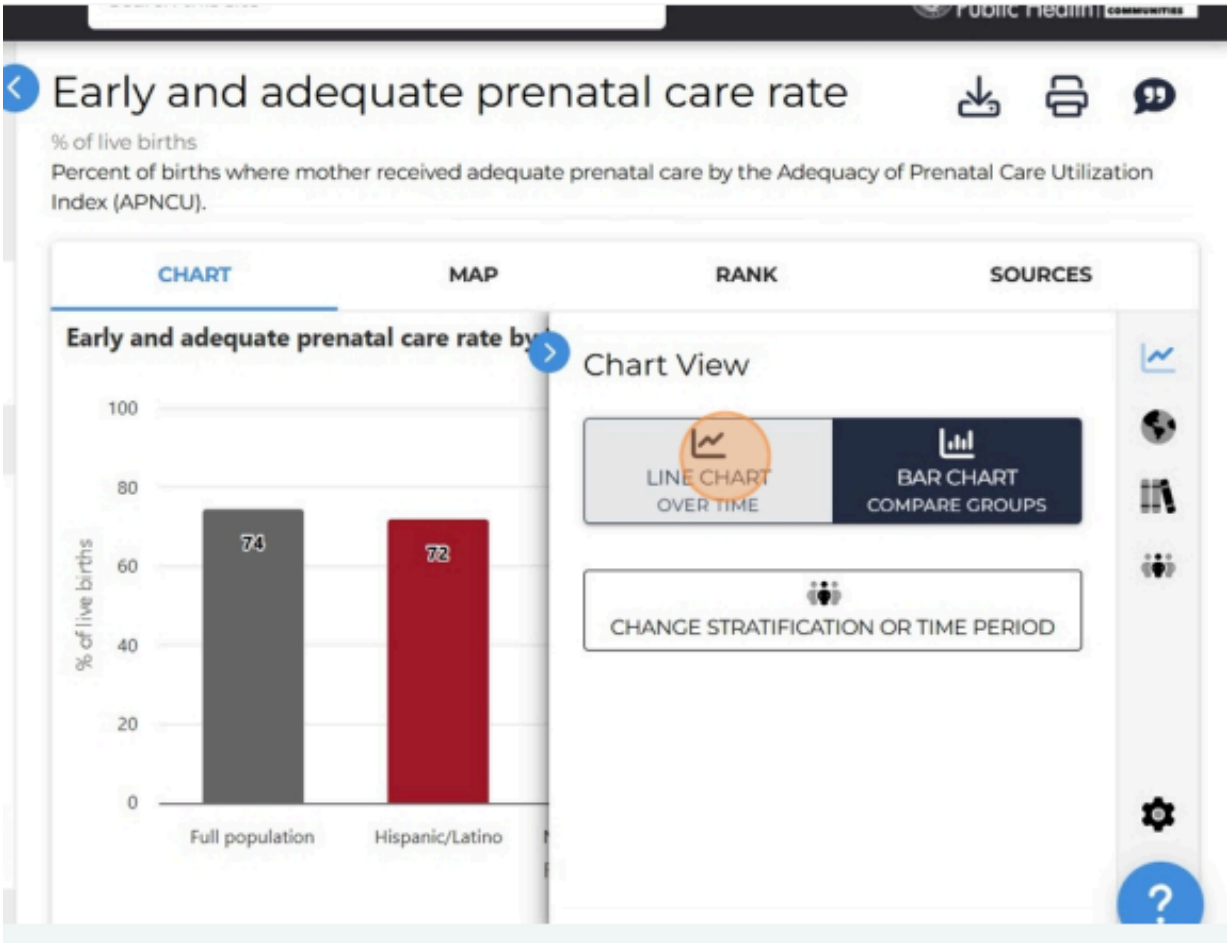
Step 2: Click the “Area Chart Over Time” option to view a representation of the number and share of suburb Cook County’s total prenatal care counts by race and ethnic group.



Step 3: Now use the steps from Activities 1 and 2 to display the default **bar chart** of the “Early and adequate prenatal care rate” indicator by race and ethnic group.



Step 4: Click the “Line Chart Over Time” option to view a representation of the race and ethnic group-specific prenatal care rates over time. Toggle what groups are displayed by clicking the legend item below the chart.


Public Health
Early and adequate prenatal care rate
% of live births
Percent of births where mother received adequate prenatal care by the Adequacy of Prenatal Care Utilization Index (APNCU).
CHART
MAP
RANK
SOURCES
Early and adequate prenatal care rate by
100
80
60
40
20
0
% of live births
74
72
Full population
Hispanic/Latino
Chart View
LINE CHART
OVER TIME
BAR CHART
COMPARE GROUPS
CHANGE STRATIFICATION OR TIME PERIOD

Search this site

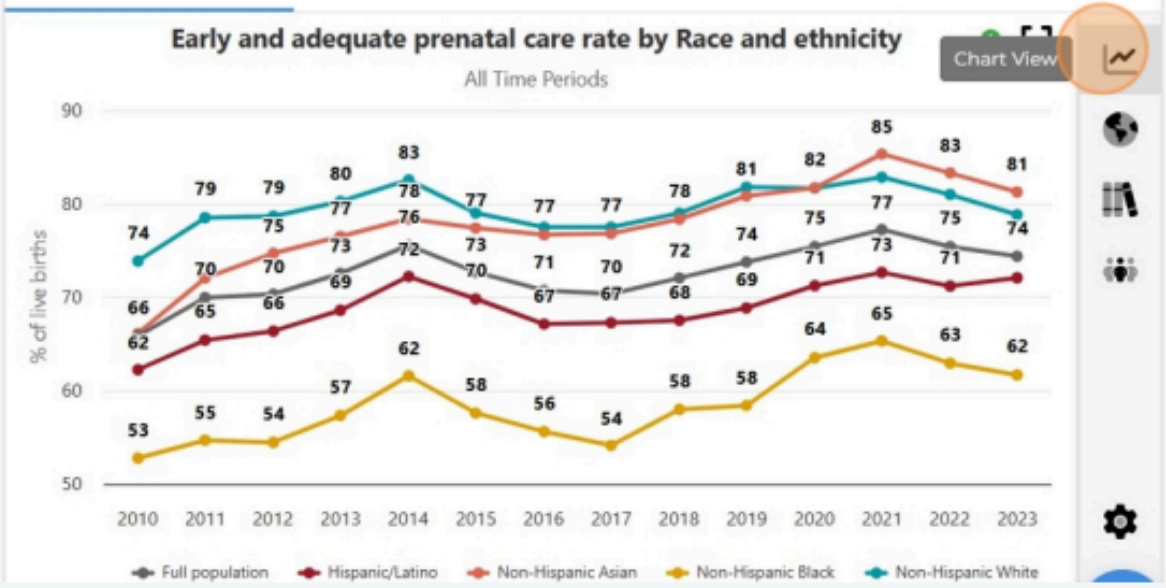
Cook County Public Health

Early and adequate prenatal care rate

% of live births

Percent of births where mother received adequate prenatal care by the Adequacy of Prenatal Care Utilization Index (APNCU).

CHART MAP RANK SOURCES



3.2 Intro to Data Analysis

INTRODUCTION TO DATA ANALYSIS

Data analysis involves collecting and analyzing data to identify patterns and trends, monitor various infectious and chronic conditions, with hopes to inform policy and interventions for population health.

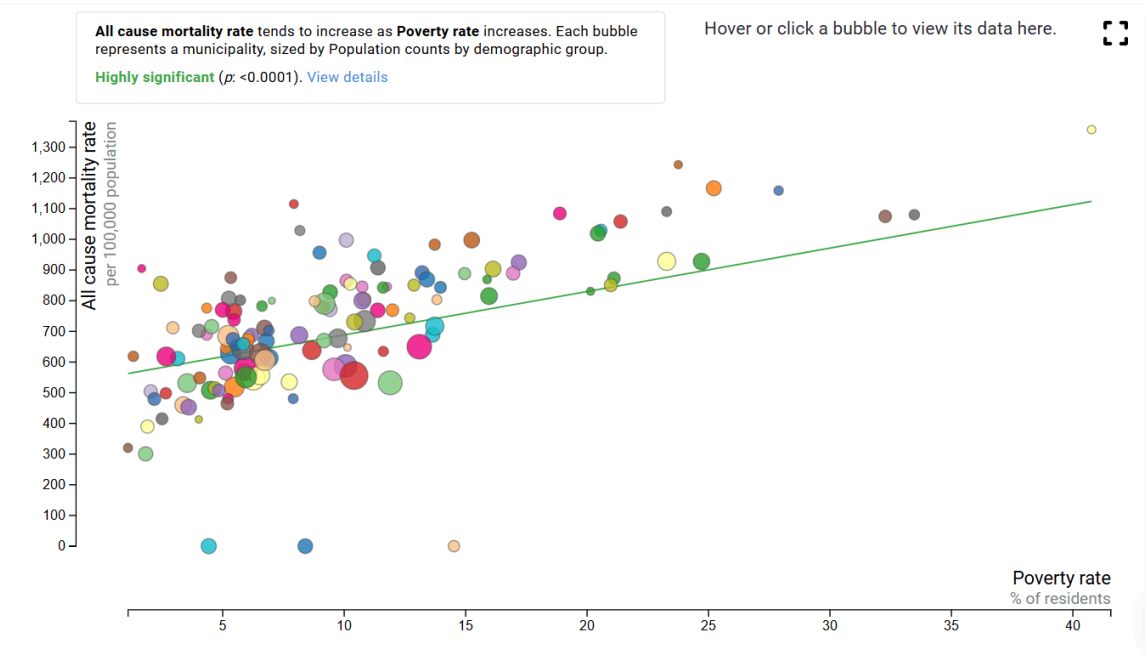
Scatter plots are often used to identify and visualize the relationship between two different variables. In other words, scatter plots allow us to see how one variable is affected when another variable is changed.

- For example, is there a relationship between hotter temperatures and the number of crime events?

A **trend line** or "**line-of-best-fit**" allows us to visually see the overall direction of the data, otherwise known as a **correlation**.

- **Positive correlation** occurs when one variable (independent/predictor) increases, so does the other variable (dependent/response).

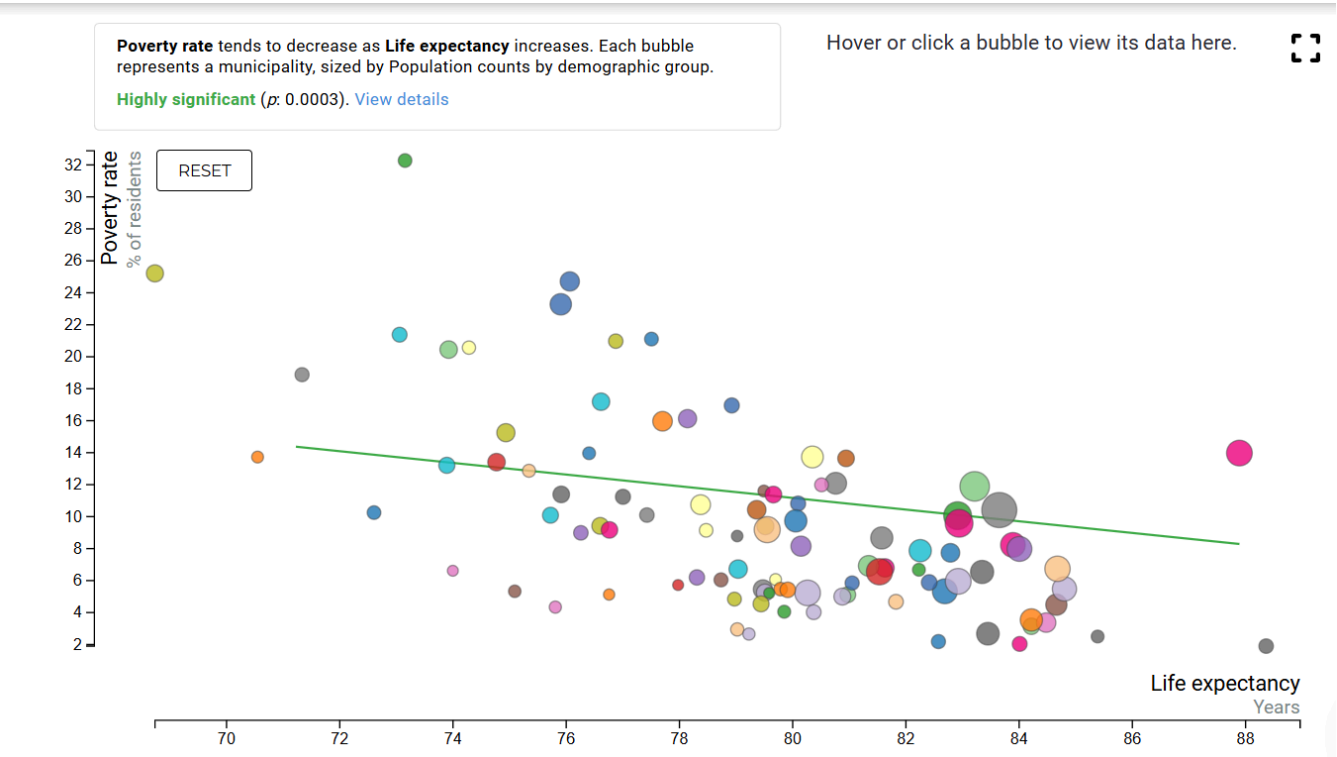
In the example below, we can see that there's a positive correlation between all-cause mortality rate and poverty rate. **All-cause mortality** is defined a person who dies from ANY causes of death, which could be but not limited to motor vehicle accident, cancer, suicide, homicide, and etc. Therefore, we can conclude that poverty is associated with a person's cause of death. We know that social determinants of health such as the built environment where a person resides can affect his or her health. Examples of a built environment include proximity to healthy foods, access to sidewalks, lack of greenspaces, and availability of well-lit areas can exacerbate a person's health outcome. As the percentage of residents poverty increases, so does the mortality rate.



Source: Cook County Health Atlas

- **Negative correlation** occurs when one variable increases, the other variable decreases.

In the example shown below, we can see that poverty is negatively correlated with life expectancy. As the percentage of residents' poverty decreases, life expectancy increases. In other words, we can conclude that higher-income people tend to have a longer life expectancy while residents living in poverty tend to have a shorter life expectancy.

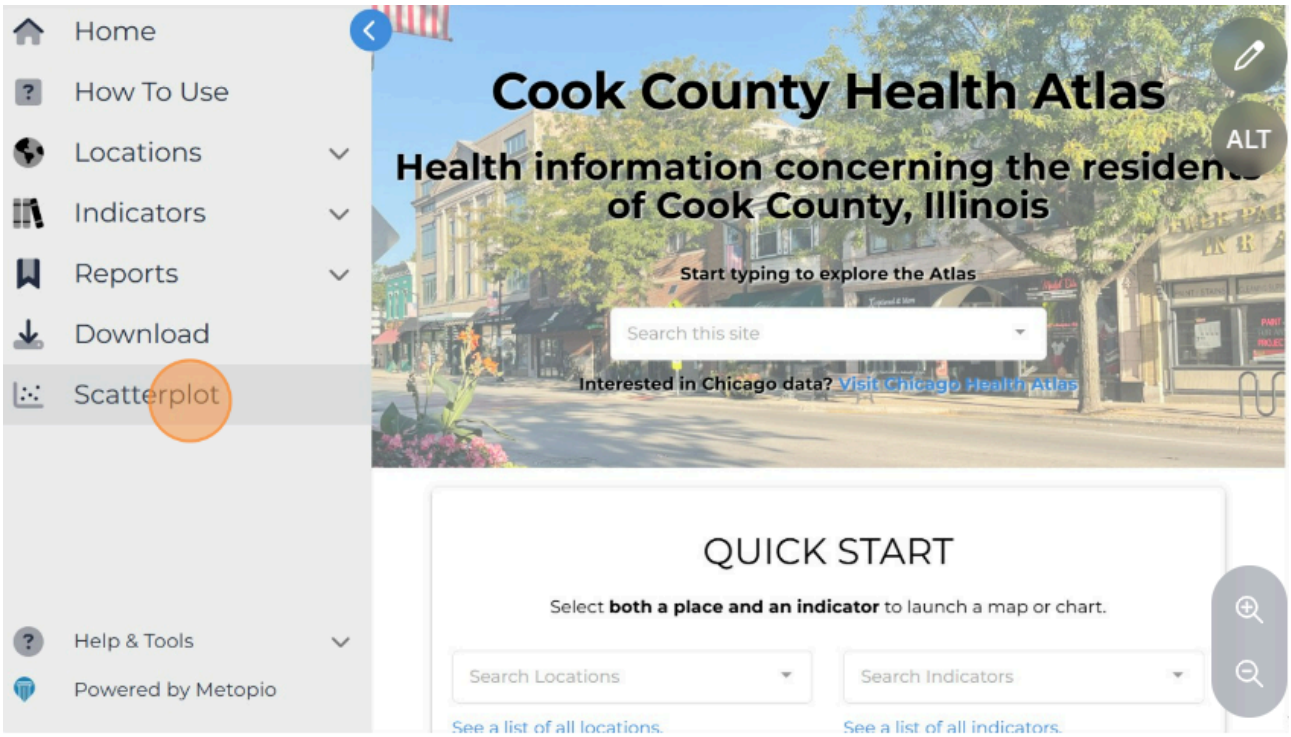


Source: Cook County Health Atlas

- **No correlation** occurs when there is no relationship between the two variables. In other words, the trend line or data points don't follow a specific direction (positive or negative).

TRY IT YOURSELF

Step 1: Click the "Scatterplot" option on the left navigation panel and select "Early and adequate prenatal care rate" for the X-axis indicator and "Life Expectancy" for the Y-axis indicator.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Cook County Health Atlas
Health information concerning the residents of Cook County, Illinois
Start typing to explore the Atlas
Search this site
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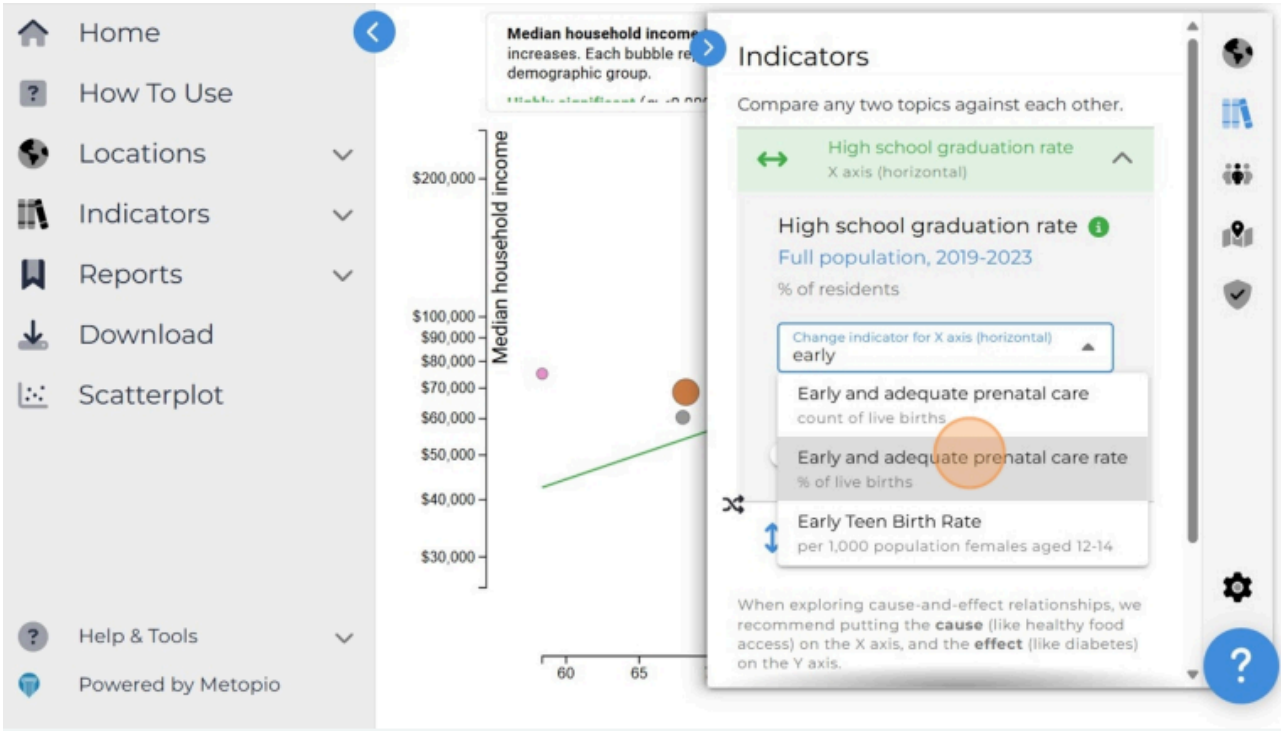
ALT
QUICK START
Select both a place and an indicator to launch a map or chart.
Search Locations
Search Indicators
See a list of all locations.
See a list of all indicators.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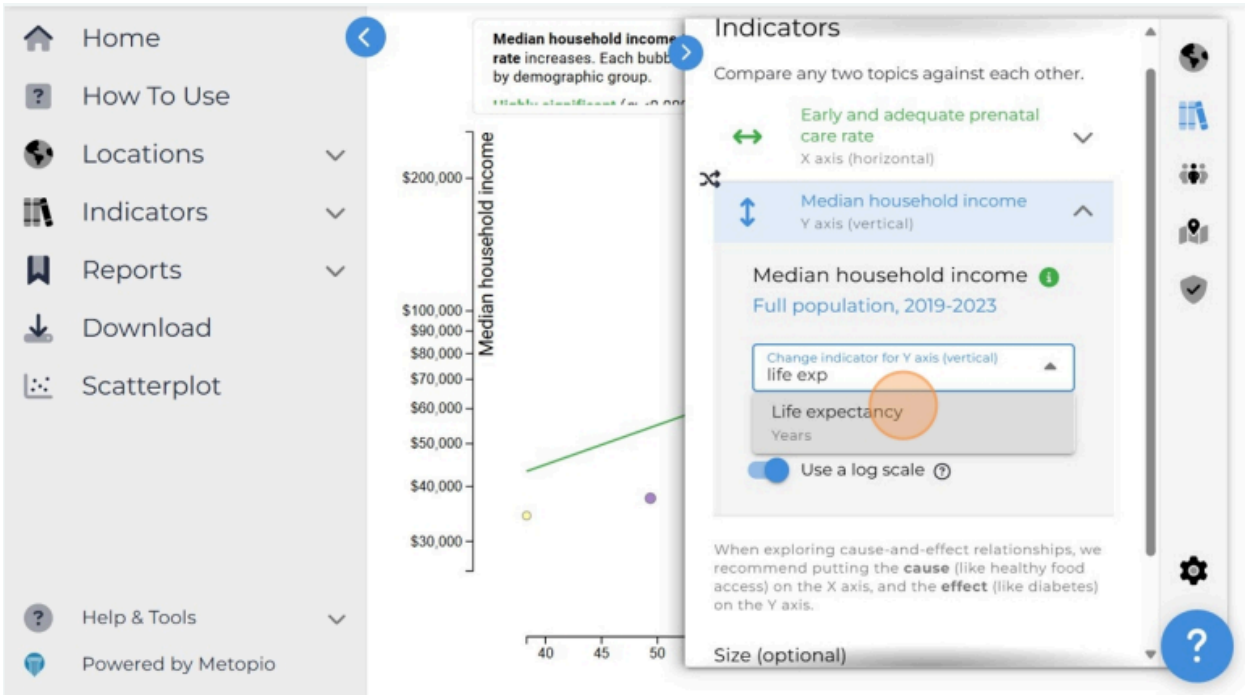
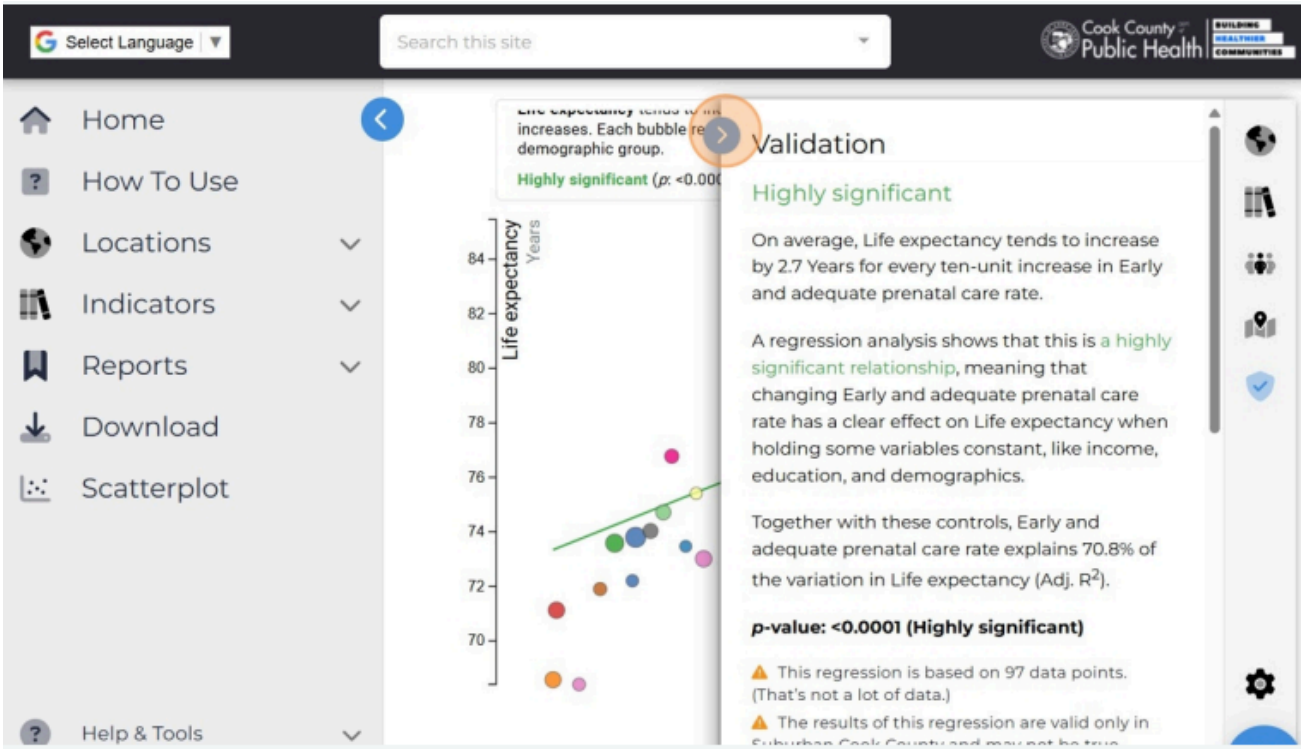
Median household income
increases. Each bubble re
demographic group.
$200,000
$100,000
$90,000
$80,000
$70,000
$60,000
$50,000
$40,000
$30,000
Median household income
60
65
Indicators
Compare any two topics against each other.
High school graduation rate
X axis (horizontal)
High school graduation rate
Full population, 2019-2023
% of residents
Change indicator for X axis (horizontal)
early
Early and adequate prenatal care
count of live births
Early and adequate prenatal care rate
% of live births
Early Teen Birth Rate
per 1,000 population females aged 12-14
When exploring cause-and-effect relationships, we recommend putting the cause (like healthy food access) on the X axis, and the effect (like diabetes) on the Y axis.



Early and adequate prenatal care - mother received adequate prenatal care by the Adequacy of Prenatal Care Utilization Index (APNCU)

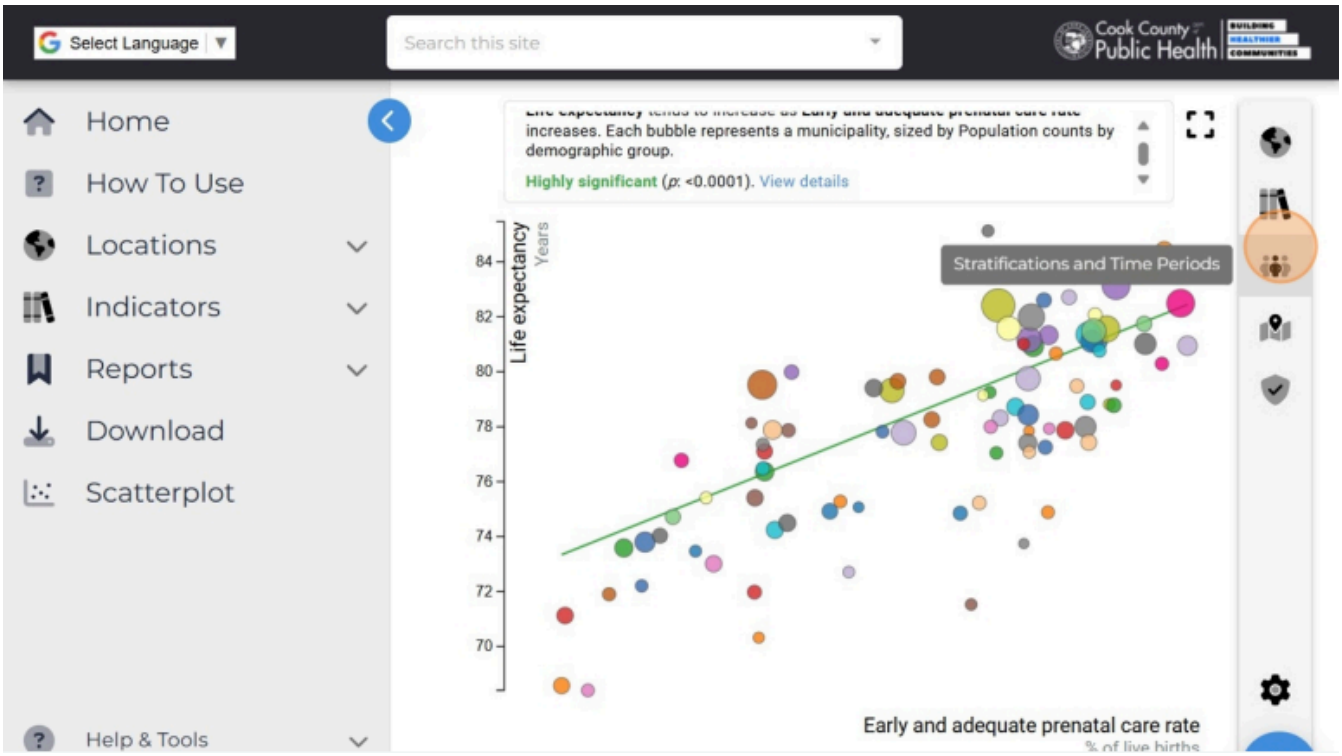
Life expectancy - The average number of years a person may expect to live.

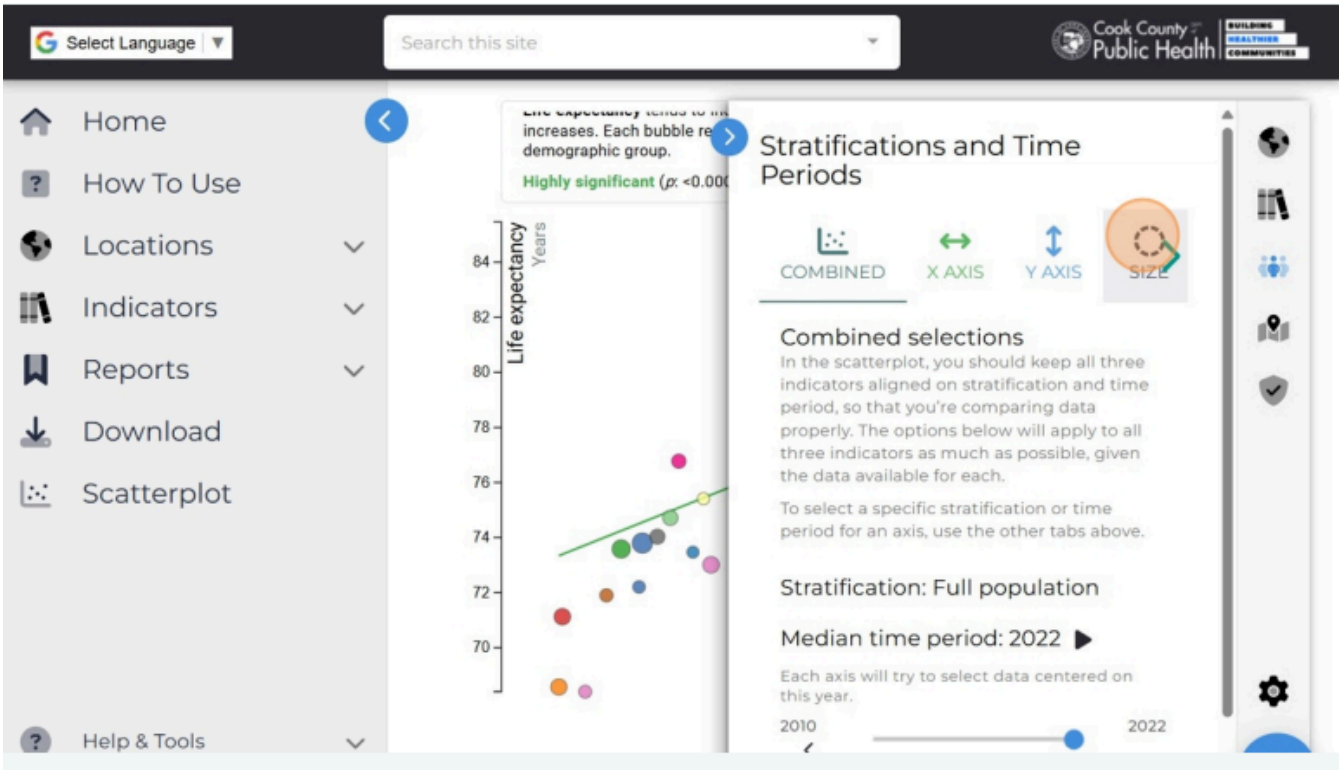
Step 2: Click “View details” to see a summary of the statistical relationship between the two indicators while holding some social determinants of health variables constant.

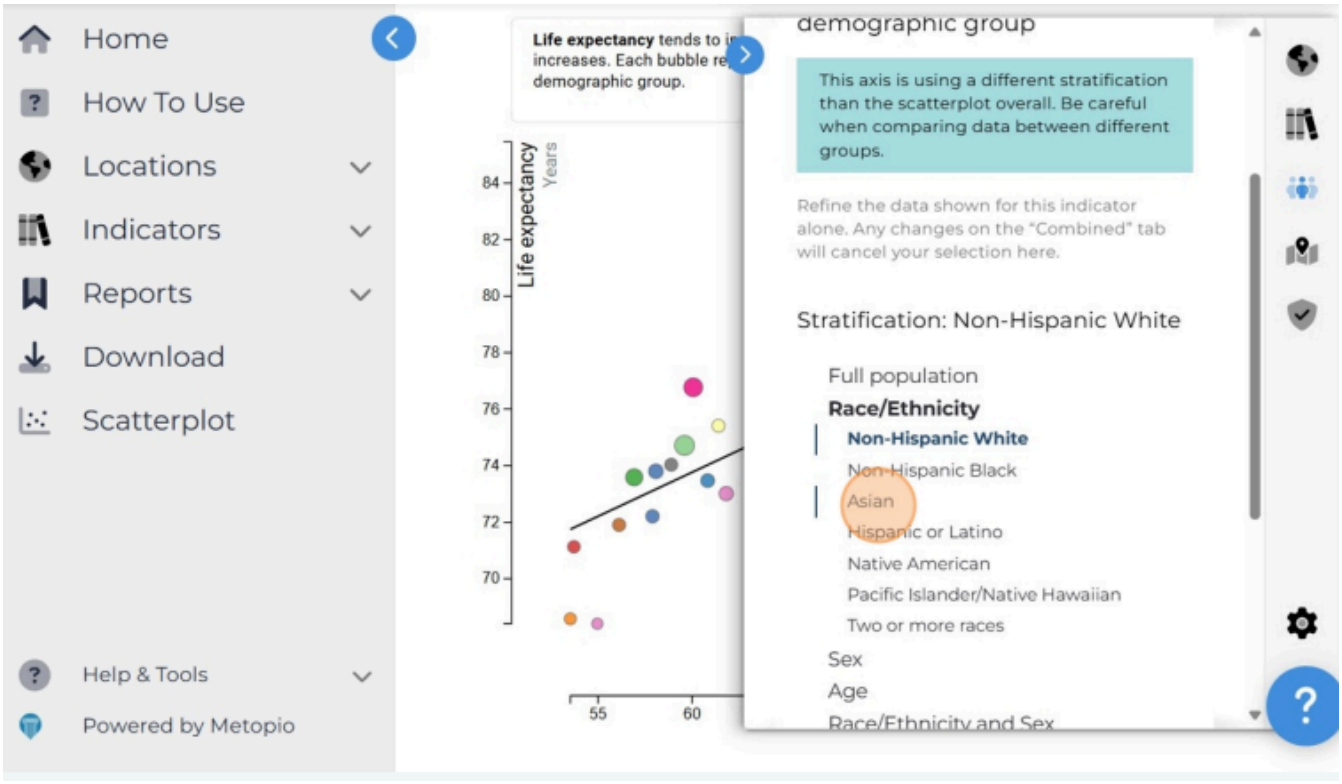


Step 3: Click the “Stratifications and Time Periods” icon and the “Size” option to adjust the size of the circles (i.e., municipalities) in the

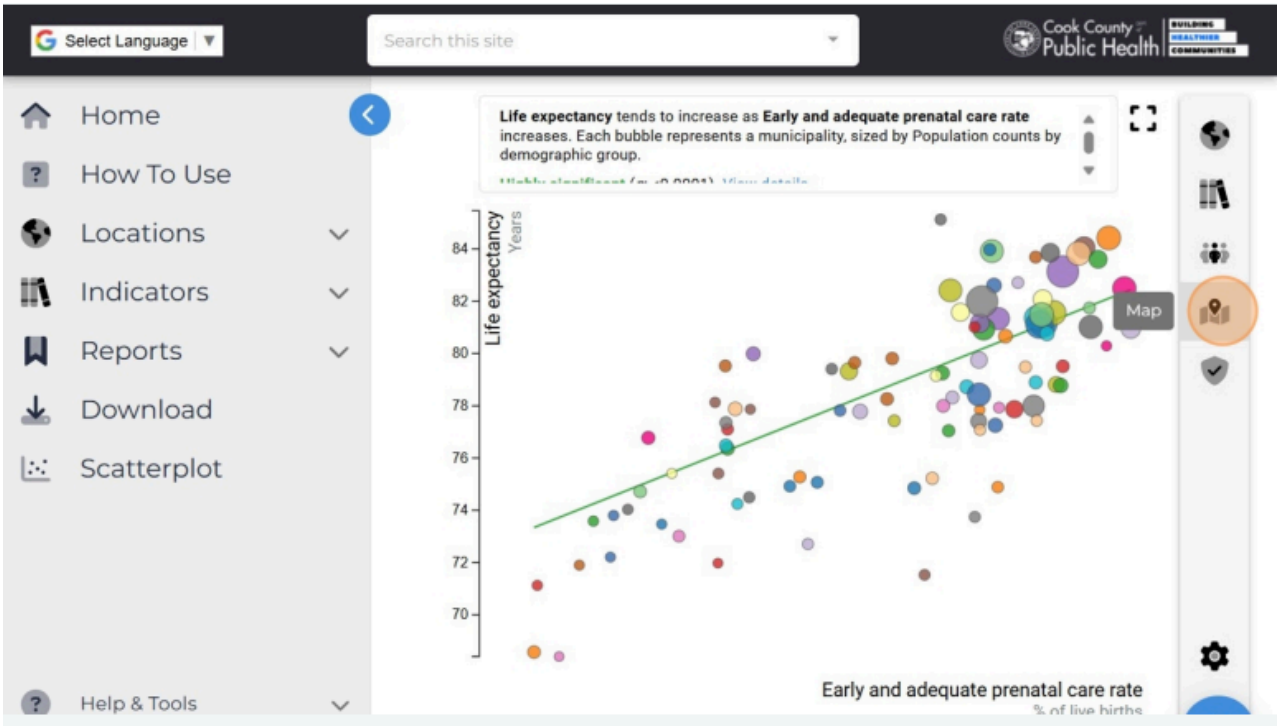
scatterplot relative to their share of a selected population group (e.g., Asian).







Step 4: Click the "Map" icon to explore geographically the rates of plotted indicators by municipality.



After this, complete the module material. Let's delve into some case studies to apply what you learn by choosing four different types of case-study categories based on your interest. (**Chronic Disease, Behavioral Health, Access to Healthcare, and Food Insecurity**). If you would like to check your answers, the answer key will be posted in the appendix.

References

Minnesota Department of Health (MDH). Tools and Training for Scatter Plot https://www.health.state.mn.us/communities/practice/resources/phqitoolbox/scatterplot.html#how

Case Study Cover Page

Case Study Cover Page

Introduction: In this section, you will have the opportunity to analyze and interpret health atlas data to complete the following case studies: **Chronic Disease**, **Behavioral Health**, **Healthcare Access**, and **Food Insecurity**. These case study worksheets emulate a “mad-libs” concept, so this is a “fill-in-the-blank” activity as you complete the prompts. If you’re having trouble, there are “step-by-step” tutorials at the bottom of each case study to assist you. Once you’re finished, please check your answers in the appendix section of this module.

Chronic Disease - Case Activity

DATA AMBASSADOR SERIES
WORKSHOP ACTIVITY

ACCESS TOOLKIT HERE

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Chronic Disease Case Study

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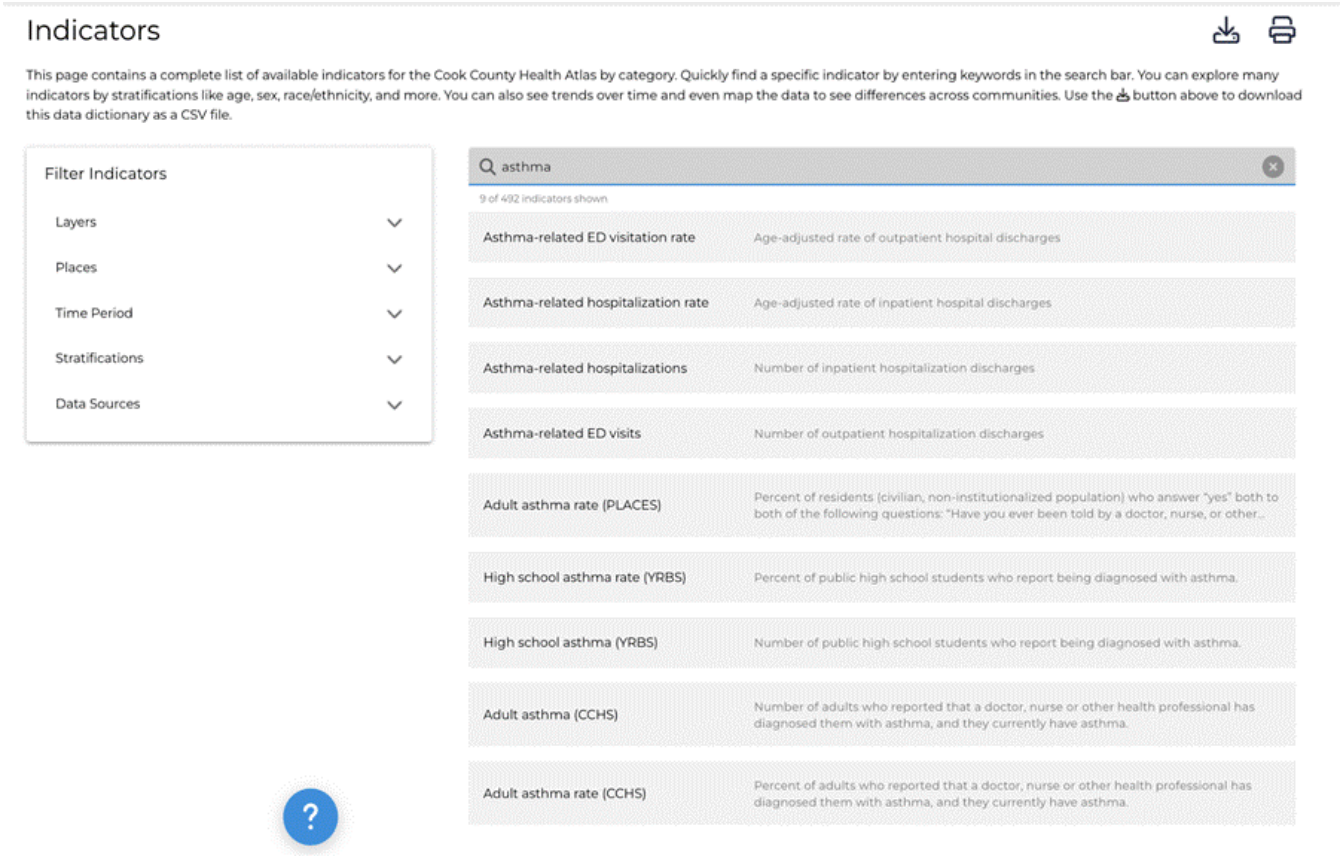
BUILDING HEALTHIER COMMUNITIES

Sam, a program coordinator with “Quality Air Inc.,” is interested in developing an educational campaign to address asthma-related disparities in suburban Cook County. They plan to promote their educational materials through billboards and other advertisements while also advocating for better air quality conditions but would like to identify areas that are most impacted.

Sam searches the Cook County Health Atlas Data Dictionary for indicators related to asthma and other environmental conditions. They find 9 different indicators to examine:



Sam decides to use the two following indicators for their educational campaigns: A*sthma-related hospitalization rate* and A*dult asthma rate (CCHS)*

- Asthma-related ED visitation rate
- Asthma-related hospitalization rate ✅
- Asthma-related hospitalizations
- Asthma-related ED visits
- Adult asthma rate (PLACES) ✅
- High school asthma rate (YRBS)
- High school asthma (YRBS)
- Adult asthma (CCHS)

- Adult asthma rate (CCHS)

Sam notes the data sources for these indicators include the following:

- PLACES - Centers for Disease Control (CDC), Behavioral Risk Factor Surveillance System
- YRBS - Youth-Risk Behavioral Survey
- CCHS - Cook County Health Survey

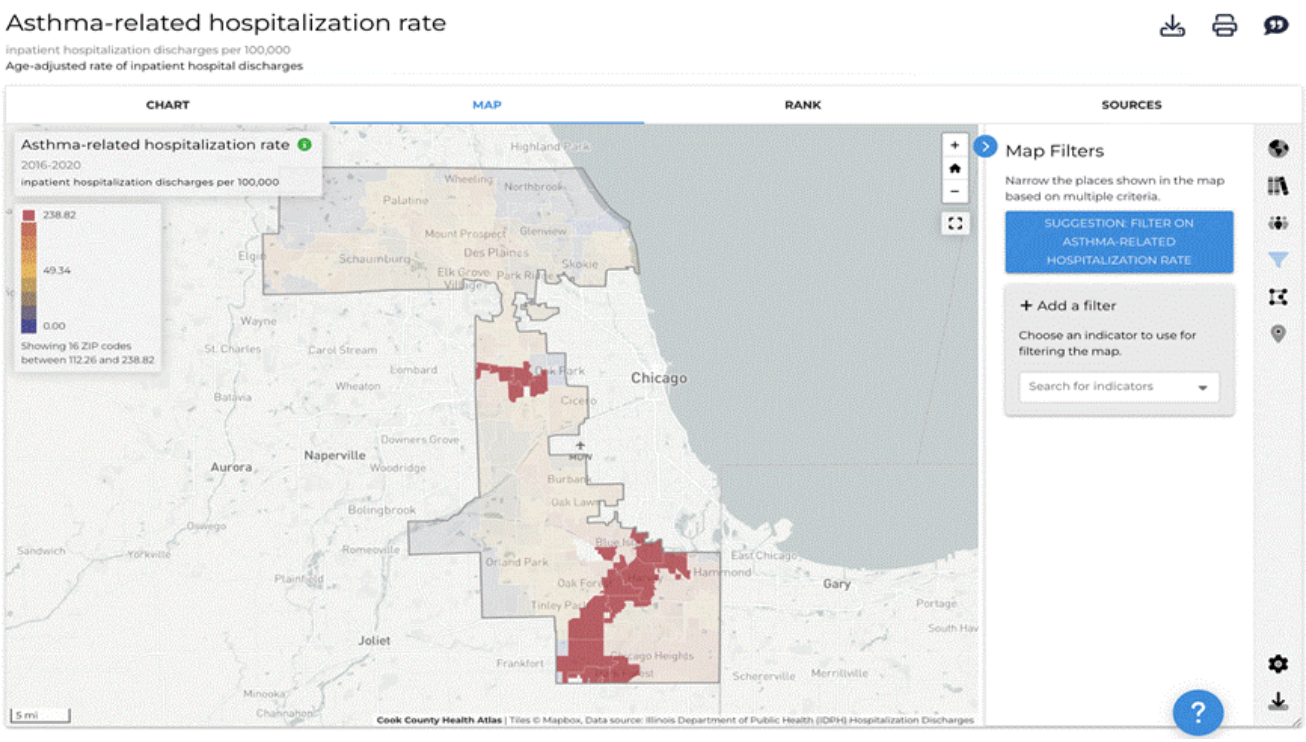
First, Sam searches the *asthma-related hospitalization rate* indicator and finds a bar chart of hospitalizations by race/ethnicity in all suburban Cook County for 2022.

They notice that the ***(racial/ethnic group)*** _____*population has a (****insert the rate)*** _____ per 100,0000, which is the highest rate across all racial/ethnic groups. The lowest burden is among **(racial/ethnic group)** _____ population, which has a rate of **(insert the rate)** _____ per 100,000 persons.

Next, Sam clicks and opens a line chart showing changes in asthma-related hospitalization for all time periods. Among the full population, the asthma-related hospitalization rate has increased from **(insert the rate)** _____to **(insert the rate)** _____from 2020 to 2022.

Sam is interested in how asthma hospitalization rates have changed over time, and notices that all racial/ethnicities groups have experienced a/an **(indicate increase/decrease/remained constant)** _____in asthma-related hospitalization rates since 2020.

Sam clicks and opens the map visualization. Overall, they notice that the highest burden of asthma-related hospitalizations is located in the **(north/south/east/west)** _____and **(north/south/east/west)** _____ regions of suburban Cook County. They decide to promote their new educational campaign in these areas.



After looking at asthma-related hospitalization rates, Sam wants to know more about people who have been formally diagnosed with asthma by a healthcare professional. Sam searches the *adult asthma rate (CCHS)* indicator and finds that **(racial/ethnic group)** _____persons residing in suburban Cook County have the largest asthma diagnosis with **(insert the rate)** _____.

Jasmine, a health educator from “Healthy Hearts Illinois” is interested in delivering free blood pressure screenings and organizing a fresh fruits and vegetables giveaway to address heart health in suburban Cook County. Her organization plans to recruit farmers’ markets from across the state to promote meal preparation and healthy eating for this event.

Jasmine visits the Cook County Health Atlas to search for indicators such as stroke mortality and other hospitalization outcomes. The following indicators were identified:

- Stroke mortality rate ✅
- Stroke-related hospitalization rate
- Stroke-related ED visits
- Stroke-related ED visitation rate
- Stroke-related hospitalization rate✅
- Stroke (PLACES)
- Stroke-related hospitalizations

Jasmine chooses the following indicators for her educational campaigns: *Stroke mortality rate and Stroke-related hospitalization rate*

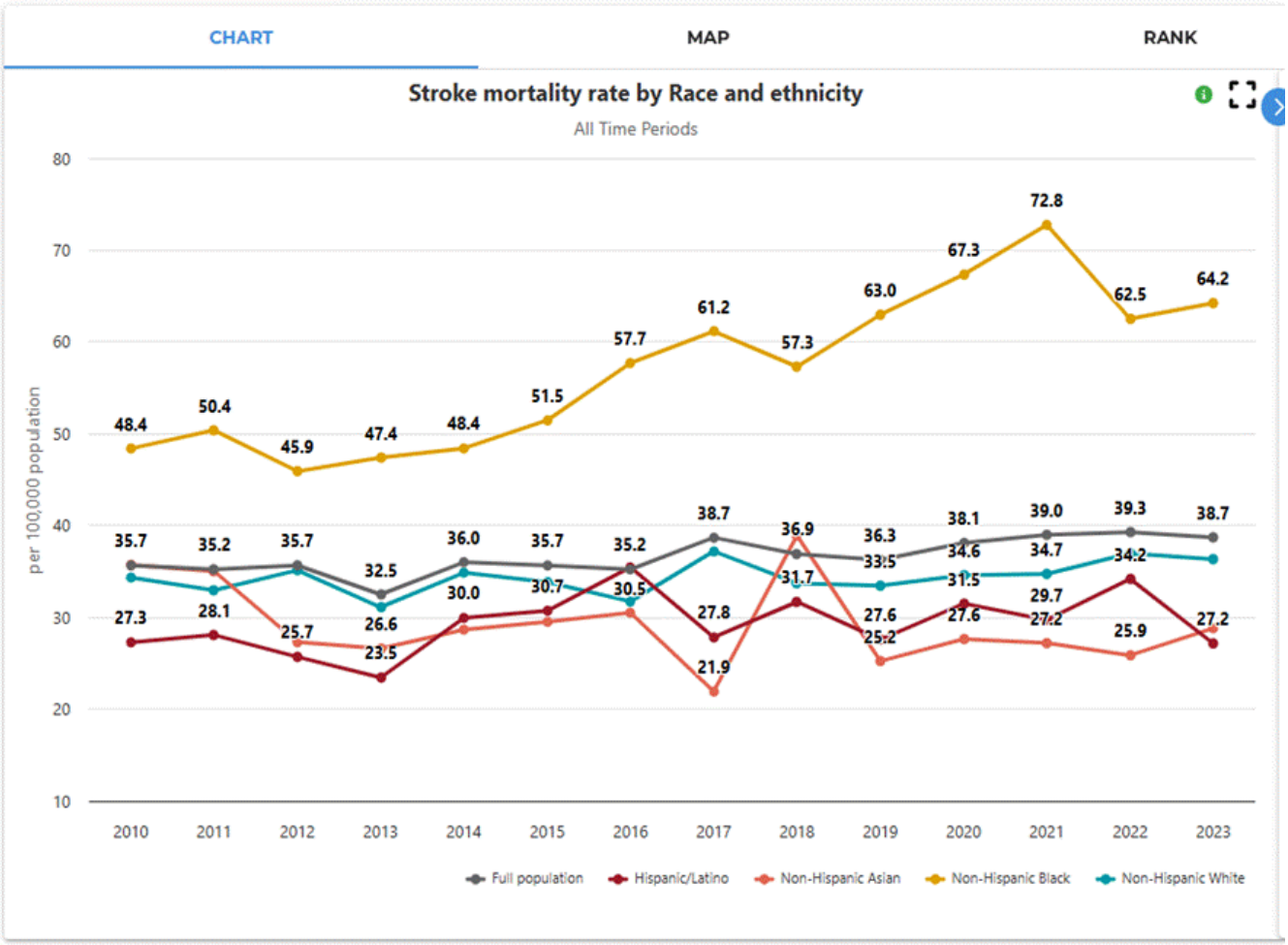
First, Jasmine searches for the *stroke mortality rate* indicator and finds a bar chart of hospitalizations by race/ethnicity in all suburban Cook County.

In **(time period/year)**_____, she notices that the **(racial/ethnic group)** _____ population has a rate of **(insert the rate)** _____ per 100,0000 persons, which is the highest rate across all racial/ethnic groups.

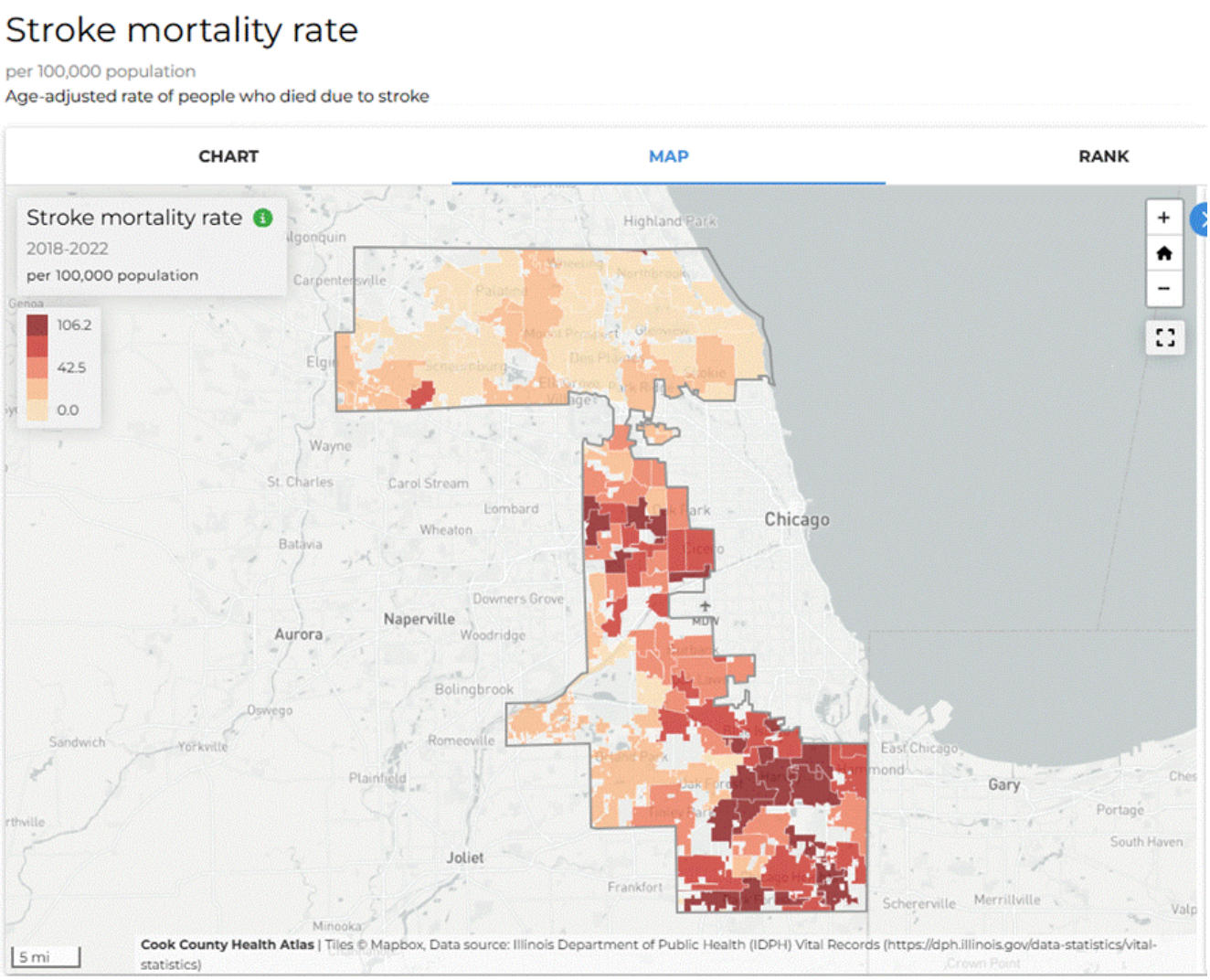
The lowest burden is among **(racial/ethnic group)**_____ population, who has a rate of **(insert the rate)** _____per 100,000 persons.

Jasmine then clicks to the “Line Chart” to see how stroke mortality has changed over time.

In 2020, stroke mortality rate among the Non-Hispanic Black population **(increased/decreased)** _____from **(insert the rate)**_____ to **(insert the rate)**_____ then **(increased/decreased)**_____ to **(insert the rate)** _____ in 2021.

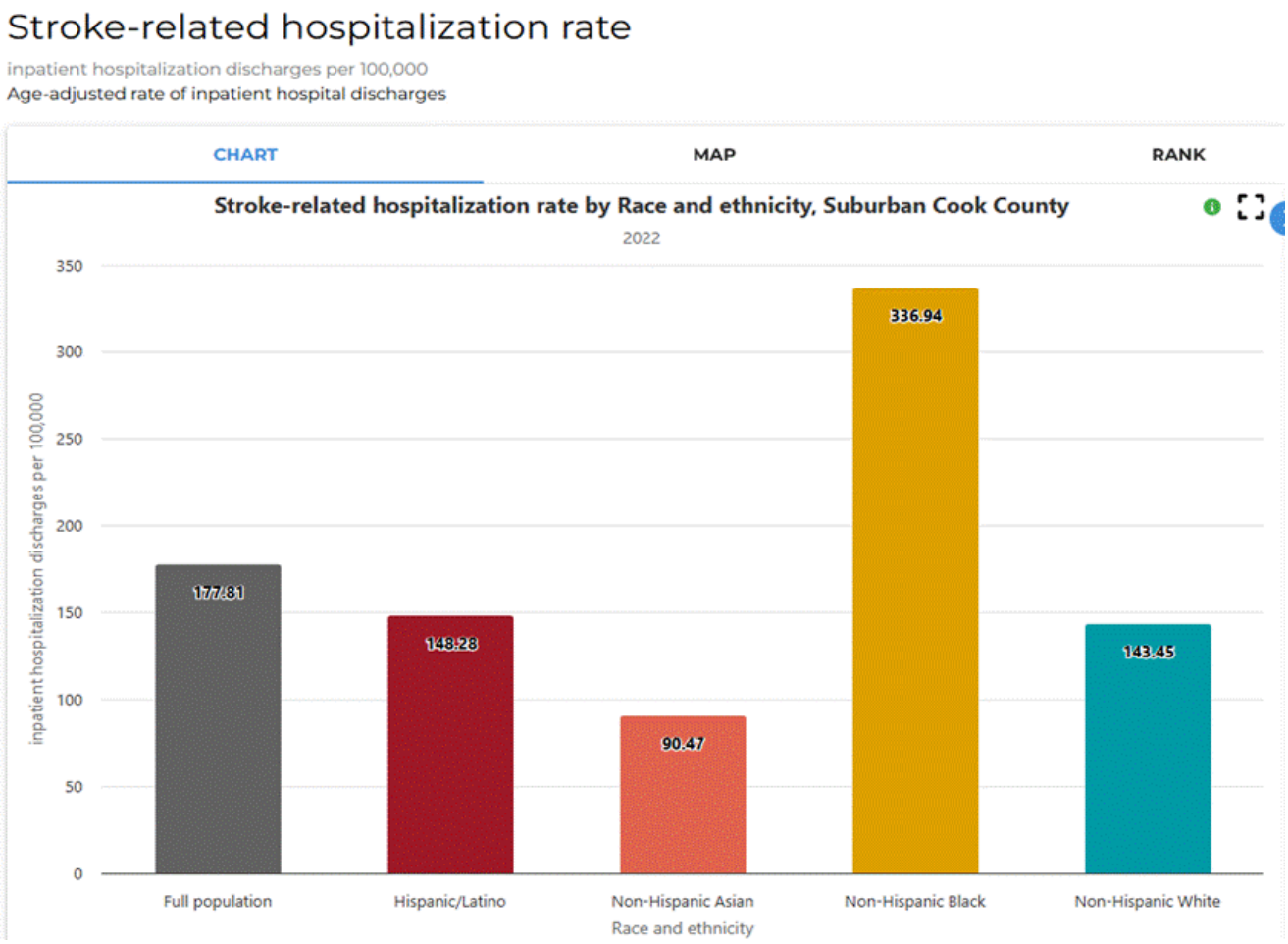


Then, Jasmine clicks to view a map and realizes that this indicator is visualized by municipalities. She notices that the highest burden of stroke is concentrated between the **(north/south/east/west)**_____ and **(north/south/east/west)**_____ region of suburban Cook County. She decides to promote Healthy Hearts programming in these areas.



After looking at stroke mortality, Jasmine decides she wants to look at hospitalizations and see how they differ from stroke-related deaths.

She searches for *stroke-related hospitalization rate* and notices that the **(racial/ethnic group)** _____ population has a **(insert the rate)**_____ per 100,000, and the whole population of suburban Cook County has **(insert the rate)** _____per 100,000.



The Non-Hispanic Black population experiences stroke-related hospitalizations at a rate **(insert the rate of Black population/insert the rate of full population)** _____(*hint: divide the black population's rate by the full population's rate to find the rate ratio*) times **(more/less)** _____ than the full population of suburban Cook County.

Questions for Discussion:

1. *What did you find surprising about the data?*
2. *Did you identify any disparities in the data? If yes, among which groups?*
3. *How could this type of data support your work (i.e., programming, grant applications)?*
4. *How could this data be helpful to make a case for an education campaign and programming for these organizations?*

For more help with this activity, see a step-by-step tutorial here: Tutorial

Behavioral Health Case Activity

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Behavioral Health Case Study

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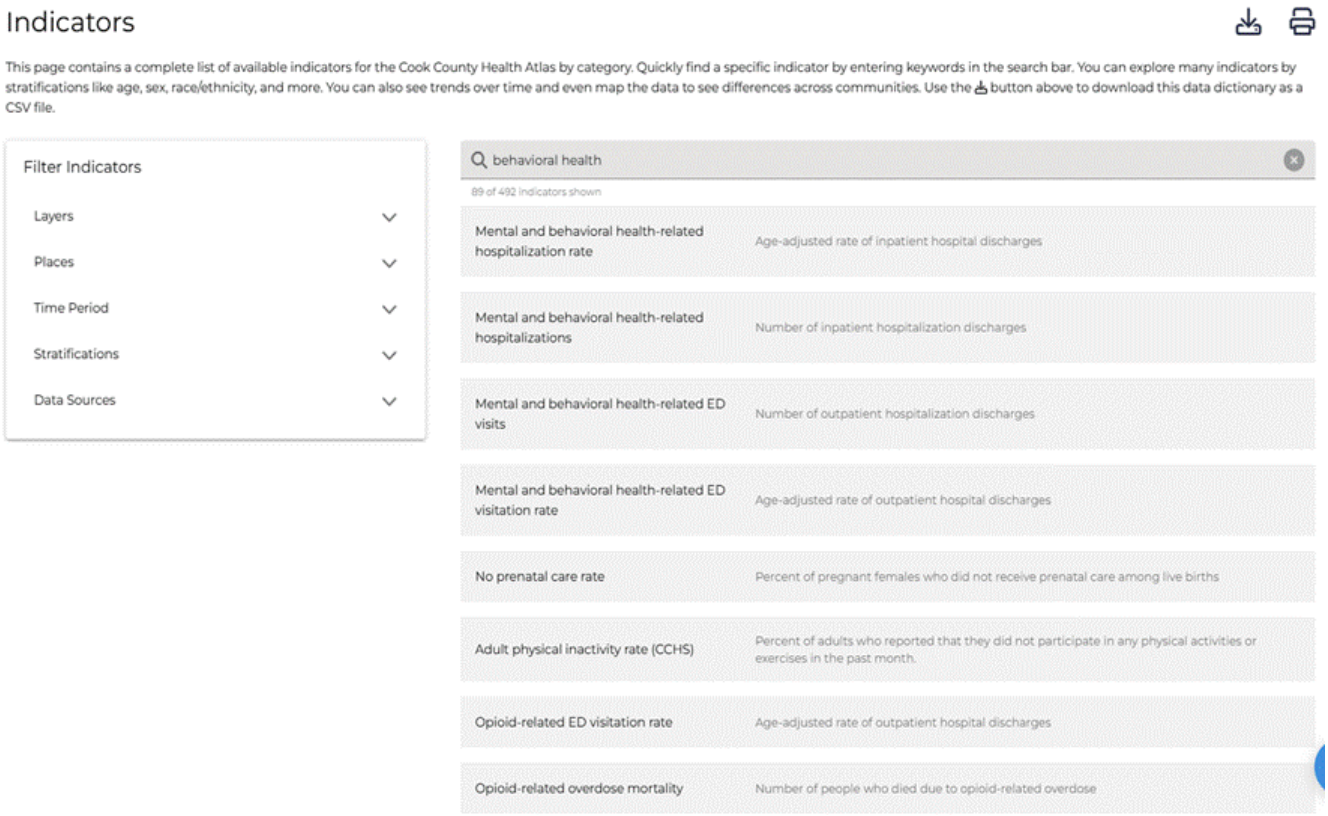
BUILDING HEALTHIER COMMUNITIES

DAP Libs: Behavioral Health Case Study

Cara works as a grant coordinator at ABC Crisis Services. Cara is writing a grant proposal for a program that addresses adult mental health crisis care in __**[Tinley Park]**__. They hope to capture risk of crisis events based on location and demographic.

Cara goes to the Cook County Health Atlas Data Dictionary to search for indicators related to mental health crisis and prevention. Some key words searched included “behavioral health” and “ED visit.”



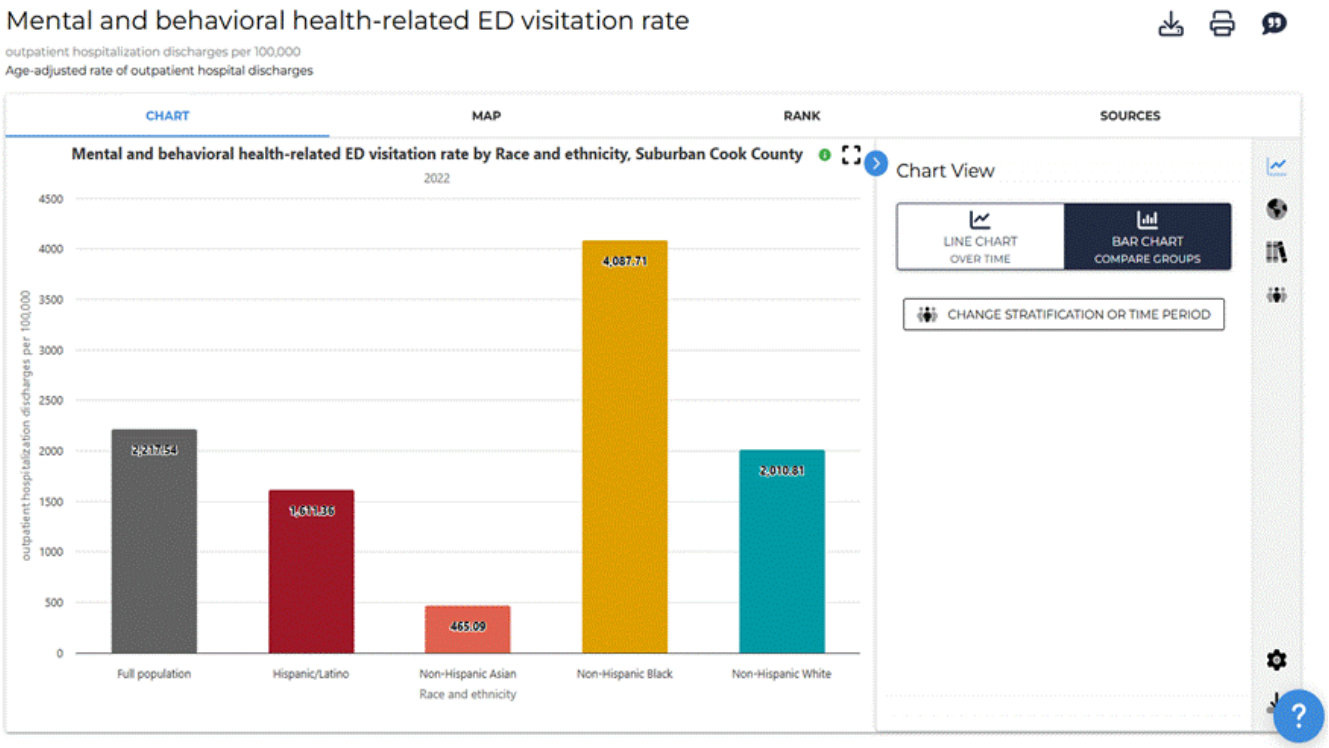
They identify the following indicators that could support their crisis care work:

- Mental and behavioral health-related ED visitation rate
- Mental and substance use-related ED visitation rate
- Mood and depressive disorder ED visitation rate
- Opioid-related ED visitation rate
- Intentional self-harm ED Visit rate

Cara decides to use 2 indicators to include in the grant application:

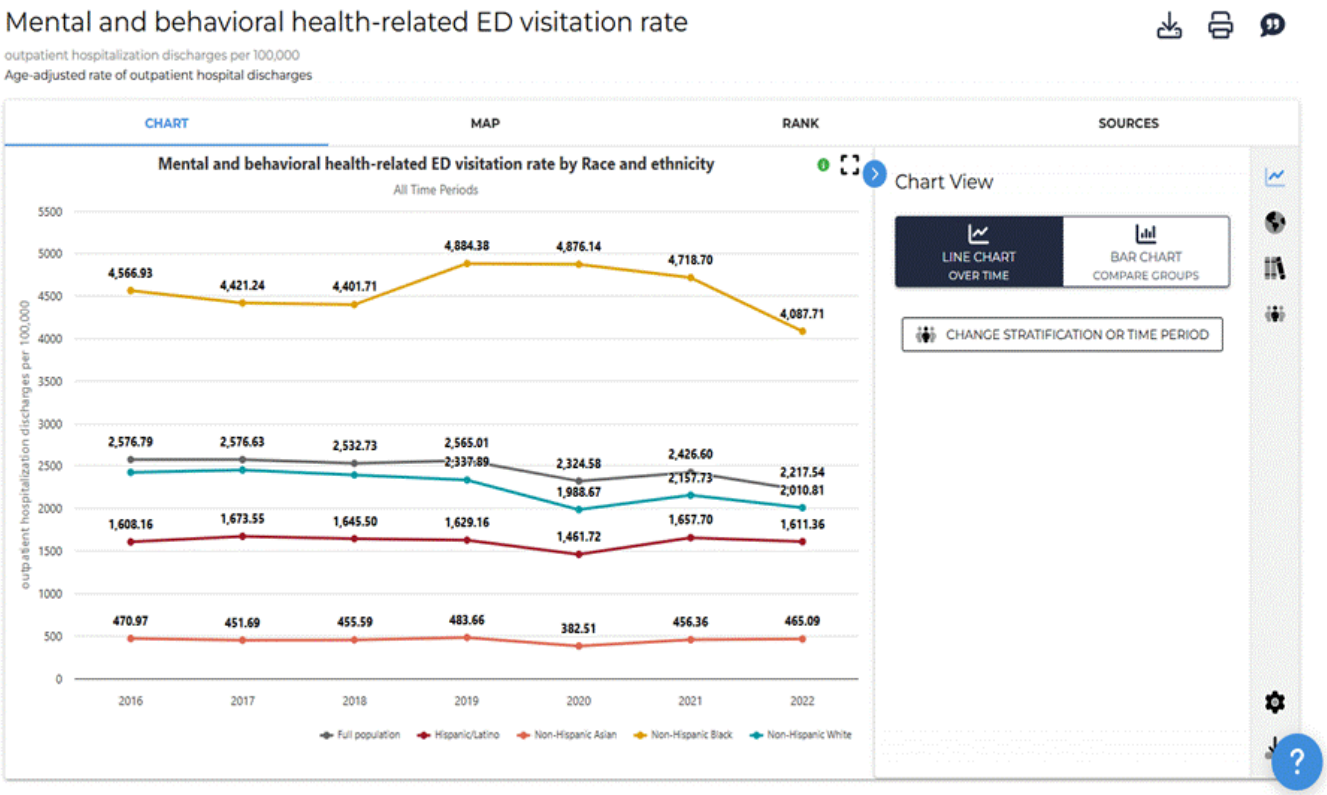
- ★ **Mental and behavioral health-related ED visitation rate**
- ★ **Opioid-related ED visitation rate**

Cara finds a bar chart on *Mental and behavioral health-related ED visitation rate*, which is broken down by race and ethnicity.



(racial/ethnic group) _____shows the highest rate of *Mental and behavioral health-related ED visitation* with a rate of **(insert the rate)**_____ per 100,000 people. In comparison, **(racial/ethnic group)** _____shows the lowest rate under this indicator with a rate of **(insert the rate)**_____ per 100,000 people.

Next, they click “Line Chart” and examine how *Mental and behavioral health-related ED visitation* rates have changed over time (2016-2022) among all suburban Cook County, as well as among specific racial/ethnic groups.



They find that, since 2016, rates have generally **(increased/decreased)**_____ for the full suburban Cook County population. They also noticed that **(racial/ethnic group)** ____has a **(higher/lower)**_____rate compared to the full population.

Cara then clicks to view the map to understand this rate in ____**[Tinley Park]**___; however, the data is only visualized by zip code.

They click on **(insert the zip code(s) that best represent Tinley Park)**_____ to focus on this community for their analysis. Then, she views a map and realizes that this indicator is visualized by municipalities.

They find that in zip code **(insert zip code)**_____ outpatient hospitalization discharges occurred at a rate of **(insert rate)**_____ per 100,000 between 2016-2020.

After looking at Mental and behavioral health-related ED visitation rates, Cara is curious to learn more about Opioid-related ED visitation rates in suburban Cook County. They identify a bar chart on *Opioid-related ED visitation rate*, which is broken down by race and ethnicity.

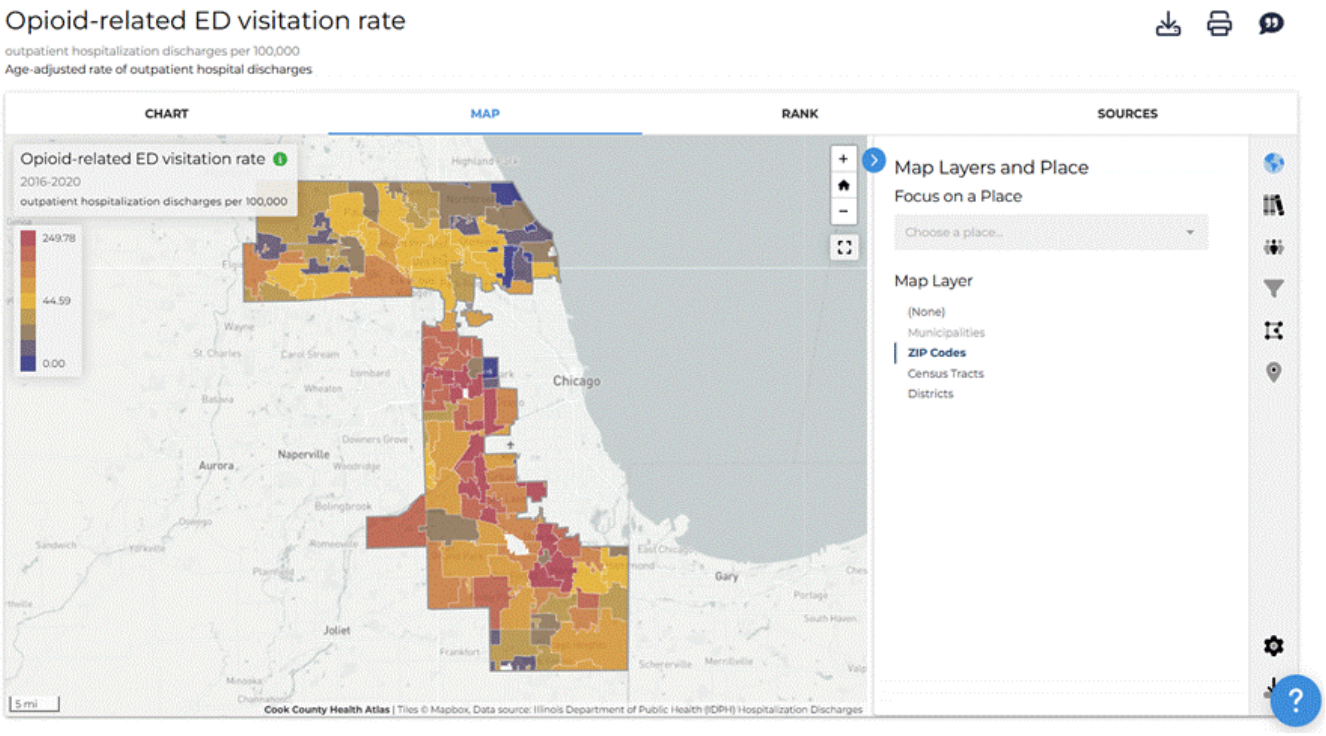
They observe that the **(racial/ethnic group)**_____ population shows the highest rate under this indicator, with a rate of **(insert the rate)**_____ per 100,000 people.

In comparison, the **(racial/ethnic group)**_____ population shows the lowest rate under this indicator, with a rate of **(insert the rate)**_____ per 100,000 people. This is **(higher/lower/similar to)**_____ than the rate for suburban Cook County.

Then, they click “Line Chart” and examine how Opioid-related ED visitation rates have changed over time (2010-2022) among all of suburban Cook County, as well as among specific racial/ethnic groups.

They find that, since 2010, rates have generally **(increased/decreased)**_____among all suburban Cook County. They also noticed **(insert an observation from the line group)**_____.

Cara then clicks and pulls up a map. Looking at the available map, Cara is interested in opioid-related ED visitation rates in ___**[Tinley Park]**____.



Similar to the Mental and behavioral health-related ED visitation rate, this data is broken down by zip code only.

The most recent *Opioid-related ED visitation rate*(s) in **(insert the zip code)**_____ are **(insert the rate)**_____ per 100,000 people. This is **(more/less)**_____than the rate for all suburban Cook County, which is **(insert the rate)**_____ per 100,000 people.

The data Cara captured demonstrates a need for adult crisis intervention and follow-up treatment in their community. This strengthens ABC Crisis Services' request for additional funding to support their program.

Questions for Discussion

1. *What did you find surprising about the data?*
2. *Did you identify any disparities in the data? If yes, among which groups?*
3. *How could this type of data support your work (i.e., programming, grant applications)?*
4. *What other indicators could be helpful to better understand the crisis care system?*

For more help with this activity, see a step-by-step tutorial here: **Tutorial**

Healthcare Access Case Activity

DATA AMBASSADOR SERIES
WORKSHOP ACTIVITY

ACCESS TOOLKIT HERE

DAP LIBS

Healthcare Access Case Study

UIC UNIVERSITY OF ILLINOIS CHICAGO

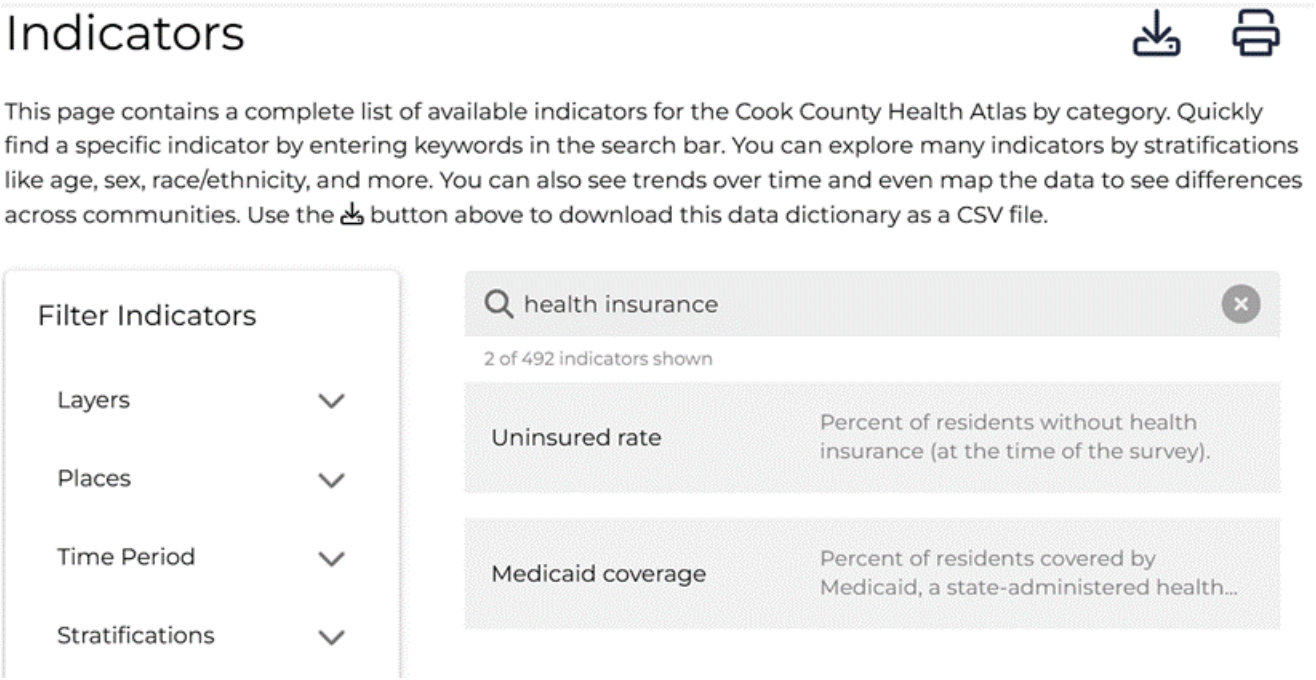
Cook County Public Health
DEPT. of
A division of Cook County Health

BUILDING HEALTHIER COMMUNITIES

DAP Libs: Health Care Access Case Study

Sandra is a health care administrator on the Community Health team at a local safety net hospital. Every 3 years, the hospital convenes a multi-agency council to conduct a community health needs assessment, and Sandra is one of the project leads. She is tasked with analyzing data to include in the health care access section of the assessment. This section typically includes data regarding health insurance coverage and the availability of health care providers.

She searches the Cook County Health Atlas Data Dictionary for indicators related to health insurance and finds only 2 indicators to examine:

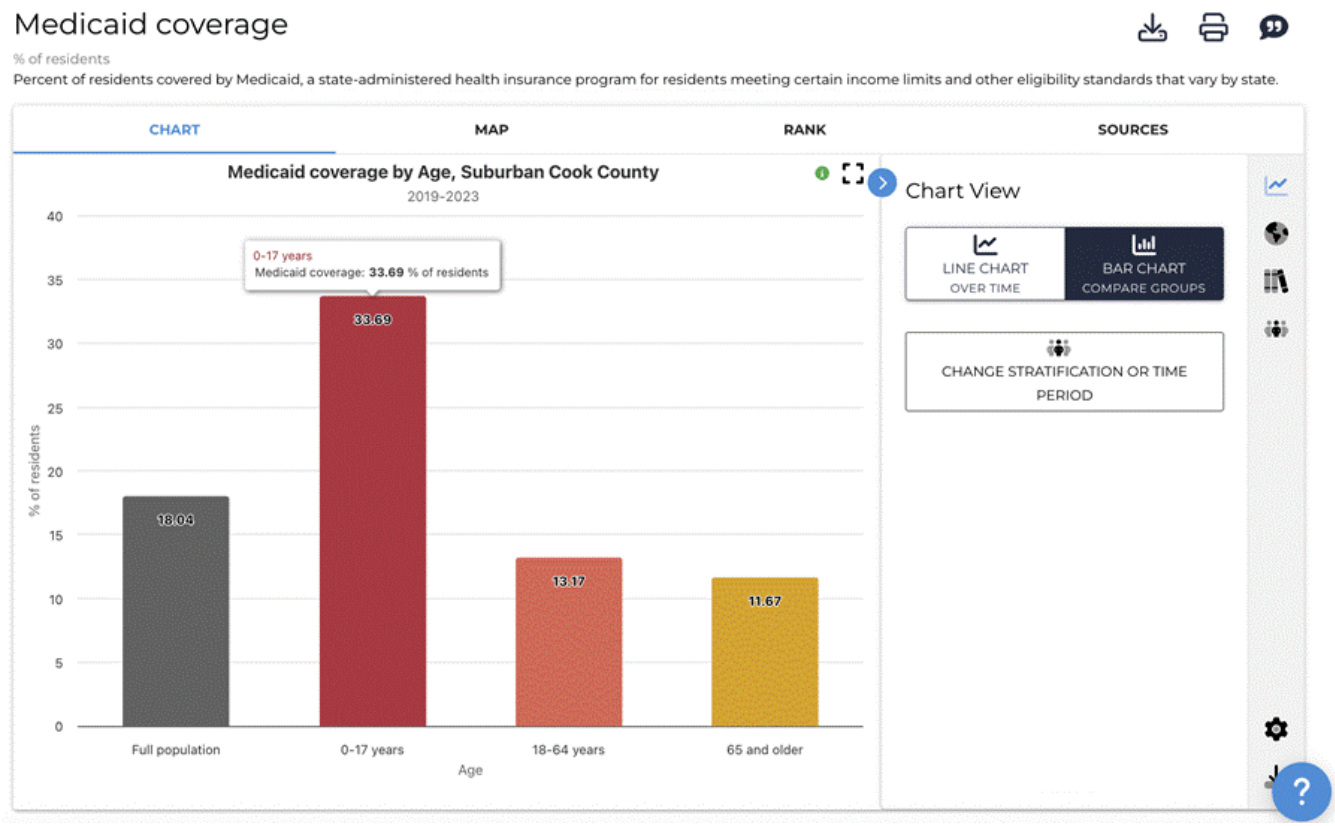


From this list of 2 indicators, she decides to explore both indicators: *"Uninsured rate"* and *"Medicaid coverage":*

- Medicaid coverage ✅
- Uninsured rate ✅

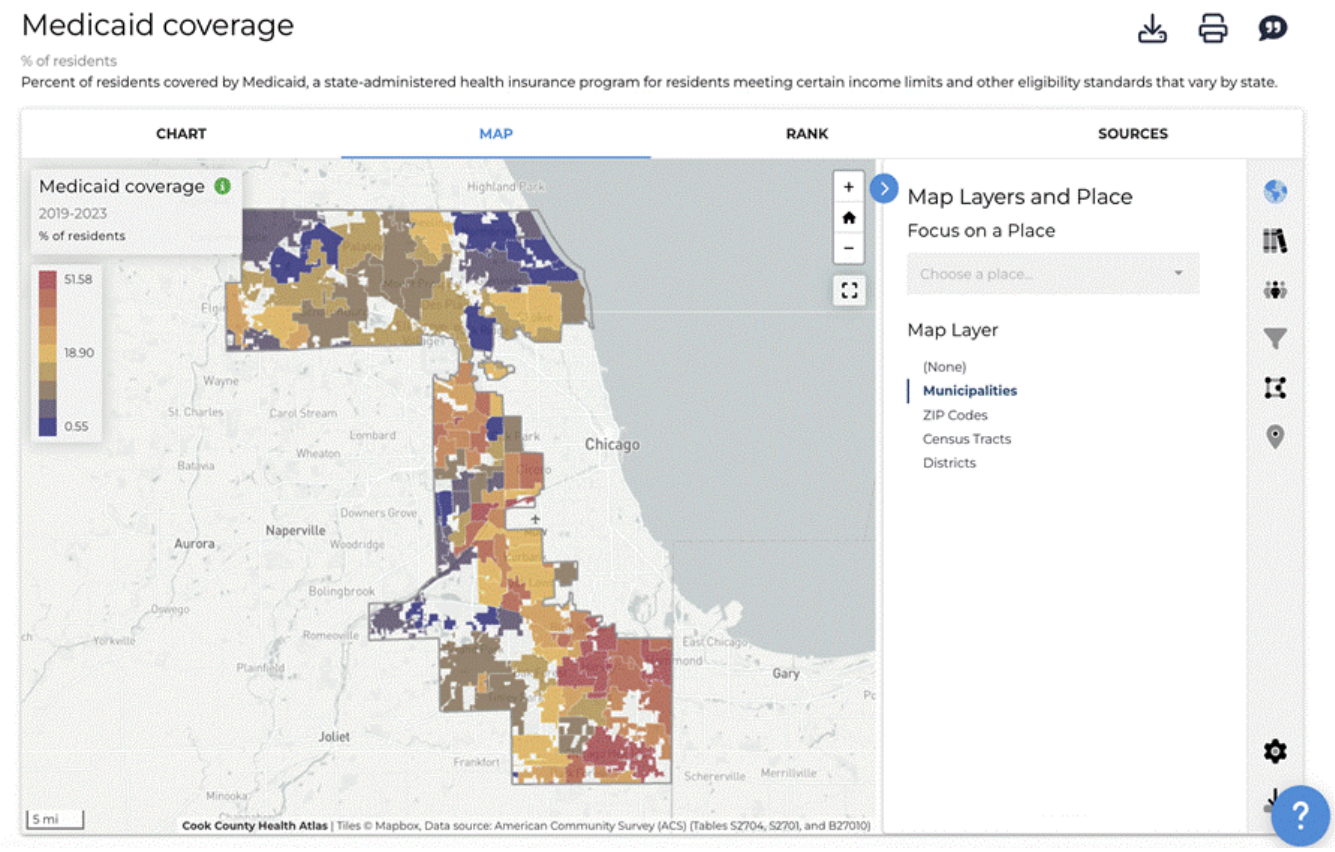
First, Sandra searches the *Medicaid coverage* indicator and pulls up a bar chart of Medicaid coverage by age in all Suburban Cook County.

She notices that the **(age group)**_____ population shows the highest percentage of residents enrolled in Medicaid from **(insert time period/years)**_____ while the **(age group)**_____ population had the lowest percentage.



Next, Sandra compares the percentage of *Medicaid coverage* in _____**[Skokie]**_____ with all Suburban Cook County. She opens a map of Suburban Cook County that color codes each municipality.

Areas in red show the highest percentages, while areas in blue show the lowest percentages:



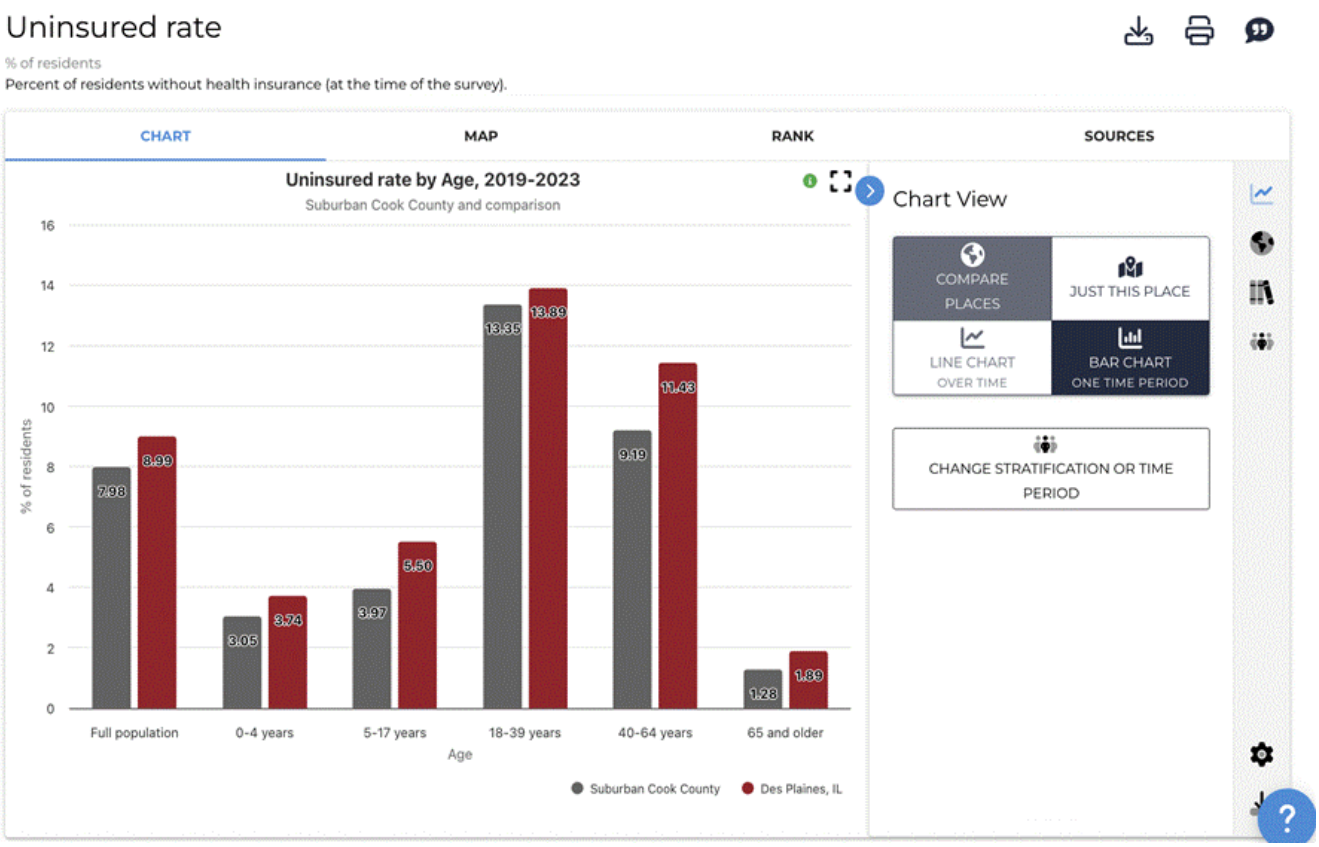
Sandra observes that **(insert % of residents with Medicaid coverage)** _____ of residents in _____**[Skokie]**_____ were covered by Medicaid from **(insert time period/years)**_____.

In comparison, the percentage of residents with Medicaid coverage in Suburban Cook County was **(insert % of residents with Medicaid coverage)** _____ during this time period. This shows a ___**(insert % difference between suburban Cook County and Skokie)**_____ percentage point difference between the two.

Therefore, Medicaid enrollment for ____**[Skokie]**_____ is **(higher/lower/similar)**_____ than the general population in Suburban Cook County.

Next, Sandra wants to examine the *Uninsured rate* in _____**[Des Plaines]**_____.

This indicator is available by age group, providing valuable insight for her needs assessment. She pulls up a chart showing the difference between each age group in **[Des Plaines]** and suburban Cook County.

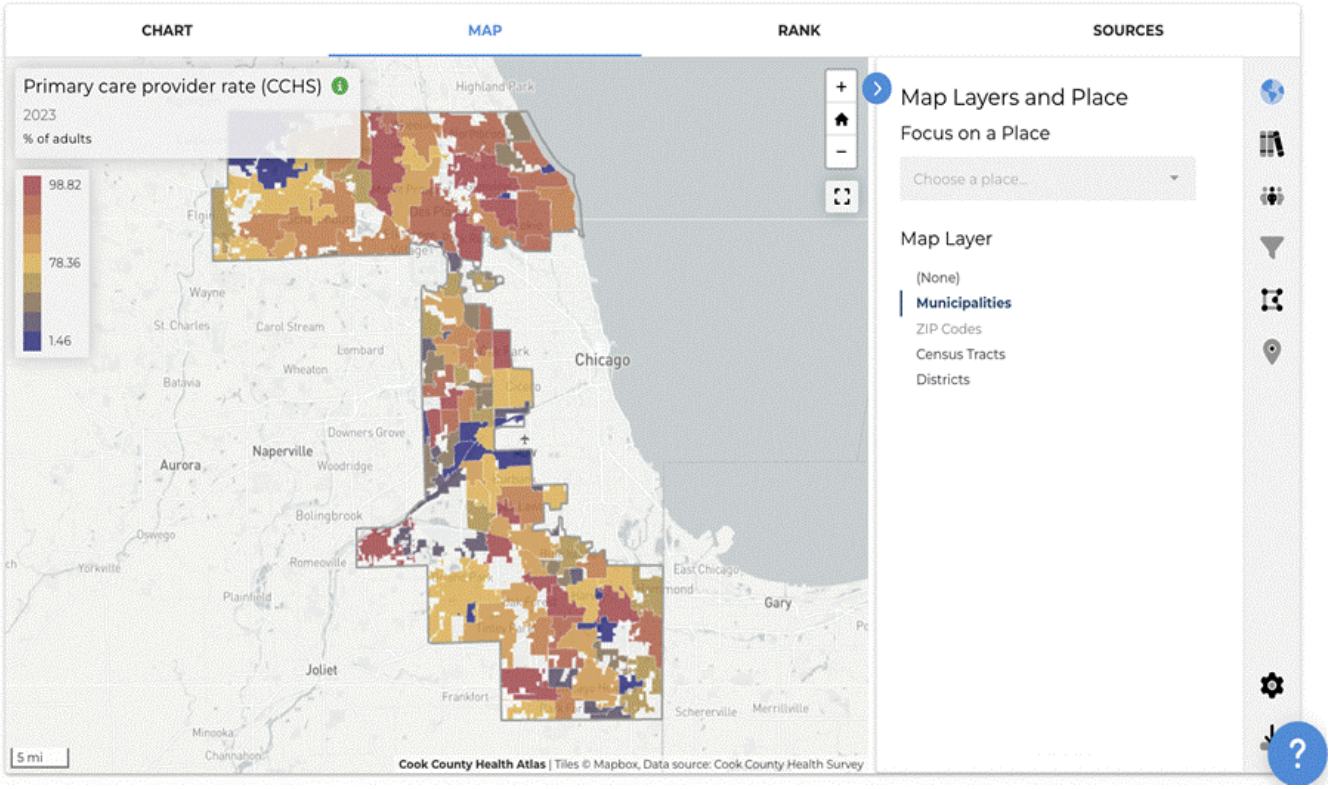


Sandra notices that the **(age group)**_____ group has a **(higher/lower/similar)**_____ uninsured rate in **[Des Plaines]** compared to suburban Cook County.

This data gives Sandra insight into which age groups in **[Des Plaines]** may be disproportionately uninsured, helping her identify populations that could benefit from targeted outreach and resources.

After studying the Medicaid coverage and uninsured populations, Sandra decides she wants to better understand access to primary care providers. She searches the *primary care provider rate* in [**Des Plaines]** and compares it to other Cook County municipalities.

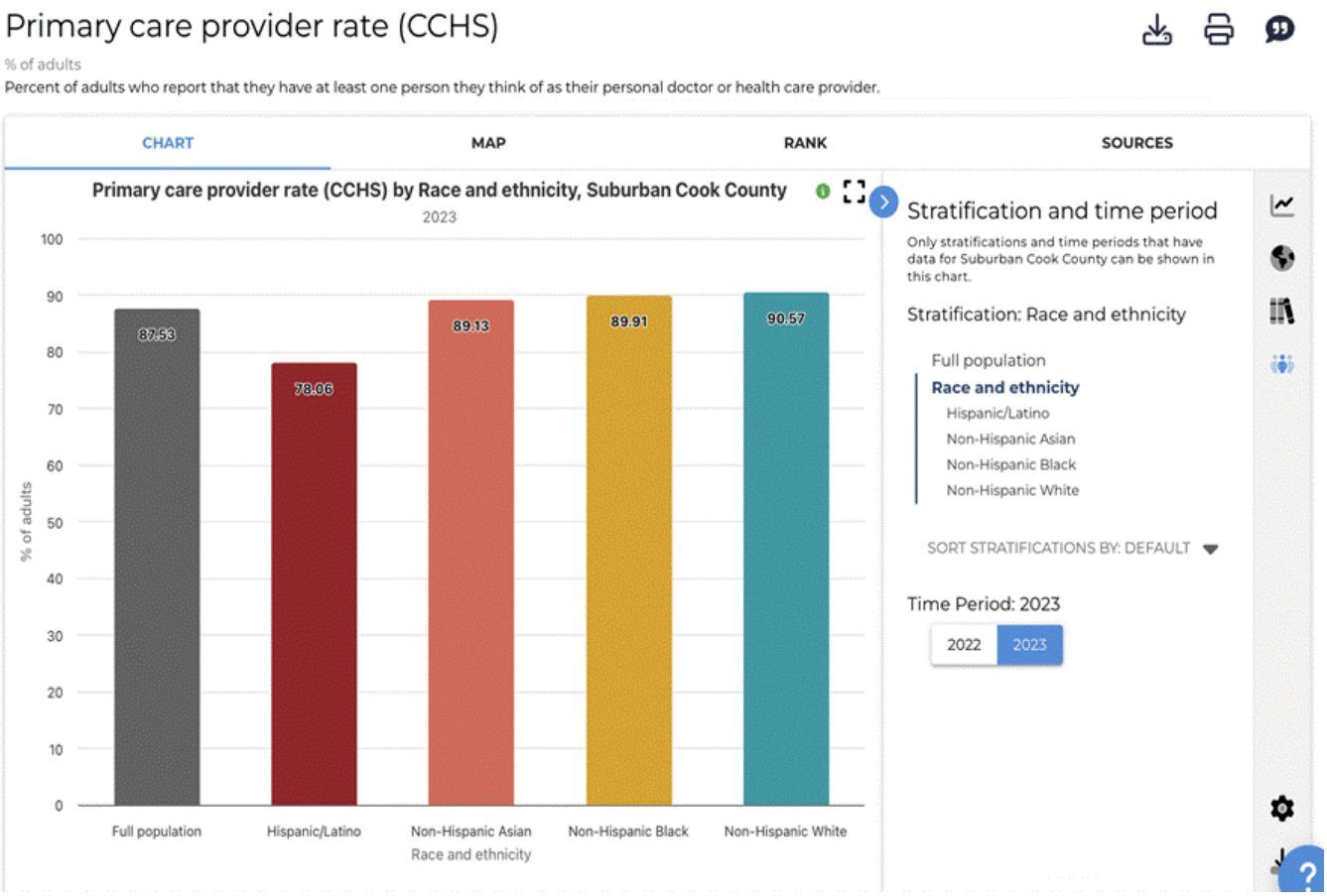
Sandra switches to the *primary care provider rate* indicator and then clicks on Map.



She notices that **[Des Plaines]** has a **(higher/lower/similar)**_____ *Primary care provider rate* compared to neighboring municipalities.

Next, Sandra pulls up a bar chart of the primary care provider rate by race/ethnicity for 2023.

She observes that the **(racial/ethnic group)**_____ population had the highest primary care provider rate in 2023, while the **(racial/ethnic group)**_____ population had the lowest primary care provider rate in 2023.



This data gives Sandra insight into local needs versus countywide trends, which supports stronger recommendations for resource allocation in the community health needs assessment.

<u>Questions for discussion:</u>

- *What did you find surprising about the data?*
- *Did you identify any disparities in the data? If yes, among which groups?*
- *How could this type of data support your work (i.e., programming, grant applications)?*
- *In this scenario, what other information could be useful for Sandra to plan her community needs assessment?*

For more help with this activity, see a step-by-step tutorial here: Tutorial

Food Insecurity Case Activity

DATA AMBASSADOR SERIES
WORKSHOP ACTIVITY

ACCESS TOOLKIT HERE

DAP LIBS

Food Security Case Study

UNIVERSITY OF ILLINOIS CHICAGO

Cook County DEPT. of Public Health
A division of Cook County Health

BUILDING HEALTHIER COMMUNITIES

DAP Lib: Food Insecurity Case Study

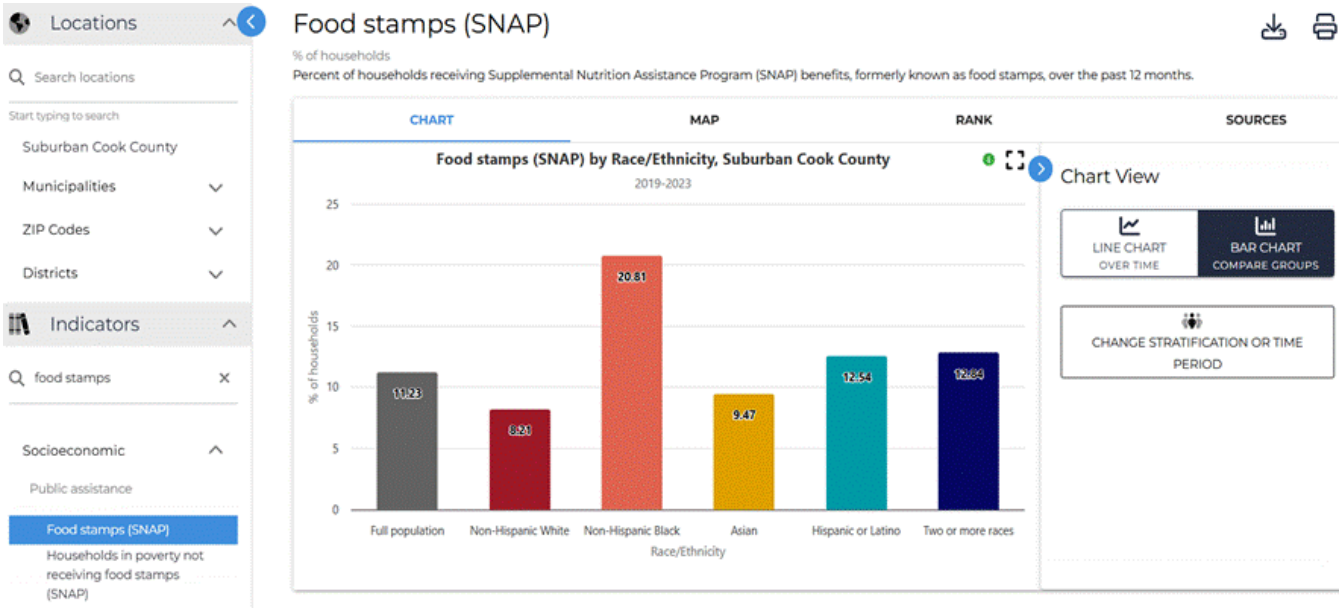
Mike works as a SNAP Outreach Coordinator at ABC Social Services agency. He wants to know where to focus their SNAP outreach to find community members in **[Des Plaines]** who may be eligible but are not enrolled in the program.

Mike searches the Cook County Health Atlas Data Dictionary for indicators related to food access and finds 7 different indicators to examine:

From this list of 7 indicators, he decides to narrow down his Atlas search to explore the 2 indicators related to SNAP/food stamps: "*Food stamps (SNAP)*" and "*Households in poverty not receiving food stamps (SNAP).*"

- Food stamps (SNAP) ✅
- Food security concern (CCHS)
- Food security concern rate (CCHS)
- Low food access
- Households in poverty not receiving food stamps (SNAP) ✅
- High school food insecurity (YRBS)
- High school food insecurity rate (YRBS)

First, Mike searches the *Food stamps (SNAP)* indicator and pulls up a bar chart of Food stamps (SNAP) by race in all of Suburban Cook County.

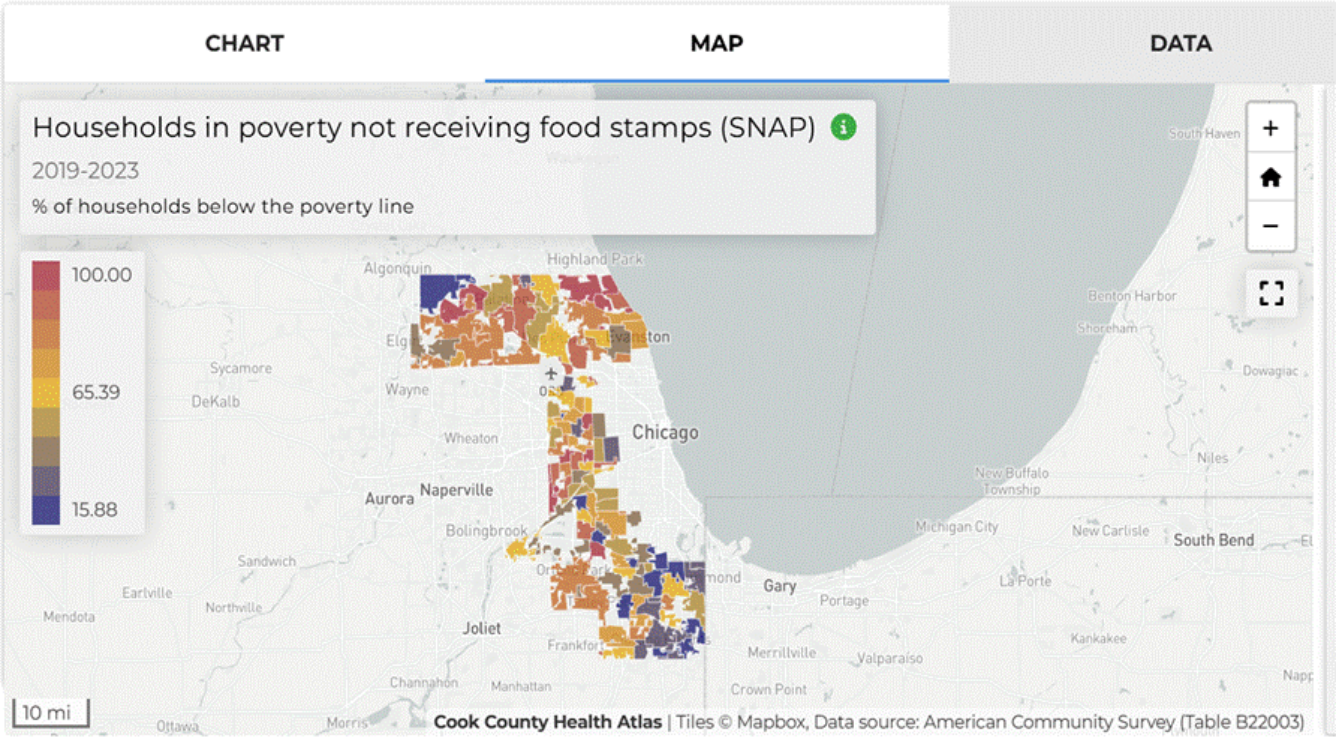


He notices that the **(racial/ethnic group)**_____ population had the highest percentage of households receiving SNAP from ***(insert time period/years)***_____ while the **(racial/ethnic group)**_____ population had the lowest percentage.

Mike is also interested in how SNAP enrollment has changed over time, so he proceeds to click to the "Line Chart" options. He notices that the **(racial/ethnic group)**_____ population has **(increase/decreased/constant)**_____ over time whereas the **(racial/ethnic group)**_____ has **(increased/decreased, or remained constant)**_____ over time.

Next, Mike compares the percentage of **[Des Plaines]** *Households in poverty not receiving food stamps (SNAP)* with all Suburban Cook County. He opens a map of Suburban Cook County that color codes each municipality.

Areas in red show the highest percentages, while areas in blue show the lowest percentages:



Mike observes that **(insert % of households in poverty not receiving SNAP)**_____ of households in **[Des Plaines]** were not enrolled in SNAP from **(insert time period/year)**_____.

In comparison, the *percentage of households in poverty not receiving SNAP* in Suburban Cook County was **(insert % of households in poverty not receiving SNAP)**_____this time period. This shows a [*% difference between Suburban Cook County and chosen municipality*] _____**(insert the difference of percentages between suburban Cook County and Des Plaines)**_____ percentage point difference between the two. Therefore, the SNAP enrollment for **[Des Plaines]** is **(higher/lower/similar)**_____ in comparison to the general population in Suburban Cook County.

Mike clicks on **[Des Plaines]** on the map to look at it more closely. The map then displays data at the census tract level for the municipality. In comparing census tracts, he sees some areas have an even higher percentage rate of *Households in poverty not receiving food stamps* while some have a lower percentage.

This data gives Mike insight into which neighborhoods to prioritize where he does his outreach. He considers the relationships he has with the neighborhood churches, schools, libraries, senior centers, and other agencies he can partner with to host an event that promotes food access in their community.

Questions for discussion:

- *What did you find surprising about the data?*
- *Did you identify any disparities in the data? If yes, among which groups?*
- *How could this type of data support your work (i.e., programming, grant applications)?*
- *In this scenario, what other information could be useful for Mike to plan his SNAP outreach efforts?*

For more help with this activity, see a step-by-step tutorial here: **Tutorial**

Module 3 - Pre/Post Questions

Module 3 Pre/Post Assessment

Pre-Assesment

1) On a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your ability to navigate different parts of the Cook County Health Atlas (i.e. finding indicators of interest)?

2) On a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your comfortability with visualizing patterns or trends in indicators over time on the Cook County Health Atlas?

3) On a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your ability to use, access information, and create data visualizations from the Cook County Health Atlas (downloading charts and maps)?

4) Using the following definitions below, On a scale from **1 (Poor) to 5 (Excellent),** how would you rate your understanding of the difference between a count and rate?

   Count: A count is the number of events or occurrences of a specific health outcome or condition

   Rate: A rate is a unit of measurement to quantify the burden of a disease or health outcome in a particular population or geographic area (ex. zip code).

5) On a scale from **1 (Strongly Disagree) to 5 (Strongly Agree)**, I feel confident in identifying differences in health outcomes between locations and populations on the Cook County Health Atlas?

Post Assessment

1) After the session, on a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your ability to navigate different parts of the Cook County Health Atlas (i.e. finding conditions of interest)?

2) After the session, on a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your comfortability with visualizing patterns or trends in indicators over time on the Cook County Health Atlas?

3) After the session, on a scale from **1 (Poor) to 5 (Excellent)**, how would you rate your ability to use, access information, and create data visualizations from the Cook County Health Atlas (downloading graphs, maps, tables)?

4) After the session, using the following definitions below, how would you rate your understanding of the difference between a count and rate?

   Count: A count is the number of events or occurrences of a specific health outcome or condition

   Rate: A rate is a unit of measurement to quantify the burden of a disease or health outcome in a particular population or geographic area (ex. zip code)

5) After the session, on a scale from **1 (Strongly Disagree) to 5 (Strongly Agree)**, I feel confident in identifying differences in health outcomes between locations and populations on the Cook County Health Atlas?

Case Study Appendix - Answer Key

After you complete one of the case studies, please refer to the answer key below….

Chronic Disease

ANSWER KEY FOR ASTHMA:

Sam, a program coordinator with "Quality Air Inc.," is interested in developing an educational campaign to address asthma-related disparities in suburban Cook County. They plan to promote their educational materials through billboards and other advertisements while also advocating for better air quality conditions but would like to identify areas that are most impacted.

Sam searches the Cook County Health Atlas Data Dictionary for indicators related to asthma and other environmental conditions. They find 9 different indicators to examine:

Sam decides to use the two following indicators for their educational campaigns: A*sthma-related hospitalization rate* and A*dult asthma rate (CCHS)*

- Asthma-related ED visitation rate
- Asthma-related hospitalization rate ✅
- Asthma-related hospitalizations
- Asthma-related ED visits
- Adult asthma rate (PLACES) ✅
- High school asthma rate (YRBS)
- High school asthma (YRBS)
- Adult asthma (CCHS)
- Adult asthma rate (CCHS)

Sam notes the data sources for these indicators include the following:

· PLACES - Centers for Disease Control (CDC), Behavioral Risk Factor Surveillance System

· YRBS - Youth-Risk Behavioral Survey

· CCHS - Cook County Health Survey

Asthma-related hospitalization rate

First, Sam searches the asthma-related hospitalization rate indicator and finds a bar chart of hospitalizations by race/ethnicity in all of suburban Cook County for 2022. He notices that the [**NH Black**] population has a [**224**] per 100,0000, which is the highest rate across all racial/ethnic groups.

The lowest [**NH Asian**] has [**39**] per 100,000 persons. Among the full population, the asthma-related

hospitalization rate has increased from [**57**] to [**95**] from 2020 to 2022. Sam is interested in how asthma hospitalization rates have changed over time, and notices that all racial/ethnic groups have experienced an [**increase**/decrease] in asthma-related hospitalization rates since 2020. Overall, he notices that the highest burden of asthma-related hospitalizations is located in the [**West**] and [**South**] regions of suburban Cook County and decides that he will promote his educational campaign in these areas.

Adult asthma rate (CCHS)

After examining asthma-related hospitalization rates, Sam is interested in learning about individuals who have been formally diagnosed with asthma by a healthcare professional, using local survey data on the adult asthma rate (CCHS). Sam searches the adult asthma rate (CCHS) indicator and finds that [**NH Black**] people residing in suburban Cook County have the largest asthma diagnosis, with [**11.8%**].

ANSWER KEY TO STROKE CASE STUDY

Jasmine, a health educator from "Healthy Hearts Illinois" is interested in delivering free blood pressure screenings and organizing a fresh fruits and vegetables giveaway to address heart health in suburban Cook County. Her organization plans to recruit farmers' markets from across the state to promote meal preparation and healthy eating for this event.

Jasmine visits the Cook County Health Atlas to search for indicators such as stroke mortality and other hospitalization outcomes. The following indicators were identified:

- Stroke mortality rate ✅
- Stroke-related hospitalization rate
- Stroke-related ED visits
- Stroke-related ED visitation rate
- Stroke-related hospitalization rate✅
- Stroke (PLACES)

- Stroke-related hospitalizations

Jasmine chooses the following indicators for her educational campaigns: *Stroke mortality rate and Stroke-related hospitalization rate*

First, Jasmine searches for the stroke mortality rate indicator and finds a bar chart of hospitalizations by race/ethnicity in suburban Cook County. In [**2023**], she notices that the [**Non-Hispanic Black**] population has a [**64**] per 100,0000, which is the highest rate across all racial/ethnic groups. The lowest [**Non-Hispanic Asian**] has [**29**] per 100,000 persons. Jasmine then clicks on the "Line Chart" to see how stroke mortality has changed over time. In 2020, stroke mortality rate among **[Non-Hispanic Blacks**] [**increased**/decreased] from [**67**] to [**73**], then [increased/**decreased**] to [**63**] in 2022. Then, she views a map and realizes that this indicator is visualized by municipalities. She notices that the highest burden of stroke is concentrated in the [north/south/east/**west**] and [north/**south**/east/west] regions of suburban Cook County and decides to promote Healthy Hearts programming in these areas.

Stroke-related hospitalization rate

After looking at stroke mortality, Jasmine decides she wants to look at hospitalizations to see how they differ from stroke-related deaths. She searches the stroke-related hospitalization rate and notices that the [**Non-Hispanic Black**] population has a [**337**] per 100,000 while the whole population of suburban Cook County has [177] per 100,000. Blacks experience (**HINT**: divide 337/ 178 =) stroke-related hospitalization [**twice/double**] as higher than the full population.

Behavioral Health

Answer Key

DAP Libs: Behavioral Health Case Study

Cara works as a grants coordinator at ABC Crisis Services. They are writing a grant application for a program that will address adult mental health crisis care in [Tinley Park]. They are hoping to capture risk of crisis events based on location and demographic.

Cara goes to the Cook County Health Atlas Data Dictionary to search for indicators related to mental health crisis and prevention. Some key words searched included "behavioral health" and "ED visit."

They identify the following indicators that could support their crisis care work:

- Mental and behavioral health-related ED visitation rate
- Mental and substance use-related ED visitation rate
- Mood and depressive disorder ED visitation rate
- Opioid-related ED visitation rate
- Intentional self-harm ED Visit rate

Cara decides to use 2 indicators to include in the grant application:

- ★ **Mental and behavioral health-related ED visitation rate**
- ★ **Opioid-related ED visitation rate**

Mental and behavioral health-related ED visitation rate

Cara finds a bar chart on Mental and behavioral health-related ED visitation rate, which is broken down by race and ethnicity.

[**Non-Hispanic Black**] is found to have the highest rate under this indicator: [**4087.71**]. [**Non-Hispanic Asian**] is found to have the lowest rate under this indicator: [**465.09**].

Then, they click "Line Chart" and examine how Mental and behavioral health-related ED visitation rates have changed over time (2016-2022) among all of suburban Cook County, as well as among specific racial/ethnic groups.

They find that, since 2016, rates have generally [**decreased**] among all of suburban Cook County. They also noticed that [**Non-Hispanic Black**] has a [**higher**] rate compared to the full population.

Cara then views the map to understand this rate in [**Tinley Park**]; however, the data is only visualized by zip code. They click on [**60477**] to focus on this community for their analysis.

They find that [**60477**] has a rate of [**690.32**] outpatient hospitalization discharges per 100,000 between 2016-2020.

Opioid-related ED visitation rate

After looking at Mental and behavioral health-related ED visitation rates, Cara is curious to learn more about opioid-related ED visitation rates in suburban Cook County. They identify a bar chart on Opioid-related ED visitation rate, which is broken down by race and ethnicity.

[**Non-Hispanic Black**] is found to have the highest rate under this indicator: [**242.72**]. [**Non-Hispanic Asian**] is found to have the lowest under this indicator: [**1.76**]. For the full population of suburban Cook County, the rate is [**119.48**].

Then, they click "Line Chart" and examine how Opioid-related ED visitation rates have changed over time (2010-2022) among all of suburban Cook County, as well as among specific racial/ethnic groups.

They find that, since 2010, rates have generally [**increased**] among all of suburban Cook County. They also noticed [**in 2015, all race/ethnicity categories saw an increase in Opioid-related ED visitation rates**].

Looking at the available map, Cara is interested in opioid-related ED visitation rates in [**Tinley Park**]. Similar to Mental and behavioral health-related ED visitation rate, the data is only available by zip code.

They find that the most recent rate(s) in [**60477**] are [**87.44**]. This is [**less**] than the rate for all of suburban Cook County, which is [**119.48]**.

Questions for Discussion

1. What did you find surprising about the data?
2. Did you identify any disparities in the data? If yes, among which groups?
3. How could this type of data support your work (i.e., programming, grant applications)?
4. What other indicators could be helpful to better understand the crisis care system?

For more help with this activity, see a step-by-step tutorial here, using Tinley Park as an example: Tutorial

Healthcare Access

Answer Key

DAP Libs: Health Care Access Case Study

Sandra is a healthcare administrator on the Community Health team at a local safety-net hospital. Every 3 years, the hospital convenes a multi-agency council to conduct a community health needs assessment, and Sandra is one of the project leads. She is tasked with analyzing data to include in the health care access section of the assessment. This section typically includes data on health insurance coverage and the availability of healthcare providers.

She searches the Cook County Health Atlas Data Dictionary for indicators related to health insurance and finds only 2 indicators to examine:

From this list of two indicators, she decides to explore both: “Uninsured rate” and “Medicaid coverage”.

- Medicaid coverage ✅
- Uninsured rate ✅

First, Sandra searches the Medicaid coverage indicator and pulls up a bar chart of Medicaid coverage by age in all of Suburban Cook County. She notices that the [**0-17**] population shows the highest percentage of residents enrolled in Medicaid from [**2019-2023**], while the [**65 and older**] population had the lowest percentage.

Next, Sandra compares the percentage of [**Skokie**] Medicaid coverage with all of Suburban Cook County. She opens a map of Suburban Cook County that color codes each municipality. Areas in red show the highest percentages, while areas in blue show the lowest percentages:

Sandra observes that [**18.43%**] of residents in [**Skokie**] were covered by Medicaid from [**2019-2023**].

In comparison, the percentage of medicaid coverage in Suburban Cook County was [18.04%] during this time period. This shows a [**.39%**] percentage point difference between the two. Therefore, Medicaid enrollment for [**Skokie**] is [**similar**] to the general population in Suburban Cook County.

Next, Sandra wants to examine the Uninsured rate in [**Skokie**]. This indicator is available by age group, providing valuable insight for her needs assessment. She pulls up a chart showing the difference between each age group in [**Skokie**] and suburban Cook County.

Sandra notices that [**18-39**] has a [**lower**] uninsured rate in [**Skokie**] compared to suburban Cook County. This data gives Sandra insight into which age groups in [**Skokie**] may be disproportionately uninsured, helping her identify populations that could benefit from targeted outreach and resources.

Now, Sandra wants to examine how the primary care provider rate in [**Skokie**] compares to other Cook County municipalities.

Sandra switches to the primary care provider rate indicator and clicks on Map.

She notices that [**Skokie**] has a [**higher**] Primary care provider rate compared to neighboring municipalities.

Next, Sandra pulls up a bar chart of the primary care provider rate by race/ethnicity for 2023. She observes that [**Non-Hispanic White**] had the highest primary care provider rate in 2023, while [**Hispanic/Latino**] had the lowest primary care provider rate in 2023.

This data gives Sandra insight into local needs versus countywide trends, which supports stronger recommendations for resource allocation in the community health needs assessment.

Food Insecurity

Answer Key

Mike works as a SNAP Outreach Coordinator at ABC Social Services agency. He wants to know where to focus their SNAP outreach to find community members in [**Des Plaines**] who may be eligible but are not enrolled in the program.

Mike searches the Cook County Health Atlas Data Dictionary for indicators related to food access and finds 7 different indicators to examine:

From this list of 7 indicators, he decides to narrow down his Atlas search to explore the 2 indicators related to SNAP/food stamps: “Food stamps (SNAP)” and “Households in poverty not receiving food stamps (SNAP)” .

- Food stamps (SNAP) ✅
- Food security concern (CCHS)
- Food security concern rate (CCHS)
- Low food access
- Households in poverty not receiving food stamps (SNAP) ✅
- High school food insecurity (YRBS)
- High school food insecurity rate (YRBS)

He decides to narrow it down to the 2 indicators related to SNAP/food stamps: “Food stamps (SNAP)” and “Households in poverty not receiving food stamps (SNAP)”.

First, Mike searches the Food Stamps (SNAP) indicator and pulls up a bar chart of Food Stamps by race in all of Suburban Cook County. He notices that the **Non-Hispanic Black** population had the highest percentage of households receiving SNAP from **2019-2023,** while the **Non-Hispanic White** population had the lowest percentage.

Next, Mike decides to compare the percentage of **Des Plaines** Households in poverty that do not receive food stamps with all of Suburban Cook County. He opens a map of Suburban Cook County that

color codes each municipality. Areas in red show the highest percentages, while areas in blue show the lowest percentages:

Mike observes that **64.95% of households in poverty in Des Plaines who were not receiving SNAP from 2019 to 2023 were not enrolled in SNAP**.

In comparison, the percentage of households in poverty not receiving SNAP in Suburban Cook County was **67.06%** during this time period. This shows a **2.11%** difference between the two. Therefore, the SNAP enrollment rate in **Des Plaines** is **higher** than that of the general population in Suburban Cook County.

Mike clicks on **Des Plaines** on the map to look at it more closely. The map then displays data at the census tract level for the municipality. In comparing census tracts, he sees some areas have an even higher percentage rate of Households in poverty not receiving food stamps, while some have a lower percentage:

This data provides Mike with insight into which neighborhoods to prioritize for his outreach. He considers the relationships he has with the neighborhood churches, schools, libraries, senior centers, and other agencies with which he can partner to host an event promoting food access in their community.

Facilitator's Note Sheet

Facilitator and Co-Facilitator Notes-Taking Sheet

Note Sheet for Modules 2 and 3

Taking notes during participant activities is essential for capturing feedback, observations, and key insights that surveys alone may not reveal. The note sheet we've provided below can help us understand how participants interact with the Cook County Health Atlas—what excites them, where challenges arise, and how they connect the data to real-world issues. Together with the pre- and post-surveys, this feedback allows us to strengthen facilitation, tailor future sessions, and continuously improve the Data Ambassadors Program experience.

Data Ambassadors Program (DAP)

Note-Taking Sheet

Workshop Topic: Navigating the Health Atlas & Data Interpretation

Case Study: _____

Date: _____

Facilitator: _____

Part 1: Navigating the Health Atlas

Participant observations/challenges:

- What parts seemed confusing or hard to use?

- What strategies did they use to explore data?

Key Quotes/Comments/Questions:

Part 2: Data Interpretation

- **Key Quotes/Comments/Questions:**

Part 3: Case Study Behavioral Health

Discussion Highlights:

- How participants approached the case study:

- Links they made to other health/social indicators:

- How participants suggested the data could be applied (programs, policy, advocacy):

- Challenges participants came across

Key Quotes/Comments/Questions:

Part 4: Reflections & Feedback

- Insights participants said they are taking away:

- Ongoing needs for support/training:

- Suggestions for improving Atlas usability: