

Case Study 1: Exploring Community

Learning Objectives:

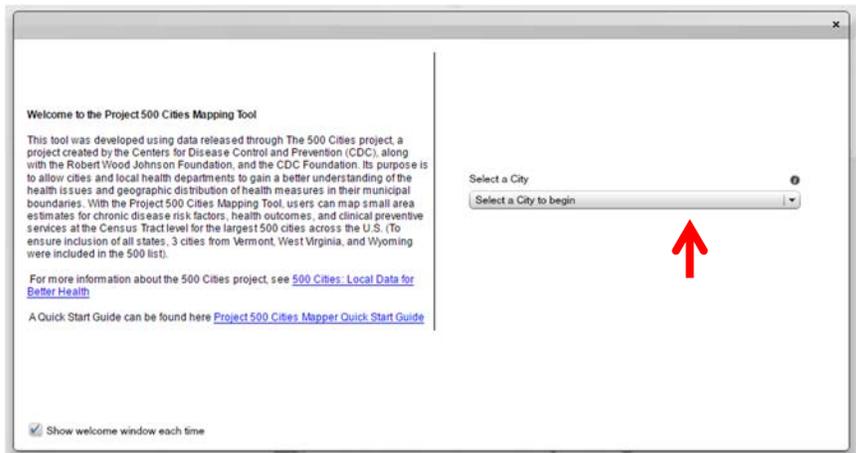
- Use mapping tools to make observations about community characteristics
- Describe how community characteristics affect patient health
- List two additional activities that you could do to learn more about your community

You are working with your clinical and administrative teams to start a new clinic in Houston, Texas and are going to learn more about this community by completing three activities:

- 1) Generate a map using the 500 Cities Mapping Tool
- 2) Generate a map using the UDS Mapper
- 3) Explore your own community

Activity 1: Use the 500 Cities mapping tool

- Go to http://www.healthlandscape.org/map_Project500Cities.cfm
- Select TX: Houston from the drop down menu



- To view all possible indicators, select "show this list" on the right side navigation pane under the 500 Cities (Tract) option.

500 Cities (Tract) i x

Click on a checkbox to turn on an indicator. Click and drag on the sliding circle to color in only those areas that have a rate outside of the setting on the slider. When more than one indicator is turned on, counties will get darker where they overlap.

To fine-tune the threshold on the slider, click the slider triangle with your mouse and then use the arrow keys on your keyboard to move the slider triangle up and down the threshold bar.

Select a City

TX: Houston

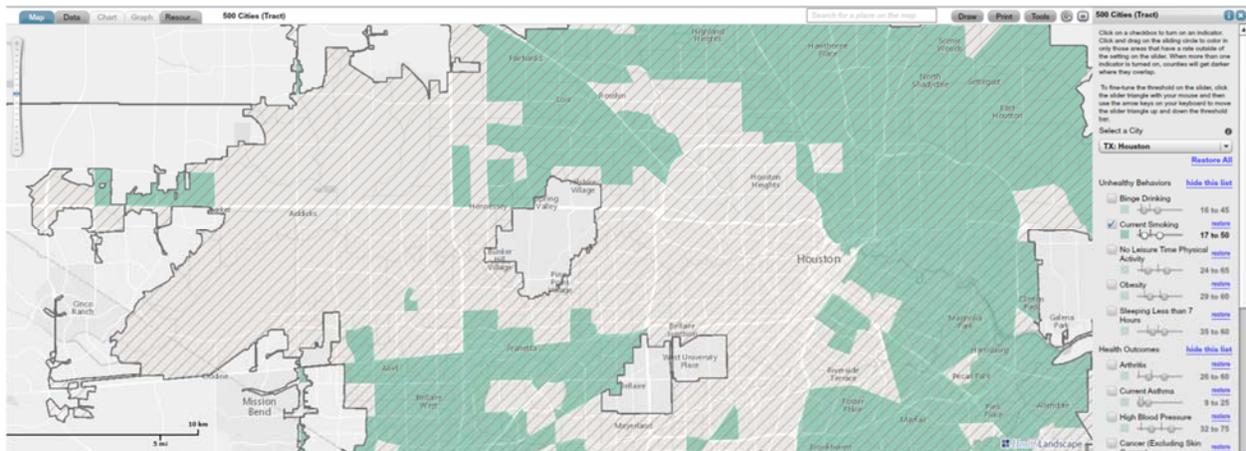
[Restore All](#)

Unhealthy Behaviors [show this list](#)

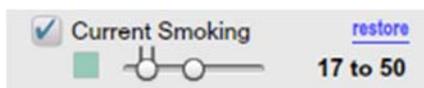
Health Outcomes [show this list](#)

Prevention [show this list](#)

- For your city, select “Current Smoking” under “Unhealthy Behaviors”



- Notice that only a portion of the census tracts are highlighted.
- On the indicator bar, the hash marks indicate the range for the selected city. The left most selector (circle) is set to the national average. Therefore, all highlighted census tracts have a percentage of the population that is currently smoking above the national average.

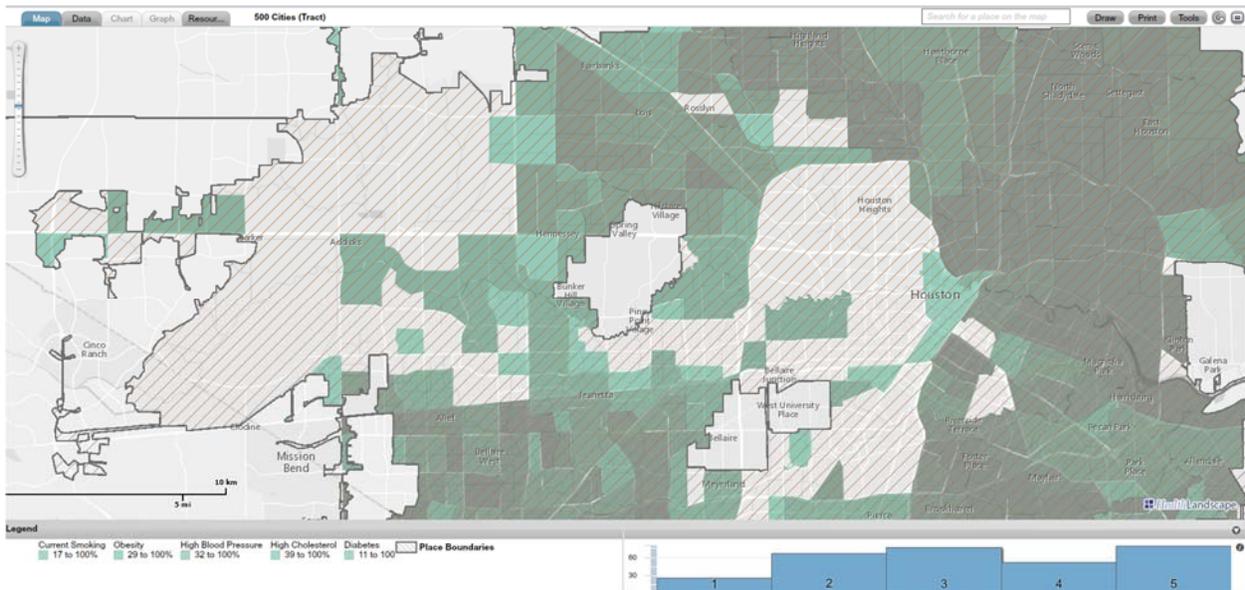


- When this indicator is set at “0”, all of the census tracts are highlighted, indicating that this value is greater than 0 for all census tracts.

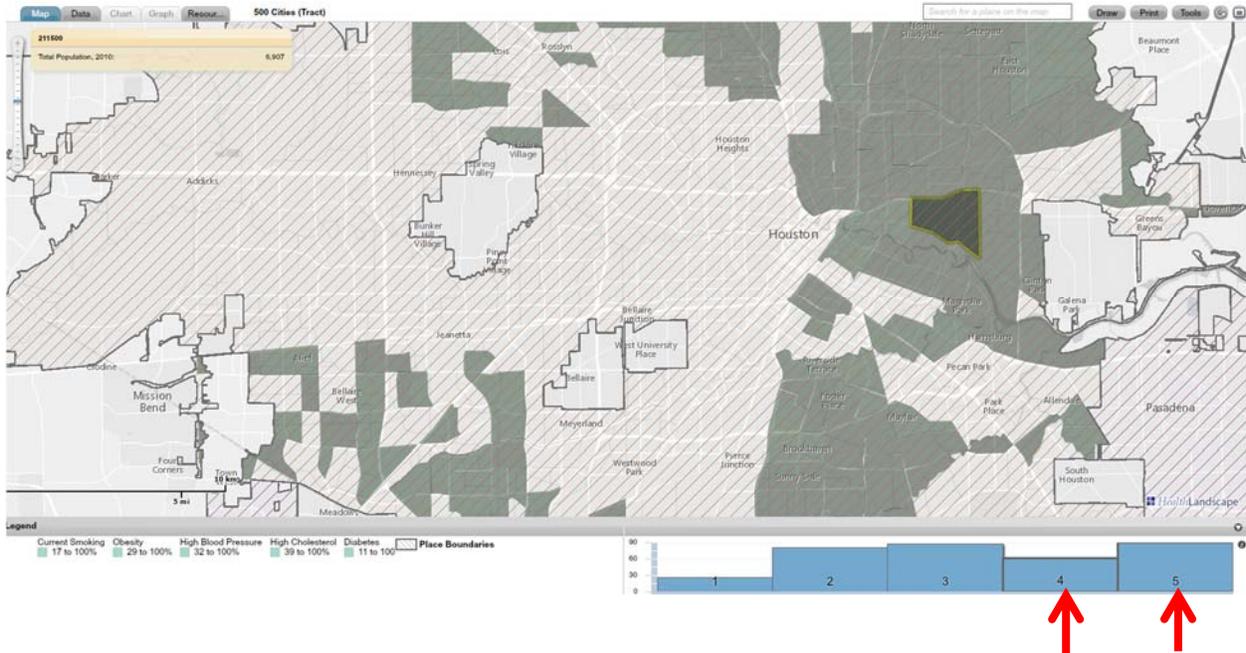
- As you slide the selector across the range, you will notice that some of the census tracts will no longer be highlighted. (Note: After you click on the selector, you can also use the right and left arrow keys to move the selector with greater precision).
- Slide the selector from 0 to the second vertical line, and note the pattern that emerges.
- The census tracts that are no longer highlighted initially (i.e. when the selector is closest to the first vertical line) have a low percentage of the population that currently smokes while the last remaining highlighted census tracts (i.e. when the selector is closest to the second vertical line) has a high percentage of the population that currently smokes.
- Click on “restore” by “Current Smoking” to reset the map.



- Now, select current smoking, obesity, high blood pressure, high cholesterol, and diabetes.
- Notice that some of the census tracts are darker than others.
- The darker census tracts have more indicator percentages above the national average.



- On the histogram below, you can see the number of census tracts (y-axis) with the number of indicator percentages above the national average (x-axis). When you click on the bar in the graph, only those census tracts are visible. On the map below, only the census tracts with 3 or 5 indicator percentages above the national average are highlighted.



- **Questions:**
 - Write down two observations about the census tracts with respect to these specific indicators.
 - What could explain the pattern?
 - What could you do to address cardiac risk factors in this community?
- Deselect the above indicators.
- Select three additional indicators. View the indicators separately and together.
- **Questions:**
 - Write down two observations about the census tracts.
 - Is the pattern similar or different than the pattern you observed in the previous activity?
 - What could explain the pattern?
 - What could you do to learn more about this city? Think about people you could interview, activities that you could do to learn more about the community, and organizations with which you could partner.

This is the same map as above but with zip code boundaries visible so that you can compare the map with the UDS Mapper map below.

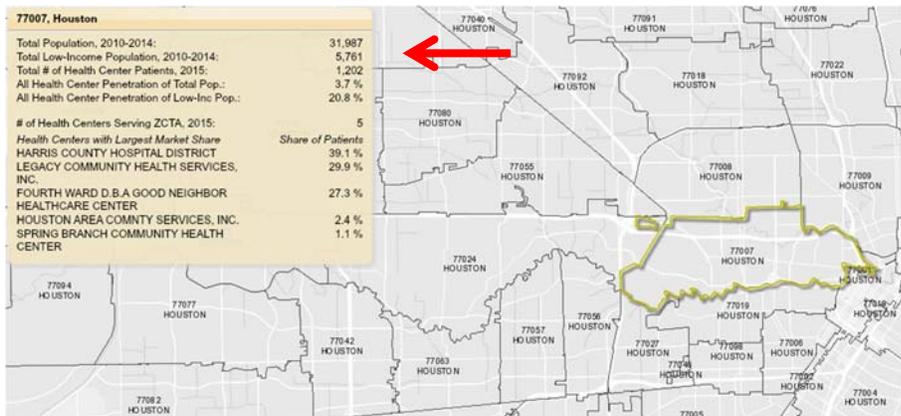


Activity 2: Use the UDS Mapper

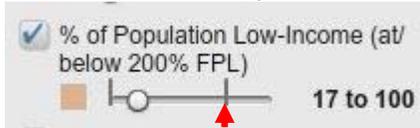
- Go to www.udsmapper.org (To use the tool, you will need to register, which is free and open to the public).
- Type a 77007 into the search bar.



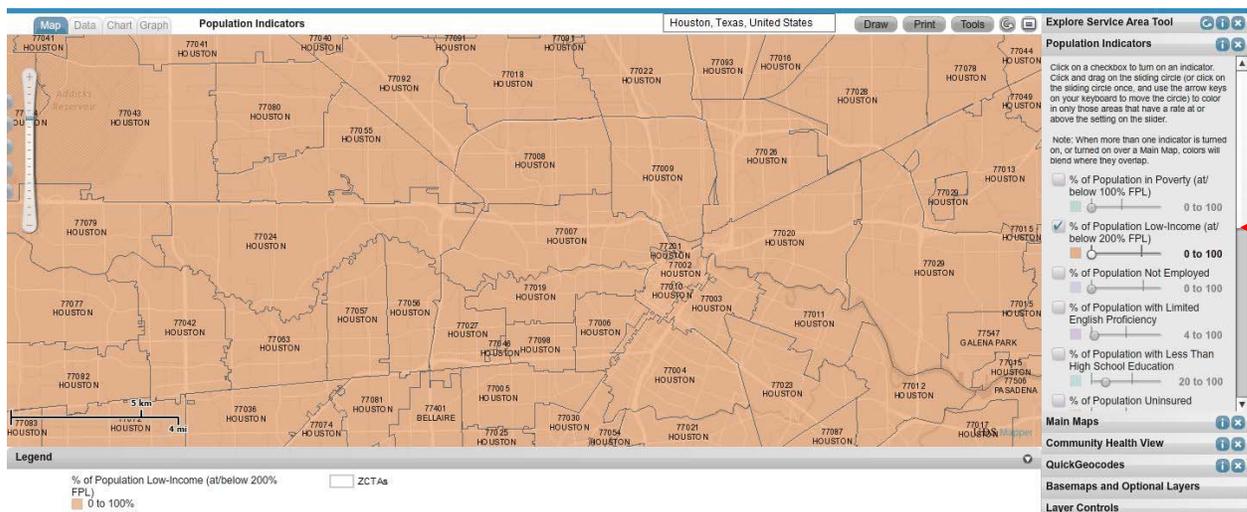
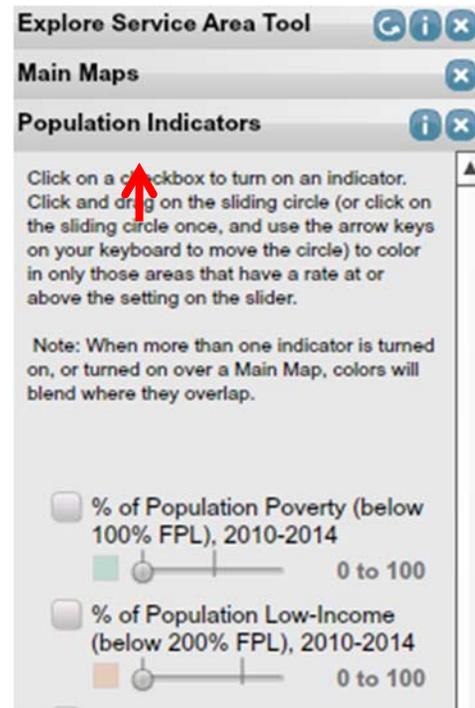
- Position the screen so that you can see the zip code of interest (77007) and at least adjacent zip codes.
- Select the "Explore Service Area Tool" option on the right side navigation pane.
- Notice, that when this tool is active, zip-code specific information (e.g. total population, total low-income population, health center penetration of the low-income population, etc.) opens up upon rolling over each area.



- Select the “Population Indicators” option on the right side navigation pane.
- Under this section, make sure that none of the options are selected initially.
- Then, select “% of Population Low-income”.
- Below this indicator, you will see a scale with a range

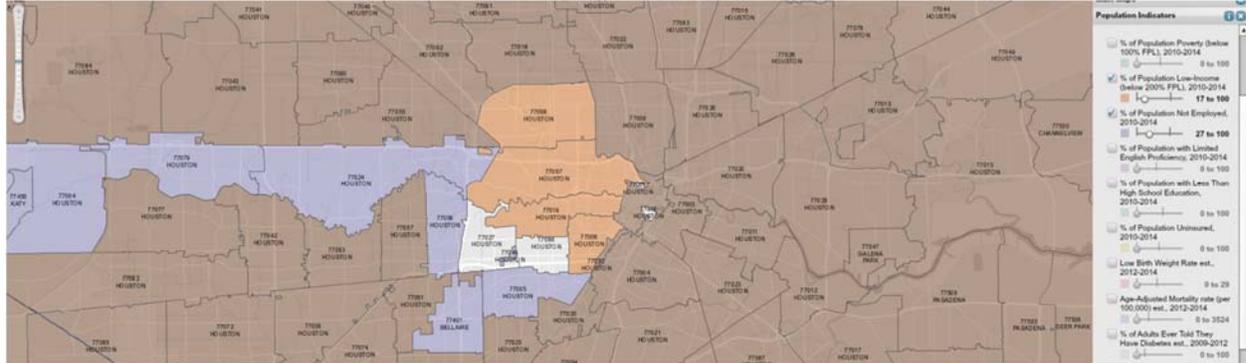


- The second vertical line represents the maximum value for this indicator for the ZCTAs visible on this screen.
- When this indicator is set at “0”, all of the ZCTAs are highlighted, indicating that this value is greater than 0 for all ZCTAs.
- As you slide the selector (the circle) across the range, you will notice that some of the ZCTAs will no longer be highlighted. (Note: After you click on the selector, you can also use the right and left arrow keys to move the selector with greater precision).
- Slide the selector from the first vertical line to the second vertical line, and note the pattern that emerges.
- The ZCTAs that are no longer highlighted initially (i.e. when the selector is closest to the first vertical line) have a low percentage of the population that is low-income while the last remaining highlighted ZCTA (i.e. when the selector is closest to the second vertical line) has a high percentage of the population that is low-income.



- In general, this feature works best when only 1 or 2 indicators are selected.
- Now select both “% of Population Low-Income” and “% of Population Not Employed”. This allows you to view the relationship between these two indicators.

- Slide the selector for “% of Population Low-Income” to approximately 17% and “% of Population Not Employed” to approximately 27%. Your map should look like this:



- Notice how there are four groups of ZCTAs:
 - o Unshaded: These ZCTAs have a “% of Population Low-Income” less than 17% and a “% of Population Not Employed” less than 27%.
 - o Light Purple: These ZCTAs have a “% of Population Low-Income” less than 17% and a “% of Population Not Employed” **greater** than 27%.
 - o Orange: These ZCTAs have a “% of Population Low-Income” **greater** than 17% and a “% of Population Not Employed” less than 27%.
 - o Dark Purple: These ZCTAs have a “% of Population Low-Income” **greater** than 17% and a “% of Population Not Employed” **greater** than 27%.

- **Questions:**

- o **Select at least three additional indicators. View them separately. Write down two observations about the zip code you selected and compare it to the zip codes directly to the north, south, east, and west.**
- o **What could explain this pattern?**
- o **What could you do to learn more about this community? Think about people you could interview, activities that you could do to learn more about the community, and organizations with which you could partner.**

Activity 3: Explore your own community

- Only certain cities are available on 500 Cities. To view the list of included cities included, open the file named, “500 cities by state”. If your city is on this list, then go to http://www.healthlandscape.org/map_Project500Cities.cfm.
- If it is not on the list, then go to <https://www.udsmapper.org/mapESA.cfm>. You will only be able to use the UDSMapper.
- The document named, “500 Cities and UDSMapper Indicators” has a list of indicators in each of these tools.
- **If your city is on the 500 Cities list, then go to the 500 Cities website and select the city of interest.**
- Find your clinic on the map.
- To orient yourself, you may need to go to Basemaps and Optional Layers and select “Interstates” under “Transportation”.

- Go to <http://geoservices.tamu.edu/Services/Geocode/Interactive/> to link the address to its commensurate census tract
- Enter the address and select TwoThousandTen from the drop down menu for “Year of Census data to intersect with”

The screenshot shows the Texas A&M Geoservices website. The main heading is "Non-Parsed Postal Address Geocoding". Below the heading, there is a navigation breadcrumb: "Services > Geocoding > Interactive". A text box instructs the user: "Enter a non-parsed postal address and click the geocode button. The service will return an appropriate geocode. You may want to read the known bugs." Below this is a form titled "Input address data" with the following fields: "Street Address" (text input), "City" (text input), "State" (dropdown menu with "TX" selected), "Zip" (text input), "Year of Census data to intersect with" (dropdown menu with "TwoThousandTen" selected), and a "Geocode" button. A link "Click here for advanced options" is located below the form. At the bottom of the page, it says "Updated Monday, November 30, 2015 2:55PM".

- On the next page, locate the “Census Tract” field

Best Geocode Output Census Values

Census Year	1990	2000	2010
Census Block			2022
Census Block Group			2
Census Tract			5102.00
Census County FIPS			201
Census Place FIPS			
Census MSA FIPS			0040
Census MCD FIPS			91835
Census CBSA FIPS			26420
Census CBSA Micropolitan			0
Census MetDiv			
Census State FIPS			48



- Here, the census tract is 5102.00

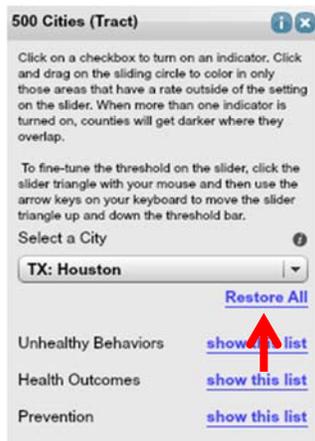
- Return to the 500 Cities mapping tool
- Select any health indicator and move the selector to “0”



- Most of the map should be highlighted green. When you roll over the census tracts, a pop up window will identify each census tract number. Notice, that the census tract label on the pop up window lacks the decimal point of the census tract number provided by the website. For the purposes of this mapping tool 5102.00 is equivalent to 510200.

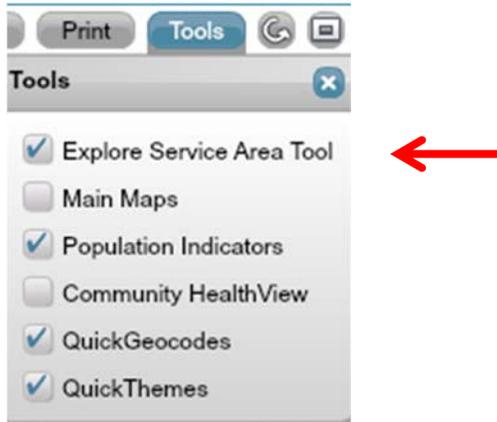


- From this view, write down the census tracts that you think are in your clinic’s 70% service area (i.e. the census tracts where your patients live). [Refer to Module 2 to learn how to determine your clinic’s actual service area]
- Click on restore all



- Select four indicators. Be sure to select at least one from each of the three categories (Unhealthy Behaviors, Health Outcomes, and Prevention).
- **Questions:**
 - **Write down two observations about the census tracts in your clinic’s service area with respect to how they relate to the indicators your selected.**
 - **What could explain this pattern?**
 - **What could you do to learn more about this community and the specific problems you identified? Think about people you could interview, activities that you could do to learn more about the community, and organizations with which you could partner.**

- **If your city is NOT on the 500 Cities list, then go to the UDS Mapper website.**
- Find your clinic’s zip code on the map.
- To orient yourself, you may need to go to Basemaps and Optional Layers and select “Interstates” under “Transportation”.
- Open the “Explore Service Area Tool” under Tools



- As you roll over zip codes, notice the pop up window which provides you with additional information about each zip code.
- Write down the zip codes that you think are in your clinic’s service area (i.e. the zip codes where your patients live). [Refer to Module 2 to learn how to determine your clinic’s actual service area]
- Select one population indicator. Move the selector from left to right to observe the variation of this indicator across the community.
- Deselect the indicator and select another indicator
- Complete this process for four indicators total.
- **Questions:**
 - **Write down two observations about the census tracts in your clinic’s service area with respect to how they relate to the indicators your selected.**
 - **What could explain this pattern?**
 - **What could you do to learn more about this community and the specific problems you identified? Think about people you could interview, activities that you could do to learn more about the community, and organizations with which you could partner.**

Appendix A: Relevant Family Medicine Milestones – Exploring Community

Family Medicine Milestones	Case Study 1
Identifies specific community characteristics that impact specific patients' health.	X
Recognizes social context and environment, and how a community's public policy decisions affect individual and community health.	X
Lists ways in which community characteristics and resources affect the health of patients and communities.	X
Understands the process of conducting a community strengths and needs assessment.	X
Collaborates with the participants necessary to address important health problems for both individuals and communities.	X
Identifies the roles of behavior, social determinants of health, and genetics as factors in health promotion and disease prevention.	X
Tracks and monitors disease prevention and health promotion for the practice population.	X
Identifies health inequities and social determinants of health and their impact on individual and family health.	X

Appendix B: Relevant Nurse Practitioner Competencies – Exploring Community

Competency	Case Study 1
Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health	X
Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.	X
Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	X
Demonstrates an understanding of the interdependence of policy and practice.	X