UDS Mapper User-Guide

October 1, 2012
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Introduction

Who built the UDS Mapper?

The American Academy of Family Physicians’ Robert Graham Center for Policy Studies in Family Medicine and Primary Care coordinated the UDS Mapper project with funding provided by HRSA’s Bureau of Primary Health Care (BPHC). Partners on this project include HealthLandscape, LLC.; the Health Foundation of Greater Cincinnati; John Snow, Inc. (JSI); and Blue Raster, LLC. More information about each of these organizations can be found by following the links or by looking in Appendix A.

Why was the UDS Mapper developed?

In a period of landmark health system reform, it is essential that HRSA, BPHC, health center organizations, and communities have access to tools and data that can assist in evaluating the geographic reach, penetration and growth of the Section 330-funded Health Center Program and its relationship to other federally-linked resources and safety net providers. As such, HRSA, JSI, and the Robert Graham Center have collaborated to develop a mapping and decision-support tool driven primarily from data within the Uniform Data System (UDS) previously not publicly accessible at the local level.

How will the UDS Mapper be used?

The UDS Mapper is designed to help inform users about the current geographic extent of U.S. federally (Section 330)-funded Health Center Program (HCP) Grantees, and was largely designed upon algorithms and reporting methods developed by John Snow, Inc. for BPHC-requested service area analyses. The information available in the UDS Mapper includes estimates of the collective service area of these health centers by ZIP Code Tabulation Areas (ZCTA), including the ratio of HCP Grantee patients reported in the Uniform Data System (UDS) to the target population, the change in the number of those reported patients over time, and an estimate of those in the target population that remain unserved by HCP Grantees reporting data to the UDS (although they may be served by other providers.) Due to data limitations, this tool is meant to be only one of many resources available for exploring the geographic extent of health centers. To inform additional exploration within the UDS Mapper, users can also map US Census data and see the locations of all HCP Grantees and their service sites, in addition to locations of other federally linked providers including Federally Qualified Health Center Look-Alikes (FQHC-LA), National Health Service Corps (NHSC) sites, Rural Health Clinics (RHC), and Tribal Organization Facilities. Shortage areas, including Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas/Populations (MUA/Ps) are also included.

Who are the targeted user groups for the UDS Mapper?

- HRSA project officers
- Other policy makers and planners (state, local, community)
- State/Regional Primary Care Associations and State Primary Care Offices
• Health Center Program Grantees and FQHC Look-Alikes
• Prospective Health Center Program Grantees and FQHC Look-Alikes
• Staff from other types of health centers

Data

A complete data dictionary can be found in Appendix B, however, the most current information about the data currently used in the site can be found at: http://www.udsmapper.org/data.cfm.

What geography is used for mapping and analysis in the UDS Mapper?

Because Health Center Program Grantees report patient data to the UDS by ZIP Code, all data in the UDS Mapper currently are aggregated at the ZCTA level.

ZIP Code Tabulation Areas (ZCTAs) were developed by the US Census Bureau for tabulating summary statistics for the 2000 Census, and updated for the 2010 Census. Recognizing that most people do not identify with census geography smaller than counties, such as census tracts, the ZCTAs were created as generalized representations of US Postal Service ZIP Codes.

What types of data are used in the UDS Mapper and what are their sources?

Data used for the Main Maps and ZCTA Data Table view come from three main sources:

1. HRSA Uniform Data System (UDS) data are collected annually from Health Center Program (HCP) Grantees and contain a variety of information about health center operations and the patients they see, including patients’ reported residential ZIP Code. The most recent data available come from calendar year 2011. Due to available data and current use agreements, UDS data displayed within the UDS Mapper site come only from HCP Grantees that have reported data to the UDS, and whose data were subsequently provided to JSI (i.e., Community Health Centers, Migrant Health Centers, Healthcare for the Homeless Programs, and Public Housing Primary Care Programs.) JSI clean these data and perform all calculations for data elements that are solely UDS or combine UDS and Census or American Community Survey (ACS) data before sending them to the Robert Graham Center for the UDS Mapper. There are no ZCTA-level data for FQHC Look-Alikes, Rural Health Clinics, NHSC sites not funded by Section 330 (whose UDS data are sent only to the Bureau of Clinician Recruitment and Service), Tribal Organization Facilities, etc.
2. US Census 2010 Block centroid data aggregated to 2010 ZCTA geography is used for all population, race and ethnicity totals.
3. American Community Survey (ACS) 2006-2010 5-Year Estimates for block groups and tracts aggregated to 2010 ZCTA geography are used for poverty and income data.

Additional data layers in the Optional Layers of the site such as Health Professional Shortage Areas and Medically Underserved Areas come from the HRSA Geospatial Data Warehouse (HGDW). These data are downloaded periodically through the HGDW “Map Services” feature.
<table>
<thead>
<tr>
<th>Data Sources for Main Maps and Data Table</th>
<th>HRSA Geospatial Data Warehouse</th>
<th>US Census, 2010</th>
<th>ESRI Shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCP Grantee Locations</td>
<td>✔️</td>
<td></td>
<td></td>
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<tr>
<td>HCP Grantee Service Access Points</td>
<td>✔️</td>
<td></td>
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<tr>
<td>NHSC Sites (by Number of NHSC Primary Care Providers)</td>
<td>✔️</td>
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<tr>
<td>FQHC Look-Alikes</td>
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<td>Rural Health Clinics</td>
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<td>Hospitals</td>
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<td>Medically Underserved Areas/Populations</td>
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<td>Health Professional Shortage Areas</td>
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<td>Highways</td>
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<tr>
<td>County Boundaries (and labels)</td>
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<td>Census Tract Boundaries</td>
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<tr>
<td>ZCTA Boundaries (and labels)</td>
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<tr>
<td>State Boundaries</td>
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</tbody>
</table>

Table 1. Data Sources for Main Maps and Data Table

<table>
<thead>
<tr>
<th>Data Sources for Optional Map Layers</th>
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<th>HRSA Area Resource File (ARF)</th>
<th>CDC Vital Statistics</th>
<th>Behavioral Risk Factor Surveillance System (BRFSS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Population in Poverty</td>
<td>✔️</td>
<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
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<td>✔️</td>
<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
<tr>
<td>% of Population Not Employed</td>
<td>✗</td>
<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
<tr>
<td>Low Birth Weight Rate</td>
<td>✗</td>
<td></td>
<td></td>
<td>[2011]</td>
</tr>
<tr>
<td>Age-Adjusted Mortality Rate</td>
<td>✗</td>
<td></td>
<td></td>
<td>[2009]</td>
</tr>
<tr>
<td>% of Adults Ever Told Have Diabetes</td>
<td>✗</td>
<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
<tr>
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<td>✗</td>
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<td></td>
<td>(2006-2010)</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>(2006-2010)</td>
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<tr>
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<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
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<td>✗</td>
<td></td>
<td></td>
<td>(2006-2010)</td>
</tr>
</tbody>
</table>

Table 2. Data Sources for Optional Map Layers

<table>
<thead>
<tr>
<th>Data Sources for Population Indicator Layers</th>
<th>U.S. Census American Community Survey (ACS)</th>
<th>HRSA Area Resource File (ARF)</th>
<th>CDC Vital Statistics</th>
<th>Behavioral Risk Factor Surveillance System (BRFSS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Population in Poverty</td>
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<td>(2006-2010)</td>
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</tbody>
</table>

Table 3. Data Sources for Population Indicator Layers
**Data Limitations**

- UDS data are reported annually by Health Center Program (HCP) Grantees. Occasionally, HCP Grantees provide incomplete information or data are lost in the submission process. No such omissions have been documented in the 2011 UDS ZIP Code data.
- UDS data that are provided are limited in that they are pre-aggregated geographically by the health center.
  - Although JSI verifies that all reported ZIP Codes are valid ZIP Codes, there is no way to go back to the source data to verify accuracy.
  - There is no way to disaggregate the data to be able to show them in different geographies such as census tracts or counties.
  - It is impossible to say that a patient is not counted twice. While patient counts from a single provider are of unique individuals, there is no way to tell if that unique individual went to multiple health centers in the year and therefore may be counted more than once in the overall numbers.
- JSI follows a strict data suppression methodology for geographically tagged data from the UDS. If a ZCTA contains fewer than 10 patients from a single health center, those patients are not included on any analyses even if there are more than 10 patients total in the ZCTA who go to various health centers in the area.
- Some patient residential ZIP Codes may be assumed or temporary. For example, in the reporting guidance for homeless patients, HRSA recommends HCP Grantees use the delivery site location ZIP Code as a proxy for residence and for migrant worker patients, HRSA recommends using their temporary local address.
- There are always limitations to using ZIP Codes as the geographic unit of measurement.
  - The USPS frequently realigns, merges, or splits ZIP Codes to meet the changing needs of mail carriers. These changes usually are not reflected in the annual Census updates of their geography (TIGER files) including ZCTAs. Several ZCTAs represent ZIP Codes that no longer exist due to realignment by the USPS. To address the shifting ZIP Codes, JSI annually analyzes USPS ZIP Code data to create an approximation of how these ZIP Code changes fit with the existing ZCTA geography.
  - In the original construction of the ZCTAs, census blocks are aggregated to form ZCTAs using the ZIP Code of the majority of the addresses within a ZCTA at the time the data were compiled. As a result, some addresses end up with a ZCTA that is different from their ZIP Code.
  - ZCTAs were never developed for ZIP Codes that comprise only a small number of addresses.
  - Because individual USPS ZIP codes can cross any level of traditional Census geography (states, counties, places, census tracts, etc.) there is no direct correlation of ZCTAs to ZIP Codes.
  - The US Virgin Islands and the Pacific Islands of American Samoa, Guam, Palau where there are health centers do not have established ZCTA boundaries according to the 2010 Census, and are thus not included in the Mapper.
• It is important to note that HCP Grantees are only one type among a variety of safety net providers. The data displayed in the UDS Mapper show only HCP Grantees’ contribution to meeting the needs of the medically underserved. Areas that seem to have a lack of coverage may actually be served by other types of safety-net providers.
• When computing penetration of the low-income population and low-income not served by HCP Grantees, it is assumed that all of the patients seen by a HCP Grantee are low-income (below 200% of FPL). We feel comfortable with this estimate given that, nationally, 93% of the health center patient population is low-income.

**Interpreting the Data**

In an effort to picture the primary care safety net of a given area, the data and maps approximate only a rough outline. They help to show some of the underlying structure of the full picture to come, but they don’t provide the details necessary to do a full analysis of the situation. The data and the geovisualization of the data are only meant to help planners and policy makers, communities and Health Center Program Grantees form the questions they should be asking to get the complete picture.
Functions by Screen View

Overview of the Map View

Map View

- Clicking on either of these will show the map, or if the map is already shown will re-open the welcome box.
- Find information about the partners and background for the project.
- Links to other mapping tools, information about the HRSA Uniform Data System (UDS), partner and constituent organizations, articles and references, and downloadable data.
- Training and support resources: Webinar schedule, FAQs, Tutorials, Data Definitions, Glossary and Knowledge Base.
- Contact the UDS Mapper Support Team.
- Log out/login.
- Export the map to a PDF file or get the URL to share the map with others.
- Click to get more information, re-open the welcome box, reset map or hide the Explore Service Area box.
- Choose between different modes of service area exploration (only one can be used at a time).
- Enter a search to reposition the map or select ZCTAs for analysis (select HCP Grantees in 'by Patient Origin'; select addresses in 'by Distance').

UDS Mapper

**Title of active base layer** (selected in Map Elements toolbox under Main tab)

**Zoom/scale bar**

**Click to get more information or close the legend**

**Legend** – click the tab to open or close the box

Legend – click the tab to open or close the box

Map Elements toolbox – click the tab to close or open the box

Currently selected ZCTAs are listed here in 'by Geography and 'by Distance' modes (list selected HCP Grantees in 'by Patient Origin' mode)

**MAP VIEW** Tabs allow you to toggle back and forth between the map and the data table

**HCP Grantee Dominance by ZCTA, 2011**

**Map Elements toolbox – click the tab to close or open the box**

Optional layers – add HCP Grantees/service sites, other federally-linked providers, NHSC sites, hospitals, designated underserved areas, highways, boundaries, and labels

Main layers – choose between different base layers showing patient-based or population-based data by ZCTA

Background layers – add street maps, satellite images or topographic maps to your map

Population Indicators – add health indicators and adjust data thresholds

Enter a search to reposition the map or select ZCTAs for analysis (select HCP Grantees in 'by Patient Origin'; select addresses in 'by Distance')
When you first click through the welcome screen, you will see a map of the continental United States. The default view is the Map View and the default main map is “All HCP Grantee Penetration of Low-Income Population”. The title for the currently active main map is displayed immediately above the map on the left.

Next to the map title, there are two tabs, the Map tab and the ZCTA Data Table tab. The active tab will be blue.

Continuing to the right, there are three tools- a drawing tool, an export tool and a URL generator called “Share Map.” The drawing tool allows the user to add lines, points, rectangles, polygons and labels to the map. The export tool allows the user to save the map they have created to a PDF file. The “Share Map” tool creates a URL the user can send to colleagues to review the map, or save to return to a map they will need to come back to at a future date.

In the upper left portion of the map, you will see a scale bar that will allow you to zoom in and out in the maps. The scale at the bottom left corner of the map will change as you change the zoom level.

Beneath that, you will see a blue tab that will open and close the legend. The default status for the legend is closed. Clicking the tab on the left side of the screen will open the legend, turning the tab to gray when the legend is open. Only active layers will be displayed in the legend.

In the upper right portion of the map is the Explore Service Area toolbox. The default status for this toolbox is open. Clicking the gray tab on the side of the box will close the toolbox, which will change that tab to blue. The tools in this toolbox allow you to select or deselect areas for analysis.

In the lower right portion of the map is the Map Elements toolbox. The default status for this toolbox is open. Clicking on the gray tab on the side of the toolbox will close the toolbox, changing the color of the tab to blue. Within this toolbox are four tabs, each with a set of layers the user can choose to turn on or off.

**Tools in the Map View**

**Scale bar** - Allows you to change the scale of the map from a maximum of 1:591,657,528 to a minimum of 1:72,224. You can change the scale by clicking on the plus (+) or minus (-) signs at either end of the bar. You can also click and hold the scale indicator and drag it to your desired scale.

**Legend** - Shows a description of all active layers except background layers. The legend can be opened and closed using the tab on the side of the legend. It can also be closed clicking the X at the top of the legend box.
Annotation/Drawing Tools - Brings up the menu that allows you to draw on your map adding lines, points, rectangles, polygons and labels. Click the X to close the drawing tools menu.

Point

Clicking “Point” turns on this tool. It adds a point to the map where you click. While the tool is on, a point will be added to the map every time you click the map. Click “Point” again to turn off the tool. You can change the color of your points by selecting from the color box next to “Shape.” The size of the points cannot be changed. The point will stay the same size regardless of the zoom level, so the farther you zoom out, the more area the point will cover.

Line

Clicking “Line” turns on this tool. You can add a straight line to the map using this tool. A line is added by clicking the map and dragging your mouse to where the line should end. Releasing the mouse button will end your line. While the tool is on, a line will be added to the map every time you click and drag your mouse across the map. Click “Line” again to turn off the tool. You can change the color of your lines by selecting from the color box next to “Shape.” The width of the lines cannot be changed. The line will stay the same width regardless of the zoom level. The line will stay the same length relative to the zoom on your map, (i.e., if you draw a line from Los Angeles to San Francisco, that line will always be that distance.)

Free Line

Clicking “Free Line” turns on this tool. You can add a line to the map using this tool. A line is added by clicking the map and dragging your mouse. A line will be added following the path of your mouse until you release the mouse button. While the tool is on, a line will be added to the map every time you click and drag your mouse across the map. Click “Free Line” again to turn off the tool. You can change the color of your lines by selecting from the color box next to “Shape.” The width of the lines cannot be changed. The line will stay the same width regardless of the zoom level. The line will stay the same length relative to the zoom on your map, (i.e., if you draw a line from Los Angeles to San Francisco, that line will always be that distance.)
**Rectangle**

Clicking “Rectangle” turns on this tool. You can add a rectangle to the map using this tool. A rectangle is added by clicking the map and dragging your mouse. Releasing the mouse button will complete your rectangle. A rectangle will be added following the path of your mouse until you release the mouse button. While the tool is on, a rectangle will be added to the map every time you click and drag your mouse across the map. Click “Rectangle” again to turn off the tool. You can change the color of your lines by selecting from the color box next to “Shape.” The default is a rectangle with a solid black outline filled in with the selected color. Clicking the “Outline only” option will create a hollow rectangle outlined in the selected color. The width of the outlines cannot be changed. The outline will stay the same width regardless of the zoom level. The rectangle will stay the same size relative to the zoom on your map, (i.e., if you draw a rectangle around a county, that rectangle will always be just around that county.)

**Polygon**

Clicking “Polygon” turns on this tool. You can add a polygon to the map using this tool. A polygon is added by clicking the map multiple times to create the shape you need. A corner for the polygon will be added with each click of the mouse button. A double click creates the last corner and closes the polygon. While the tool is on, a polygon will be started every time you click the map. Click “Polygon” again to turn off the tool. You can change the color of your lines by selecting from the color box next to “Shape.” The default is a polygon with a solid black outline filled in with the selected color. Clicking the “Outline only” option will create a hollow polygon with an outline that is the selected color. The width of the outlines cannot be changed. The outline will stay the same width regardless of the zoom level. The polygon will stay the same size relative to the zoom on your map, (i.e., if you draw a polygon around a county, that polygon will always be just around that county.)

**Label**

Clicking “Label” turns on this tool. You can add a label to the map using this tool. A label is added by clicking the map, opening a text box. You can add a label by typing in the text box and hitting Enter to complete the text entry. The font in the typing mode will differ from the actual font displayed on the map. While the tool is on, a label will be added to the map every time you click the map. If you do not add text to the label or if you do not hit enter, that label will go away when you next click the map. Click “Label” again to turn off the tool. You can change the color of your label text by selecting from the color box next to “Label.” The default is purple text in a box with a solid black outline. Deselecting the “Show Box” option by clicking the checkbox turns off the outline for the label box. The font size of the labels and width of the outline cannot be changed. The font size and outline will stay the same width regardless of the zoom level.
Move

Clicking “Move” turns on this tool. You can select any of your drawn objects or labels and move them as necessary. The object you will be moving will be highlighted with a gray shadow. Simply click and drag the object you want to move. Release the mouse button when the object is where you want to reposition it. If you do not click on an object while this tool is on, clicking and dragging the map will result in moving the map and double clicking will zoom in on the map. Click “Move” again to turn off the tool.

Eraser

Clicking “Eraser” turns on this tool. You can select any of your drawn objects and erase them as necessary. The object you will erase will be highlighted with a gray shadow. Simply click the object to erase it. If you do not click on an object while this tool is on, clicking the map will result in moving the map and double clicking will zoom in on the map. Click “Eraser” again to turn off the tool.

Clear All

Clicking “Clear All” will remove all drawn objects and labels from the map.

Explore Service Area Toolbox

The Explore Service Area toolbox can be opened and closed by clicking on the tab on the side of the box. This toolbox houses several important functions:

- Receive Information
  The info button takes the user to the FAQs for more information about the features of the tool.

- Show Welcome Window
  The home function will take the user back to the welcome screen but will not reset the map.

- Clear All Map Settings
  The reset function allows the user to clear all changes to the map and start from the default map.

- Close Explore Service Area Toolbox
  The X button closes the Explore Service Area toolbox.
By Geography

‘By Geography’ is the first of three optional modes in the Explore Service Area toolbox that the user can toggle between by clicking on the three circular radio buttons at the top of the toolbox. The functions within the Explore Service Area toolbox will change depending on the chosen mode.

In ‘by Geography’ mode, the user can select ZCTAs to define and analyze an area of interest. Data for the selected ZCTAs will display if the user clicks the ZCTA Data Table tab.

Search to Go or Select (by Geography)

In ‘by Geography’ mode, the ‘Search to Go or Select’ function allows the user to enter a ZIP Code, ZCTA, city, county or state name to go to or select that area. As the user enters the information, a list of possible matches drops down. The user must wait for the drop-down list to finish searching and then select the desired option from the possibilities listed. If the user has entered a city, county or state name, the user will then click “Go” to zoom to that area on the map. If the user has entered a ZIP Code or ZCTA, the user also has the option of clicking "Add" to add that ZCTA to the list of selected ZCTAs. The map will not zoom to this area when clicking "Add."

ZCTA selection

1. The user can enter a ZIP Code or ZCTA into the ‘Search to Go or Select’ function of the Explore Service Area toolbox and select "Add." The map will not go to the area but rather the ZCTA will appear in the ‘Selected ZCTAs’ box of the Explore Service Area toolbox. Clicking “Go” will zoom and center the map on that ZCTA. When the map is zoomed into that area, the user will see the selected ZCTA outlined in black and covered by small black dots.

2. The user can also simply click on ZCTAs of interest on the map to add them to the selected list. The ZCTA the user has selected will be highlighted by a black outline with black air (or yellow if your mouse is over the selected ZCTA). This functionality only works at zoom levels of 1:1,155,581 or less. To focus on a particular part of the map in which to select ZCTAs, the user can use the search function to enter a ZCTA, county or state into the search bar, select it from the drop-down menu, and click “Go”.

3. The user can “paint” an area on the map to select ZCTAs. Click the paint brush tool to activate this function. While activated, the user can click and drag the mouse across the ZCTAs to be selected. Releasing the mouse button will stop ZCTA selection. Click the paint brush again to turn off the tool.

4. When rolling over a selected ZCTA number in the ‘Selected ZCTAs’ box, that ZCTA will also be highlighted in yellow on the map for easy visualization.

5. The user can also use the Select by Address function. If the user does not know the ZIP Code, or wants to select all ZIP Codes/ZCTAs within a certain radius of a specific address, the user can click the "Select by Address" button on the Explore Service Area toolbox. This will open a new menu.
In the Select by Address menu, the user will enter as much address information as possible and click "Look up." The tool will then standardize the address and return all the options that fit the information entered. The more precise the information, the fewer the options from which the user will have to choose. Once the user selects the correct address from the drop-down list, the user will select the distance from that address to use a radius in which select ZCTAs. The range is from 1 to 25 miles radii. The user can click the small magnifying glass to see a preview of the area that will be included when the user clicks “Select ZCTAs.” When the user clicks "Select ZCTAs," all of the ZCTAs which have any portion of their boundaries within that radius will be selected and added to the Explore Service Area toolbox. If the user is already zoomed in to that area, the selected ZCTAs will be seen highlighted on the map with black outlines and small black dots.

Once an address has been standardized and selected, the user can click “Show Marker” to place a push pin in the map at that location. Once the marker has been added, the user can come back to this menu to “Hide Marker” or select a new address. Only one push pin marker can be placed on a map at a time, so to mark a new address, the user would select “Move Marker.”

**Hint:** To pinpoint more than one address, use the Drawing Tools to place a dot and label at each site before entering the next address and moving the marker.

**Go to Selected Area (by Geography)**

In ‘by Geography’ mode, the user can zoom to the area of the map that contains all the selected ZCTAs once a list has been built by clicking "Go to Selected Area" at the bottom of the Explore Service Area toolbox. Once there, the user can add additional ZCTAs by clicking on the map. Remember some of your selected ZCTAs or ZCTAs of interest may be hiding behind an open tab (Legend, Explore Service Area, and/or Map Elements).
Deselecting ZCTAs

1. Click once on an already selected ZCTA on the map. The ZCTA the user is about to select will be highlighted in yellow.
2. Click the red X next to the ZCTA when rolling over the Selected ZCTAs box (the ZCTA that your mouse is over will be highlighted in yellow on the map).
3. Click "Clear Selected ZCTAs" at the bottom of the Explore Service Area toolbox.

by Patient Origin

‘By Patient Origin’ is the second of three optional modes in the Explore Service Area toolbox that the user can toggle between by clicking on the three circular radio buttons at the top of the toolbox. The functions within the Explore Service Area toolbox will change depending on the chosen mode.

In ‘by Patient Origin’ mode, the user can select HCP Grantees to view and analyze patient-origin service areas. Data for the ZCTAs included in the patient origin service area of all selected HCP Grantees at the percentage of patients included will display if the user clicks the ZCTA Data Table tab.

Search to Go or Select (By Patient Origin)

In ‘by Patient Origin’ mode, the ‘Search to Go or Select’ function allows the user to enter a Health Center Program (HCP) Grantee name or grant number; ZIP Code; county or state name to go to that area or select that HCP Grantee. A list of possible matches drops down as the user enters the information. The user must wait for the drop-down list to finish searching and then select the desired option from the possibilities listed. If the user has entered a ZIP code, county or state name, the user will then click “Go” to zoom to that area on the map. If the user has entered a HCP Grantee, the user also has the option of clicking “Add” to add that HCP Grantee to the list of selected HCP Grantees. The map will not zoom to this area when clicking "Add."

HCP Grantee selection

1. The user can enter an HCP Grantee into the ‘Search to Go or Select’ function of the Explore Service Area toolbox and select "Add." The map will not zoom to the area but rather the HCP Grantee will appear in the ‘Selected HCP Grantees’ box of the Explore Service Area toolbox. Clicking “Go” will zoom and center the map on that HCP Grantee. When zoomed into that area, the user will see the HCP Grantee location ringed in a thick black outline.
2. The user can also simply click on HCP Grantees of interest on the map to add them to the selected list. The HCP Grantee the user selects will be ringed by a thick black outline. This functionality only works at zoom levels of 1:1,155,581 or less. To focus on a particular part of the map in which to select HCP Grantees, the user can use the search function to enter a ZIP
code, county or state into the search bar, select it from the drop-down menu, and click “Go”.
3. The user can “paint” an area on the map to select HCP Grantees. Click the pen tool to activate this function. While activated, the user can click and drag the mouse to highlight an area of interest. All HCP Grantees within the highlighted area will be selected at once when the mouse button is released. Click the pen again to turn off the tool.
4. To reaffirm the HCP Grantee selection: when rolling the cursor over a selected HCP Grantee number in the ‘Selected ZCTAs’ box, that HCP Grantee will be outlined more boldly on the map for easy visualization.

**Patients Included Slider**

The user can adjust the percentage of the selected HCP Grantees’ total reported patients by ZIP Code to include in the analysis by using the ‘Patients Included’ slider. To adjust, click on the blue triangle and drag left or right, or use the right and left arrow keys on the keyboard after clicking the triangle. Displayed patient-origin service areas are calculated according to the number of patients per ZCTA. ZCTAs are ranked according to the number of patients reported by the selected HCP Grantee and added into the displayed service area until the specified percentage of the total patients is included in the service area. The default setting, 75% of the patients, shows the core patient-origin service area. Adjusting the slider to a higher setting will show more ZCTAs with fewer and fewer patients, whereas adjusting the slider to a lower setting will show fewer ZCTAs that have higher patient counts for the selected HCP Grantee.

**Go to Selected Area (By Patient Origin)**

The user can zoom to the area of the map that contains all the selected HCP Grantees once a list has been built by clicking "Zoom to Selected Area" at the bottom of the Explore Service Area toolbox. Once there, the user can add additional HCP Grantees by clicking on the map. Remember some of the selected HCP Grantees or those of interest may be hiding behind an open tab (Legend, Explore Service Area, and/or Map Elements).

**Deselecting HCP Grantees**

1. Click once on an already selected HCP Grantee on the map (the HCP Grantee the user is about to deselect will become ringed in an even thicker black outline when the cursor is touching it).
2. Roll the cursor over the name of the HCP Grantee in the Selected HCP Grantees box and click the red X that appears next to the name (the HCP Grantee that the cursor is over will become ringed in a thicker black outline on the map to affirm which one will be deselected).
3. Click "Clear Selected HCP Grantees" at the bottom of the Explore Service Area toolbox to clear all selected HCP Grantees.
By Distance

‘By Distance’ is the third of three optional modes in the Explore Service Area toolbox that the user can toggle between by clicking on the three circular radio buttons at the top of the toolbox. The functions within the Explore Service Area toolbox will change depending on the chosen mode.

In ‘by Distance’ mode, the user can select a point of interest by searching a known address or ZIP Code, or by clicking on the map to place a pushpin at an approximate location. The user can then adjust the settings in the toolbox to see the area included within a set driving time or distance to that point. ZCTAs with any portion included in the area will be selected and added to the Explore Service Area toolbox, and data for these ZCTAs will display if the user clicks the ZCTA Data Table tab.

Search to Go or Select (by Distance)

In ‘by Distance’ mode, the ‘Search to Go or Select’ function allows the user to enter a street address or ZIP Code to go to or select that location. As the user enters the information, a list of possible matches drops down. The user must wait for the drop-down list to finish searching and then select the desired option from the possibilities listed. Clicking “Go” will zoom into that location on the map. Click "Select" to place a pushpin at that location and select all the ZCTAs that have any portion within the specified driving time/distance. The map will not zoom to this area when clicking "Add."

Address Selection

1. The user can enter an address or ZIP Code into the ‘Search to Go or Select’ function of the Explore Service Area toolbox and select "Go." Clicking “Go” will zoom and center the map on that location and place a pushpin marker there.

2. The user can also simply click on the map to add a pushpin. First, the pushpin button will need to be activated. This is indicated by a blue outline around the button. If the button is not outlined in blue, click on it to activate it. When the button is active, the user can click anywhere on the map to place a pushpin. To focus on a particular part of the map on which to place a pinpoint, the user can use the search function to enter a ZIP code, county or state into the search bar, select it from the drop-down menu, and click “Go”.

3. To reaffirm the placement of the pushpin, when rolling the cursor over a pushpin that has been placed on the map, a pop-up box will show either the nearest address or the latitude and longitude of the point.
**Drive Time/Distance Slider**

This tool allows the user to adjust the red zone that appears around the selected address. This red zone displays the area within which a person can drive from any point and get to the selected address along known roads within the set driving time/distance on the slider. By default, a 30 minute drive time zone displays when the pushpin is placed on the map. To adjust for congestion in urban areas, click on the ‘Adjust for traffic’ box. Drive time can be changed to a driving distance along known roads by clicking on the circular radio button next to ‘Distance.’ To change the number of minutes or miles, click and drag on the blue triangle, or use the left and right arrow keys on the keyboard after clicking on the triangle.

**Deselecting ZCTAs within the Driving Zone**

Any ZCTA that has any portion within the red driving time/distance zone is automatically selected for analysis. However, sometimes only a very small portion is selected, and the user may want to omit this ZCTA from the selected area so that more reasonable data may be extracted from the data table. Any ZCTAs can be deselected (or selected) when the pushpin button is inactive (the button is not outlined in blue).

**Deselecting or Changing Address Selection**

To remove the pushpin and all selected ZCTAs, the user can push ‘Clear Selected Address.’ To move the pushpin, the user can redclick the pushpin button to activate it, as indicated by a blue outline around it, and then click anywhere on the map to move the pushpin and surrounding red zone from its original location. The driving time/distance settings will remain the same until changed, and the red zone will update around the new pushpin.

![Export to PDF]

This tool allows the user to export the map created on the screen to a PDF file. The exported map will include any drawings or annotations added to the map. The exported map will also include the legend. Selecting the export tool will prompt the option of exporting the map only, the data only or the full report (both the map and the data.) Once exported, the PDF will feature the title the user just gave it, a legend, the date the map was created and a source link back to the UDS Mapper.
Share Map Tool

This tool creates a URL the user can share with colleagues interested in reviewing the map within the UDS Mapper. When the user or colleague clicks on the link, if they are logged into the UDS Mapper, they will be taken to the map in the state in which it was when the URL was generated. Any drawings or annotations added to the map will not be preserved.

Map Elements Toolbox

This toolbox allows the user to add layers to the map. It can be opened and closed by clicking the tab button on the left. There are four tabs on this toolbox:

Main

The user can choose from various thematic/choropleth maps in this tab. Only one main map may be selected at a time. Data are displayed at the ZCTA level for all layers in the main map tab. The user simply clicks the layer they would like to add to the map. The title of the map (directly above the map) will change to match the current main map that is chosen.

Available layers include:
- None
- HCP Grantee Dominance by ZCTA, 2011
- All HCP Grantee Penetration of Low-Income Population
- All HCP Grantee Penetration of Total Population
- Low-Income Not Served by HCP Grantees
- Low-Income Not Served by HCP Grantees (Dot Density)
- # of HCP Grantees Serving ZCTA, 2011
- 2009-2011 (2-year) % Change in Patients
- 2009-2011 (1-year) % Change in Patients
- % Poverty (Pop at/below 100% FPL), 2006-2010 (est.)
- % Low-Income (Pop at/below 200% FPL), 2006-2010 (est.)
- % Non-White, 2010
- % Hispanic, 2010

See Table 1 or Appendix B for data source information.

Optional

The user can choose from various contextual maps in this tab. Multiple optional layers may be selected at a time. After clicking the “Optional” tab to make it active, the user clicks the check boxes of each layer to be added. Please note that some layers are only available at certain zoom levels.

Available layers include:
- HCP Grantee Service Access Points
- HCP Grantee Locations
- Facility and Point HPSAs
- NHSC Sites (by Number of NHSC Primary Care Providers)
- Medically Underserved Areas/Populations
- Health Professional Shortage Areas
- Highways
- Tract Boundaries
- ZCTA Boundaries (and labels)
- Hospitals
- FQHC Look-Alikes
- Rural Health Clinics
- County Boundaries (and labels)
- State Boundaries

See Table 2 or Appendix B for data source information.

Background

The user can choose from additional contextual maps. Only one background map may be selected at a time. Background maps will be in the background and will be covered by data if a Main Map layer is chosen. In locations where there is no data, the background map will show through the Main Map layer.

Available layers include:
- Street
- Satellite
Topographic

Population Indicators

These slider bars allow users to adjust data thresholds and explore the impact of health indicators on local geographies. To select an indicator, click the check box next to the name of the indicator you are interested in exploring. To adjust, click on the triangle and drag to the right or left, or use the left and right arrow keys on the keyboard after clicking on the triangle. As a slider moves to the right, those ZCTAs whose percent of the specified population is at or above the selected threshold remain shaded. When multiple layers are selected, blended colors will appear that identify ZCTAs where more than one indicator is at or above the setting on it slider. Indicators can also be turned on at the same time as Main Map layers, or any of the service area delineations within the Explore Service Area Toolbox. Blended colors will not appear in the legend, therefore, selecting more than two overlapping area layers at once is not recommended.

Available layers include:

- % of Population in Poverty (<100% FPL)
- % of Population Low-Income (<200% FPL)
- % of Population Not Employed
- Low Birth Weight Rate
- Age-Adjusted Mortality Rate (per 100,000)
- % of Adults Ever Told Have Diabetes
- % of Population Uninsured
- % of Adults with No Dental Visit in Past Year
- % of Adults Who Have Delayed or Not Sought Care due to High Cost
- % of Adults With No Usual Source of Care

See Table 3 or Appendix B for data source information.
Rollovers
At certain levels of zoom, rollover information is available for ZCTAs, HCP Grantees, HCP Grantee service access points, FQHC Look-Alikes, and Rural Health Clinics.

**ZCTA Rollovers**

These rollovers are always on at zooms of 1:1,155,581 or less. They contain information about the ZCTA from the UDS data. Data include:

- ZCTA and locality name
- Total Population, 2010
- Total Low-Income Population, 06-10 (est.)
- Total # of HCP Grantee Patients, 2011
- All HCP Grantee Penetration of Total Population
- All HCP Grantee Penetration of Low-Income Population
- 2009-2011 (2-Year) % Change in Patients
- (up to) 5 HCP Grantees with the Largest Market Shares and Share of Patients for each

**HCP Grantee Rollovers**

These rollovers are always on at zooms of 1:18,489,298 or less when the “HCP Grantee Locations” optional layer is selected. Data include:

- HCP Grantee name
- Type of Health Center Program grant:
  - Community Health Center
  - Migrant Health Center
  - Health Care for the Homeless
  - Public Housing Primary Care

**HCP Grantee Service Access Point Rollovers**

These rollovers are always on at zooms of 1:18,489,298 or less when the “HCP Grantee Service Access Points” Optional layer is selected. Data include:

- Site name
- HCP Grantee name
- Address & City
- Number of hours per week the site is open
- Full-Time/Part-Time operation schedule
- Year-Round/Seasonal operation schedule
**FQHC Look-Alike Rollovers**

These rollovers are always on at zooms of 1:18,489,298 or less when the “FQHC Look-Alike” Optional layer is selected. Data include:

- Site name
- Address: Street, City, State, ZIP Code

**Rural Health Clinic Rollovers**

These rollovers are always on at zooms of 1:18,489,298 or less when the “Rural Health Clinic” Optional layer is selected. Data include:

- Site name
- Address: Street, City, State, ZIP Code
Overview of the Data View

Data View

Clicking on either of these will return to the map and re-open the welcome box.

Tabs allow the user to toggle back and forth between the map and the data table.

Export data to an Adobe PDF or MS Excel file, or get the URL to share the map with others.

Quick link to Data Definitions page to view data sources (also found by clicking the Help tab).

Enter a search to select ZCTAs for analysis (select HCP Grantees in ‘by Patient Origin’; select addresses in ‘by Distance’).

Currently selected ZCTAs are listed here in ‘by Geography and ‘by Distance’ modes (lists selected HCP Grantees in ‘by Patient Origin’ mode).

Columns can be expanded (to view the entire heading/data entry) by clicking and dragging borders, and can be reordered by clicking and dragging column headings left or right.

Clicking ‘Go to Selected Area’ will reposition the map over the selected area, even while in Data View; the user will need to also select the Map tab to see this on the map view.

Explore Service Area toolbox – click the tab to close or open the box.

View Analysis Results – opens a new dialogue box for user estimation of the impact of a new site on penetration rates.

View the entire heading/data entry by clicking and dragging borders, and can be reordered by clicking and dragging column headings left or right.
Clicking on the ZCTA Data Table tab will change the view from the map to a table with data for the selected ZCTAs. Data will only display if the user has selected ZCTAs. The user can select ZCTAs in either the Map View or the Data View. All data will be shown on the table regardless of the selected map layer.

There are two tabs above the data table: ‘Map’ and ‘ZCTA Data Table’. The active tab, now ‘ZCTA Data Table,’ is blue. Just above the table on the left is the “View Analysis Results” button, which brings up a dialog box when clicked.

Continuing to the right, the user will see two export tools. The export tools allow the user to export the data to a PDF file or a comma separated value (CSV) file that can be opened in MS Excel or another statistical or spreadsheet program.

In the middle right portion of the Data View is the Explore Service Area toolbox. The default status for this tab is open. Clicking the tab on the left side of the toolbox will close the toolbox, changing the tab from gray to blue. The tools in this toolbox allow the user to select or deselect areas for analysis.

The data table’s columns can be resized by hovering over a column border, clicking and dragging the border. Releasing the mouse button will end the resizing for that column. The columns can be reordered by clicking a column header, dragging it to a new position, and releasing the mouse button. The data in each column can be sorted by clicking on the column, and then clicking the arrow (up or down). The table includes a row for summary data for all ZCTAs selected, and a row for each individual ZCTA selected. Data include:

- ZCTA
- Post Office
- State
- # of HCP Grantees Serving ZCTA, 2011
- Dominant HCP Grantee, 2011
- Share of Patients
- Total Population, 2010
- Low-Income Pop., 06-10 (est.)
- Total # HCP Patients, 2011
- Unserved (by HCP Grantees) Low-Income
- Penetration of Low-Income
- Penetration of Total Population
- 10-11 Patient % Change
- 09-11 Patient % Change
- 09-11 Patient Change (#)
- % Pop. in Poverty, 06-10 (est.)
- % Low-Income Pop., 06-10 (est.)
- % Non-White, 2010
- % Hispanic, 2010
Tools in the Data View

Explore Service Area Toolbox
This toolbox can be opened and closed by clicking on the tab on the side of the box. This toolbox houses several important functions. Although the same functions can be found here as in the map view, this section only contains information regarding how these functions affect the data view. Please the Map View section for a more detailed guide to the Explore Service Area toolbox.

Mode Selection
The functions in the Explore Service Area toolbox will change according to the mode selected. In the Data View, ‘by Geography’ mode will allow the user to search for ZIP Codes or ZCTAs to add to the data table; ‘by Patient Origin’ mode will allow the user to search for HCP Grantees and set the percentage of patients included in the patient-origin service area to add these ZCTAs to the data table; ‘by Distance’ mode will allow the user to search for an address and set a driving time or distance to add the ZCTAs included in this range to the data table.

Search to Go or Select
The ‘Search to Go or Select’ function allows the user to enter an area or HCP Grantee of interest. As the user enters the information, a list of possible matches drops down. The user must wait for the dropdown list and then select from the listed entries. The user will then select the correct option from the possibilities listed. Selecting the ‘Go’ button will reposition the map, but will not return the user to Map View. To ‘Add’ to the table, the user must search for and select according to mode:

- By Geography: ZIP Code or ZCTA
- By Patient Origin: HCP Grantee
- By Distance: Address or ZIP Code

Show Welcome Window
The home function will re-open the welcome box, but will not return the user to the map, and will not reset the data table.
Clear All Map Settings

The reset function allows the user to clear all changes to the map and data table and start from the default map. When the user clicks this button while in the Data View, all changes to the map and selected ZCTAs will be cleared and the user will be taken back to the Map View to see the default map and welcome screen.

Close Explore Service Area Toolbox

The X button closes the Explore Service Area toolbox.

Export to CSV Tool

This tool allows the user to export the data selected on screen to a CSV file. Clicking the CSV export tool will open a dialogue box. Name the file and save to a specified location. A CSV file can be opened in MS Excel or other statistical or spreadsheet program.

View Analysis Results Tool

After selecting one or more ZCTAs, the ‘View Analysis Results’ link allows a user to dynamically estimate how a new Health Center Program (HCP) Grantee or service access point will impact the penetration of the low-income and total populations by HCP Grantees in the selected area. As the user enters the number of total patients to be served, the total new patients to be served, and the low-income patients to be served at this new site, the results page automatically updates, displaying the percentage of the total and low-income populations in the selected area targeted by the expansion. This data can be downloaded as an Excel-ready XLS file by clicking the “Save to Excel” button.
Tool Resources and Help

About

This section contains information about the UDS Mapper, including project background, advisory group information, targeted users, and project team biographies. All of this information can be found in the introduction and Appendix A of this user guide.

Other Resources

Tools and Data

HRSA Uniform Data System
HealthLandscape.org
HRSA Geospatial Data Warehouse

Constituents

Bureau of Primary Health Care (BPHC) Leadership and Project Officers
Primary Care Associations (PCAs)
Primary Care Offices (PCOs)
Federally (Section 330)-Funded Health Center Program Grantees- Find a Health Center
John Snow, Inc.

Articles and References


Download Data

Rather than selecting all ZCTAs within a geographic area manually, the ‘Download Data’ function allows the user to select all ZCTAs within a state, county, or multiple counties. After selecting the desired geography and clicking “Go,” a link appears under the ‘Select Counties’ box with a downloadable, Excel-ready XLS file containing the desired data. To select multiple counties, hold down the Ctrl key while left-clicking on the desired counties.

Help

Webinars

A listing of pre-scheduled Webinar tutorials offered to any UDS Mapper user, beginning the day of the public launch and continuing for the foreseeable future.

FAQs

An initial list of Frequently Asked Questions.

Tutorials

Video Tutorials of various use-cases and UDS Mapper functions (one use-case video tutorial available at public launch, others to follow).

Downloadable guides, including the most up-to-date version of the user guide.

Data Definitions

Description and source information for data used for Main Maps, Optional Layers, ZCTA Rollovers, and Data Table View. The information in this section of the UDS Mapper site (as of October 1, 2012) can be found in Appendix B.

Glossary

List of relevant/useful terms and their definitions. The information in this section of the UDS Mapper site (as of October 1, 2012) can be found in Appendix C.

Knowledge Base

Search function of available articles submitted by UDS Mapper administrators (i.e., regarding FAQs, known issues, glossary terms, references, articles, etc.).

My Profile

Lists the information that was used when the user registered for the site and a link to the privacy policy. Users can click this link to update passwords.
**Contact Us**

Feedback form with the following fields:
- First name
- Last name
- Email
- Phone
- Preferred contact method
- Feedback Type
  - Usability/technical issue
  - Request personalized webinar
  - Data-related
  - Recommendations for improvement
  - Other
Use Case 1- Identifying areas for New Access Points or Expanded Medical Capacity from a Local Perspective

See Beginner: Using the UDS Mapper presentation slides (Help: Tutorials) for visual accompaniment.

Here is a hypothetical, grantee-level use-case to demonstrate multiple functions of the UDS Mapper. In this example a Health Center Program (HCP) Grantee has multiple delivery sites and is considering either opening up an additional location or expanding services at one of its existing locations. The HCP Grantee wants to use the tool to begin exploring and comparing nearby areas for a new location, and also wants to compare these areas with ZIP Codes that have existing services, in order to inspire additional questions and hone subsequent, more in-depth analyses performed outside of the UDS Mapper.

**Step one- Zoom to the area of interest and explore map layout**

After you have logged-in to the UDS Mapper, you can pick an area to zoom in on. In this example, we will focus in on Woonsocket, Rhode Island.

**Actions:**

- Enter “Woonsocket” in the box on the welcome screen
- Select Woonsocket, Rhode Island from the list and click “Go”; by doing this, the UDS Mapper will automatically zoom to that location

By default you are looking at the map, ‘All HCP Grantee Penetration of the Low-Income Population’ by ZCTA [pronounced “zick-ta”]. The reason why this measure is the default layer is that this is the target population best matched to the intent behind the BPHC’s funding; the patients of HCP Grantees are nationally 93% low-income. The lighter shaded green areas represent a larger number of low-income residents that do not utilize services provided HCP Grantees, but of course may be served by other types of providers. By going to the ‘Optional Map Layers’ you can also turn on HCP Grantee locations and the location of their delivery sites (this sometimes will take a few minutes to load).

The title of the map is shown in the upper left hand corner and corresponds to the selected Main Map layers. Every time you add or remove a layer, the legend will be updated to show the current active layers. You can open and close the legend at any time by clicking on the tab. All data in the main maps and optional layers will be represented in the legend when the layers are selected. The only things not shown in the legend are the basic geographic boundaries.

**Actions:**

- Explore the map to understand the layout of the Map View and available tools
- In the Map Elements toolbox, select the Optional layers tab
- Click “HCP Grantee Service Access Points” and “HCP Grantee Locations”
f. **Click the blue Legend Tab to open and see what data are currently displayed**
g. **After looking through the legend, click the now gray tab to close the legend**

At this zoom level you can see your HCP Grantee administrative location and many of the service delivery sites. As you roll over them with your mouse, you can obtain some additional information. When you are zoomed in far enough, the system also provides rollover information for the ZCTA. Although not seen on your screen, there is also rollover information available for FQHC Look-Alikes and Rural Health Clinics when those layers are turned on.

**Actions:**

f. **Roll over a large point to see information provided for an HCP Grantee**
g. **Roll over a small point to see information provided for a service delivery site**
h. **Roll over a ZCTA to see the information provided for a ZCTA**

**Step two- Zoom and pan to explore the larger area**

If you would like to zoom out, you can do so by using the zoom bar on the left or with your mouse wheel, but keep in mind that if you zoom out too far, you will not be able to scroll over ZCTAs to obtain information about them or manually select them for further analysis. You can also click, hold and drag the map to see a nearby area.

**Actions:**

Practice all ways of zooming in and out on and re-centering your map:

a. **Click on the zoom bar’s plus and minus signs**
b. **Click on the hatches on the zoom bar**
c. **Double click on the map**
d. **Use your mouse wheel to zoom**
e. **Click and hold while moving your mouse to pan the map to your area of interest**
f. **Hold the SHIFT key and draw the outline of a rectangle around the area you wish to zoom to**

**Step three- Add context to the map**

In this hypothetical example, it is your plan to open a new site on or near a local highway for easy access and within proximity to a hospital that has been seeing many uninsured patients in the Emergency Department. You can also turn these layers on from the ‘Optional layers’ tab.

**Actions:**

a. **In the Map Elements toolbox, select the Optional layers tab**
b. **Click “Highways” and “Hospitals”**
You may also need to look at other providers in the area. You can turn on the FQHC Look-Alikes and Rural Health Clinics layers to see if there are any of these providers in the area. You can also add NHSC sites to the map. Many of these providers also have an obligation to serve the low income population, but either do not report their data in the UDS system we use for the tool, or do not report patients by ZIP Code. There may also be many others that serve the low income population in that area for which we do not have data to include in the UDS Mapper, and some providers of which we are not aware.

**Actions:**

c. *In the Map Elements toolbox, select the Optional layers tab if it is not already selected*
d. *Click “FQHC Look-Alikes,” “Rural Health Clinics” and “NHSC Sites”*

Because some of the layers you have on may overlap one another and make it difficult to understand, you may want to turn some off. After we turn off HCP Grantees and service access sites, we see that there is only one NHSC site, which happens to be part of a HCP Grantee, and no other federally-linked providers in Woonsocket.

**Actions:**

e. *In the Map Elements toolbox, select the Optional layers tab if it is not already selected*
f. *Click “HCP Grantee Locations” and “HCP Grantee Service Access Sites” to turn them off*
g. *Once you have seen the NHSC site that was hidden under the HCP Grantee Location and Service Access Site, turn these layers back on*

As a grant requirement, all Health Center Program Grantees must serve a Medically Underserved Area or Population. A layer showing these areas is available in the Optional tab.

**Actions:**

h. *In the Map Elements toolbox, select the Optional layers tab if it is not already selected*
i. *Click “Medically Underserved Areas/Populations”*
j. *Open the legend to understand different types of MUA/P displays*

**Step four- Explore other Main Maps**

The UDS Mapper also has income-level data that could be helpful as you explore this area. By toggling to it under the list of main maps, you can look at the percent of population, by ZCTA, that are low-income (here defined as living below 200% of the federal poverty level) as well as those in poverty (defined a living below 100% of the poverty level). In these demographic layers, the more saturated the color, the higher the percentage of people with that characteristic.

Remember that these are percentages, not counts of people. If there are many people in an area, 20 percent represents a much larger number of people than if there is a sparsely populated area. You can see total population numbers by rolling your mouse over a ZCTA.
You’ll also notice you can only have one active Main Map layer selected at a time.

**Actions:**

a. *In the Map Elements toolbox, select the Main Map layers tab*
   
b. *Click “% Low-Income”*
   
c. *After exploring the area to see where there are pockets of low-income, click “% Poverty”*

There are also layers that show the change in the number of patients from a ZCTA who have gone to a health center during that time period. In these maps, blue colors show a gain in patients, whereas red colors show a loss of patients. The more neutral colors indicate little or no change in either direction. If a ZCTA is newly served, it is shown with a pattern that stands out.

**Actions:**

d. *In the Map Elements toolbox, select the Main Map layers tab if it is not already selected*
   
e. *Click “2009-2011 (2-year) % Change in Patients”*

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**Step five- Select ZCTAs for additional analysis**

After reviewing the maps and the data, you decide to explore ZCTA 02896 more closely, but also want to compare it to the one in which your sites are already located, which is ZCTA 02895, and others nearby. You can choose these ZCTAs by manually clicking them from the map, or typing them into the search box in the ‘Explore Service Area’ toolbox. Selected ZCTAs will be highlighted with a black border and dots, and are listed in the Explore Service Area toolbox on the right.

You should also consider what a reasonable service area is for your proposed new site. For example, in an urban area, it might be a small neighborhood, while in a rural area; it could be a distance that covers a 30 minute drive to receive services.

**Actions:**

a. *Starting in the northwest and heading to the southeast, click on 01594 (Blackstone), 02895 (Woonsocket), 02838 (Manville), and 02864 (Cumberland) to select them*
   
   Note: You must zoomed at least 4 notches from the top of the bar to select ZCTAs
   
b. *Within the ‘Search or Go or Select’ tool, enter “02896” and select “02896, North Smithfield, Rhode Island” from the list; click add*
   
c. *On the map, click 01594 (Blackstone) to deselect it*
   
d. *In the list of selected ZCTA in the Explore Service Area toolbox, scroll over 02838 and click the red X to deselect it*

If you have a specific address in mind, you can choose the ZCTAs within a certain radius and show a push pin marker for this location.
**Actions:**

- Click the ‘Select by Address’ button in the ‘Explore Service Area’ toolbox
- Enter “450 Clinton Street, Woonsocket, RI”
- Click ‘Look Up’
- Click ‘Show Marker’
- Select “2” for the radius
- Click ‘Select ZCTAs’
- Deselect the two added ZCTAs in the north by clicking them once

**Step six- Explore the selected ZCTAs (ZIP Codes) in the ZCTA Data Table View**

Now that you have visualized an area worth exploring and have selected those ZCTAs on the map, you can look at the data in a table for ease of analysis. In this view you can explore the data for the ZCTAs you have selected. You can even manipulate the table to see all the headers that may be cut off in the initial view of the table. You can export this to either an Excel spreadsheet or a PDF.

The data in this table can supply summary numbers for the entire potential service area selected. You can see whether or not there is a HCP Grantee serving the area, estimate how much of the target population is not served by HCP Grantees, see how much of the area is currently in poverty or low-income, as well as much more information.

**Actions:**

- At the top of the map, click the “ZCTA Data Table” tab
- Change the width of the columns by clicking a column border and dragging it to make it wider
- Click on the small green Excel icon on the top right of the map. You will see that a “Select Location for Download” window opens- save the file if you wish

To take our analysis another step further, the Analysis Results tool can help estimate the impact of opening a new site. When this table is opened, there are three user input fields towards the top that specify how many patients would be served by the new site, and how many of those of those would be new and new low-income. Once these numbers are entered, the measures in the fields below will update.

The “Service Area” for the analysis consists of the ZCTAs selected for the ZCTA data table. The table tells us that if we served 2,500 new low-income patients, we would be targeting 33% of unserved low-income residents in the selected ZCTAs.

This table can be downloaded to excel using the “Save to Excel” button in the bottom left. Once downloaded, you can still adjust the number of patients served and the table will continue to update.

**Actions:**
a. On the left side above the table, click the “Analysis Results” button
b. Enter 3,000 patients, 2,500 low-income patients, and 2,500 new patients
c. Scroll down the box to see the % unserved low-income need that would be met
d. Press “Save to Excel”

**Step seven- Add your own information to the map**

After exploring the area, you have decided that there are a few options to expand the services that your organization offers. In an effort to help further locating population centers in your area of interest, you can change over to a satellite view. Your current Main Map will be covering the satellite imagery, so you need to make sure that you turn this off by switching it to ‘None’. You should also turn off the Medically Underserved Areas.

**Actions:**

a. At the top of the table, click the “Map” tab
b. In the Map Elements toolbox, select the “Main” map layers tab
c. Click “None” to turn off this layer
d. In the Map Elements toolbox, select the “Optional” layers tab
e. Click “Medically Underserved Areas/Populations” to turn off this layer
f. In the Map Elements toolbox, select the “Background” layers tab
g. Click “Satellite”

You can manually add points, labels, and other shapes to highlight locations or areas of interest.

**Actions:**

h. At the top of the map, click the drawing tools icon
i. Click the title bar and drag the drawing tools menu box to an out of the way area
j. Click “Point” in the menu
k. Change the shape color to bright yellow by clicking on the color box next to “Shape”; click on the color you want to choose to close the color box
l. Add points to the map by clicking on the map (a point will be added each time you click the map while this tool is on)
m. Click “Rectangle” in the menu
n. Draw a rectangle around four of your existing sites by clicking on the map, holding the mouse button and dragging your mouse until a rectangle covers the desired area
o. Click “Eraser” in the menu; click the rectangle you have just drawn to erase it
p. Click “Rectangle” in the menu again
q. Click “Outline Only” in the menu
r. Draw another rectangle on the map
s. Click “Label” in the menu
t. Click on the map by the point you added earlier; type “Proposed Location” and hit Enter
u. Close the drawing tools menu by clicking the X at the top right of the box
**Step eight- Export your map**

Now that we have added these points, we are ready to export this map to a PDF document. You can title your map and choose to export the map by itself, the data table only, or the full report.

**Actions:**

a. At the top of the map, click the ‘Export to PDF’ icon  
b. Enter “Webinar Example” as the title  
c. Choose ‘map’  
d. Click ‘Export’  
e. You will see that a “Select Location for Download” window opens; save the file if you wish to do so

**Step nine- Reset your map**

To completely reset your map to the default view, you can click on the ‘Clear Settings’ icon at the top right of the ‘Explore Service Area’ toolbox. If you do not, then the current map will be as is the next time you return to the site.

**Actions:**

In the Explore Service Area toolbox, click the ‘Clear All Map Settings’ button  

This hypothetical use case has focused on using the UDS Mapper to expand services. You should also be aware that a new feature in the UDS Mapper, “by Patient Origin” mode, will also allow you to visualize patient-origin service areas of individual Health Center Program Grantees, as defined by where patients are actually coming from. Also, we now have another advanced tool available that will be particularly helpful if you would like to further evaluate how reasonable a service area is in terms of distance. You can switch to ‘By Distance’ mode to see the area within the specified driving time or distance from an estimated point or specific address. These tools are addressed in the following section of the User Guide, Use Case 2.
Use Case 2- Assessing Existing Services and Growth Capacity

See Advanced: Using the UDS Mapper presentation slides (Help: Tutorials) for visual accompaniment.

Here is another hypothetical use-case to demonstrate multiple functions of the UDS Mapper. We will look at ways the UDS Mapper may pertain to a PCA and a Health Center Program Grantee.

**Part 1: PCA Perspective**

*Step one - Explore the map and understand the layers that are on by default*

Putting ourselves in the role of a PCA, we’re going to begin our analysis in By Geography mode to look at the service area of the Health Center Program as a whole and analyze ZCTAs. For this example, we will look at the state of Ohio. Enter the state name into the “Search to Go or Select” box in the Explore Service Area toolbox. Wait for the state name to appear in the drop-down box. Select it and click “Go.” This option will only become visible once you have entered a valid place name or number in the Search box and selected your option from the drop-down box.

**Actions:**

- a. Enter “Ohio” in the “Search to Go or Select” box in the Explore Service Area toolbox
- b. Select “Ohio, State” from the list
- c. Click “Go”

By default you are looking at the “All HCP Grantee Penetration of the Low-Income Population” map. This layer gives an idea of the proportion of low-income people who are getting care from HCP Grantees. As you can see, there seem to be a few highly penetrated areas in various parts of the state (these are the darker green areas). To better understand this pattern, turn on the layers that show the HCP Grantees and their service access points. You see that the highly penetrated areas are primarily near HCP Grantee locations. Some areas of the state are unserved or barely penetrated by Health Center Program Grantees, shown respectively in the gray and light green areas.

**Actions:**

- d. In the Map Elements toolbox, select the Optional layers tab
- e. Click “HCP Grantee Service Access Points” and “HCP Grantee Locations”
- f. Click the blue Legend Tab to open and see what data are currently displayed
- g. After looking through the legend, click the now gray tab to close the legend

*Step two - Zoom in to an Underpenetrated Area to Investigate the Regional Data*

Zoom in to one of these poorly penetrated areas to better understand the need in the region. Once zoomed in, I can see that there are no HCP Grantee sites in Shelby, Logan, Champagne,
Union or Hardin counties, and the ZCTAs in these counties all seem to be poorly penetrated by HCP Grantees. The smallest areas you are seeing—the ones that become highlighted and have a pop-up box when you roll over them—are ZCTAs, ZIP Code Tabulation Areas. The blue boundaries you see are counties. All boundaries can be turned on and off in the Optional tab.

**Actions:**

a. **Zoom in to Logan County in Western Ohio, by entering it in the “Search to Go or Select” box and pressing Go**

b. **Roll over ZCTAs to see pop-up information**

c. **Turn off and on boundaries in the Optional tab**

Remember the low-income penetration rates that are shown in green are estimates! The calculations in this layer assume that 100% of the people who live in the ZCTA who receive services at a HCP Grantee live at or below 200% of poverty. For each ZCTA, we take the number of patients divided by the total number of low-income people residing in the ZCTA to get the penetration rate. We are comfortable with this estimate since nationally ~93% of Health Center Program patients are low-income.

Now look at this data in another way to see where there are high numbers of low-income people that are **not** being served by HCP Grantees. In this map, the darker the color, the greater the number of low-income people who do not seek services at an HCP Grantee.

**Actions:**

a. **In the Map Elements toolbox, select the Main map layers tab**

b. **Click “Low-Income Not Served by HCP Grantees”**

c. **Open the legend and look at color definitions**

The next Main Map layer, “Low-Income Not Served by HCP Grantees (Dot Density)” shows the same exact data, but instead of shading the ZCTA based on the number of low-income people who do not seek services at a HCP Grantee, we use red dots to represent unserved populations. Each red dot represents 100 unserved low-income people, and the dots are randomly spaced within each ZCTA. This dot density view is another way of visualizing potential unmet need. As you can see, the low-income population in Darke County, to the west, seems well served because of the lack of red dots. If you rollover the information for some of the ZCTAs, you see that they are actually exceeding the need of the low-income people in the area with penetration rates over 100%. This raises some questions: Does Darke Co. treat a large # of migrant or homeless patients? This could explain the high penetration rate because these populations are not counted in the low-income population estimate. HCP Grantees are told to record migrant addresses as their local address, not their home address. Homeless patients who have no address to give are told to use the clinic address.

We can rollover the HCP Grantee to see what type of funding they receive to see if we would expect large numbers of migrant or homeless patients. If we position our mouse over the large dot we will see they **do not** have a migrant or homeless grant, so there must be another explanation for this high % of penetration. A question to ponder is whether this HCP Grantee
serves as a major provider of services for the entire area, not just the low-income population. This sometimes occurs in rural areas, where the problem of access may not be income but rather geographic isolation.

Actions:

a. Click “Low-Income Not Served by HCP Grantees (Dot Density)”
b. Roll over ZCTA 45331 and read the low-income penetration rate (147%)
c. Roll over Family Health Services of Darke County, Inc. to look at funding types

Step three- Look for other providers in the region

Another question to ask is whether the low-income population in this area is really unserved by any provider. Remember that only the HCP Grantee data are included in the calculations shown by color on the map. Just because an area is poorly penetrated by HCP Grantees does not necessarily mean that low-income people are not receiving health care from some other provider. If you turn on other providers, you see that there is just one Rural Health Clinic, in Prospect. You also see a NHSC site colocated at the hospital in Greenville. If you turn off HCP Grantee locations, you can see more of the NHSC sites hiding underneath. The HCP Grantee service access point in Greenville is also a NHSC-approved site. You see that each county does have a hospital. This makes you wonder: do these hospitals have a problem with people coming to the ER or being admitted with primary care sensitive diagnoses? Maybe they would like to collaborate.

Actions:

a. In the Optional layers tab, turn on FQHC-Look Alikes, Rural Health Clinics, NHSC sites, and Hospitals
b. Turn off HCP Grantee Locations and Service Access Points to see NHSC site in Greenville

Remember that there are still other providers that are not represented in the UDS Mapper, such as free clinics. To further improve your analysis of the area, you can do some investigations outside the UDS Mapper. You can do a simple online search for “Bellefontaine Health Center” to see if there are any health centers in or near that town or city that show up in your search results. You use the drawing tools to add such a location to the map as a visual aid, to show that there are services at this location that are available to low-income people.

Actions:

a. Click on the Drawing Tools icon, above the map to the right
b. Select a color, click “Point,” and click on the map to place the point
c. Select “Label”, click on the map, type “Free Clinic,” and press ENTER on your keyboard to make the label stick to the map

Since Shelby County seems to a have provider, you decide to focus your analysis on Logan County because it appears to be unserved and the most remote from any low-income provider.
Now you are wondering: is this area populated enough to support a health center? To answer this question, you can roll your mouse over some ZCTAs and look at population counts. ZCTA 43311, Bellefontaine, has a population of 19,000, and an estimated 7,000 low-income people, certainly large enough to support a health center site if there are truly no other providers serving this population.

You can also turn on background layers to get a sense of the geography of the region. Now you can look for mountains or deserts that may impede access. Since this is Ohio, you are probably not going to see those, but you can see where there are rural farmlands. The gray clusters show man-made settlements, where there are population centers that would be logical placements of health centers. You can see a cluster in the middle of Bellefontaine, which is probably where most people in the ZCTA live.

**Actions:**

1. Roll ZCTAs in the area and look at the population 2010 estimates
2. In Main map layers, select “None”
3. In the Background Tab, select “satellite”
4. Change Background to “None” after you finish surveying the area

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**Step four- Look at regional demographics and Health Center Program trends**

Now you have established that there is a population center in Bellefontaine that is potentially large enough to support a new HCP Grantee or at least a new access point. So, go on to learn a little more about the demographic and Health Center Program trends of the area.

First, a key question to consider is whether the population in the area meets the criteria of the Health Center Program target population. You can explore the low-income layer to look for areas with high rates of low-income that might be key places for community development.

Remember, the low-income layer and the other three demographic layers (poverty, non-white, and Hispanic) are based on the percent of the **total** population of each ZCTA, not the **patient** population. These data come from the American Community Survey and the Census, not UDS reports. You can see that most of the area is a medium orange shade, indicating 30-45% low-income. Remember that these colors are based on percentages, so just because a ZCTA is a darker color does not mean it necessarily has more **total** low-income people than another ZCTA.

**Actions:**

1. In Main map layers, select “% Low-Income”
2. Open legend to look at color definitions
3. Roll over ZCTA 43348, Russels Point. Russels Point (ZCTA 43348) is a darker orange, but when you roll your cursor over you can see in the pop-up box that fewer than 2,000 people live here. Nearly half of them are low-income, so there is a high percent low-income, but 917 is not really a very high number of low-income people when compared to other ZCTAs.
You can turn on some of the other UDS calculated layers in the Main tab to learn more about the Health Center Program’s reach and growth in the area. If you turn on the “2-year % Change In Patients” layer and open the legend, it looks like there was considerable percent growth in the number of HCP Grantee patients from 2009-2011 in the dark blue ZCTAs, such as ZCTA 43302, Marion. Again, remember when you are interpreting this map that these colors are based on percentages.

You can also see that several of the ZCTAs surrounding Marion are newly served (indicated by blue dotted areas). It is likely that there is a new HCP Grantee site that accounts for all of this growth. In fact, a member of the Ohio PCA staff informed us that Center St. Community Clinic, the HCP Grantee you see in Marion, was funded in early 2009 and therefore we know that this is the reason for the large amount of growth.

**Actions:**

a. In Main map layers, select “2-Year % Change in Patients”

b. Open legend to look at color definitions

c. Roll over ZCTA 43302, Marion. Russels Point (ZCTA 43348) is a darker orange, but when you roll your cursor over you can see in the pop-up box that fewer than 2,000 people live here. Nearly half of them are low-income, so there is a high percent low-income, but 917 is not really a very high number of low-income people when compared to other ZCTAs.

d. Roll your cursor over ZCTA 43311, Bellefontaine. It also looks like there has been incredible growth—309%. However, look at the Total Number of HCP Grantee Patients (third line down): you see that there are still only 90 patients from this ZCTA that seek services at any HCP Grantee.

**Step five- Analyze the potential for already existing HCP Grantees to serve the area**

In the rollover box for ZCTA 43311, Bellefontaine, you can also see the 90 Health Center Program (HCP) patients are going to two different HCP Grantees. Most of them went to Health Partners of Western Ohio. After determining that this is the nearest HCP Grantee, and they are already drawing some patients from Bellefontaine, you wonder if this HCP Grantee would be interested in opening a new access point in Bellefontaine. You can also determine Health Partners of Western Ohio has funding to serve migrant health centers, so this HCP Grantee would be a good candidate for a new access point if there is a migrant population in Bellefontaine in need of health care. If you turn on the “HCP Grantee Dominance by ZCTA” data layer, you can see that the whole area colored in purple is where Health Partners of Western Ohio sees the greatest share of HCP Grantee patients.

**Actions:**

a. With your cursor hovering over ZCTA 43302, Marion, look at the HCP Grantees With the Largest Market Share and the Share of Patients each sees

b. See that 85.6% went to Health Partners of Western Ohio, and 14.4% went to Center Street Community Clinic

c. Find the locations of these HCP Grantees, either by rolling your cursor over the nearest
HCP Grantee locations on the map and looking at their names in the pop-up boxes, or by typing their names into the Search box and pressing “Go”

d. Note that Health Partners of Western Ohio is the nearest HCP Grantee to Bellefontaine

e. Roll your mouse over Health Partners of Western Ohio’s administrative site to see that they receive community health center and migrant health center funding

f. Turn on HCP Grantee Dominance by ZCTA and note the area where Health Partners of Western Ohio is the dominant HCP Grantee

You can turn on the Medically Underserved Areas and Populations layer to see that the area including Bellefontaine already qualifies for federal funding. To get some more information, you can search for this MUP on the HRSA website, where they have a database of all MUAs and MUPs in the country. Always remember that the UDS Mapper is a starting point to help you ask questions, but in order to answer questions you’ll want to do some more exploring outside the UDS Mapper to bring in local knowledge.

Actions:

a. In Optional layers, turn on Medically Underserved Areas/Populations
b. See that Logan County is designated as a governor-recommended medically underserved population
c. Search for Logan county on the HRSA website to find that Logan County was characterized as low-income and designated as an MUP fairly recently, in August of 2011

**Step six- Extract data for analysis and sharing**

Having found enough information to make you think this area has potential for expanded health services, you want to do some further investigations based on what you have found in the UDS Mapper.

To extract data, you can select ZCTAs by clicking on them on the map or entering them in the search box. When you switch to the ZCTA Data Table View, you can see all the data that is in each of the main layers for each of the selected ZCTAs. The summary row at the top is a compilation of all the selected ZCTAs, so it gives you statistics for Logan County as a whole.

Another way of quickly getting data for a whole county or state is to go to the Other Resources page and use the Download State/County data tool. If you do this, however, be aware that the data you are downloading is still ZCTA based. This tool automatically selects every ZCTA that has any portion touching or bordering the county or state. Therefore, if you want to be more precise about which ZCTAs you are including, just select them on the map.

Actions:

a. Click on all the ZCTAs in Logan County. Some ZCTAs will overlap with other counties, so you may want to search online for “What county is [ZCTA’s name (e.g. West Liberty)] in?” to find out whether or not to select specific ZCTAs as a part of Logan County
b. Tip: To select many ZCTAs at once, use the paintbrush tool to click and drag over ZCTAs
c. After selecting desired ZCTAs, click on the ZCTA Data Table tab above the map to switch
to the ZCTA Data Table view

d. Practice downloading county data: click on Other Resources, click on Download State/County data link, select Logan County and wait for a link to appear at the bottom of the page, click link to save file

To share this information with the folks over at Health Partners of Western Ohio, you can use the Share Map tool to send them the map you have created. Simply copy the URL in the pop-up box and then paste it into an email. Whoever clicks this link will be sent to the login page of the UDS Mapper, and after logging in the map will zoom to this area and show everything you had selected. However, all drawings will vanish, so that free clinic we drew will vanish. To save the drawings, you would need to create a PDF by clicking the PDF icon next to the Share Map button.

Actions:

   a. Click on Share Map
   b. Click “Email URL” to open up an email with the link pasted in it, or click “Copy to Clipboard” to paste the link in the location of your choice

Part 2: HCP Grantee Perspective

Now you are going to assume the role of the Health Center Program Grantee in Lima, Health Partners of Western Ohio. Having received this recommendation from the PCA, you are going to take a look at whether your organization could expand services to Bellefontaine.

Step seven- Analyze the patient-origin service area of the HCP Grantee

Assuming the role of the HCP Grantee most suited to serve the area identified by the PCA, you’re going to do some self-evaluation of your health center by using one of the cool new features of the UDS Mapper that allows you to hone in on individual HCP Grantees: the by Patient Origin mode. This tool allows me to select any Health Center Program Grantee and see where its patients originate.

Actions:

   a. In the Explore Service Area toolbox, switch to ‘by Patient Origin’ at the top of the toolbox
   b. Search for “Health Partners of Western Ohio”
   c. Press “Go” to zoom and center the map on this HCP Grantee
   d. Press “Add” to select this HCP Grantee
   e. Check that this HCP Grantee see that it is ringed in a thick black outline on the map and its name is added to the Explore Service Area toolbox, indicating it is selected
   f. Zoom out 3 times, to the 4th line from the top

By default, the hatching that appears on the surrounding ZCTAs shows me your core patient-origin service. These are the ZCTAs where 75% of your patients live. You can adjust the cut-off
point to see more or fewer percent of the total patients.

**Actions:**

- *Move the slider at the bottom of the Explore Service Area toolbox up to 100% (click on the triangle and drag to the right) to see every ZCTA where your organization has reported at least 11 patients*

- *Move the slider setting back down, such as to 50%, to see the ZCTAs where the greatest number of your total patients are coming from*

- *Move the slider back to 75%, what the Bureau of Primary Health Care defines as the core patient-origin service area*

Again, the service area you are looking at is not derived from what your organization has reported in your scope of work, but rather where you have reported patient ZIP Codes in your UDS report. (If you have the list of ZCTAs included in your health center’s claimed service area, you could select those using the ‘by Geography’ tool and then compare the differences, if any, to reevaluate your organization’s service area.)

If you zoom out, you can see that there are two ZCTAs down in York County that are part of your core service area. This makes sense, because you have a service access point there.

You also know that your health center has a mobile dental van, which shows up on the UDS Mapper at your administrative location, but actually serves people in a wider area. How is this impacting your patient-origin service area?

**Actions:**

- *Zoom out to 5th line from the top*

- *Turn on HCP Grantee service access points*

- *Notice in the Optional Layers tab that the HCP Grantee administrative locations are on by default because You are in By Patient Origin mode, and they cannot be turned off while in this mode*

- *Roll your cursor over the service access site that is on top of the administrative location of your HCP Grantee in Lima; see that it is a mobile dental van*

If you look at some of the different Main data layers underneath the hatching, you can see how well your organization is doing at serving the low-income population in the area, whether you are gaining or losing patients from these areas, and what the demographic make-up is.

If you switch to the ZCTA DATA VIEW now, you can see all of this data for all the ZCTAs that had any hatching over them on the map. The summary row now gives you an idea of your core patient-origin service area as a whole.

**Actions:**

- *Try turning on different maps in Main map layers to see areas of high and low penetration, growth or loss of patients, and demographic make-up*
b. Click on ZCTA Data table tab

Step eight- Analyze patient-origin service area overlap

You can also use this tool to look at where your service area overlaps with other HCP Grantees. You suspect this might be the case down in Springfield, where you know a HCP Grantee called Rocking Horse Center operates.

Actions:

a. Select Rocking Horse Center: simply click on the large dot representing its administrative site.
b. Zoom in on ZCTAs around Rocking Horse Center (double-click on the map to zoom)
c. You can see that there are cross-hatching lines in two directions on ZCTA 45505 in Springfield, indicating overlap
d. Open the legend to see that there are patterns available to indicate up to 6 overlapping service areas
e. Roll over ZCTA 45505: Look at HCP Grantee names listed and their shares of patients, and also look at Penetration of Low-Income Pop.

In the rollover information for ZCTA 45505, you can see that over 90% of the 3,000-plus patients from this ZCTA are going to Rocking Horse, and the rest are coming to one of the service access points under your health center. However, you can see that the penetration rate of the low-income population in the area is still fairly low, so there may still be many unserved low-income people in the ZCTA that would allow room for both HCP Grantees to grow. You may want to further explore how your health center can collaborate with Rocking Horse to serve the patients in the area. You may also wonder why patients are coming to one HCP Grantee as opposed to the other. Are they seeking specific services, are they migrants, or is there some other explanation? How can you use this information to improve the services offered by your health center and to target outreach in the community?

Step nine- Investigate the need in the area in terms of geographic isolation

After taking stock of how your health center is doing at meeting the needs of the low-income population within your current service area, you want to further explore the idea of applying for a new access point in Logan County.

To visualize how remote this area is from your current service access points and other providers, you are going to use another new UDS Mapper feature, the ‘by Distance’ tool in the Explore Service Area toolbox. This tool will allow you to place a pushpin anywhere on the map and visualize the area around it that a person could drive from and get to the pushpin, along known roads, within a specified driving time in minutes or distance in miles. By default, the setting on the slider is 30 minutes, but this can be adjusted from 5 to 90 minutes or 5 to 90 miles.
If you knew an exact address, you could enter it in the search bar to place the pushpin on that exact location. Since you are just estimating at this point, you are going to place the pushpin in the middle of Bellefontaine where you know there is a town.

**Actions:**

a. *In the Explore Service Area toolbox, switch to “By Distance” at the top of the toolbox*
b. *Click and drag on the map to center on Bellefontaine, Logan County*
c. *Place pushpin in Bellefontaine by clicking that location on the map*

If you turn on all the other providers again, you can see that there are no providers within a 30 minute drive time, which would help on your access point application.

To get a sense of this driving area, you can turn on either the street background or the highways to visualize access routes.

**Actions:**

a. *Turn on FQHC-Look-Alikes, Rural Health Clinics, NHSC Site, Hospitals, and Facility/Point HPSAs (Optional layers tab)*
b. *Turn on Highways (Optional layers tab)*

If you think that people would really come from a wider area, you can turn the time up, say to 40 minutes. Or, you can switch to miles.

**Actions:**

a. *Click on the circle next to “Distance” (on the right side of the Explore Service Area toolbox, just above the slider)*
b. *Change the setting on the slider to 20, by clicking and dragging on the triangle or using your left and right arrow keys after clicking the triangle*

Now, if you switch to the ZCTA Data Table, you will see data for every ZCTA that has any portion touching the red area. But first, since you see that there are a few ZCTAs that are just barely touching the red area, you personally think it is unreasonable to include them in this analysis. You can deselect them now by clicking on the map (and this will not move the pushpin because the ‘by Distance’ tool deactivates after you place a pushpin; if you want to reactivate it in order to move the pushpin, you would press the pushpin button in the Explore Service Area toolbox—notice that it is highlighted in blue when it is active—and then push again on the map). Now, switching to the ZCTA Data Table view, the summary row shows you the data profile for the 20 mile drive time to the proposed site.

**Actions:**

a. *Deselect ZCTAs that are just barely touching the red area, and any others you think are unreasonable to include*
b. **Switch to the ZCTA Data Table view**

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**Step ten- Estimate the impact of a new service access point**

If you expect this to be the service area of the new access site, the View Analysis Results button is helpful for estimating the impact of opening this new site. You are estimating that your new center will serve 10,000 patients, that 9,500 of them will be new patients that do not currently go to any HCP Grantee, and that 8,000 of them will be low-income—since this is a rural area, you may get patients who are not low-income but simply do not have another provider. The data in the row at the top is your summary row from all the selected ZCTAs. The table below will update to show you the percentage of the total population you will serve, and the percentage of low-income need that you will meet with this new health center, if you really see 8,000 currently unserved low-income people from these ZCTAs.

You can download this file to Excel and the formulas will all save in the spreadsheet, so you can keep adjusting the predicted numbers. However, you cannot change the selected ZCTA area after you download.

**Actions:**

- a. **Click View Analysis Results, in the ZCTA Data Table view**
- b. **Enter 10,000 patients**
- c. **Enter 9,500 new**
- d. **Enter 8,000 low-income**
- e. **Scroll down to see bold numbers update in the table**
- f. **Press “Save to Excel”**

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**Step eleven- Explore the need in the area in terms of population indicators**

There is one more tool in the UDS Mapper that you can use to improve your expansion planning. The Population Indicators tab shows 10 different data sets that are health predictors.

Begin by visualizing where there are pockets of relatively higher low-income in the area. When you first turn it on, every ZCTA is colored in. What this is telling you is that in every ZCTA, at least zero percent of the population is low-income.

**Actions:**

- a. To see these clearly, clear your ZCTA selection and turn off your main map. **Deselect ZCTAs that are just barely touching the red area, and any others you think are unreasonable to include**
- b. **Turn on % Low-Income**
- c. **Notice the two vertical markers on the slider, showing the minimum and maximum of the data for the area of the map you are looking at**
d. **Turn the slider up past the minimum:** You start to see fewer and fewer ZCTAs, until as you get closer to the maximum, only those ZCTAs with the highest rates in the area are colored in. (You are adjusting the slider by clicking and dragging the triangle or fine-tuning with your right and left arrow keys)

e. **Turn the slider from 37 to 38:** You see Bellefontaine become uncolored, so you know that the estimated low-income rate for Bellefontaine is 37

f. **Set slider at 37**

A further question to investigate is whether this rate in Bellefontaine, 37%, is actually high when compared to the state average.

You can turn on multiple indicators to see where there is overlap. If you turn on low birth weight, you find that the rate in Logan County is 8.

**Actions:**

g. **Turn on low birth weight rate**  
h. **Move from 8 to 9, to see Logan County turn off**  
i. **Set indicator to 8**  
j. **Open legend**

If you open the legend, you can clearly see that areas in orange have at least 37% low-income and areas in pink have a low birth weight rate of at least 8. The third color that is not in the legend—which you see in Bellefontaine—is where both indicators are present. Based on this information, you might consider offering maternal health services at this hypothetical proposed access point in Bellefontaine.

You can also look at Population Indicators at the same time as a Main Map layer. However, with three or more maps turned on, the color blending starts to become confusing to distinguish. For this reason, we do not recommend turning on more than two indicators at once, or more than one indicator with a Main map.

**Actions:**

a. **In Main Maps, turn on Penetration of Low-Income Population**  
b. **Go back to Population Indicators and turn off Low Birth Weight Rate**  
c. **Toggle on and off the low-income indicator, to see that the Bellefontaine ZCTA is high low-income for the area, and poorly penetrated by HCP Grantees**

Now you can save some PDFs of the maps you have created to share with others at your health center, and potentially include them in a new access point application.
Appendix A: Project Team Bios

HRSA and the Bureau of Primary Health Care (BPHC): The Bureau of Primary Health Care is part of the United States Department of Health and Human Services' Health Resources and Services Administration (HRSA). The BPHC manages funding for community-based clinics across the United States through The Health Center Program.

Robert Graham Center: The AAFP's Robert Graham Center for Policy Studies in Family Medicine and Primary Care is a research center sponsored by the AAFP but operated with editorial independence. It was established a decade ago to provide evidence for policy-making and to bring a family medicine and primary care perspective to health policy deliberations. The Robert Graham Center staff members are experts in the use and analysis of large datasets using Geographic Information Systems (GIS), and have a strong and team-based approach to GIS-related work and application development.

AAFP: The American Academy of Family Physicians (AAFP) is the national association of family doctors. It is one of the largest national medical organizations, with more than 94,600 members in 50 states, D.C., Puerto Rico, the Virgin Islands, and Guam. The Academy was founded in 1947 to promote and maintain high quality standards for family doctors who are providing continuing comprehensive health care to the public.

John Snow, Inc: John Snow, Inc., and its nonprofit affiliate JSI Research & Training Institute, Inc., are public health research and consulting firms dedicated to improving the health of individuals and communities throughout the world. Since 2000 JSI staff members have directed the nation-wide Uniform Data Systems (UDS) data collection and reporting projects for both the Bureau of Primary Health Care’s (BPHC) Federally Qualified Health Center (FQHC) grantees, and the Bureau of Clinician Recruitment and Service (BCRS) National Health Service Corps (NHSC) sites across the country. In addition to developing reports on the programs, JSI provides analytic support to the BPHC in interpretation of BPHC program data to support management of the Health Center Program (HCP), provides training and technical assistance to HCP Grantees, and has lead the initiative to increase the value of the data to program staff and to HCP Grantees in the field through development of the provider-specific Comparison Reports. In addition to preparing and providing the ZCTA-level UDS and Census data within the site, JSI’s approach to mapping the UDS data and analytic reports to the BPHC provided the foundation for the content, design, and functionality of the UDS Mapper.

HealthLandscape LLC and the Health Foundation of Greater Cincinnati: HealthLandscape, LLC develops, administers, and markets geospatial analysis software tools and professional services. The LLC is a subsidiary of the nonprofit Health Foundation of Greater Cincinnati, which worked with the AAFP and Robert Graham Center in the successful development of the HealthLandscape mapping platform. This group has extensive experience in GIS applications relating to health centers and primary care and works closely on all projects as a team.

Blue Raster, LLC: Blue Raster, LLC is a GIS application development group skilled in rapid application development. They have 20 years of experience in every aspect of GIS mapping using partner solutions and web and database technologies, and developed the HealthLandscape prototype together with the investigators. The Blue Raster staff includes advanced application architects, RIA developers, and GIS analysts that are critical for developing mapping tools.
Appendix B: Data Dictionary

Main Map Layers

None - This option does not display any main maps, which may be helpful when viewing some Optional Layers and additional Backgrounds

HCP Grantee Dominance by ZCTA, 2011 - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) This map colors a ZIP Code Tabulation Area (ZCTA) if it has 11 or more patients served exclusively by at least one Health Center Program (HCP) Grantee. The color is determined by the HCP Grantee (each HCP Grantee is assigned its own color) who reported the highest number of patients (Share of Patients) from that ZCTA.

All HCP Grantee Penetration of Low-Income Population - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) This map displays the percent of low-income population (at or below 200% of the Federal Poverty Level) served by a Health Center Program (HCP) Grantee (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of HCP Grantee patients from 2011 is divided by the number of low-income residents. Lighter shaded ZCTAs therefore are estimated to have a larger share of low-income residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2006-2010 income information (denominator) at the ZCTA level (explanation), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.

All HCP Grantee Penetration of Total Population - (Data from UDS reporting year 2011, and Census 2010; prepared by John Snow, Inc.) This map displays the percent of the total residents served by a Health Center Program (HCP) Grantee (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of HCP Grantee patients from 2011 is divided by the total number of residents. Lighter shaded ZCTAs therefore are believed to have a larger share of residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2010 population data at the ZCTA level (explanation), this measure is only an estimation and should be interpreted as such.

Low-Income Not Served by HCP Grantees - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) This map displays the estimated number of low-income residents in the given ZCTA that are not served by any Health Center Program (HCP) Grantees. The number is calculated by subtracting the number of total HCP Grantee patients reported in the UDS for that ZCTA (from all HCP Grantees with 11 or more patients residing in that ZCTA) from the number of low-income (at/below 200% FPL) residents in that same ZCTA. Because of the process used to capture 2006-2010 income information at the ZCTA level (explanation), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.
Low-Income Not Served by HCP Grantees (Dot Density) - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) This map displays the estimated number of low-income residents in the given ZCTA that are not served by any Health Center Program (HCP) Grantees (1 dot = 100 people randomly placed in the ZCTA). The number is calculated by subtracting the number of total HCP Grantee patients reported in the UDS for that ZCTA (from all HCP Grantees with 11 or more patients residing in that ZCTA) from the number of low-income (at/below 200% FPL) residents in that same ZCTA. Because of the process used to capture 2006-2010 income information at the ZCTA level (explanation), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.

# of HCP Grantees Serving ZCTA, 2011 - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) This map displays the number of Health Center Program (HCP) Grantees (not the number of sites) serving 11 or more patients in the given ZCTA.

2009-2011 (2-Year) % Change in Patients - (Data from UDS reporting years 2009 and 2011; prepared by John Snow, Inc.) This map displays the percent change in the current reporting year’s (2011) reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in that ZCTA) from two years earlier (2009). ZCTAs are not shaded at all if they had zero reported HCP Grantee patients in both reporting years 2009 and 2011 - even if there were patients in 2010. JSI recalculated prior year data to match the 2010 ZCTA definitions to permit comparability, and therefore patient numbers may not match those reported in prior years which were based on 2000 ZCTA definitions.

2010-2011 (1-Year) % Change in Patients - (Data from UDS reporting years 2010 and 2011; prepared by John Snow, Inc.) This map displays the percent change in the current reporting year’s (2011) reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in that ZCTA) from the previous reporting year (2010) in the given ZCTA. ZCTAs are not shaded at all if they had zero reported HCP Grantee patients in both reporting years 2010 and 2011.

% Poverty (Pop at/below 100% FPL), 06-10 (est.) - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) This map displays the percentage of the total population that lives at/below 100% of the Federal Poverty Level (FPL) in the given ZCTA.

% Low-Income (Pop at/below 200% FPL), 06-10 (est.) - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) This map displays the percentage of the total population that lives at/below 200% of the Federal Poverty Level (FPL) (otherwise known as the 'low-income' population) in the given ZCTA.

% Non-White, 2010 - (Data from Census 2010; prepared by John Snow, Inc.) This map displays the percentage of the total population self-identified as Non-White in the given ZCTA.

% Hispanic, 2010 - (Data from Census 2010; prepared by John Snow, Inc.) This map displays the percentage of the total population self-identified as Hispanic in the given ZCTA.
Optional Layers

HCP Grantee Service Access Points - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays the locations of service access points/sites of the diverse public and non-profit organizations and programs that receive federal funding under section 330 of the Public Health Service (PHS) Act, as amended by the Health Centers Consolidated Act of 1996 (P.L. 104-299) and the Safety Net Amendments of 2002. They include the reported service access points/sites of Community Health Centers, Migrant Health Centers, Health Care for the Homeless Health Centers, and Primary Care Public Housing Health Centers, otherwise known as Health Center Program (HCP) Grantees. For map performance reasons, the HCP Grantee service access points are only visible at a zoom of 1:18,489,298 or less.

HCP Grantee Locations - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays the locations of all the diverse public and non-profit organizations and programs that receive federal funding under section 330 of the Public Health Service (PHS) Act, as amended by the Health Centers Consolidated Act of 1996 (P.L. 104-299) and the Safety Net Amendments of 2002. They include the administrative location (which may or may not be a service delivery site) of Community Health Centers, Migrant Health Centers, Health Care for the Homeless Health Centers, and Primary Care Public Housing Health Centers, otherwise known as Health Center Program (HCP) Grantees. For map performance reasons, the HCP Grantee location points are only visible at a zoom of 1:18,489,298 or less.

FQHC Look-Alikes - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays the location of all FQHC Look-Alikes, as defined by the Social Security Act § 1905(l)(2)B), including their satellite locations, regardless of their status as a facility or point HPSA.

Rural Health Clinics - (Data from the HRSA Geospatial Data Warehouse, August 2012, via the Centers for Medicaid and Medicare Services’ (CMS) Provider of Service (POS) file; HRSA inputs only active RHCS into their Data Warehouse) This layer displays the location of all active Rural Health Clinics, as defined by Title XVIII, Section 1861(aa) of the Social Security Act, regardless of whether they receive facility or point HPSA designation.

NHSC Sites (by # of Primary Care Provider FTEs) - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays National Health Service Corps (NHSC) sites as per the number of NHSC-obligated primary care providers at each site. For more information see http://nhsc.hrsa.gov/communities/.

Hospitals - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays the location of all U.S. hospitals by type (Short-term, Critical Access, and other).

Facility and Point HPSAs - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays the locations of six additional types of federally-linked provider delivery sites which have HPSA designation (FQHC Look-Alikes, Rural Health Clinics, Alaskan Native Tribal Population Facilities, Indian Health Service Facilities, Native American Tribal Population Facilities and Comprehensive Health Centers).
Health Professional Shortage Areas - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays primary medical care Health Professional Shortage Areas (HPSAs), which may be designated as having a shortage of primary medical care, may be urban or rural areas, population groups, or medical or other public facilities. For more information, see http://bhpr.hrsa.gov/shortage/.

Medically Underserved Areas/Populations - (Data from the HRSA Geospatial Data Warehouse, August 2012) This layer displays Medically Underserved Areas/Populations (MUA/Ps), which may be a whole county or a group of contiguous counties, a group of county or civil divisions, a group of urban census tracts in which residents have a shortage of personal health services, or Exceptional/Governor designated. Medically Underserved Populations (MUPs) may include groups of persons who face economic, cultural or linguistic barriers to health care. For more information, see http://bhpr.hrsa.gov/shortage/.

Highways - (ESRI shapefiles) This layer displays U.S. highways and interstates.

State Boundaries - (ESRI shapefiles) This layer displays U.S. state boundaries.

County Labels - This layer displays county names in the 50 states, the District of Columbia, and Puerto Rico.

County Boundaries - (ESRI shapefiles) This layer displays U.S. county boundaries in the 50 states, the District of Columbia, and Puerto Rico.

Tract Boundaries - (ESRI shapefiles) This layer displays U.S. census tract boundaries in the 50 states, the District of Columbia, and Puerto Rico.

ZCTA Labels - This layer displays the ZCTA ID and Post Office name of U.S. ZCTAs in the 50 states, the District of Columbia, and Puerto Rico.

ZCTA Boundaries - (Data from U.S. Bureau of the Census for 2010 ZCTAs; ZIP Codes updated and matched to ZCTAs annually) This layer displays ZCTA boundaries, which represent the ZCTAs of the United States in the 50 states, the District of Columbia, and Puerto Rico. The current version, of the TIGER/Line® files contain updated national ZCTAs reflecting U.S. Postal Service ZIP Code changes through October, 2010. There may be no further updates of ZCTAs until required for the 2020 Census.

Population Indicators

% of Population in Poverty - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Census Block Groups; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its poverty rate (% of resident population at/below 100% of Federal Poverty Level (FPL)) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain poverty rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a poverty rate of 15% or higher are colored.
% of Population Low-Income (< 200% FPL) - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Census Block Groups; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its low-income rate (% of resident population at/below 200% of Federal Poverty Level (FPL)) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain low-income rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a low-income rate of 15% or higher are colored.

% of Population Not Employed - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Census Tracts; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its nonemployment rate (% of resident population aged 16-64 not employed, regardless of whether or not they are seeking work) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain nonemployment rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a nonemployment rate of 15% or higher are colored.

Low Birth Weight Rate - (Data from HRSA Area Resource File (ARF) 2011 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its low birth weight rate (liveborn infants weighing <2500 grams or <5.5 pounds per 100 total live births) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain low birth weight rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a low birth weight rate of 15% or higher are colored.

Age-Adjusted Mortality Rate (per 100,000) - (Data from CDC Vital Statistics 2009 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its age-adjusted mortality rate (age-adjusted rate of deaths per 100,000 standard population) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain age-adjusted mortality rate. For example, when the slider bar is set at 15 out of 100,000 only ZCTAs with an age-adjusted mortality rate of 15 per 100,000 or higher are colored.

% of Adults Ever Told Have Diabetes - (Data from Behavioral Risk Factor Surveillance System (BRFSS) 2006-2010 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its diabetes rate (% of adults 18+ that report having ever been told by a doctor that they have diabetes) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain diabetes rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a diabetes rate of 15% or higher are colored.

% of Population Uninsured - (Data from American Community Survey (ACS) 2008-2010 3-year at the State level, broken down by age/race, combined with U.S. Census Bureau population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its uninsured rate (% of resident population reported not having health insurance) is at or above the threshold set by the corresponding slider bar. Adjusting the slider
bar enables visualization of only areas that are above a certain uninsured rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with an uninsured rate of 15% or higher are colored.

% of Adults with No Dental Visit in the Past Year - (Data from Behavioral Risk Factor Surveillance System (BRFSS) 2006-2010 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its adult dental visit rate (% of adults 18+ who reported having not visited a dentist or dental clinic in the past year) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain adult dental visit rate. For example, when the slider bar is set at 15 out of 100, only ZCTAs with an adult dental visit rate of 15% or higher are colored.

% of Adults Who Have Delayed or Not Sought Care Due to High Cost - (Data from Behavioral Risk Factor Surveillance System (BRFSS) 2006-2010 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its rate of adults who have delayed/not sought care due to high cost (% of adults 18+ who reported needing to see a doctor but could not because of cost at a time in the past year) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain rate of delayed care due to high cost. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a rate of delayed care due to high cost of 15% or higher are colored.

% of Adults with No Usual Source of Care - (Behavioral Risk Factor Surveillance System (BRFSS) 2006-2010 at the County level combined with U.S. Census Bureau 2010 population data at the Block level; prepared by the Robert Graham Center for the ZCTA level) This indicator map colors a ZCTA if its rate of adults without a usual source of care (% of adults 18+ who reported not having a personal doctor or health care provider) is at or above the threshold set by the corresponding slider bar. Adjusting the slider bar enables visualization of only areas that are above a certain rate of adults without a usual source of care. For example, when the slider bar is set at 15 out of 100, only ZCTAs with a rate of adults without a usual source of care of 15% or higher are colored.

ZCTA Data Table Fields

ZCTA - Field provides the ZCTA ID/code. ZIP Code Tabulation Areas (ZCTAs) are generalized representations of US Postal Service ZIP Codes. Each ZCTA is built by aggregating Census 2010 blocks, whose addresses use a given ZIP Code, into a ZCTA which gets that ZIP Code assigned as its ZCTA code. While in most instances the ZCTA code equals the ZIP Code for an area, not all ZIP Codes have their own ZCTA. The UDS Mapper contains updated national ZCTAs reflecting U.S. Postal Service ZIP Code changes through October 2010; there will be no further updates of ZCTA boundaries until required for the 2020 Census. See http://www.census.gov/geo/ZCTA/zcta.html for more information. In their annual preparation of Uniform Data System data from Health Center Program (HCP) Grantees, John Snow, Inc. assures that every valid ZIP Code maps to the
ZCTA that best fits its location (based on centroid). Therefore, reported HCP Grantee patients are never left out of counts/analyses due to new or changed ZIP Codes.

**Post Office** (n/a)

**State** (n/a)

**# of HCP Grantees Serving ZCTA, 2011** - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Displays the number of all Health Center Program (HCP) Grantees (not the number of sites) serving at least 10 patients in the given ZCTA.

**Dominant HCP Grantee** - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Field provides, for each ZCTA, the name of the Health Center Program (HCP) Grantee with the greatest number of reported HCP Grantee patients (from HCP Grantees serving at least 11 patients in the specified ZCTA). This is the HCP Grantee with the highest number of patients (Share of Patients) from that ZCTA.

**Share of Patients** - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Field provides the percent total of Health Center Program Grantee patients from the specified ZCTA that were served by the dominant HCP Grantee.

**Total Population** - (Data from Census 2010; prepared by John Snow, Inc.) Field provides the total population for each and all selected ZCTAs.

**Low-Income Pop., 06-10 (est.)** (Data from Census American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the total number of people that live at/below 200% of the Federal Poverty Level (FPL) in the given ZCTA.

**Total # of HCP Grantee Patients, 2011** - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Field provides the number of reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in the given ZCTA).

**Unserved (by Grantees) Low-Income** - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the estimated number of low-income residents in the given ZCTA that are not served by any Health Center Program (HCP) Grantees. The number is calculated by subtracting the number of total HCP Grantee patients reported in the UDS for that ZCTA (from all Health Center Program Grantees with 11 or more patients residing in that ZCTA) from the number of low-income (at/below 200% FPL) residents in that same ZCTA. Because of the process used to capture 2006-2010 income information at the ZCTA level ([explanation](#)), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.

**Penetration of Low-Income** - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the percent of low-income population (at or below 200% of the Federal Poverty Level) served by a Health Center Program.
(HCP) Grantee (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of HCP Grantee patients from 2011 is divided by the number of low-income residents. ZCTAs with lower percentages therefore are estimated to have a larger share of low-income residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2006-2010 income information (denominator) at the ZCTA level (explanation), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.

Penetration of Total Population - (Data from UDS reporting year 2011, and Census 2010; prepared by John Snow, Inc.) Field provides percent of the total residents served by a Health Center Program (HCP) Grantee (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of patients is divided by the number of total residents. ZCTAs with lower percentages therefore are believed to have a larger share of residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2010 population data at the ZCTA level (explanation), this measure is only an estimation and should be interpreted as such.

10-11 Patient % Change - (Data from UDS reporting years 2010 and 2011; prepared by John Snow, Inc.) Field provides the percent change in the current reporting year’s (2011) reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in that ZCTA) from the previous reporting year (2010) in the given ZCTA.

09-11 Patient % Change - (Data from UDS reporting years 2009 and 2011; prepared by John Snow, Inc.) Field provides the percent change in the current reporting year's (2011) reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in that ZCTA) from two years earlier (2009). JSI recalculated prior year data to match the 2010 ZCTA definitions to permit comparability, and therefore patient numbers may not match those reported in prior years which were based on 2000 ZCTA definitions.

09-11 Patient Change (#) - (Data from UDS reporting years 2009 and 2011; prepared by John Snow, Inc.) Field provides the change in number of the current reporting year’s (2011) reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in that ZCTA) from two years earlier (2009). JSI recalculated prior year data to match the 2010 ZCTA definitions to permit comparability, and therefore patient numbers may not match those reported in prior years which were based on 2000 ZCTA definitions.

% Pop. in Poverty, 06-10 (est.) - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the percentage of the total population that lives at/below 100% of the Federal Poverty Level (FPL) in the given ZCTA.

% Low-Income Pop., 06-10 (est.) - (Data from American Community Survey (ACS 2005-2009 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the percentage of the total population that lives at/below 200% of the Federal Poverty Level (FPL) in the given ZCTA.
% Non-White, 2010 - (Data from Census 2010; prepared by John Snow, Inc.) Field provides the percentage of the total population that self-identifies as Non-White in the given ZCTA.

% Hispanic, 2010 - (Data from Census 2010; prepared by John Snow, Inc.) Field provides the percentage of the total population that self-identifies as Hispanic in the given ZCTA.

ZCTA Rollovers

Total Population, 2010 - (Data from Census 2010; prepared by John Snow, Inc.) Field provides the total population in the given ZCTA.

Low-Income Pop., 06-10 (est.) - (Data from American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts, aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the total number of people that live at/below 200% of the Federal Poverty Level (FPL) in the given ZCTA.

# of HCP Grantees Serving ZCTA, 2011 - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Displays the number of Health Center Program (HCP) Grantees (not the number of sites) serving 11 or more patients in the given ZCTA.

Total # of HCP Grantee Patients, 2011 - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Field provides the number of reported Health Center Program (HCP) Grantee patients (from all HCP Grantees reporting 11 or more patients in the given ZCTA).

HCP Grantees with Largest Market Share - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) For the given ZCTA, displays the Health Center Program (HCP) Grantees with the greatest number of patients (from all HCP Grantees reporting at least 11 patients in the given ZCTA). Up to five HCP Grantees are listed for the given ZCTA. The HCP Grantees are listed in order of their Share of Patients from highest to lowest.

Share of Patients - (Data from UDS reporting year 2011; prepared by John Snow, Inc.) Displays the percent of total Health Center Program (HCP) Grantee patients from the specified ZCTA that were served by the HCP Grantee.

All HCP Grantee Penetration of Total Population - (Data from UDS reporting year 2011, and Census 2010; prepared by John Snow, Inc.) Field provides percent of the total residents served by Health Center Program (HCP) Grantees (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of HCP Grantee patients is divided by the total number of residents. ZCTAs with lower percentages therefore are believed to have a larger share of residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2010 population data at the ZCTA level (explanation), this measure is only an estimation and should be interpreted as such.

All HCP Grantee Penetration of Low Income - (Data from UDS reporting year 2011, and American Community Survey (ACS) 2006-2010 five-year estimates for Block Groups and Tracts,
aggregated to 2010 ZCTA geography; prepared by John Snow, Inc.) Field provides the percent of low-income population (at or below 200% of the Federal Poverty Level) served by a Health Center Program (HCP) Grantee (from HCP Grantees reporting 11 or more patients in that ZCTA) in the given ZCTA. In other words, for each ZCTA the total number of HCP Grantee patients from 2011 is divided by the number of low-income residents. ZCTAs with lower percentages therefore are estimated to have a larger share of low-income residents that do not utilize services provided by HCP Grantees, but may be served by other types of providers. Because of the process used to capture 2006-2010 income information (denominator) at the ZCTA level (explanation), and because income is not reported in the UDS at the ZIP Code level, this measure is only an estimation and should be interpreted as such.

**2009-2011 (2-Year) % Change in Patients** - (Data from UDS reporting years 2009 and 2011; prepared by John Snow, Inc.) Field provides the percent change in the current year’s (2011) reported Health Center Program (HCP) Grantee patients (from HCP Grantees reporting 11 or more patients in that ZCTA) from two years earlier (2009). JSI recalculated prior year data to match the 2010 ZCTA definitions to permit comparability, and therefore patient numbers may not match those reported in prior years which were based on 2000 ZCTA definitions.

**Health Center Program (HCP) Grantee Rollovers**

(Data from HRSA Data Warehouse, May 2010; Layer prepared by John Snow, Inc.) Displays the type of Health Center Program grant funding that the selected health center receives. The four categories are: Community Health Center, Migrant Health Center, Health Care for the Homeless and Public Housing. A Health Center Program Grantee can have multiple distinctions.

**HCP Grantee Service Access Point Rollover**

**HCP Grantee Name** - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the name of the Health Center Program (HCP) Grantee which operates its services out of the selected access point.

**Address** - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the physical address of the HCP Grantee service access point.

**City** - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the city in which the HCP Grantee service access point is located.

**Hours per week** - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the hours of operation for health services at the selected HCP Grantee access point.
Operation - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Denotes whether the access point provides service on a full-time or part-time basis (if known).

Schedule - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Denotes whether an access point provides service year-round or seasonally (if known).

FQHC Look-Alike Rollover

Site Name - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the name of the FQHC Look-Alike site.

Address - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the physical address of the FQHC Look-Alike site.

City - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the city in which the FQHC Look-Alike is located.

State - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays state in which the FQHC Look-Alike is located.

ZIP Code - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the five-digit ZIP Code (+4) where the FQHC Look-Alike is located.

Rural Health Clinic Rollover

Site Name - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the name of the FQHC Look-Alike site.

Address - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the physical address of the FQHC Look-Alike site.

City - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the city in which the FQHC Look-Alike is located.

State - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays state in which the FQHC Look-Alike is located.

ZIP Code - (Data from HRSA Data Warehouse, updated quarterly; Layer prepared by John Snow, Inc.) Displays the five-digit ZIP Code (+4) where the FQHC Look-Alike is located.
Appendix C: Glossary

**Glossary**

**Dominant HCP Grantee** - The dominant Health Center Program (HCP) Grantee is the HCP Grantee with the highest number of HCP Grantee patients in a ZCTA. This is the HCP grantee with the highest Share of Patients.

**Share of Patients** - The percent of total Health Center Program (HCP) Grantee patients from the specified ZCTA that were served by the specified HCP Grantee.

**Facility/Point HPSA** - A facility HPSA designation, as defined by the Public Health Service Act, is given to FQHCs and RHCs that meet the requirement of providing access to care regardless of ability to pay. FQHC in this definition includes all types of FQHCs: Health Center Program Grantees, FQHC Look-Alikes, and outpatient health programs/facilities operated by tribal organizations (under the Indian Self-Determination Act) or urban Indian organizations (under the Indian Health Care Improvement Act).

Point HPSAs are only applicable to Alaskan Native and Native American Tribal populations. The Federally Recognized Native American Tribes and Alaskan Natives receive automatic population HPSAs. These HPSAs are represented as a point which is placed at a provider location/facility within the tribal area.


**Federally Qualified Health Center** - A Federally Qualified Health Center is a public or private non-profit health care organization that meets certain criteria under the Medicare and Medicaid Programs (respectively, Sections 1861(aa)(4) and 1905(l)(2)(B) of the Social Security Act.) An organization that meets these criteria is eligible to apply for Health Center Program grant funding from the Health Resources and Services Administration's Bureau of Primary Health Care.

**Federally Qualified Health Center Look-Alike** - an FQHC that meets all of the eligibility requirements of an organization that receives a Health Center Program grant, but does not receive Health Center Program grant funding.

**Health Professional Shortage Area (HPSA) - Primary Care** - A primary care HPSA is an urban or rural area, population group, or medical or other public facility which has received federal designation as having a shortage of primary medical care providers. Each year, the Department of Health and Human Services (HHS) evaluates HPSA designations and awards them through state Primary Care Offices (PCO). All federally qualified health centers, their look-alikes and tribal facilities receive automatic HPSA designation, while Rural Health Clinics must request HPSA designation. More information can be found here: [http://bhpr.hrsa.gov/shortage/hpsas/index.html](http://bhpr.hrsa.gov/shortage/hpsas/index.html).
**Geographic Information Systems (GIS)** - A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS allows visualization, understanding, questioning, and interpretation of data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts.¹  
¹http://www.gis.com/content/what-gis

**Health Center Program (HCP) Grantee** - a public or private non-profit health care organization that meets certain criteria under the Medicare and Medicaid Programs (respectively, Sections 1861(aa)(4) and 1905(l)(2)(B) of the Social Security Act and receives funds under the Health Center Program (Section 330 of the Public Health Service Act) (i.e., Community Health Centers, Migrant Health Centers, Healthcare for the Homeless Programs, and Public Housing Primary Care Programs). For more information on Health Center Program Grantees see the HRSA website. A detailed explanation of health center program terminology is also available from the HRSA website.

**Medically Underserved Area/Population (MUA/P)** - A medically underserved area (MUA) may be a whole county or a group of contiguous counties, a group of county or civil divisions or a group of urban census tracts that the Department of Health and Human Services (HHS) has designated as having a shortage of health services for residents. Designations are based on the qualifications outlined in the Index of Medical Underservice (IMU), published in the Federal Register on October 15, 1976.

A medically underserved population (MUP) may include groups of persons who face economic, cultural or linguistic barriers to health care. Designations are also based on the qualifications outlined in the Index of Medical Underservice (IMU), and exceptional MUP designations are based on the provisions of Public Law 99-280, enacted in 1986.

For more information, see the HRSA website: http://bhpr.hrsa.gov/shortage/muaps/index.html.

**National Health Service Corps (NHSC)** - The NHSC program aids HPSAs in attracting the necessary medical, dental and mental health providers to meet the health care needs of the underserved area. The scholarship and loan repayment programs are awarded to physicians who fulfill an obligation to serve a HPSA with a sufficiently high score for underservice. The Bureau of Clinician Recruitment Services (BCRS) oversees the program for the Health Resources and Services Administration (HRSA). For more information see: http://nhsc.hrsa.gov/about/.

**Penetration rate** - is a ratio of all patients (from Health Center Program (HCP) Grantees with 11 or more patients in that ZCTA) to a sub-population (such as the total population or low-income population). In other words, for each ZCTA the number of reported HCP Grantee patients is divided by the number of low-income or total residents.

*Note:* Because the UDS does not distinguish the income of HCP Grantee patients at the ZIP Code level, this measure is not perfect, particularly when dividing the number of HCP Grantee patients by the number of low-income (as not all HCP Grantee patients are low income/at or below 200% FPL). But because it is known that approximately 93% of HCP Grantee patients nationally are low income, the basic utility of the calculation in assessing the role of HCP
Grantees in serving the community is not changed. Such penetration rate measures should be considered the starting point for exploring potential unmet need, not the final answer.

**Primary Care Association (PCA)** - A PCA is a regional, state, or local organization which works in close concert with, and represents the interests of, nonprofit community clinics and health centers and advocates for the health needs of their distinctive populations and geographic areas, most importantly those who face barriers to care due to poverty, language, or geographic isolation.

**Primary Care Office (PCO)** - A PCO is a state government entity, often under the purview of the state Department of Health, which works to improve access to care for underserved populations. PCOs work with the various bureaus of the Health Resources and Services Administration (HRSA) to promote the community health center program, establish HPSA designations and find suitable locations for placement of NHSC scholar and loan repayors.

**Rural Health Clinic (RHC)** - The RHC program strives to be the major provider for primary care services for Medicaid and Medicare patients in rural communities which tend to have health disparities due to geographic isolation and low physician density. RHCs can be public, private, or non-profit entities. All RHGs are eligible for facility HPSA designation and the federal funding that comes from that designation, but due to their patient population, RHGs’ main funding sources are enhanced reimbursement rates for providing Medicaid and Medicare services to rural populations. As such, RHGs must be located in underserved rural areas, as designated by HRSA, and must employ midlevel practitioners (i.e. physician assistants or nurse practitioners) alongside physicians as part of a team-based approach to patient care. For more information, see: [http://www.raonline.org/info_guides/clinics/rhc.php](http://www.raonline.org/info_guides/clinics/rhc.php).

**Uniform Data System (UDS)** - The UDS is the specific data collection and reporting requirements for Health Center Program Grantees developed by the Health Resources and Services Administration (HRSA) to track the patient population and effectiveness of the health care services of the Health Center Program. The organizations that receiving funding through one or more of the Health Center Program's four funding mechanisms are: Community Health Centers, Migrant Health Centers, Health Care for the Homeless, and Public Housing Primary Care. According to HRSA, “the [UDS] data helps to identify trends over time, enabling HRSA to establish or expand service to targeted populations, and identify effective methods and interventions to improve the health of underserved communities and vulnerable populations.” Thus, UDS data are a vital component of the community health center program, enabling HRSA to inform the expansion of service to low-income medically underserved areas and populations. [http://www.hrsa.gov/data-statistics/health-center-data/index.html](http://www.hrsa.gov/data-statistics/health-center-data/index.html)


2 The UDS Mapper contains updated national ZCTAs reflecting U.S. Postal Service ZIP Code changes through October, 2010; there may be no further updates of ZIP Code boundaries until
required for the 2020 Census. See http://www.census.gov/geo/ZCTA/zcta.html for more information. In their annual preparation of Uniform Data System data from Health Center Program (HCP) Grantees, John Snow, Inc. assures that every valid ZIP Code maps to the ZCTA that best fits its location (based on centroid). Therefore, reported HCP Grantee patients are never left out of counts/analyses due to new or changed ZIP Codes.
Appendix D: The Approach to Updating the ZCTA-Level Demographic Data in the UDS Mapper Prior to the Release of the Official 2010 ZCTA Attributes

Background: The transition between detailed, long-form, decennial census data and annual American Community Survey (ACS) data leaves 2011 as a bridge year. For ZIP Code Tabulation Areas (ZCTAs), certain demographic data such as income and poverty, will not be available until late 2012. [See this link: https://ask.census.gov/faq.php?id=5000&rtopic=1805&rsubtopic=6813] As a result, it is not possible to update the ZCTA-based information in the UDS Mapper with directly-surveyed Census data for the next year and a half, despite the current availability of actual 2010 population counts at the block level 2006-2010 ACS poverty data (which now serves as the Census basis for income and poverty rates).

JSI provides these demographic estimates for the UDS Mapper. They applied ACS 2010 (5-Year Estimates, 2006-2010) demographic/income rates to Census 2010 Block populations using Decennial Census 2010 Population data, and then re-aggregated those Block-level data to the 2010 ZCTA areas based on Block centroids provided by Census. This provides the benefit of providing updated poverty and income data for 2011 that would not otherwise be available. An additional benefit is that the ACS 2010 estimates have been calibrated to closely match actual 2010 Decennial Census counts therefore improving and updating the poverty and income related data.

JSI used Geographic Information Systems (GIS) spatial tools and database aggregation tools to connect 2010 Census Block centroids with poverty & income data from American Community Survey 2006-2010 5-year estimates, and then re-aggregated these data to the new 2010 ZCTA boundaries for use in this year’s UDS Mapper.

Datasets available for this process:

- Census 2010 Block centroids in GIS linked to 2010 population, race and ethnicity totals;
- Census 2010 ZCTA boundaries in GIS; and
- American Community Survey 2006-2010 5-year estimates for Block Groups and Tracts with poverty and income data.

Block Group Income and poverty rates were assigned to each Block that nests within that Block Group and combined with the actual 2010 population counts to estimate the number of poor and low-income individuals in each block in 2010, controlling for the portion of the population for whom poverty has been determined. Race and ethnicity population is already available at the 2010 Block level and can be used directly.

Once poverty/lowl-income population was calculated for the Block centroids, these values can be aggregated up to any other geography. Each 2010 ZCTA area was summed with the block totals that fall inside its boundaries.

The final product provides updated poverty/lowl-income and minority values calculated for the new 2010 ZCTA boundaries. JSI also created a new ZIP Code-to-ZCTA crosswalk table to permit UDS user data reported by ZIP Code to be connected to the 2010 ZCTA boundaries.