

Module 2: Defining Community

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Agenda

- Recap what we have learned so far regarding the first C in COPC
- Activity to help us understand how to define community
- Walkthrough community definition process
- Show how to do community definition on your own
- Learn lots of geography amidst all the fun!

Objectives

- Describe ways of defining a community
- Walk through an example of refining a community definition
- Discuss geographic retrofitting and how to use that to define community
- Explain geocoding
- Explain Census Codes
- Provide examples of tools to do this work online

COPC Defined

- A continuous process by which primary health care is provided to a defined community on the basis of its assessed health needs by the planned integration of public health with primary care

Mullan F, Epstein L. Community-oriented primary care: New relevance in a changing world. Am J Public Health 2002; 92(11): 1748-55.

Community Defined

- A community for whose health the practice has assumed responsibility:
 - Geographic community
 - Social community
 - Groups that form within the workplace, church, or schools
 - Persons enrolled in a common health plan
 - NOT communities consisting of active patients in the practice

Nutting P, Wood M, Connor E. Community-oriented primary care in the United States. JAMA 1985; 253(12): 1763-1766.

Is This Your Community?



Different Communities

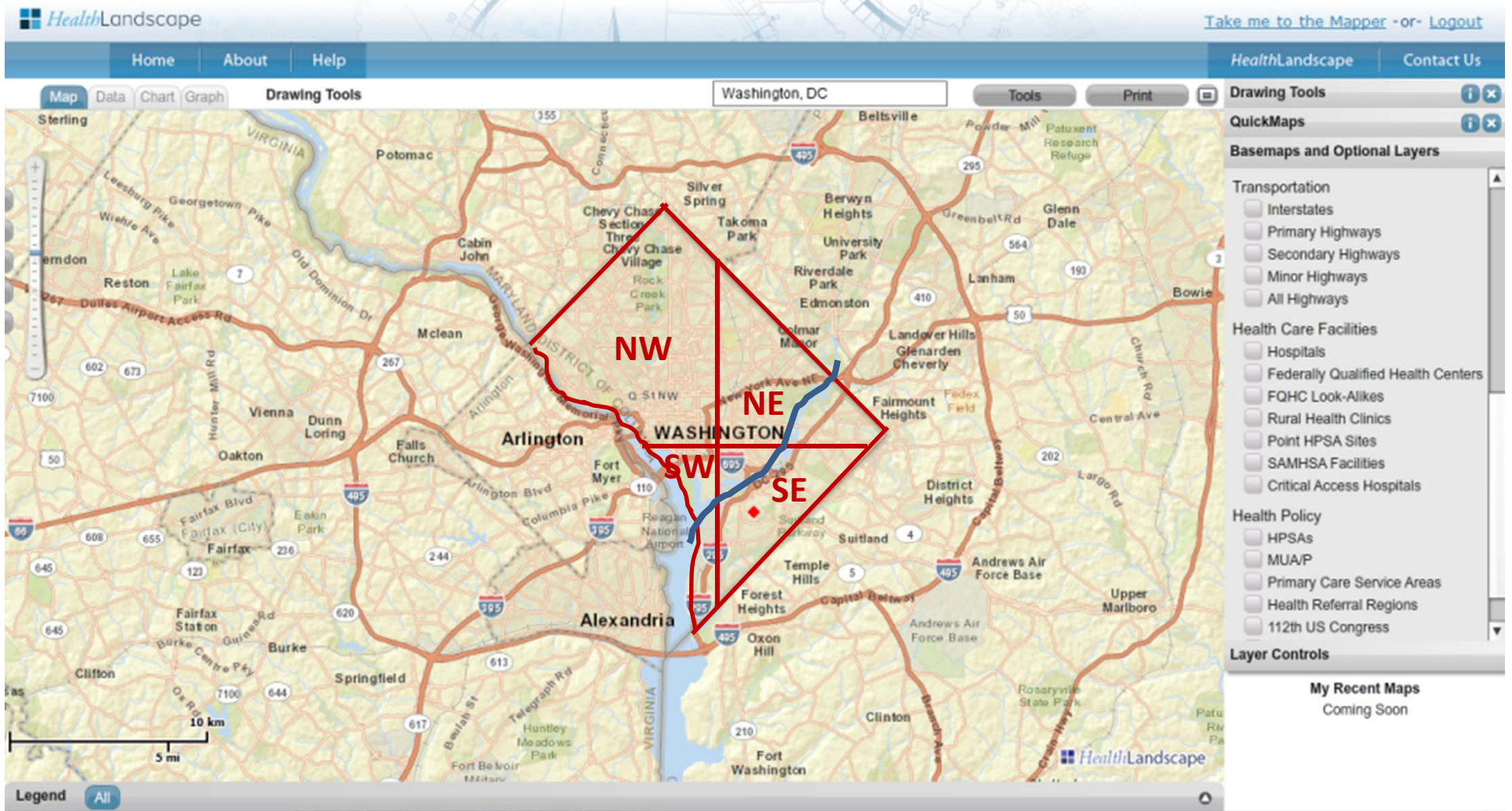
- Traditional neighborhoods
- Voting districts, school districts
- US Census Bureau geographies
- ZIP Codes (unstable)
- City/ County (may be too big)
- A specific population inside these geographies
- Proposed community
- Actual community

Community = Washington, DC

The screenshot displays the HealthLandscape web application interface. At the top left, the logo "HealthLandscape" is visible. Below it are navigation tabs for "Home", "About", and "Help". A search bar contains the text "Washington, DC". To the right of the search bar are buttons for "Tools" and "Print". Below the search bar is a "Drawing Tools" panel with icons for various drawing functions. The main map area shows a topographic view of the Washington, DC metropolitan area, with a red outline highlighting the city and its immediate surroundings. The map includes labels for various cities and neighborhoods such as Sterling, Reston, Fairfax, Arlington, Washington, Alexandria, and Silver Spring. Major roads and highways are also labeled. On the right side of the map, there is a sidebar with several sections: "QuickMaps" with a search icon, "Basemaps and Optional Layers" with a list of map styles (Topographic, Street, Terrain, Terrain with Labels, Canvas, Canvas with Labels), "US & Census Geography" with a list of geographic levels (States, Counties, Metro Areas, ZIP Codes, Census Tracts (2000), Census Block Groups (2000)), and "Layer Controls". At the bottom right of the sidebar, there is a section for "My Recent Maps" with the text "Coming Soon".

www.healthlandscape.org

WGC Location = Southeast DC



DC Health Statistics

**Table 2-7. NUMBER OF LIVE BIRTHS BY RACE OF MOTHER, SEX OF CHILD, AND WARD OF RESIDENCE:
DISTRICT OF COLUMBIA, 2005**

Ward	Race And Sex														
	Total			Black			White			Other			Not Stated		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	7,940	3,981	3,959	4,575	2,249	2,326	2,171	1,103	1,068	1,174	616	558	20	13	7
Ward 1	1,123	569	554	341	177	164	335	167	168	443	223	220	4	2	2
Ward 2	799	421	378	353	183	170	324	166	158	121	71	50	1	1	.
Ward 3	936	466	470	48	27	21	841	416	425	47	23	24	.	.	.
Ward 4	1,196	608	588	600	302	298	171	81	90	420	221	199	5	4	1
Ward 5	839	402	437	693	325	368	75	35	40	68	39	29	3	3	.
Ward 6	949	487	462	576	281	295	337	187	150	33	17	16	3	2	1
Ward 7	945	442	503	910	423	487	17	9	8	15	9	6	3	1	2
Ward 8	1,150	584	566	1,052	530	522	70	41	29	27	13	14	1	.	1
Unknown	3	2	1	2	1	1	1	1

Source: State Center for Health Statistics, Center for Policy, Planning and Epidemiology, Department of Health.

Cano C, Davis-Cole JO, Johnson-Clarke F. *Vital Statistics of the District of Columbia, 2005*. January 29, 2008. Accessed via http://doh.dc.gov/doh/frames.asp?doc=/doh/lib/doh/services/administration_offices/schs/pdf/final_vital_stat_summary_2005.pdf August 29, 2012.

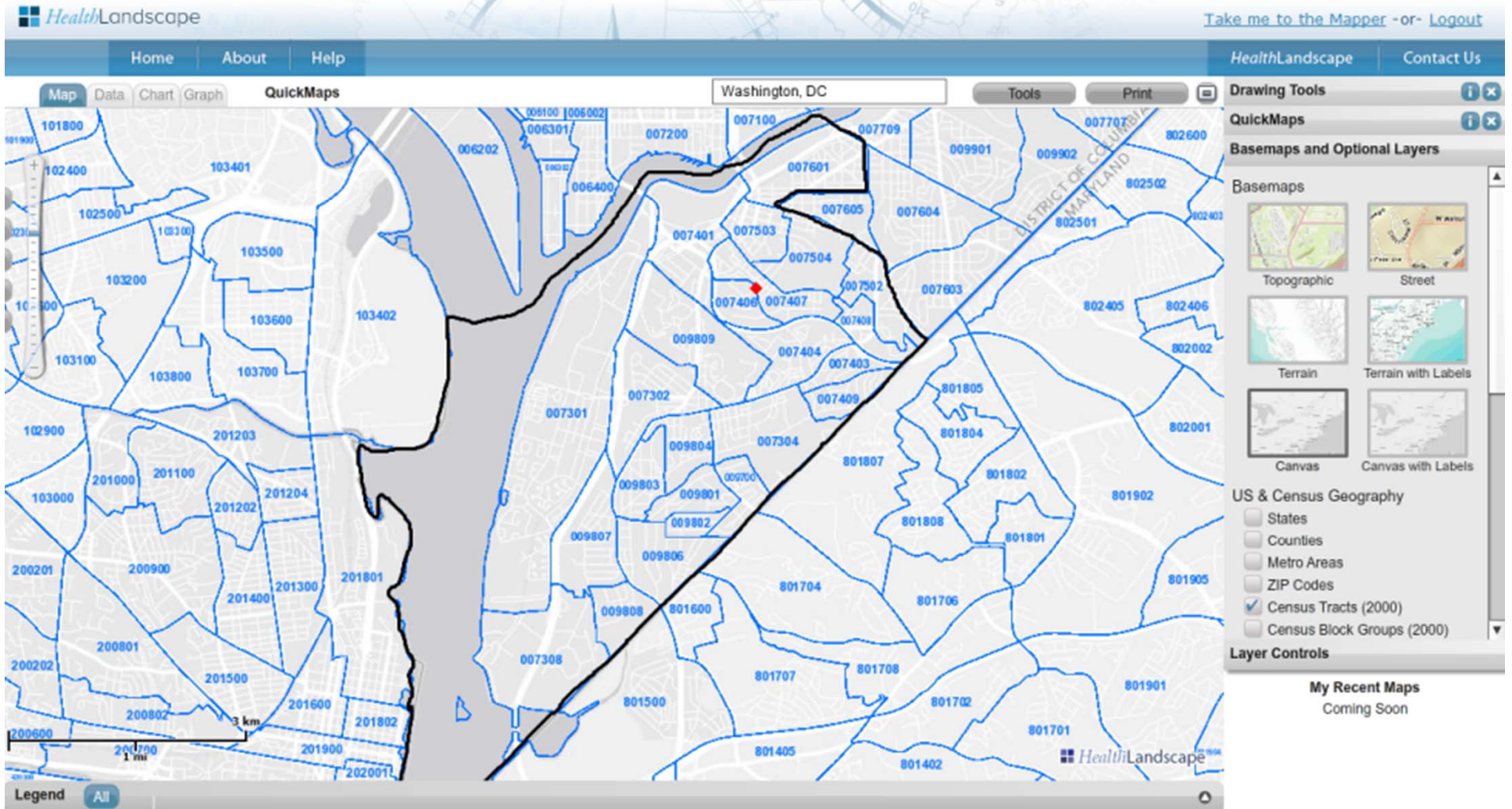
Refining Community = Ward 8

The screenshot displays the HealthLandscape web application interface. At the top, there is a navigation bar with links for Home, About, and Help. Below this, a search bar contains "Washington, DC". The main map area shows a detailed view of the Washington, DC metropolitan area, including parts of Virginia and Maryland. A red dot is placed on the map, indicating a specific location in Ward 8. The map is overlaid with various geographical features, including roads, water bodies, and administrative boundaries. On the right side, there is a sidebar with several sections: "Drawing Tools", "QuickMaps", "Basemaps and Optional Layers", "US & Census Geography", and "Layer Controls". The "Basemaps and Optional Layers" section includes options for Topographic, Street, Terrain, Terrain with Labels, Canvas, and Canvas with Labels. The "US & Census Geography" section includes checkboxes for States, Counties, Metro Areas, ZIP Codes, Census Tracts (2000), and Census Block Groups (2000). At the bottom of the sidebar, there is a section for "My Recent Maps" with the text "Coming Soon".

Close-up of Ward 8

The screenshot displays the HealthLandscape web application interface. At the top left is the HealthLandscape logo and navigation links for Home, About, and Help. A search bar in the center contains the text "Washington, DC". To the right of the search bar are buttons for Tools, Print, and Drawing Tools. Below the search bar is a "QuickMaps" section with a search icon. The main map area shows a detailed view of Washington, DC, with a black outline highlighting a specific geographic area, identified as Ward 8. The map includes labels for various streets, parks, and landmarks. On the right side, there is a sidebar with several sections: "Basemaps and Optional Layers" containing a grid of map style thumbnails (Topographic, Street, Terrain, Terrain with Labels, Canvas, Canvas with Labels); "US & Census Geography" with a list of geographic levels (States, Counties, Metro Areas, ZIP Codes, Census Tracts (2000), Census Block Groups (2000)) and their corresponding checkboxes; and "Layer Controls" with a "My Recent Maps" section that says "Coming Soon". At the bottom left, there is a "Legend" section with an "All" button. The HealthLandscape logo is also visible in the bottom right corner of the map area.

Refining Community = Census Tract 007407

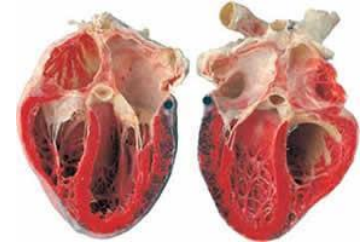


www.healthlandscape.org

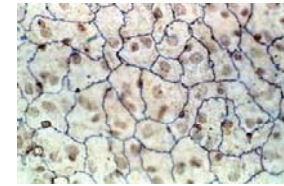
Block Group vs. Census Tract vs. County

- County
 - Average: 98,000 people
- Census tract
 - Optimum: 4000 people
- Block group
 - Optimum: 1500 people

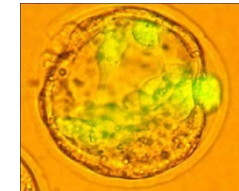
- Organs

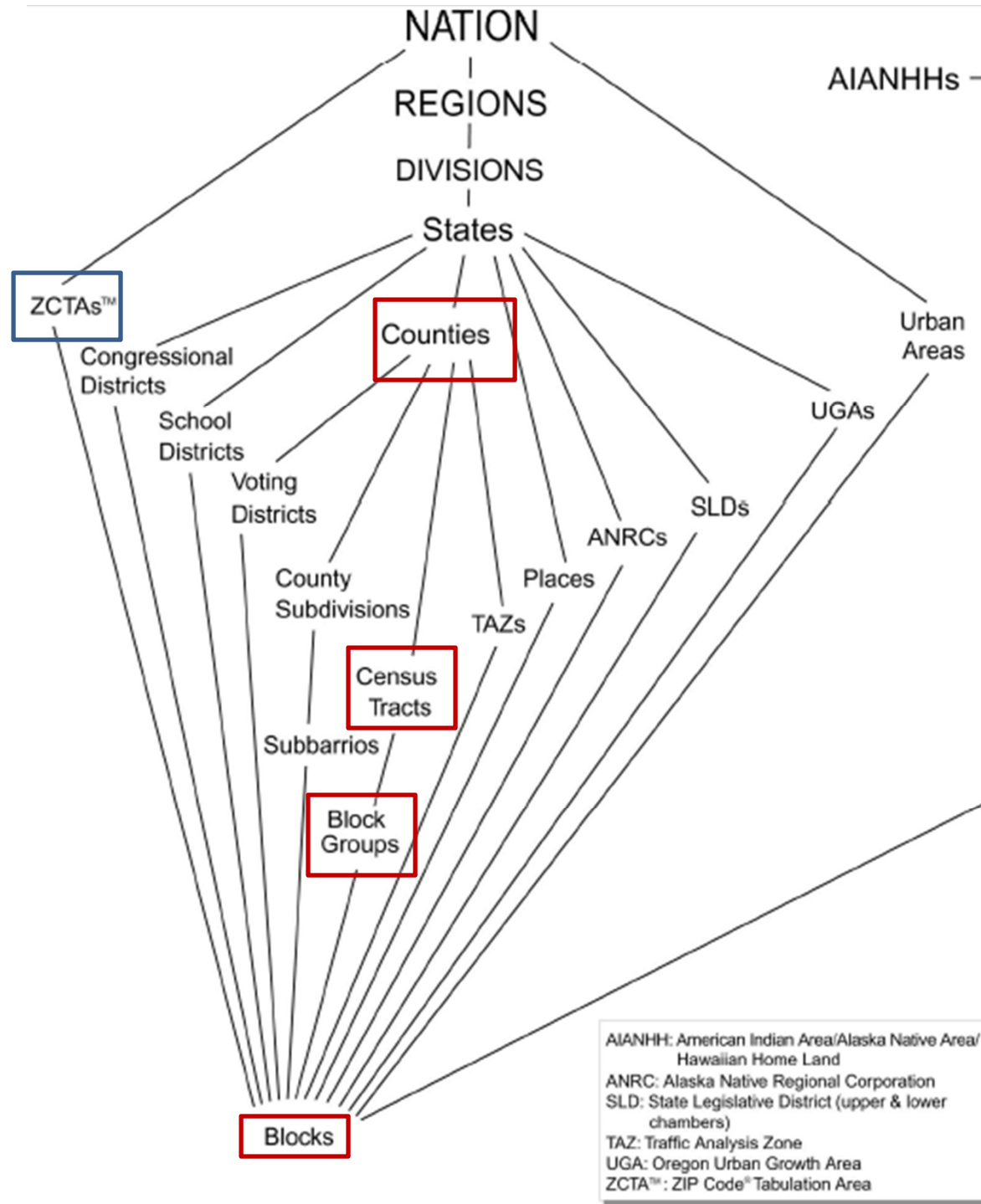


- Tissue



- Cells






Census Codes

- Census tracts are 4 digits with 2 optional suffix digits for a total of 6 digits

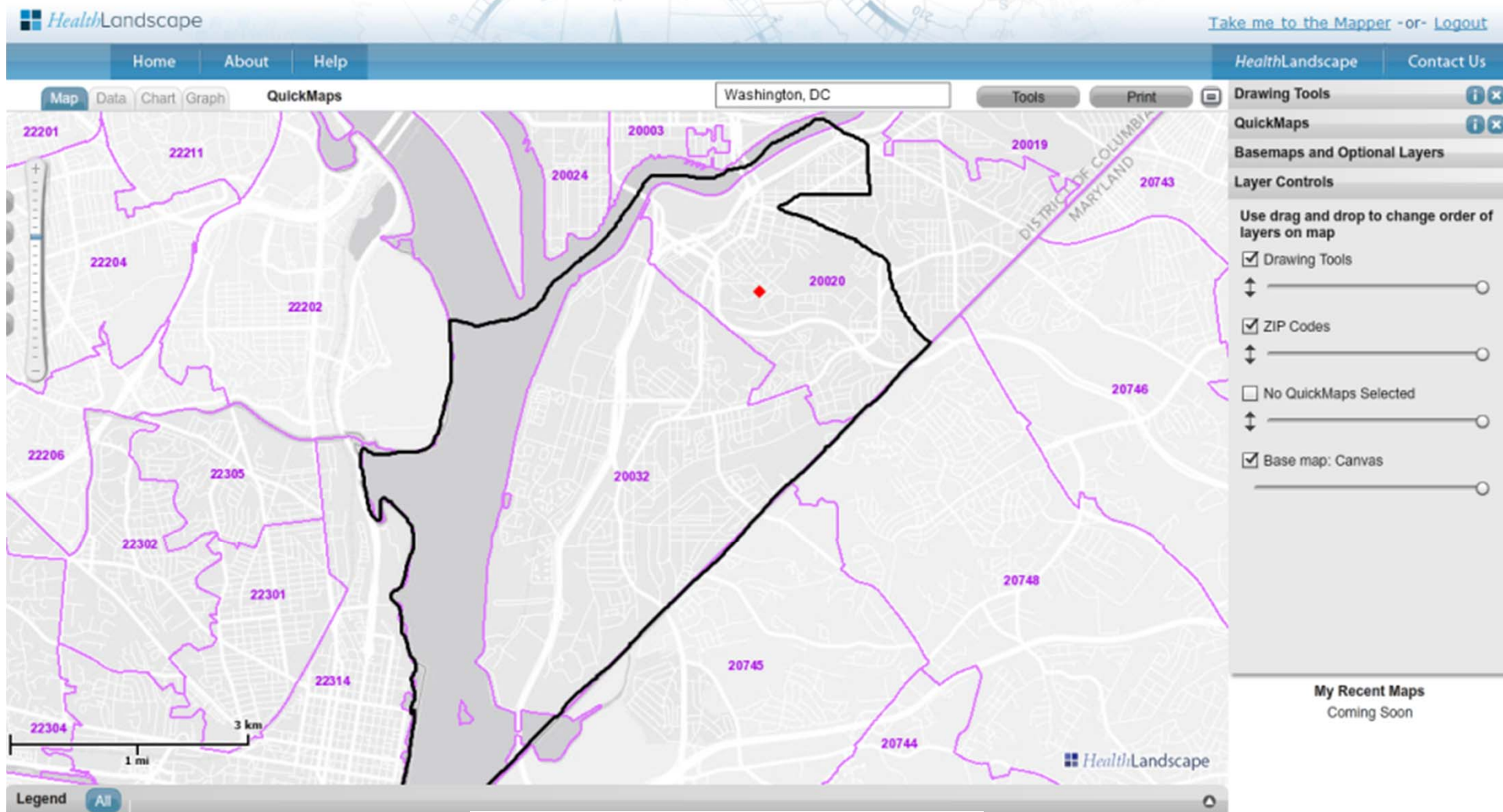
Tract 1 = 000100 Tract 1.01 = 000101

- Tract codes are NOT unique unless you include state and county codes also
- State = 2 digits County = 3 digits
- Complete Census Tract Code for WGC =

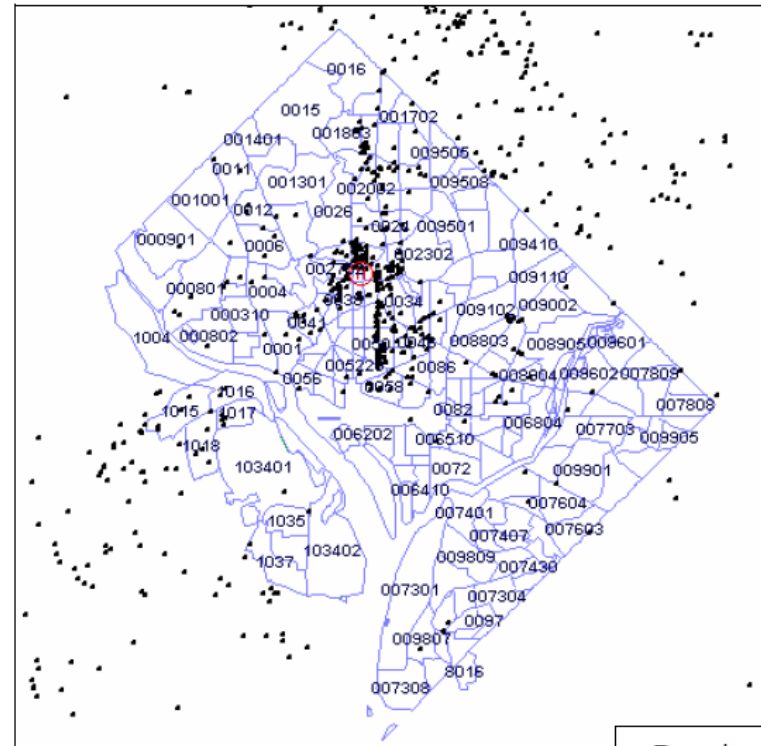
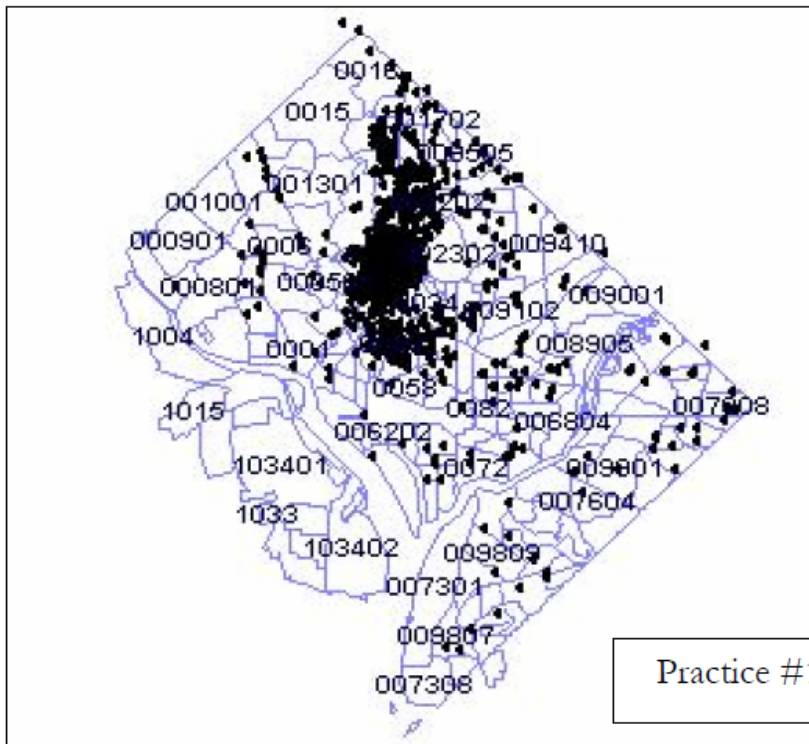
11 = DC **11001007407** **007407 =**
State Code **001 = County Code** **Tract Code**



Refining Community = ZIP Code 20020



Geographic Retrofitting



Mullan F, Focht C, Hayashi S, Gofin J, Gofin R, Neumark Y, Epstein L. Community oriented primary care: An implementation guide.

Mullan F, Phillips RL, Kinman EL. Geographic retrofitting: A method of community definition in community-oriented primary care practices. *Fam Med* 2004; 36(6): 440-6.

How Do I Do That???

1. Get your patient data out of your EMR or management system
2. Geocode it
3. Map it



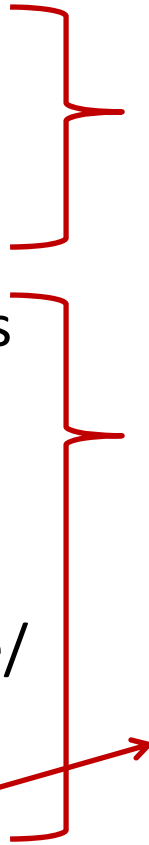
Cleaning and Verifying Patient Address Information

Potential Problem

- False information
- PO Boxes
- Street number transpositions
- Street name misspellings
- Street type incorrect/missing
- Street Directional
- Street address/ ZIP Code/ County mismatches
- Apartment numbers

When to Fix It

- Never
- At time of data collection/entry
- At time of data entry or during geocoding
- May not need fix, just be aware



What Does “Geocoding” Mean?

Patient Address:

1350 Connecticut Avenue NW, # 201
Washington, DC 20037

Street Number	Street Name	Street Type	Street Directional	Correct ZIP	Census Tract	Latitude	Longitude
1349	Connecticut	Avenue	NW	20036	CT-A	38.8900	-77.0300
1350	Connecticut	Avenue	NW	20036	CT-A	38.8905	-77.0300
1351	Connecticut	Avenue	NW	20036	CT-A	38.8910	-77.0300
...							
1350	Columbia	Avenue	NW	20037	CT-G	38.8925	-77.0320
1350	Connecticut	Street	NW	20001	CT-A	38.8880	-77.0285
1350	Connecticut	Avenue	SE	20020	CT-N	38.8830	-77.0210

Geocoding Considerations...

- Rooftop → street address → intersection → ZIP Code centroid → city centroid
- Multiple people at the same address
 - Family
 - Apartment complex
- Apartment numbers- 1/2s are usually problematic
- HIPAA!

Free-ish Geocoding Tools

- HealthLandscape
 - www.healthlandscape.org
 - legacy.healthlandscape.org
- BatchGeo
 - batchgeo.com
- USC (soon to be Texas A&M)
 - webgis.usc.edu



Geocoded Sample Data

Logout

Contact Us



Map

Click a r

address	city	STATE	zip	Longitude	Latitude
1310 SOUTHERN AVE SE	WASHINGTON	DC	20032	-76.98391470584431	38.83482317654153
1453 Pennsylvania Avenue SE	Washington	DC	20003	-76.9837708143196	38.879465522075975
1500 Massachusetts Avenue SE	Washington	DC	20003	-76.98351900415139	38.88710975932502
1535 Alabama Avenue SE	Washington	DC	20032	-76.98172038009282	38.84644241716006
1537 Good Hope Road SE	Washington	DC	20020	-76.9822329736495	38.86618253570322
2041 MARTIN LUTHER KING JR	WASHINGTON	DC	20020	-76.98944553632452	38.8657058950277
2281 Savannah Street SE	Washington	DC	20020	-76.97127923133263	38.84789032562725
2301 MARTIN LUTHER KING JR	WASHINGTON	DC	20020	-76.991118275299	38.863439603513825
2316 Pennsylvania Avenue SE	Washington	DC	20020	-76.97171989912698	38.87411455600164
2345 MARTIN LUTHER KING JR	WASHINGTON	DC	20020	-76.99171182783833	38.86313383402387
2529 Good Hope Road SE	WASHINGTON	DC	20020	-76.96854529236356	38.860462847596864
2648 Naylor Road SE	Washington	DC	20020	-76.96984930930603	38.86280108487307
2700 MARTIN LUTHER KING JR	WASHINGTON	DC	20032	-76.9958936752746	38.849473132398835
2721 Naylor Road SE	WASHINGTON	DC	20020	-76.96819455677212	38.85982432895605
2755 Alabama Avenue SE	Washington	DC	20032	-76.9894815092057	38.84442793581445
2845 Alabama Avenue SE	Washington	DC	20020	-76.96766395677487	38.860031173022776
2846 Alabama Avenue SE	Washington	DC	20020	-76.96626101440916	38.860282963190964
2900 Minnesota Avenue SE	Washington	DC	20019	-76.9665847703397	38.87558944412967
2904 MARTIN LUTHER KING JR	WASHINGTON	DC	20032	-76.9960413967774	38.84599275614545
2925 MARTIN LUTHER KING JR	WASHINGTON	DC	20032	-76.99715272611559	38.84548913580903
3029 MARTIN LUTHER KING JR	WASHINGTON	DC	20032	-76.99784520407815	38.84462578666091
3037 Naylor Road SE	Washington	DC	20020	-76.96517283475367	38.85414960695118
310 ATLANTIC ST SE	WASHINGTON	DC	20032	-77.00157739049973	38.83097407825613
323 Pennsylvania Avenue SE	Washington	DC	20003	-77.00124464134893	38.88860613898861
3230 PENNSYLVANIA AVE SE	WASHINGTON	DC	20020	-76.95977690257791	38.86908734585785
3232 Pennsylvania Avenue SE	Washington	DC	20020	-76.9597409296967	38.86908935941727
328 Kentucky Avenue SE	Washington	DC	20003	-76.98586623464786	38.884591657643
3505 Wheeler Road SE	Washington	DC	20032	-76.99367234966221	38.83979642736352
3720 MARTIN LUTHER KING JR	WASHINGTON	DC	20032	-77.00663158030443	38.837107454495936

Address:

City:

State:

Zip:

Geocode Now

Do any columns represent a ...

Title:

Group/Category:

Icon:

URL:

Notes:

What other column(s) would you like to show in the tooltip?

address

city

STATE

zip

Longitude

Latitude

Update Save As New ID

You can save 3 more

My Saved QuickGeocodes

QuickMaps

Basemaps and Optional Layers

Layer Controls

My Recent Maps
Coming Soon

Geocoded Sample Data- Mapped

The screenshot displays a web-based mapping interface. The main map area shows a detailed view of Washington, D.C., with numerous blue circular markers representing geocoded sample data points. These points are scattered across the city, with a higher concentration in the central and southern areas. The map includes labels for major landmarks such as the Pentagon, Ronald Reagan Washington National Airport, and the National Mall. It also shows various parks, streets, and water bodies like the Potomac River and Anacostia River. The interface includes a search bar at the top right, a legend at the bottom left, and a sidebar on the right with several sections: a search form with fields for City, State, and Zip; a section for column configuration; a section for selecting columns to show in the tooltip; a section for saved quickgeocodes; and a section for recent maps.

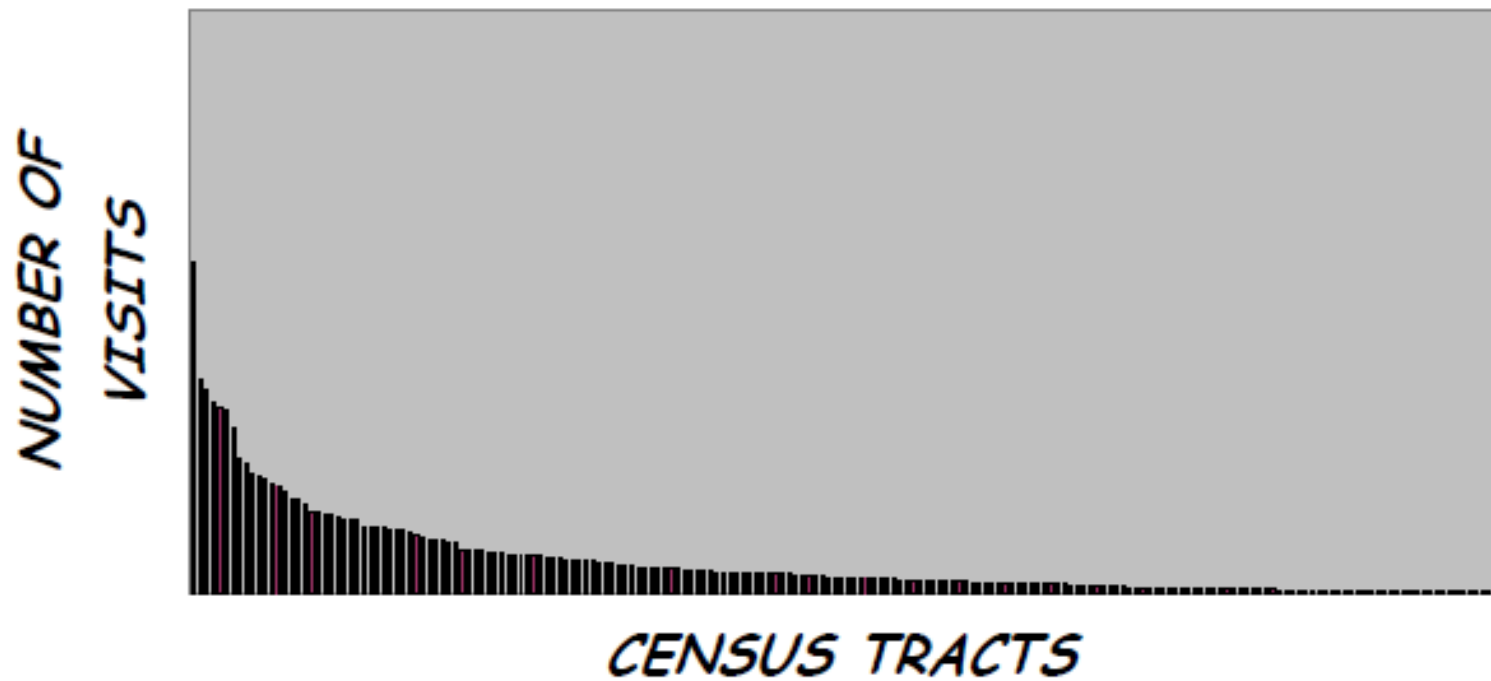
How Do I Convert “Points” to “Community”?

- Simple counts of patients in each geography (ZIP Code, census tract, county)
- Parameters
 - Only geographies that have the most patients?
 - Or those with the highest penetration?
 - Must they be contiguous?
 - Are donut holes allowed?

Free-ish Census Tract Appending Tools

- HealthLandscape- Health Center Mapping Tool
 - www.healthlandscape.org (Q4 2012)
 - legacy.healthlandscape.org
 - Both require a paid subscription
- USC
 - webgis.usc.edu
 - Requires further manipulation of outputted data
 - Only 2500 records for free...

NUMBER OF VISITS PER CENSUS TRACT



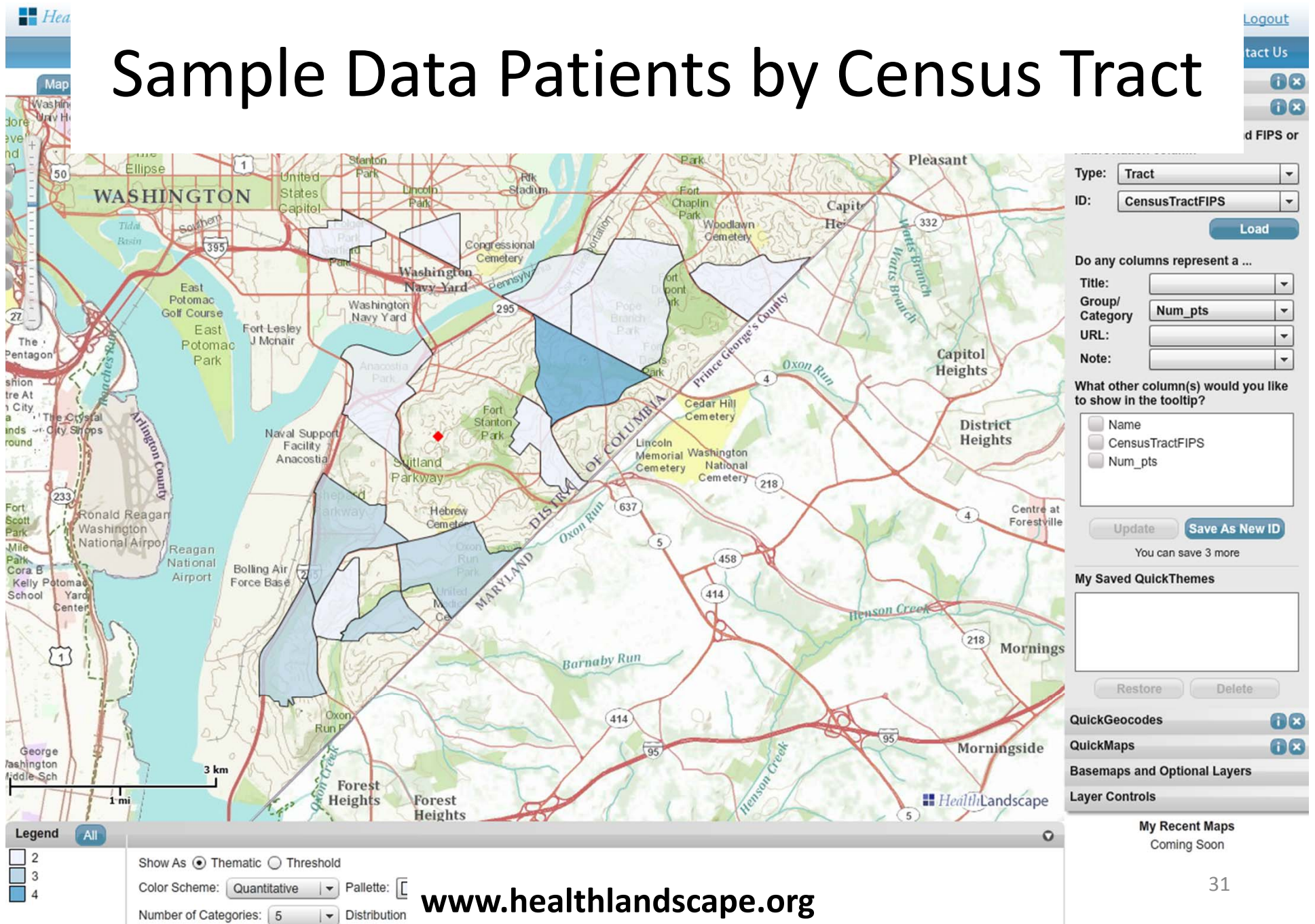
Mullan F, Focht C, Hayashi S, Gofin J, Gofin R, Neumark Y, Epstein L. Community oriented primary care: An implementation guide.

Sample Dataset Patient Counts

Census Tract	# of pts	Cum. %
11001007604	4	8.9
11001007302	3	15.6
11001007304	3	22.2
11001009801	3	28.9
11001009807	3	35.6
11001006500	2	40.0
11001006900	2	44.4
11001007401	2	48.9
11001007502	2	53.3
11001007707	2	57.8
11001007709	2	62.2
11001009803	2	66.7
11001009901	2	71.1

Census Tract	# of pts	Cum. %
11001006600	1	73.3
11001006801	1	75.6
11001007000	1	77.8
11001007100	1	80.0
11001007200	1	82.2
11001007409	1	84.4
11001007503	1	86.7
11001007504	1	88.9
11001007603	1	91.1
11001009804	1	93.3
11001009806	1	95.6
11001009809	1	97.8
11001009906	1	100

Sample Data Patients by Census Tract



Penetration

Census Tract 1	Census Tract 2
# of patients from this tract: 80	# of patients from this tract: 100
Total population in the tract: 100	Total population in the tract: 500
Penetration = 80/100 (80%)	Penetration: 100/500 (20%)

Penetration =

(Number of people from the clinic in the census tract)

(Total number of people in the census tract)

Examples can be found at www.udsmapper.org

Important Considerations for Health Center Program Grantees...

- The health center program movement in the United States is based on COPC
- In order to have a defined community that a single health center program grantee is responsible for, historically health center service areas were not “allowed” to overlap, but they do now
- Because patients have freedom of choice of providers, defined service areas and actual service areas may not align

Take Home Messages

- Defining community is an essential step in COPC
- There are a variety of ways to use data to define community
- Geographic retrofitting is the process of using your patient data to define community
- There are free tools online that allow me to do geographic retrofitting
- The UDS Mapper already has much of this information to help me understand my community
- Geography is cool!

Thank you for completing the module.

Please complete this evaluation survey to help us make it better!

<https://www.surveymonkey.com/s/5BP3MT6>

To obtain, CME credit, you must complete these two additional surveys (complete CME instructions are on the next slide):

1) Continuing Medical Education Form:

<https://www.surveymonkey.com/s/53NGY5S>

2) Module 2 Quiz:

<https://www.surveymonkey.com/s/5GW7MMV>

To Obtain CME Credit

- In order to obtain CME credit, you must complete the following tasks:
 - Complete the module(s) or case study.
 - Complete the post-activity quiz (There are quizzes for each module and case study).
 - The last question of the quiz provides a prompt to indicate your email address. **If you want to receive CME credit, you must provide your email address so that we can document the score of your quiz appropriately.**
 - Score at least 75% on the quiz (For quizzes with 4 questions, you must answer at least 3 questions correctly. For quizzes with 5 questions, you must answer at least 4 correctly).
 - Complete the CME certification form.
 - **In order to match the CME certification form with your quiz, you must provide the same email address that you provided during the post-activity quiz.**