GIS Mapping of the *Coalition for Immigrant Mental Health* Directory of Mental Health Resources

Project Sponsor: Coalition for Immigrant Mental Health (CIMH)

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Geography 242

November 13, 2018

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Summary

The project was undertaken to give the Coalition for Immigrant Mental Health (CIMH) an interactive map of mental health clinics that are a part of their services directory. This enables individuals to better find culturally and linguistically appropriate mental health services. No major issues arose, however we were able to identify better ways the data in the directory can be presented to streamline projects such as this in the future.

During the course of the project we identified additional ways that GIS technologies can assist the CIMH. We created a map identifying concentration of primarily Spanish speaking households in relation to clinic location. This can help CIMH determine future need of mental health clinic locations in neighborhoods with high Spanish speaking populations. We also added CTA transit routes and stops to the map to help users determine their proximity to clinics.

The original goal was met with the creation of a CIMH clinic map. This interactive, web-based map provided discrete information for each clinic, based on requirements set by CIMH. This map can be accessed by a URL link, or embedded into the CIMH website.

Needs Assessment

The Coalition for Immigrant Mental Health (CIMH) is a collaborative community based and research informed initiative that is a partnership among individuals with undocumented status, mental health practitioners, community organizers, researchers, and allies. CIMHs' mission is to promote awareness of and provide access to culturally and linguistically appropriate mental health services. They aim do this through education, advocacy and resource sharing to improve and facilitate access to services for those who are undocumented or of mixed status.

 CIMH created a directory of mental health services available to immigrants, community organizations, and health practitioners across the Chicago metropolitan area and some suburban sites. The Coalition asked our team to create an interactive map of the mental health service locations and the option to have a button, that when clicked on provides critical information for each mental health service location. CIMH asked that we create a dynamic map so that additional sites or information can be added by CIMH staff in the future. An additional request by CIMH (once the main work project is complete) is to highlight where primarily Spanish speaking households of immigrants live and get a sense of geographic areas where mental health services are scarce. This will enable CIMH to help vulnerable communities.

The consequences of untreated and undertreated mental health issues can be severe, evidenced by its connection to substance abuse and criminality, as stated by Andrew Moore in *The Immigrant Paradox* ". Studies correlate mental illness with an increased likelihood of a series of negative living conditions; the increased likelihood of being persistently homeless; of having drug and alcohol addiction; and being incarcerated."[1] The study noted that immigrants are underserved and lack access to culturally sensitive mental health services.

The main goal of this project is to assist CIMH to not only get access to the proper mental health care for immigrant communities in need, but to assist in identifying additional geographic areas where that care is still lacking

In her introduction to our GEO 242 class, Dr. Ferrera (from CIMH) stated that there has been an increase in suicide attempts by Hispanic Chicago-area Deferred Action for Childhood Arrivals (DACA) youth in the last two years. Latino children in the United States, whether immigrants themselves or children of immigrant families, are at high risk for mental health disorders stemming from poverty, exposure to trauma, assimilation stressors, and discrimination. The timely identification and treatment of the children is compromised by limited healthcare access in pediatric primary care.[2]

A community mental health assessment (CMA) done by the Erikson Institute's Center for Children and Families found that there is a need for culturally appropriate mental health services. That assessment states:

"Little Village is a predominantly Mexican community of rich cultural resources and social cohesion. According to Lansford, Deator-Decker & Bornstein (2007) people who emigrate from their country of origin bring with them resiliency and strengths tied to having to leave home and rebuild their life in a foreign country. These strengths can come at a cost, leaving familiar traditions and culture for example, that can lead to mental health challenges. Little Village stretches over two-miles, the community's rapid population growth combined with its influx of Mexican and Mexican-American families have made Little Village the main port of entry for Mexican immigrants in the Midwest. Population data from the 2013 Little Village Quality of Life Plan indicates that 10 % of the community's total population is under the age of five, illustrating that first and second generation immigrant children are the fastest growing population within the community. Supplementary data taken from *The Latino Neighborhoods Report: Issues and Prospects for Chicago* (2015) reveals that 32 % of the population does not have health insurance coverage and 47 % of the population with health insurance has public health insurance, making mental health care services for children difficult to access. Social-emotional services that cater to the early childhood population are limited in Little Village. Parent caregivers, the most important source of support for young children, are themselves under severe stress due to socio-political and economic factors."[3]

Another CMA revealed that the health consequences include depression and anxiety caused by the anti-immigration rhetoric, growing socio-political tensions, and fear in the immigrant community.[4]

Data Acquisition

The selected data sets provided the information an immigrant might need to find a mental health provider near them in the Chicagoland area. The Coalition for Immigrant Mental Health (CIMH) Mental Health Services Directory provided all this information for the clinics. A U.S. Census data set provided information on how these clinic locations relate to primarily Spanish speaking communities. Data sets from the Chicago Data Portal also show proximity of clinic locations to public transportation.

A data set from the CIMH Mental Health Services Directory (PDF) which provided data on clinics contacted by CIMH. The data consisted of: clinic name, location, phone number, hours, website, languages spoken, insurance requirements, identification requirements, and ages served. The list was reviewed, the data extracted, and entered into an Excel file. The address and phone formatting was standardized along with some verification of address and services. The data were converted to a CSV file data format for transfer into an ArcGIS map. Once in the Arc map, each clinic's information was geocoded. Geocoding is like creating a pushpin map of addresses, each clinic is represented by a point/dot on the map.

The next data source used was census data obtained from the US Census Bureau American Fact Finder digital database for Cook, Lake, Will, DuPage, Kane Counties in Illinois. This information includes a Federal Information Processing Standard code (FIPS) which provides a unique ID for every parcel of land in the United States. States have two-digit codes, and counties have three. Census Tract, Block Code, and demographic characteristics of Spanish speaking population were also found in this database. This data is shown via ArcMap processing as a vibrantly color-coded map of Cook County. The final database, Chicago Data Portal, provided information for CTA rail and bus routes that was formatted as a shapefile (a common way to store point, line, and polygon features) and added as a new layer to the map showing the proximity of public transportation to immigrant mental health services.

Overall there was high data quality. The data is mostly complete and is current as of July 12, 2017. Several of the clinics do not have or offer physical addresses due to privacy and safety of the patients they serve. The missing data does not affect the geographical accuracy, but the map is not as complete in the other data it presents to the user.

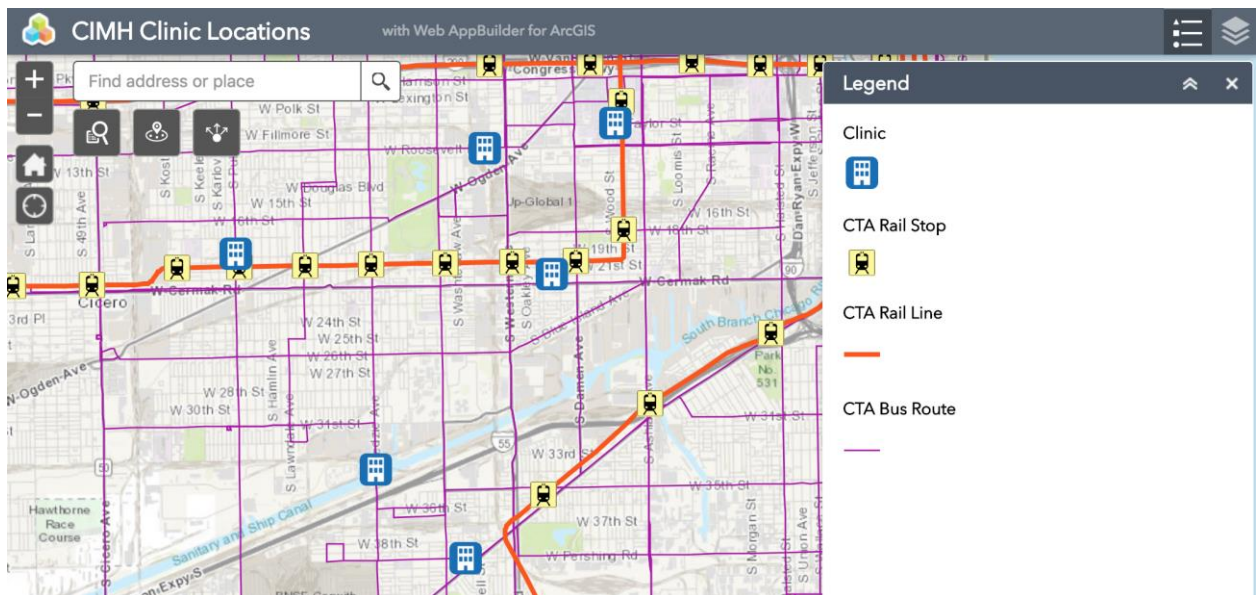## Data Analysis and Visualization

The end product that is comprised of thematic maps provided through an interactive web map app, meets the following six cartographic rules for mapping:

1. To minimize distortion on an area of interest we used map projection of SPC IL East for our Chicago map.

2. We chose our map symbols to reflect the priority of information available. The mental health service providers are sized and symbolized to be the dominant visual on the map. CTA rail stations are a smaller blue square, and, colored lines , orange for CTA rail and red for CTA bus routes help the user see how close they are to a potential mental health service provider.

3. The choice of a map type is important in clearly showing the data provided. We chose a feature map (maps points, lines, or areas) to show the mental health services and proximity to transportation. A choropleth map (shows quantitative information as a second layer map) for the primarily Spanish speaking household population of Cook County.

4. We normalized our data which created a proportion of primarily Spanish speaking household population in Cook County to display on our choropleth map.

5. We used the natural break classification for the choropleth map to show the natural subdivision of the data distribution of primarily Spanish speaking household population in Cook County.

6. We organized the map content so that the main focus for the user is seeing the location of each mental health service in relation to the user's location and his/her proximity to public transportation. The choropleth layer map highlights the requested information by CIMH: where is there a lack of mental health services in relation to primarily Spanish speaking household population in the Chicago area.
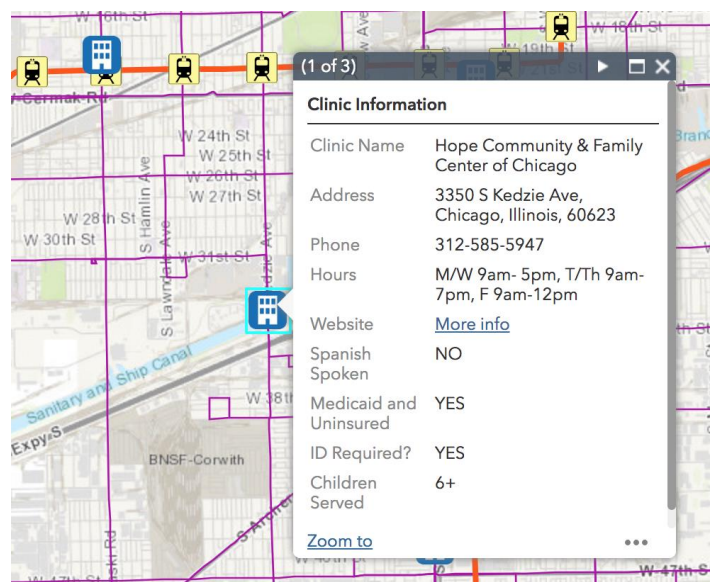
Results

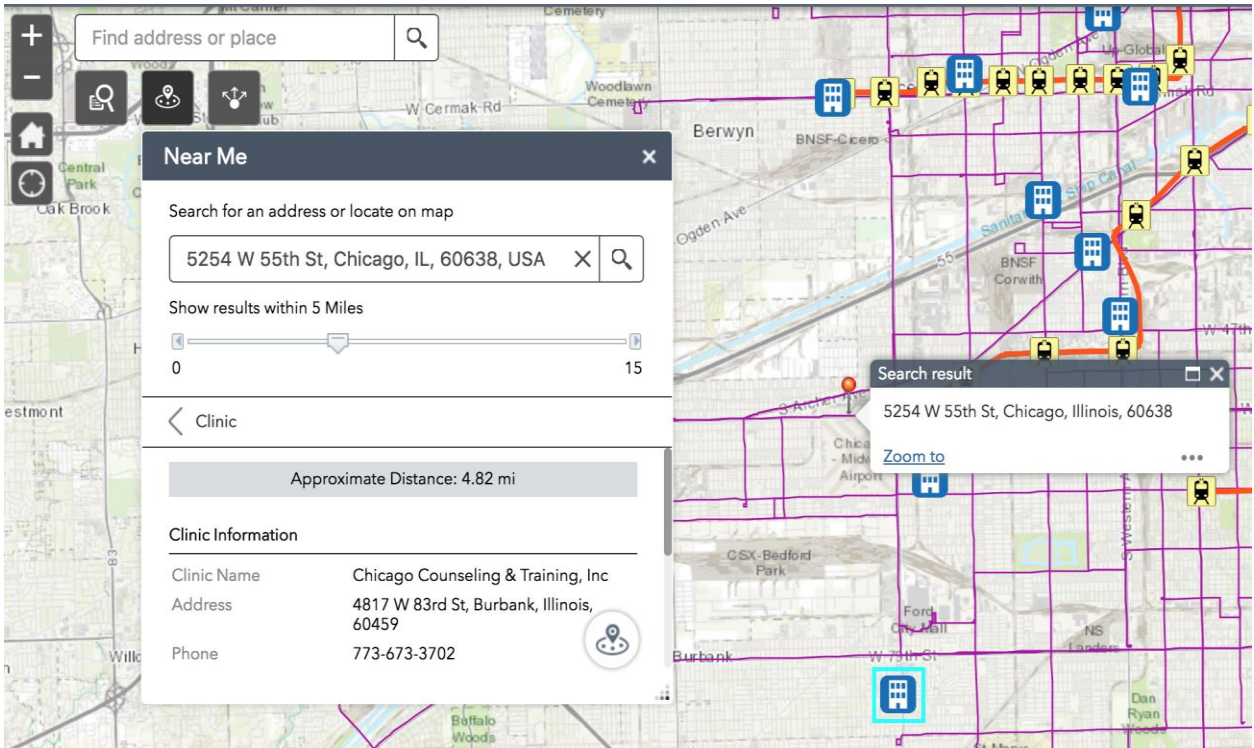An interactive map of CIMH associated clinics can be viewed at https://arcg.is/0bW8TG

- This interactive map displays clinic locations and CTA transit routes and stops.
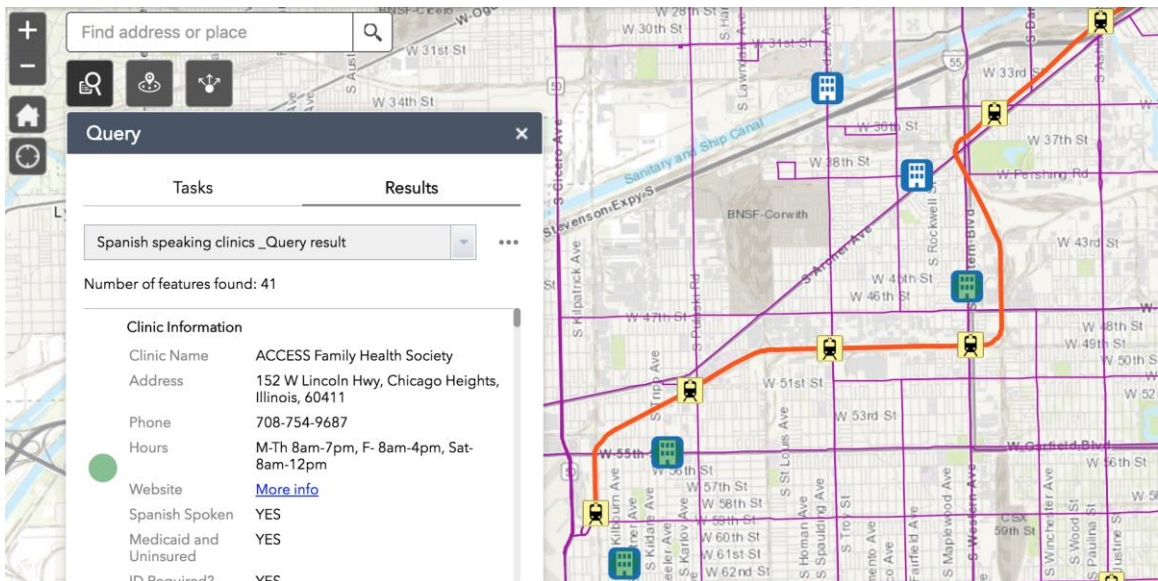

- When a user clicks on a clinic location, a pop up displays clinic name, address, phone number, operating hours, website, if Spanish if spoken, if children are seen, if identification is required, and insurance options.
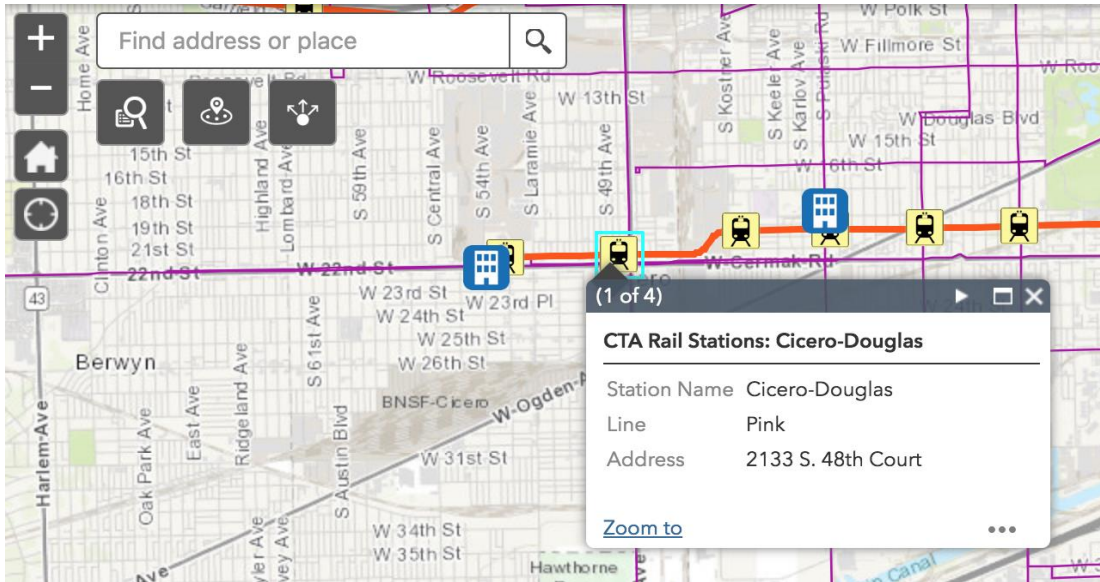
- A query can run that will highlight on the map all clinics where Spanish is spoken. Other queries that are available highlight clinics that do not require identification, and one that indicates if children are seen.
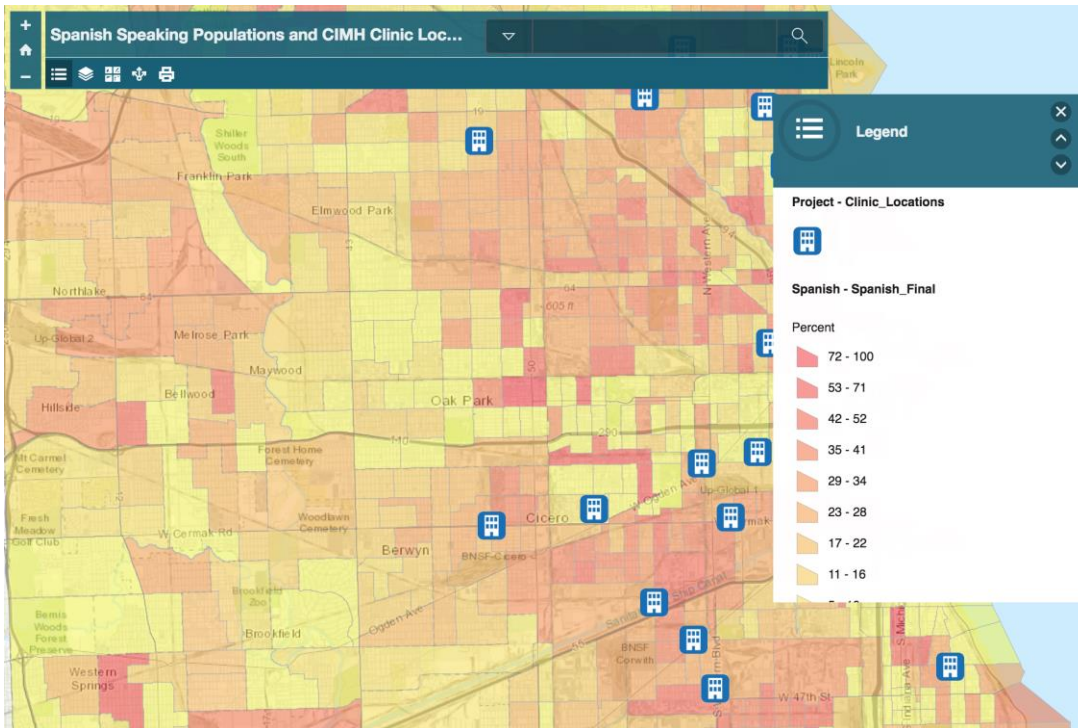

- A "Near Me" feature is available that allows a user to input an address and show clinics within a specific distance from that address.

- When a user clicks on a transit stop or line, the interactive popup displays the name of the stop or line, and street address of train stops.

The concentration of Spanish speaking dominant households in Cook County and current clinic locations were mapped to determine if there is a current lack of CIMH mental health services in relation to this demographic. https://arcg.is/Lj984

Summary, Conclusions, and Recommendations

We successfully met the CIMH goals. The primary goal of creating an interactive map that would display health clinic locations and their discrete information was further supplemented by inclusion of CTA transit routes. A second map with percentages of Spanish speaking households in census tracts of Cook County in relation to clinic locations was also created.

This allows users to accomplish several tasks. They can easily find a clinic location on the map, giving them a geographic view as opposed to a list. Users can also find clinic locations near public transit, specific locations, and clinics that meet particular needs often unique to immigrants.

We feel our approach was very effective. CIMH was clear in their needs and very communicative through the entire process. We were able to make a logistical path to our final project through data collection, data processing, GIS application, and final review of the project. This planned path allowed us to be successful in meeting CIMH's request as well as providing additional information that will be useful.

There are two recommendations we suggest from this point forward. To further build on this project, accurate and up to date data needs to be kept for clinics on the CIMH list. This data should not only be standardized, but also added to the CSV spreadsheet so it can be used in GIS software in the future.

We also advise CIMH to research and access additional data about immigrants. Additional information from clinics may further broaden queries on the clinic services map. Extra data on immigrants could also give additional insight on the needs of immigrants and mental health clinic locations.

Appendix A: Contact People

Dr. Maria J. Ferrera - Co-Chair of CIMH

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Appendix B: Literature

We have used the following literature to assist us in supporting the goals and to get a better understanding of the project. This literature is referred to above as part of our background information.

1. Moore, Andrew F. "The Immigrant Paradox: Protecting Immigrants Through Better Mental Health Care." Albany Law Review 81, no. 1 (January 2018): 77–119
2. Hebert-Beirne, Jennifer, Sarah Gabriella Hernandez, Jennifer Felner, Jessica Schwiesow, Anna Mayer, Kevin Rak, Noel Chávez, Yvette Castañeda, and Joan Kennelly. "Using Community-Driven, Participatory Qualitative Inquiry to Discern Nuanced Community Health Needs and Assets of Chicago's La Villita, a Mexican Immigrant Neighborhood." Journal of Community Health 43, no. 4 (August 2018): 775–86. https://doi.org/10.1007/s10900-018-0484-2.
3. Avila,Erika, DeDios, Lynette, Safyeyer, Marcy. "Supporting Families Through Access to Mental Health Care Organization" Community Mental Health Needs Assessment completed by Erikson Institiute's Center for Children and Families.
4. Caballero, Tania Maria, Lisa Ross DeCamp, Rheanna E. Platt, Harita Shah, Sara B. Johnson, Erica M. S. Sibinga, and Sarah Polk. "Addressing the Mental Health Needs of Latino Children in Immigrant Families." Clinical Pediatrics 56, no. 7 (June 15, 2017): 648–58. https://doi.org/10.1177/0009922816679509.
5. Lansford, J. E., Deater-Deckard, K., & Bornstein, M. H. (Eds.). (2007). *Duke series in child development and public policy. Immigrant families in contemporary society.* New York, NY, US: Guilford Press.

Appendix C: Data Sources

Coalition for Immigrant Mental Health, *Mental Health Services Directory*.
https://cimhil.org/wp-content/uploads/2017/07/CIMH-Directory-FINAL-08.15.2017.pdf

US Census Bureau, TIGER Data, *Cook County, IL census tract shapefile.*
https://www.census.gov/geo/maps-data/data/tiger-line.html

US Census Bureau, American FactFinder, *Cook County, IL - Limited English Speaking Households.*
https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

Chicago Data Portal, *CTA - Bus Routes - Shapefile*,
https://data.cityofchicago.org/Transportation/CTA-Bus-Routes-Shapefile/d5bx-dr8z

Chicago Data Portal, *CTA - 'L' (Rail) Lines - Shapefile*,
https://data.cityofchicago.org/Transportation/CTA-L-Rail-Lines-Shapefile/53r7-y88m

Chicago Data Portal, *CTA - 'L' (Rail) Stations - Shapefile*,
https://data.cityofchicago.org/Transportation/CTA-L-Rail-Stations-Shapefile/vmyy-m9qj