

The Illinois Option: Modeling Access to Planned Parenthood Facilities

Background

In January of 2019, Gov. J.B. Pritzker named Illinois “the most progressive state in the nation when it comes to standing up for women’s reproductive rights” (Sfondeles, 2019). In the state of Illinois, Planned Parenthood is a leader in facilitating a wide range of safe, reliable health care to its population. Their affordable services, from general gynecological exams to preventing unintended pregnancies, reached over 68,000 Illinois patients in 2018 (Planned Parenthood, 2018). However, little research has been done to determine the effect of the geospatial distribution of these facilities on the accessibility to its target populations.

Literature widely indicates that economically disadvantaged populations in the United States experience worse health status on multiple indicators of physical health, including reproductive health (Braveman, Cubbin, Egarter, Williams, & Pamuk, 2010). Therefore, the research question guiding this model is as follows: How does where one lives and one’s annual income effect one’s access to the Planned Parenthood facilities of Illinois? This topic is important because geographic maldistribution of health care professionals and facilities is a major focus of current US Health Care reform (Shi & Singh, 2017). Limited access to Planned Parenthood facilities for residents in rural, lower income areas undermines the mission of Planned Parenthood to provide “access for all to quality reproductive health care without judgment and with respect.” (Planned Parenthood, 2018) Thus, the goal of this analysis is to model the accessibility of Planned Parenthood facilities to economically and geospatially disadvantaged women in the state of Illinois.

Data

The location data (facility name, address, and zip-code) utilized to present the Illinois Planned Parenthood facilities were retrieved from the Planned Parenthood Website and were recorded into a data table. No shapefile or layer files were available for the locations of the facilities. GIS vector, polygon, and line data from the State of Illinois, including county boundaries & block groups, state boundary lines, and the major highways and roadway network, were all retrieved from the Illinois Geospatial Data Clearinghouse. Income Data, specifically Census Table B20001 (Sex by Earnings in the Past 12 Months for the Population 16 and Over with Earnings in the Past 12 Months in counties in Illinois), were retrieved from American Fact Finder.

Methods

To present the locations of the planned parenthood facilities into ArcMap 10.6.1, the individual addresses of each facility in the data table was attached to an address locator based on the IL Highways and Roadways network layer. Then, using the “Geocode Addresses” tool, the facilities were presented onto the county block groups. After, using the geocoding result, a 30-mile dissolved buffer was generated around all facilities (figure 1). Finally, we joined Census table B20001 onto the block groups for all counties in the state of Illinois, using the “County_Name” field. Using the determined income threshold for the Illinois poverty line, the percent of women below the poverty line per county was calculated and projected (figure 2). A spatial query was used to select block groups with their centroid outside the scope of the 30-mile undissolved buffer (figure 4). A layer was created from the selection and then joined with the Census Data using the “County_Name” field (figure 3). In excel, mathematical analysis was then conducted using the subsequent population data from the block-groups with their centroid outside of the 30-mile buffer range.

Illinois Planned Parenthood Facilities with 30 Mile Buffer

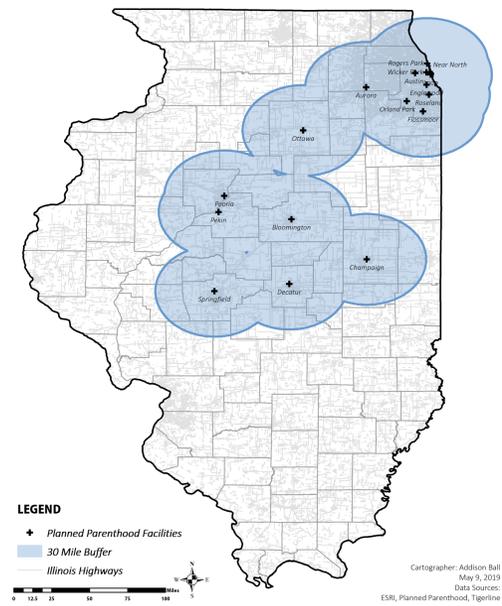


Figure 1

Percent Women Below the Poverty Line, by county

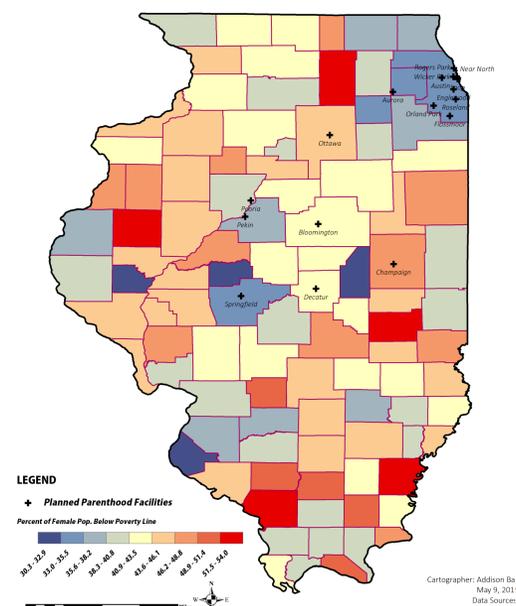


Figure 2

Percent of Women Below Poverty Line Outside of 30-Mile Range of P.P. Facilities

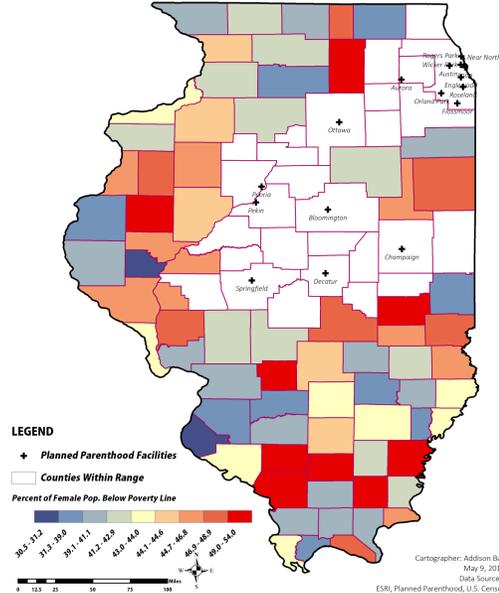


Figure 3

72 Illinois Counties Outside of 30-Mile Range of P.P. Facilities

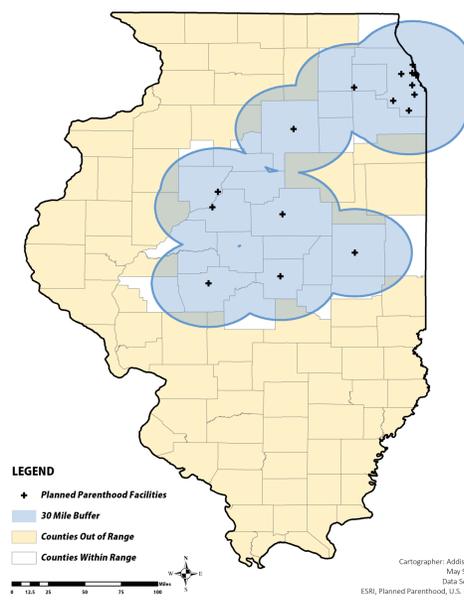


Figure 4

Results

There is a high concentration of Planned Parenthood facilities in the Chicago Metropolitan Area (figure 1). Planned Parenthood Facilities reside mostly in the central part of the state, with none in the southern half of Illinois (figures 1,2,3,4). The range of women living in poverty varies by

24%

of women live without access to P.P. Facilities

44%

of women without access live below the poverty line

county, from ~30% to ~55% below the poverty line, with a cluster of lower percentage counties around the Chicago and St. Louis areas (figure 2). 74 of the 102 counties in Illinois are not within a 30 mile range of a Planned Parenthood Facility (figure 4). All counties with the highest rates of female poverty are not within a 30 mile radius of a facility (figure 3). There is a concentration of highly impoverished counties in the southern part of the state, far from the cluster of planned parenthood facilities in the middle of the state (figure3). The total percent of the female population in Illinois outside the 30-mile buffer is 23.75%. The total percent of the female population below the poverty line outside the 30-mile buffer is 10.01%. The average percent of women under the poverty line per county outside the 30-mile buffer is 43.60%.

Analysis & Conclusion

In order to aggregate bracketed income data into a format presentable by ArcGIS, an income threshold was created based upon poverty guidelines as indicated by the State of Illinois and the US Census. The United States Department of Health and Human Services designates that residents households with an aggregate income of \$21,330 or less are below the federal poverty line (*U.S. Federal Poverty Guidelines, 2019*). For the purposes of this research, data that represented the annual incomes of individuals rather than households was used. According to the United States Census, the average number of persons per household in the state of Illinois is 2.61 (*Illinois QuickFacts, 2019*). Thus, using this metric, the income line at which an individual woman in a household of 1.61 other individuals was used (\$20,000 and below). Analysis based on this threshold was utilized to determine the percentage of women below the poverty threshold in each county.

This analysis indicates that the majority of counties in Illinois do not have reasonable access to its Planned Parenthood facilities. However, more than two thirds of Illinois’ female population is within a 30-mile range. This counterintuitive result can be addressed by the fact that the counties nearest to Chicago are the most populated in the state, thus they encompass a large part of Illinois’ total population. This could explain why the percentage of the female population without reasonable access to a facility is less than 25%.

However, this does not address the poverty factor. This analysis resulted in the average percent of women below the poverty line without access to one of these facilities as just under 50% per county, indicating significant likelihood of a woman living in a county out of range of a Planned Parenthood facility to be impoverished. Further, the counties with the highest rates of poverty reside outside of the 30-mile buffer range. This allows us to conclude that, while these facilities are accessible to a large part of the population of Illinois, the counties with the greatest need still do not have access to comprehensive reproductive care.

Limitations & Future Analysis

- * The data presented is based upon income data from individuals rather than household. Further specificity based on income per household should be made in future.
- * Ideally, this analysis would be re-done using a more granular geographic unit, such as census tract, or utilizing Network Analysis.
- * As the reproductive rights for Illinois citizens increase, the number of facilities within the state will also increase. Future analysis sponsored by either government or Planned Parenthood Officials should be conducted, especially to indicate where the next facility would should be placed to address the greatest need.

References

1. Braveman, P. A., Cubbin, C., Egarter, S., Williams, D. R., & Pamuk, E. (2010). Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us. *American Journal of Public Health, 100*(51), S186–S196. <https://doi.org/10.2105/AJPH.2009.166082>
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4. Sfondeles, T. (2019, January 22). Pritzker vows “most progressive state” on abortion — GOP sees “left wing” agenda. *Chicago Sun Times*. Retrieved from <https://chicago.suntimes.com/news/pritzker-progressive-abortion-roe-v-wade-tb40-gop-left-wing/>
5. Shi, L., & Singh, D. A. (2017). *Essentials of the U.S. Health Care System (Fourth edition)*. Burlington, Massachusetts: Jones & Bartlett Learning.
6. *U.S. Federal Poverty Guidelines Used to Determine Financial Eligibility for Certain Federal Programs*. (2019, January 11). U.S. Department of Health and Human Services.

Data Sources:
 State/County shapefiles: Illinois Geospatial Data Clearinghouse
 Planned Parenthood Facilities: Planned Parenthood of Illinois <https://www.plannedparenthood.org/planned-parenthood-illinois>
 Income Data by Sex: U.S. Census American FactFinder