

COVID Vaccinations and English Language Proficiency in Little Village and Pilsen

The vaccination rates among American adults have surged in the past months, but not homogeneously across the entire population. Vaccination sites are not equally distributed, and different communities have different conditions of access to healthcare and health information. Going forward with future vaccination policies, it might be important to better understand the spatial distribution of access, both in terms of vaccination site offer and vaccination completion. I decided to explore limited English proficiency as a dimension that might shape access to healthcare services in the city of Chicago. To do that, I am looking specifically at the largely Latin American neighborhoods of Little Village and Pilsen, here operationalized by the zip codes 60623 and 60608.

Data

To better understand the different vaccination rates across the city of Chicago as of May 31st, 2021, I decided to look at a measure of Limited English Proficiency taken by the American Community Survey from 2015 to 2019, in addition to point data showing the distribution of vaccination sites across the city provided by the Chicago Data Portal. The vaccination rate data is aggregated by the Chicago Health Atlas by zip code, as is the Limited English Proficiency rate. The latter is also used here as an index for linguistic diversity, mostly in consequence to immigration.

Methods

By visualizing these three measures over Chicago zip code boundaries provided by the Chicago Data Portal, we can then explore whether there is overlap or mismatch among them, which then could elicit issues of linguistic access to healthcare in the city's COVID vaccination campaign. A point-in-polygon analysis is used to count vaccination sites per zip code, while Limited English Proficiency rates (LEP) and adult vaccination rates are visualized using choropleth maps. If vaccination site counts by zip code mostly positively overlaps with vaccination rates per zip code, *except* for areas with higher LEP, for example, that would suggest spatial heterogeneity motivated by linguistic diversity.

Results

When looking at the ACS 5-year estimate from 2015-2019 in Figure 1, we can see that 60623 and 60608, more closely associated with Little Village (located within the South Lawndale Chicago community area) and Pilsen, are indeed characterized by higher percentage of residents with LEP compared to other neighborhoods. That also seems to be shared by most of the North- and South-west sides. I overlaid the LEP rates with the city vaccination sites surrounded by a 0.5-mile buffer, as an estimation of walkability. The vaccination sites seem to be highly concentrated downtown and in the North Side, especially by the Lake, also following a

diagonal from downtown to the Northwest part of the city. To a lesser degree, there is also a concentration of vaccination sites along the Lake in the South side, and along a diagonal from downtown to the Southwest region of the city, passing through our neighborhoods of interest Little Village and Pilsen. We have a scenario in Little Village and Pilsen with seemingly more COVID vaccination locations than most of the South Side, but with less spots when compared to the North Side. It is important now to look at the vaccination rates by zip code so we can start to explore its possible correlation with the presence of vaccination sites.

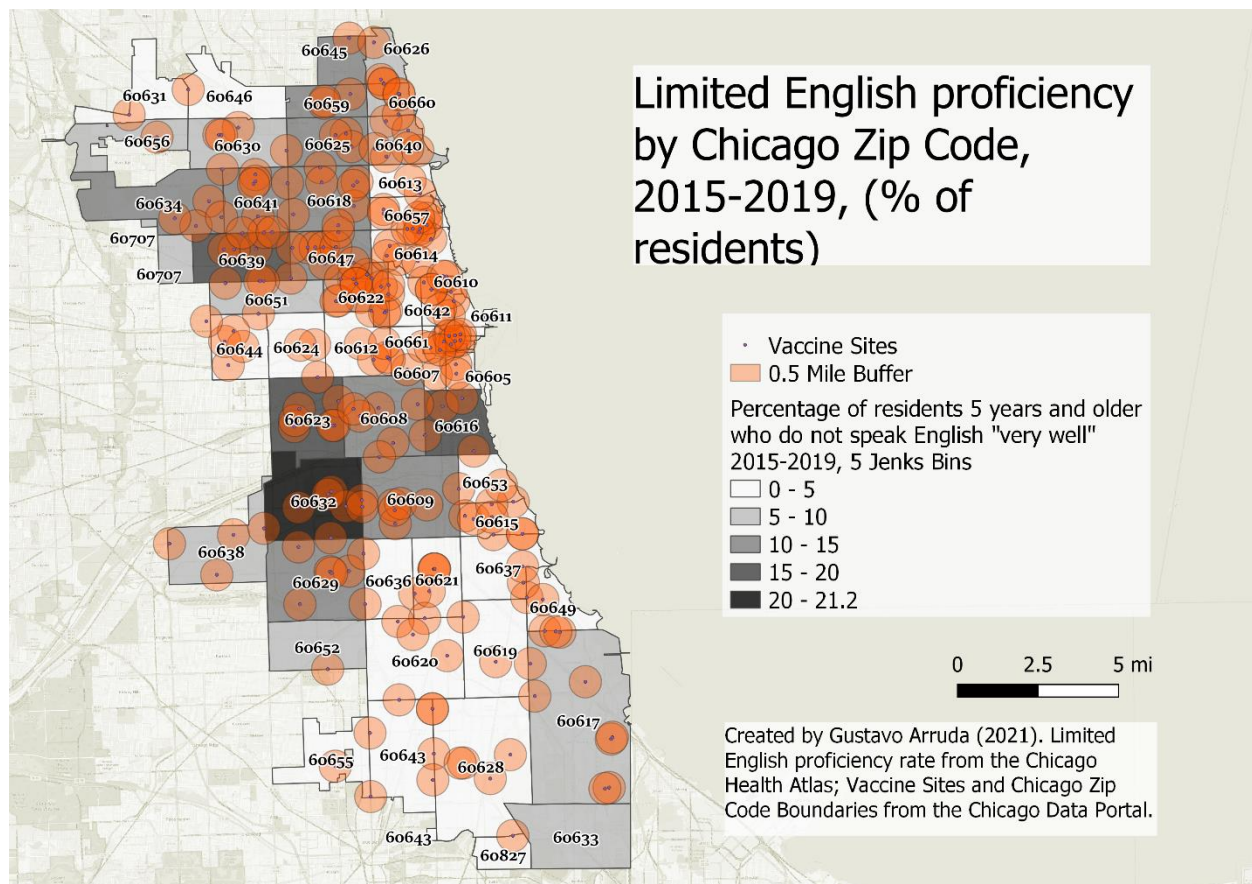


Figure 1

Figure 2 mostly confirms our previous prediction regarding a possible association between concentration of COVID vaccination sites and adult vaccination rate. Indeed, the areas associated with Little Village and Pilsen, zip codes 60623 and 60608, as most of the Southwest region of Chicago, have higher vaccination rates than the South Side, but lower than the North Side or downtown. Such association makes sense, but for our purposes it raises other questions. How can we further explore whether areas with similar number of vaccination sites but different levels of LEP have different adult vaccination rates? Additionally, the lower presence in the West and South Sides of vaccination sites itself might be interpreted as a summation of various social forces, including systemic racial, ethnic and potentially linguistic discriminations.

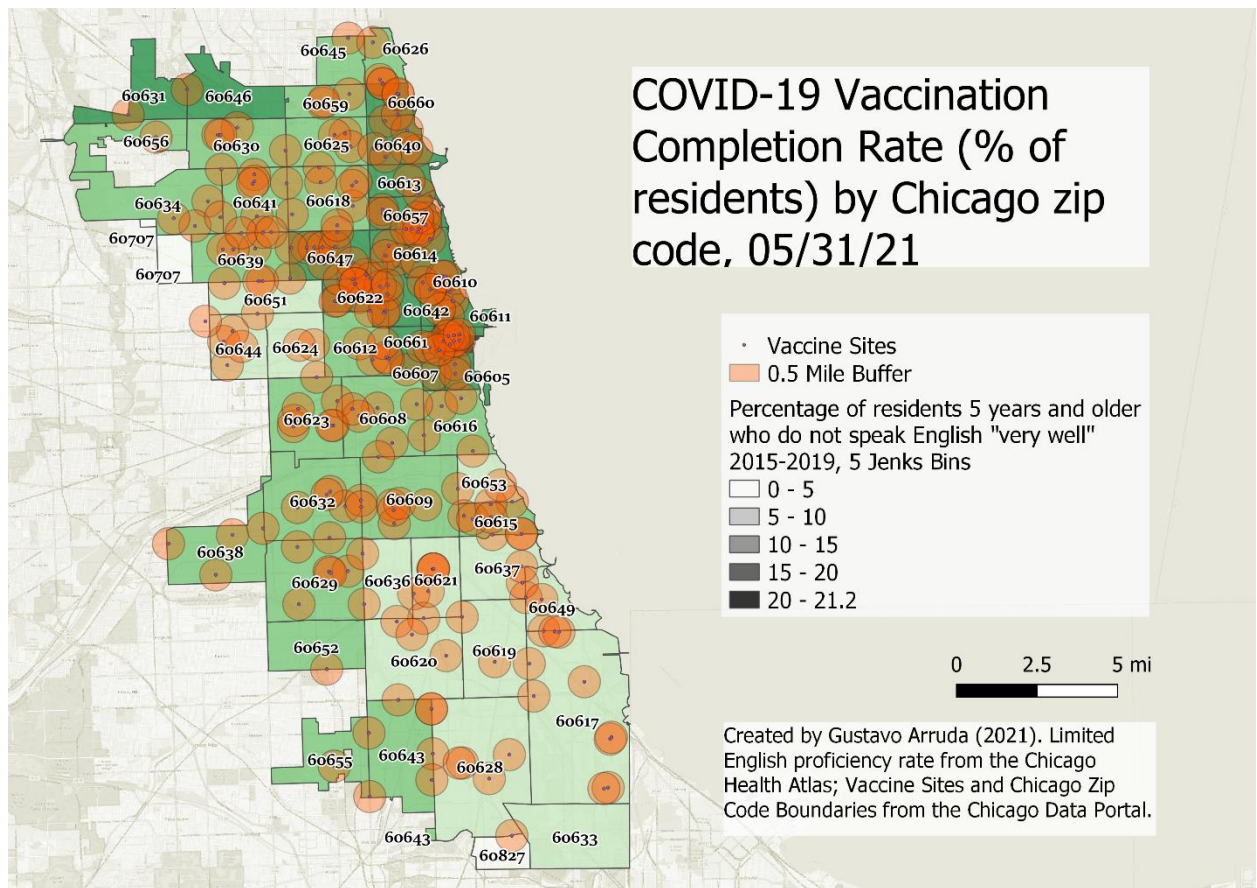


Figure 2

At last, in Figure 3 we can take a closer examination at Little Village and Pilsen, represented here by zip codes 60623 and 60608, and its immediate surroundings. On the left side of the image, we can see a choropleth map of the COVID vaccination site counts per zip code, aggregated through a point-in-polygon operation, overlaid by 0.5-mile buffers around the vaccination sites themselves to give some sense of potential interactions with vaccination sites in the neighboring zip codes. Not only 60623 and 60608, but also 60632 and 60609 directly south of them, all stand out from the rest given relatively higher number of vaccination sites in their boundaries, and similarly given their higher proportion of residents with limited English

proficiency. Unfortunately, we are still left with little clarity about the specific role of linguistic access to COVID vaccination rates in Chicago.

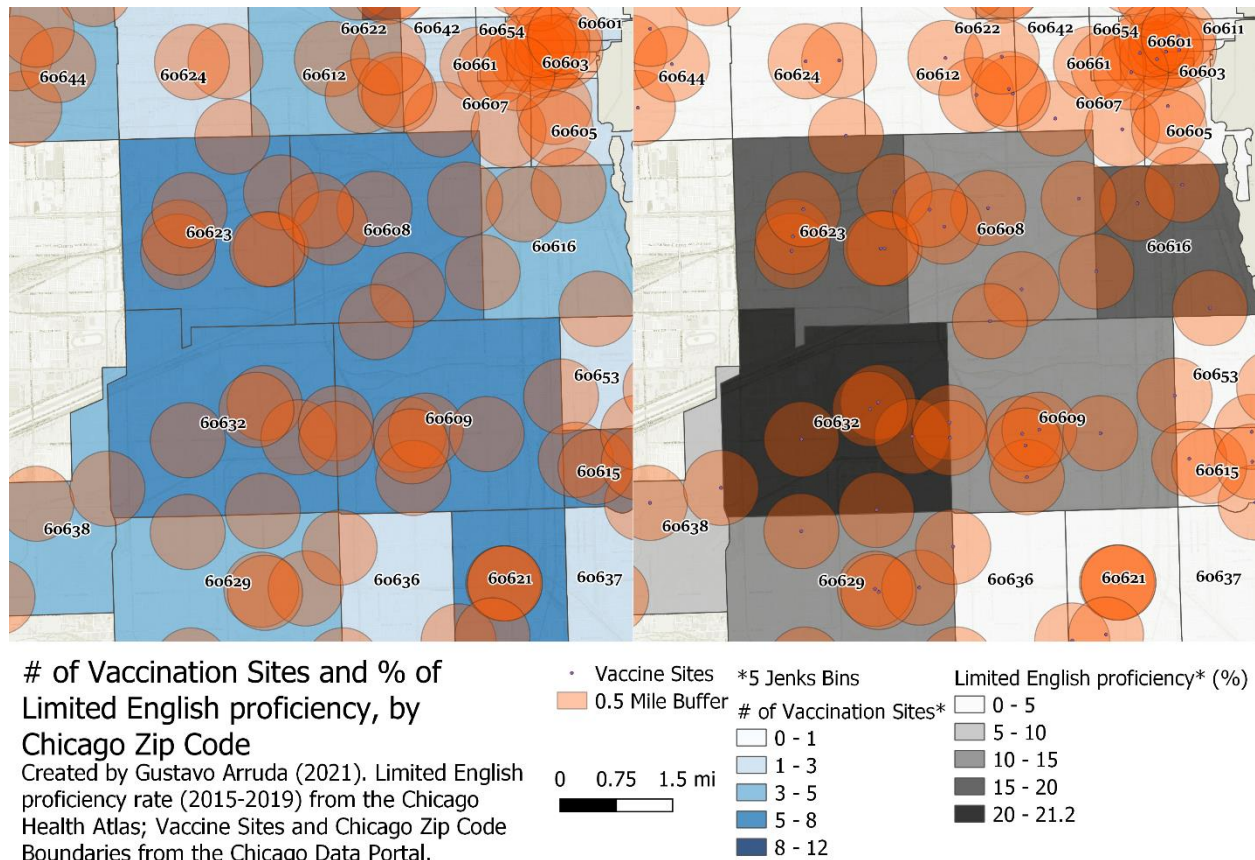


Figure 3

Discussion

In this report I tried to explore the role of linguistic barriers to healthcare in explaining differing adult vaccination rates across the city of Chicago. To achieve that, I used rates of both limited English proficiency and COVID adult vaccination, in addition to locational data regarding COVID vaccination sites in Chicago. The data was aggregated by zip code as an analytical aid, focusing particularly in the largely Latin American neighborhoods of Little Village and Pilsen. Throughout the analysis, however, it became clear that it was hard to differentiate linguistic access from other variables with the data and the methods at hand. The most straightforward variable of interest at hand remained the counts of vaccination sites by zip code, which is arguably itself enmeshed in issues of racial, ethnic, class and language discrimination.