MAPPING HEALTHCARE ACCESS FOR UNDOCUMENTED PEOPLE IN ATHENS-CLARKE COUNTY USING QUALITATIVE GIS

by

AILEEN H. NICOLAS

(Under the Direction of Jerry Shannon)

ABSTRACT

The social determinants of health (SDOH) framework developed by the United Nations has been used to assess the environmental drivers of health outcomes. Even with the development of the SDOH framework, disparate health outcomes continue, especially for undocumented people in the United States as has been notably highlighted in the COVID-19 pandemic. We approach this research with a structural determinants of health framework, aiming to understand the forces that underlie the distribution of the SDOH. In this article, we use qualitative GIS methods to map healthcare access during COVID-19 for undocumented people using a structural determinants of health framework. We use sketch map interviews to collect data on the perceptions of community leaders and community clinic staff of the adequacy of COVID-19 testing, care, and vaccination resources. Findings identified that the most reliable centers for COVID-19 care were in trusted community areas.

INDEX WORDS: structural determinants of health, health access, undocumented immigrants

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Access to healthcare resources for undocumented people continues to be a significant public health issue for many communities in the United States. The study of healthcare access is traditionally concerned with the relationship between need, provision, and utilization of healthcare services. Access to health care can be defined as the ability to gain entry into the healthcare system and to obtain timely essential health care services (Aday & Andersen, 1981; Gulliford et al., 2002; Institute of Medicine, 1993). Often health access is treated as an issue of proximity, but the Social Determinants of Health (SDOH) framework can show us how health access is impacted by structural factors, both spatial and non-spatial, influenced by social and economic policies. The SDOH's focus on social structures and policies helps us understand how both social and institutional contexts and daily living conditions (income, employment, educational attainment, housing conditions, etc.) influence health access and outcomes for undocumented people.

One recently considered SDOH is immigration status (Castañeda et al., 2015), which is a policy tied to historically defined racial groups and reinforced social hierarchies (Gee & Ford, 2011). The SDOH framework includes values, policies, and practices that both contribute to the perpetuation of inequities and marginalize groups with the greatest exposure to those social problems. In the United States, laws, policies, and practices have been used to systematically oppress Latin American immigrants through the creation of the "undocumented" status. This has been the result of racism and xenophobia in American history (and present) that has classified people from certain countries as not worthy of citizenship and its associated benefits. Immigration

status and policy usually negatively influence well-being, including increased stress and fear and a decrease in healthcare access (APHA, 2012; Assoc.), 2009, 2011). This study aims to move further along the SDOH framework to articulate better structural determinants of health for healthcare access for undocumented people and the systemic issues that make it so that healthcare access is unevenly distributed, especially for undocumented people. These structural determinants of health include anti-immigrant sentiments and racism as well as a lack of universal healthcare.

To further our understanding of immigration status as an SDOH, I took a qualitative GIS approach to map perceptions of COVID-19 testing, care, and vaccine accessibility to assess Athens-Clarke County's efforts at improving health access for the Latinx population. To do this, I relied on the local knowledge produced by community health workers in sketch maps that detail their experiences navigating these services with the undocumented population. I used these interviews and sketch maps as applications of qualitative GIS to further our understanding of the social determinants of health by identifying their drivers: the structural determinants of health. Crear-Perry (2020) and Bailey et al.'s (2017) conceptualizations of structural determinants of health identify racism as the root cause of racial health inequities, and I demonstrate that qualitative GIS methods can further our understanding of the factors that enhance and limit health access for undocumented people and at the same time treat local and situated knowledge as valid forms of data.

The World Health Organization's Social Determinants of Health (SDOH) identifies several factors that influence health and healthcare access. These SDOH pertain to the "conditions in which people are born, grow, live, work and age" and include people's social and economic environment, their physical environment, and their individual characteristics and behaviors (Artiga & Hinton, 2018; Marmot & Bell, 2011). Factors of the SDOH include economic stability, safe

neighborhoods and physical environments, education, food availability, and community and social support networks (Heiman & Artiga, 2015) These SDOHs account for a greater influence on health than health care services themselves and are said to correlate with a healthier population (Heiman & Artiga, 2015; Thomas-Henkel & Schulman, 2017). It is important to take into consideration how these social contexts impact healthcare delivery and outcomes.

The lives and well-being of undocumented people are not valued in the United States since the government refuses to offer rights that would guarantee health and safety. Chang (2019) identifies several SDOHs that impact the undocumented population including poverty, housing insecurity, education, and immigration policy and laws. However, this list is not comprehensive. One study indicated that even when pro-immigration legislation is passed to improve health access by removing eligibility restrictions on insurance for undocumented people, immigrants continue to experience poor treatment from healthcare providers including microaggressions, as well as interpersonal and institutional discrimination (Gurrola & Ayón, 2018). The programs and policies that aim to improve social determinants of health may not alleviate ongoing racial, economic, and gendered discrimination.

When we consider that the social determinants of health are directly influenced by policies and programs, systems, and environments, we arrive at identifying the *structural* determinants of health (Crear-Perry et al., 2020). The *structural* determinants of health are the cultural norms and policies that define the distribution of the *social* determinants of health. As a result, accountability for health is shifted from the individual to the system that perpetuates poor health. The social determinants of health can help us identify disparities, but the structural determinants of health help us identify the forces that cause those disparities. For example, undocumented people experience disparities in health due to poverty, a lack of education, and a poor healthcare system

according to the social determinants of health framework, but the structural determinants of health framework might focus more on the policies and programs that create those outcomes, such as low federal minimum wage requirements and the refusal to provide IDs to people who are undocumented.

Identifying the structural determinants of health that influence the social determinants of health is important because some responses and interventions to disparities in healthcare access for undocumented people may appear neoliberal and/or ignore further structural complexities, particularly those corresponding to race and racism, xenophobia, and nationalism. In an international review published in 2015 on the barriers to healthcare access for undocumented people, the authors suggest advocacy, increasing insurance availability, expansion of safety nets, training providers, and providing outreach and education services to undocumented immigrants to improve health care access problems (Hacker et al., 2015). Expanding safety net clinics does not identify and fix the root causes of disparities. Providing outreach and education services treats undocumented immigrants as the problem and "improving" individual behaviors as a solution. Instead, it is important to provide a health system of clinics, insurance, and cost with fewer legal stipulations and financial barriers that require education in the first place. Similarly, political advocacy can change the drivers of disparities, often policy and laws. It is important to move beyond identifying health disparities and into identifying the structural drivers of these disparities.

Health disparities continue to be seen in the COVID-19 pandemic. Certain ethnic and racial groups have been disproportionately affected by COVID-19 and account for a greater proportion of COVID-19 deaths compared to the rest of the US population (National Center for Health Statistics, 2022). For communities of immigrants and undocumented people, these disparities are unsurprising considering the history of anti-immigrant policies, lack of healthcare access, language

barriers, and poverty. For example, in areas that have are experiencing rapid changes in demographics to include more Spanish speakers, COVID highlight the acute need for cultural and linguistically appropriate care (Page & Flores-Miller, 2021). The pandemic revealed that transmission of COVID occurred due to poverty and economic necessity because undocumented people did not have the opportunity to work from home, they did not have access to unemployment benefits, and they were not eligible for government relief (Page et al., 2020; Page & Flores-Miller, 2021). The social determinants of health identify the environments that have made these inequalities persist, but they require further attention to understand the structural drivers that perpetuate the inequities.

Spatial and Non-Spatial Dimensions of Healthcare Access

Healthcare access in its spatial definition can be conceptualized as the separation between healthcare services and population. GIS can be used to measure that difference and incorporate constraints such as time, distance, cost, or capacity of the healthcare provider across space. Distance measures calculate the proximity of existing healthcare providers to the location of the target population (Mayer, 2006). The larger the distance between provider and population, the lesser the access. These distances can be grouped by population zone, weighted according to the population, and averaged to calculate a zonal or regional measure of access. Density measures describe the proportion of providers available in proportion to the total population of an area. One application of the density measures is in the physician to population ratio as seen in Wong et al.'s (2019) measurement of refugee populations within walking distance of primary care physicians. GIS can visualize the physical and spatial processes of accessibility.

While most of these methods take into consideration spatial constraints on health access, they do not consider individuals' time constraints, lack of insurance or transportation, costs, or

other important variables that inherently affect spatial accessibility. They also do not take into consideration inequalities in geographic access to healthcare services or inequalities that arise out of xenophobic policies such as the making of the undocumented status or the withholding of medical care from undocumented people. Furthermore, the solutions that come from these methods may seem apolitical or may place the burden of responsibility on the individual. For example, in making maps of healthcare locations, the assumption is that people will be able to seek out care by increasing choices and availability. In identifying options for places to provide healthcare, it is important to pay attention to spatial and non-spatial barriers that households may face besides proximity to care and address structural issues that created barriers in the first place. For example, some people may be willing to, or have no option but to, drive a longer distance to seek healthcare from a trusted place.

Qualitative GIS

In recent years, there has been a push to think of broader possibilities for GIS, including how to integrate new epistemologies. Qualitative GIS (QGIS) is a response to serious concerns about the limitations of traditional GIS methods, which often emphasize masculinist and positivist epistemologies (Elwood, 2010). In health care access research, masculinist and positivist epistemologies may be seen as the overreliance on proximity-based measures. Proximity-based techniques can be masculinist and positivist when they treat health care access as a phenomenon to be observed from nowhere as is done in GIS, employing what Haraway (2009) calls the “god trick”. As a result, GIS research can neglect the subjective understandings of healthcare options and prioritize physical space over social networks. A feminist, non-positivist mapping technique seeks to accurately represent the varied lived experiences of the research participants. In QGIS,

this feminist concern is addressed by ensuring that the experiences of people who are traditionally research "subjects" are not only considered as data but also framed as integral forms of knowledge.

A qualitative methods approach can challenge a dominant framework of traditionally masculinist and positivist approaches to GIS research and at the same time highlight the inconsistencies or gaps that can be produced by overreliance on positivist methods. This can be done by including traditionally nonquantifiable experiences and informal social relations in GIS, especially since knowledge in itself is local, subjective, and linked to the contexts in which it is created (Nightingale, 2003). Sketch maps are typically spatially referenced (cartographically accurate) maps that represent the varied lived experiences of social groups or individuals, and they have developed from the critical GIS concerns on knowledge production and positionality (Boschmann & Cubbon, 2014). Sketch maps are a useful technique within QGIS to highlight individual narratives and represent the unique complexities of people's lived experiences. For example, researchers used sketch maps to report perceptions of safety in public spaces for LGBT people as well as how their social behavior and identity changed based on their locations (Boschmann & Cubbon, 2014). The researchers determined that feelings depended on people's life experiences more so than demographics. Sketch maps aided the interview process by improving dialogue and communication, establishing rapport with the informants, providing a calming effect by introducing something familiar, and providing an area of common knowledge that reduced researcher-subject barriers. Sketch maps further the capacity of qualitative data collection through exposure to interviews, transcriptions, and coding, an iterative process that allows a researcher to identify key themes across different methods. Through sketch map interviews with these research participants, we will visualize local knowledge on healthcare access for undocumented immigrants that lack quantitative representation.

In my study, I will take a qualitative GIS approach to map healthcare access for undocumented immigrants through sketch map interviews with community health workers and leaders. The participants' knowledge is local and situated rather than masculinist because they are deeply embedded members of the community, have connections with the undocumented population, and know the experiences of undocumented people. They have first-hand experience with structural issues that affect health care access for immigrants, issues that we may fail to properly analyze with traditional proximity-based GIS analysis. They are socially connected to the undocumented population, and they can speak about the factors that influence healthcare in ways that GIS, with a distanced focus, cannot arrive at. In turn, relying on the participants' local and situated knowledge can help us visualize the spatial dimensions of health access for undocumented people and further our understanding of immigration status as an SDOH.

CHAPTER 2

MAPPING HEALTHCARE ACCESS FOR UNDOCUMENTED PEOPLE IN ATHENS-CLARKE COUNTY USING QUALITATIVE GIS[1]

[1]Nicolas, A., J. Shannon, N. Heynen, and S. Lester. To be submitted to Health & Place.

Abstract

Objective: The social determinants of health (SDOH) framework developed by the United Nations has been used to assess the environmental drivers of health outcomes. Even with the development of the SDOH framework, disparate health outcomes continue, especially for undocumented people in the United States as has been notably highlighted in the COVID-19 pandemic. We approach this research with a structural determinants of health framework, aiming to understand the forces that underlie the distribution of the SDOH.

Methods: We use sketch map interviews to collect data on the perceptions of community leaders and community clinic staff of the adequacy of COVID-19 testing, care, and vaccination resources.

Results: The participants found that documentation status, information, and networks play a role in undocumented people's health access. The most reliable areas for COVID-19 care were trusted community areas.

Conclusions: Improving our communication of COVID-19 information and networking among the community itself, clinics, and organizations can benefit the health of undocumented people.

Key Words: health access, structural determinants of health, undocumented immigrants

Introduction

Health disparities are common among undocumented Latin American immigrants due to a lack of access to preventative and primary care. Undocumented people bear a disproportionate burden of adverse health conditions such as hypertension and diabetes compared to non-Hispanic non-immigrants, and they are also less likely to access preventative health services (Arasteh, 2021; Schneiderman et al., 2014). For example, immigrants receive substandard preventative health services for managing chronic health conditions lower rates of blood pressure and cholesterol levels checks, and a lower likelihood of having a usual source of care compared to non-immigrants (Rodríguez et al., 2009; Vargas Bustamante et al., 2012). Undocumented Latin American immigrants are at great risk of suffering from these health disparities across all levels of care. These disparities do not happen in a vacuum, however, as the social and spatial contexts of undocumented people's lives influence these disparities.

The World Health Organization's identifies the Social Determinants of Health (SDOH) as people's social, economic, and physical environments as well as their individual characteristics and behaviors that influence health and healthcare access (Artiga & Hinton, 2018; Marmot & Bell, 2011). The factors that have been identified as SDOH include economic stability, safe neighborhoods and physical environments, education, food availability, and community and social support networks and more recently, immigration status (Castañeda et al., 2015; Heiman & Artiga, 2015). For example, immigrants also have to deal with immigrant policing which has been show to negatively alters immigrants' health behaviors and ability to seek health services in Georgia (Kline, 2017). However, despite the development of the SDOH framework, disparate health outcomes continue. This is especially true for undocumented people in the United States as has been notably highlighted in the COVID-19 pandemic.

The COVID-19 pandemic has disproportionately affected people of vulnerable racial and ethnic groups who have accounted for a greater proportion of deaths compared to the rest of the US population (National Center for Health Statistics, 2022). For undocumented Latin American immigrants, these disparities can be attributed to anti-immigrant policies, a lack of healthcare access, language barriers, and poverty (Page et al., 2020; Page & Flores-Miller, 2021). The Social Determinants of Health framework helps us identify these factors that make the conditions of poor health access. However, these social determinants are directly influenced by policies, programs, systems, and environments which are the *structural* determinants of health (Crear-Perry et al., 2020). With the structural determinants of health framework, our analysis can move beyond the factors that create environmental disparities that the social determinants of health framework identifies and toward the root causes of inequalities.

Athens Clarke County, Georgia provides a suitable site to assess the barriers and instances of access to healthcare resources for undocumented people. This combined city-county government and the surrounding counties are representative of the southeastern immigrant gateway destinations (Winders, 2006). The largest employers in the county include University of Georgia, two hospitals, and two poultry processing companies, and these provide employment at low paying jobs for undocumented people (Athens-Clarke County Unified Government, 2020). In 1990 there were approximately 736 immigrants in Clarke County, and by 2000 there were about 6,436 Hispanic people accounting for a 774% increase in the Hispanic population in the span of a decade (US Census Bureau, 2000; US Department of Commerce, 1990). As of 2020, Hispanic people account for 11.2% of the total population or approximately 12,700 people (US Census Bureau, 2020). There is a limited amount of research done on health access for undocumented people in the county, especially regarding COVID-19.

As the undocumented immigrant population continues to grow and be an important part of the landscape of Athens Clarke County, it is important to assess the factors that influence the access to pertinent resources. The data that is presented here was gathered using qualitative GIS methods to assess COVID-19 testing, care, and vaccine accessibility in Athens-Clarke County, Georgia for undocumented Latin American immigrants. During these interviews, I relied on the local knowledge produced by community leaders, health workers, and clinic staff through sketch map interviews that detail their experiences in aiding undocumented people navigating COVID-19 healthcare resources using sketch map interviews. This analysis shows that COVID-19 resource access for undocumented people is a concern. This research has a structural determinants of health framework, aiming to demonstrate that qualitative GIS methods can further our understanding of the forces that underlie the distribution of the social determinants of health for undocumented people.

2.2 Methods

The undocumented population is especially vulnerable, not only because of direct expressions of racism or their experiences with poverty but also because if they are identified, they can be deported. This specific fear of the undocumented population warrants our care, so I did not ask anyone about their documentation status. I also did not ask anyone to speak directly about their own healthcare experiences. This ensures that the study is not personally invasive to the participants. Instead, I interviewed stakeholders in the healthcare system for undocumented people to speak about their perceptions of the experiences of undocumented people as a safe alternative. One group of people that I was in contact with was the Promotoras as community health workers who can attest to the experiences of undocumented people in the study area. My point of contact with the Promotoras was Dr. Pamela Orpinas from the UGA School of Public Health. She worked

with the Lazos Hispanos program which aimed to improve healthcare and social service access for native Spanish speakers in the study area of Athens-Clarke County. She sent an email to the community health promoters to see which of them would be willing to partake in an interview. Of the seven women in the program, four responded that they would be willing to participate in this research study.

For other perspectives, I contacted other clinics and community organizations. I contacted three non-profit health centers, and I was able to connect with two clinic staff members who were able to attest to how their clinics have worked with undocumented people. I contacted three community organizations, and I was able to recruit one participant to talk about her experience in advocating for the rights of undocumented people in healthcare through the organization she was a part of. I was also able to connect with a representative of the Department of Public Health for Athens-Clarke County.

I relied on grounded theory as a methodological approach to this project. A grounded theory methodology is best when the goal of a project is to produce or construct explanatory theory (Chun Tie et al., 2019). Grounded theory methodology builds theory through several iterations of data collection, coding, and analysis to construct knowledge that is "grounded" in the empirical data collected (La Done Knigge & Cope, 2009). I relied on a typical case purposive sampling technique by reaching out to health organizations found online to seek participants that had the knowledge to respond to the research questions being asked. The data generated from these interviews are crucial to the grounded theory design since they provided the data that was later on to be coded and analyzed. The constant comparative and iterative analytical process indicative of grounded theory commenced with the first interview, and new data and codes were compared with data and codes obtained earlier in the process. The iterative process of grounded theory required

inductive, deductive, and abductive reasoning throughout by comparing the interviews I had by relying on existing theory and developing theory to make sense of the data being collected. This comparative technique to find similarities and differences in concepts in the interviews helped define and refine important relevant categories. This continually iterative process distinguished grounded theory from a descriptive analysis. My interviews concluded when I experience a saturation of similar content in the interviews and when I reached the limit of the number of people that would respond to my request to participate in the sketch map interview. The participants received a $50 gift card from a neighborhood grocery store for their participation.

Table 1: An overview of the positionality of participants

Participant	**Positionality**
V	Community Health Worker
E	Community Health Worker
R	Community Health Worker
L	Health Worker
A	Community Clinic Nurse
U	Health Worker
J	Community Clinic Staff
S	Community Organizer

During these interviews, we identified COVID-19 testing, care, and vaccination sites, and each participant identified locations they would be likely or unlikely to refer an undocumented person to. These interviews were semi-structured. I had an interview guide (Appendix) that I followed, but I also left the room to ask any clarifying questions or to follow any important themes

that the participants brought up themselves. The questions pertained to the experiences of the participants in guiding undocumented people to COVID-19 health resources, particularly those around vaccination.

Each interview began with an informal discussion, which consisted of a greeting and an introduction from both parties. The formal interview process began with an explanation of the purpose of my study which is to study the factors that make COVID-19 testing, care, and vaccination sites accessible for the undocumented Latin American immigrant community. I went over the consent process as determined by the IRB and asked that their cameras remain turned off during the interview. This is because I did record a video of the interview to follow the sketch mapping process accurately during my analysis and to be able to write a transcript of what was said. After the consent process, we practiced how to use the pen and highlighter features on Zoom which would be needed for the sketch map portion of the interview. The process varied between technology types, including phones, laptops, and desktops.

The interview had two parts: the sketch map portion and the post-sketch map synthesis. In the sketch map interview process, the participants were asked to identify using a black pen feature on Zoom the COVID-19 testing, care, and vaccination sites that they were aware of. In the second step, they were asked to highlight in green which of the sites that they identified were more accessible or which they would be most likely to recommend to undocumented people. After highlighting certain sites, we would talk about the factors that made them more accessible or more likely to be recommended. Then the participants highlighted in a red marker the places they would not recommend to an undocumented person, and then the features of those not recommended sites were discussed. The final step in the sketch map portion of the interview was to discuss the sites that were neither highlighted as positive or negative for recommendation. After the first part of

interview, we took a short break, and I took some time to identify common themes in what we had just previous discussed. I made a list of factors that made a place accessible or inaccessible for undocumented people. In the second portion of the interview, we reviewed the list of the factors that I had made. The participants were free to correct, add to, or elaborate on the factors that I identified. Following that synthesis, the participants were invited to assess and discuss the relationship between the factors that were identified and perceived discrimination based on documentation status or race. We concluded the interview by discussing some solutions to improve the barriers to access that arose from our discussion.

Since this study focuses on the spatial experiences of a community, I used a sketch map during this semi-structured interview process to record this spatial information from the interview participants. I hosted the interview via Zoom, a telecommuting program, and recorded the meeting with the participants' consent. I shared my screen and presented a base map of Athens Clarke County identifying several vaccine centers based on the resource information provided by the Athens Clarke County COVID-19 response team's Vaccine Information page (https://www.accgov.com/vaccine). This map included highway and road networks as well as neighborhood names. The interview participants drew on the map with a mouse and pointer if they were on a desktop or laptop or with their fingers if they were on their phone. This interview required that they have access to the Zoom application and a screen. The sketch map had color-coded categories to mark recommended (green), neutral (yellow), and not recommended (red) locations as identified by each participant. The same symbology was used across all participants. They drew points to identify specific locations and polygons to identify general areas. The interview was video recorded, and I screenshotted each map to be georeferenced and digitized at a later time. I imported each screenshot into QGIS, and I georeferenced the maps with an existing

county boundary map. All sketch drawings were digitized into vector features, particularly polygons. I created a new shapefile to store all the digitized features with important attribute information such as the feature type (recommended, not recommended, neutral), interview participant, and any special comments that arose in the interview.

For the analysis of spatial data I relied on grounded visualization techniques (L. Knigge & Cope, 2009). Grounded visualization allows for the blending of spatially reference data and qualitative interview data. Grounded visualization can be considered a subset of grounded theory because, although it has an emphasis on spatial data, both grounded visualization and grounded theory are exploratory, iterative, and recursive processes for data analysis (La Dona Knigge & Cope, 2006). Furthermore, both can focus on the particular and the general and can accommodate multiple interpretations the world. In this grounded visualization approach to analyze the sketch maps, I went through several iterations of comparing the maps to the interview sketch maps and the map making process through the video recordings of the interviews. The maps were useful in helping me identify the intersecting realities of the interview participants and not only informed the codes that were developed but also the codes that were developed guided the maps that were developed.

As soon as possible after the interviews, I transcribed the conversations. Then I coded the interview data by categorizing excerpts of the data and organizing them by concepts and patterns. In grounded theory, coding is the integral link between data collection and the development of theory. The first round of coding is called initial coding in which important words and phrases were identified and labeled. Many codes were generated in this first step. The second round of coding is intermediate coding which builds on the initial coding phase and identifies core categories. Several of the smaller codes identified were refined and grouped into larger and more

abstract codes across multiple levels of iterative work. Some important codes that come out of this phase were related to knowledge, networks, and documentation status. The final step in the coding analysis is advanced coding connected core categories identified in the interviews with the social determinants of health and consequently the structural determinants of health. The relationship between the interviews, the social determinants of health, and the structural determinants of health were illustrated through a Web of Causation model based on a theoretical framework developed by ROOTT (Restoring Our Own Through Transformation). The spatial analysis of the sketch maps allows us the opportunity to visualize both non-spatial aspects of health access and also the expression of the social and structural determinants of health in the study area.

Efforts have been made to identify the root causes of health inequities have shown that a focus on the individual risk factors ignore the historic, system, structural, and political factors that create and shape them. The Restoring Our Own Through Transformation (ROOTT) theoretical framework was developed by Roach in 2016, and it served to connect the existing relationship between structural determinant of health, social determinants of health, and Black maternal health (Figure 1). They identify the social determinants of health for black maternal health, including income, neighborhood demographics, housing, access to care, rates of incarceration, safety, food stability, and education, illustrated in the web in black circles. From there, they study how those social determinants have been dictated by the structure of society from the times of American slavery. These are the structural determinants of health, and they include the GI Bill, Redlining, the 13th amendment, Jim Crow, and Slavery, and they are illustrated through boxes in the web diagram. The structural determinants of health are then connected by dashed lines to the other structural and social determinants that they are related to. The social determinants are then connected to each other via black lines. All the pathways of connections demonstrate illustrate the

reality of increased infant and maternal mortality rates. In the case of this research, the web of causation has health access for undocumented immigrants in the center. The social determinants of health are depicted in circles, and the structural determinants of health are depicted by squares. All relationships are depicted with connected lines.

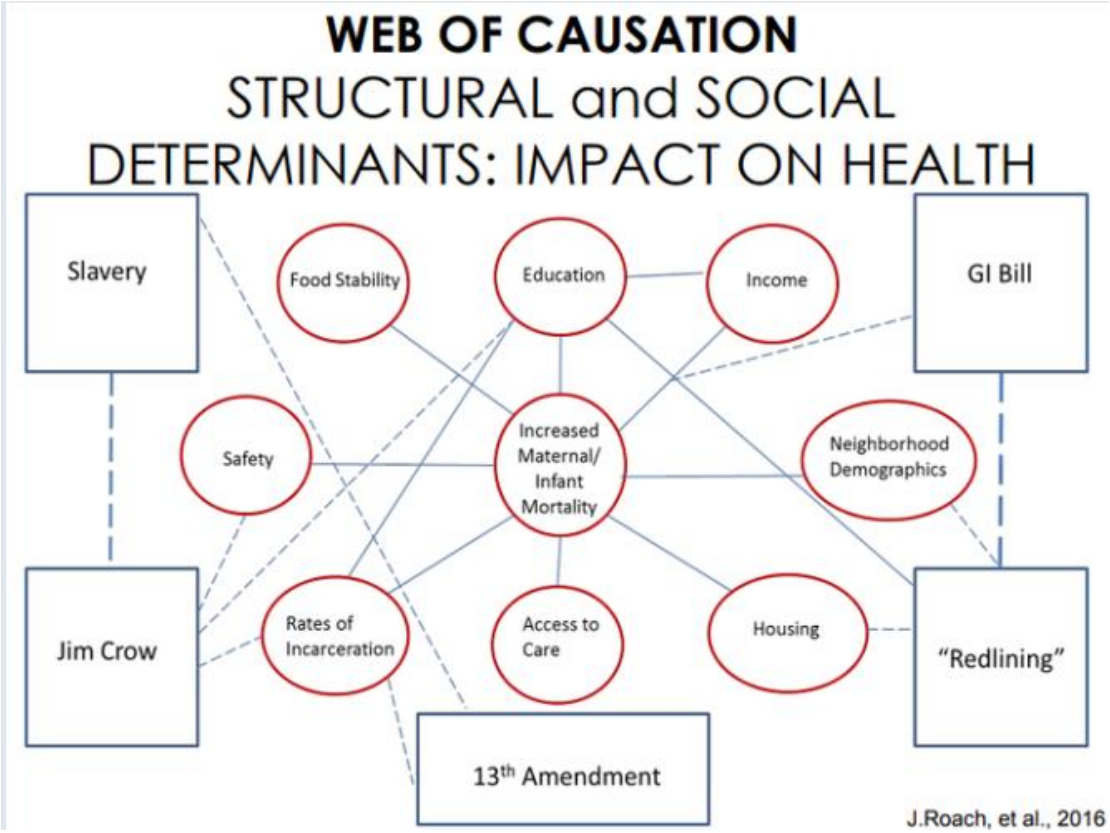

Figure 1 ROOTT's Web of Causation Model

2.3 Results

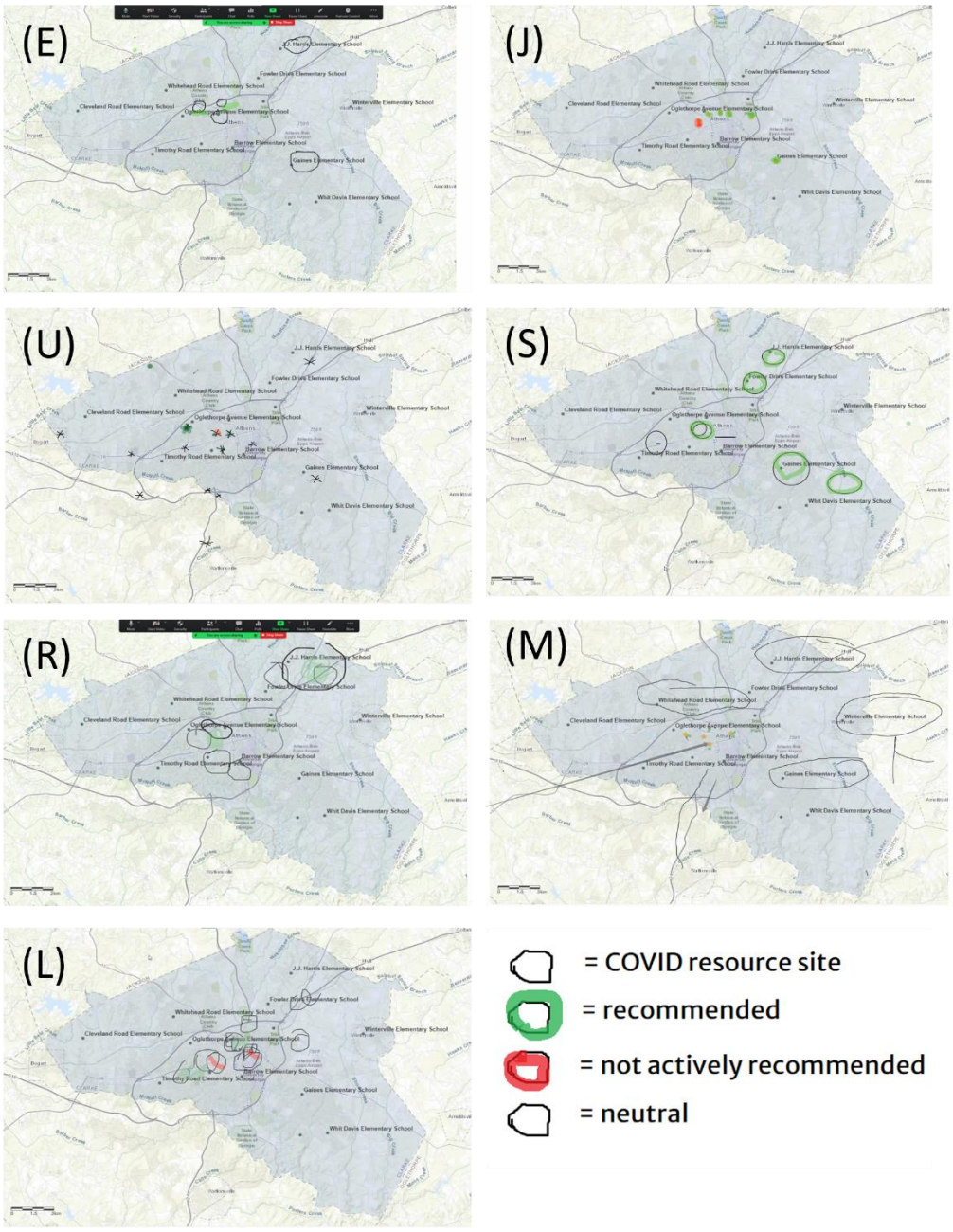

Figure 2 Sketch Maps by Participant, including legend.

Based on their local knowledge, seven participants marked over 100 locations where undocumented people could access COVID-19 related resources on sketch maps (Figure 2).

These maps were compiled, and three maps were created according to whether the participants would actively recommend, not actively recommend, or were neutral about the site identified (Figure 3).

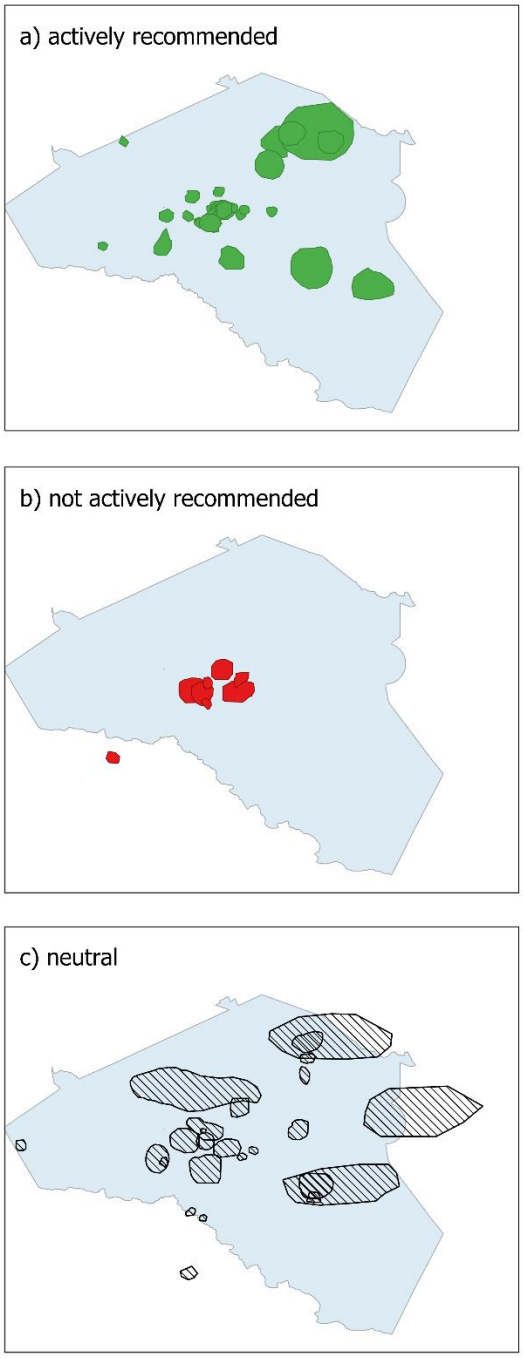

Figure 3 Overlay of areas identified from sketch maps: a) actively recommended, b) not actively recommended, c) neutral

Most of the actively recommended (green) polygons were found both in the downtown area and also near Hwy 29 in the northeast corner of the county near Shoal Creek and out towards Hull and even Dogsboro (Figure 3a). In the southeast corner of the county along Hwy 78 we see more actively recommended sites near Shoalcreek. Other places actively recommended sites identified were located to the east of downtown, from Beechwood Hills toward Atlanta Highway. These were off the major axes that stem from the center of town which likely makes them accessible by car and bus. The sites that were not actively recommended (red) were almost exclusively found downtown, inside the Georgia State Route 10 loop perimeter (Figure 3b). Some roads identified by the participants during the interviews were Milledge Avenue and Prince Avenue although the identified sites were scattered throughout the downtown area. The places that were least likely to be recommended were not places associated with negative experiences among the undocumented community, rather these were places that the participants were too unfamiliar with to make a recommendation with certainty. For the most part, the neutral spaces were found across the county including the center of town and off the major arterial roads (Figure 3c). The places that were identified as most likely to be recommended or least likely to be recommended exhibited a certain degree of overlap, especially in the center of town (Figure 4).

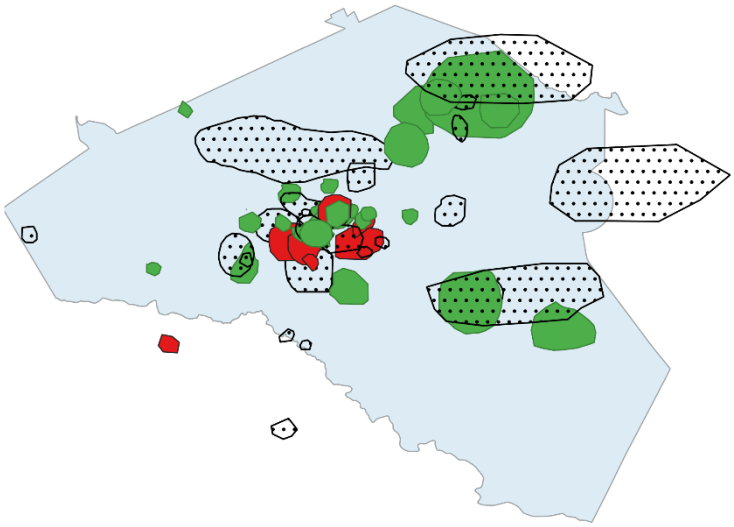

Figure 4: A view of the overlap among recommended, not recommended, and neutral sites

Health Insurance and Financial Burden

Several themes of barriers to COVID-19 resource access were identified in these interviews. One health worker lamented how difficult it is for undocumented people to procure health insurance: “for an immigrant to be able to acquire insurance that is through their employer is truly difficult” (V). As a result, undocumented people receive healthcare at alternative clinics and may have longer wait times for their healthcare: “[they] have to wait for the whole week” (J). Regardless of where undocumented people seek care, they continue to face difficulties in applying for financial assistance and providing legal proof of income (U). Participant U recalled how to be eligible for financial assistance at hospitals, applicants need to have a social security number. The participant deemed this practice as discriminatory because it is difficult for undocumented people to qualify for a social security number. These financial barriers persist even at clinics that offer free or low-cost services because they may require proof of income. It is difficult for undocumented people to provide proof of income when they work at places that do not provide W-2s. In these cases, undocumented people must jump the additional hurdle of acquiring notarized letters from their employers as proof of income. They can also go to the Department of Labor to

get wage statements, but that increases their contact with state bureaucracy. However, the Department of Labor was closed for several months during the COVID-19 lockdowns, which also prevented undocumented immigrants from receiving care. It can also be difficult for undocumented people to verify their income because they are paid with cash (S).

The effects of withholding health insurance from undocumented people can be visualized spatially (Figure 4). An identified urgent care site off the arterial roads of the county heading northeast was not excluded from the critique of the limitations of care for those who do not have insurance, “it’s not accessible for our community to pay so suddenly” (R). Two actively recommended sites presented differing experiences for undocumented people. On one hand, the Health Department was recommended because it was in closer proximity to the population and because it does not require health insurance to be eligible for services and resources. On the other hand, one of the hospitals was actively recommended out of necessity, even if undocumented people had negative experiences in procuring health services and resources. This can be seen in Figure 5 in which a participant tells the story of an undocumented person who was seemingly denied care at the hospital, yet the participant recommended that site. One participant questioned billing practices by urgent care providers, which overall tended to not be well recommended by most participants. Even when describing the financial practice of a hosptial site as “horrible,” (R) it is not a “not actively recommended” site (Figure 5). When it comes to financial practices, the participants acknowledge that the need for emergency medical care is greater than the desire for affordability.

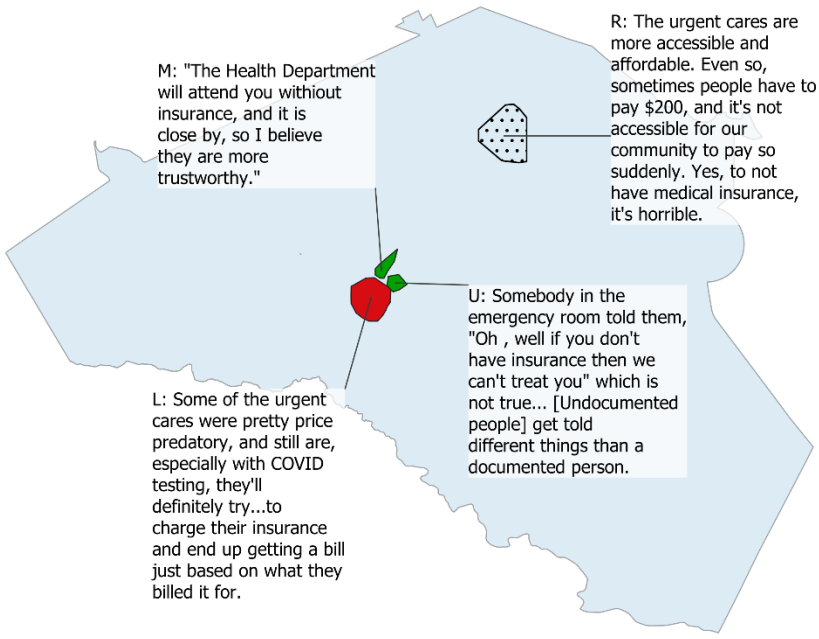

Figure 5 The spatial experience of lack of insurance.

Employment and Exploitation

These financial barriers exist in relation to undocumented people's employment status. Employers of undocumented workers often do not give them insurance through the workplace, or they prefer to pay their employees off the book (S). The participants expressed that these employer practices prevent undocumented people from receiving healthcare and do not provide job security.

Since undocumented people lack legal protection in the workforce, they are the victims of exploitation. Exploitation includes being treated different and being paid less because of their ethnicity and documentation status. Employers of undocumented people did not offer protection during the pandemic both as health insurance and a job to come back to if they were sick or had to quarantine:

> "[Undocumented people are] working for people that don't give them medical/health care insurance through the workplace or that are paying them off the books, and so it was easier [for the employers] to just say, 'Don't bother coming back to work' after they were

> quarantined, ‘I'll just find someone else.' We just heard lots of stories like that, somebody staying home because they were sick or exposed and not having a job to come back to” (S).

Employer’s ability to exploit undocumented people was identified in the interviews (Figure 6):

> “A lot of the people who are undocumented work at places where the employer really doesn't want them to leave to go for a doctor visit. […] If they're really, really sick; they come in, but then they won't follow up because they'll get docked and have these points and especially with the poultry industry here” (J).

When employers do not understand or they exploit undocumented people’s vulnerability to their own advantage, the health behaviors of undocumented people change, and their health suffers. Some employers operate on point systems that do not allow for flexibility to take off work to seek COVID-19 care or quarantine (J). Someone who works at a clinic said that it’s important to keep employers accountable: “You have to watch the people who are employing these people who are undocumented” (J). Some undocumented people are self-employed, but being self-employed doesn’t guarantee financial stability or insurance eligibility:

> “All the people that work on their own account, not for an employer, who do housecleaning or selling food or construction or whatever on a cash basis because they can't do it, can't open a bank account and get checks and do all that because they don't have social security numbers. All those people also having no safety nets and no backup, having dug into financial holes deeper then, it's going to take them a really long time to get out of” (S).

The experiences that the participants shared about undocumented people's experiences with job and income insecurity have been largely negative and point to a deeper systemic dysfunction that prioritizes profit over well-being.

Documentation Status

Undocumented people are going to be driving regardless of their documentation status, so what ends up being most important is to provide healthcare services in places where they may feel most comfortable driving to. One participant summarized that a benefit of door-to-door testing through the mobile clinic:

> "Word got out that our mobile testing was safe… even if somebody did have transportation, a lot of times [the barrier to health access] was more so just fear of going anywhere else that we would just go to their house anyways" (L).

However, undocumented people still have concerns that the clinics they go to will report them for their legal status. A director at one of the community clinics expressed concerns about the requirements for medical assistance at the Department of Public Health (J). Most of the interviews did not directly name *fear*, rather they named where undocumented people would be *safe*. A clinical director talked about the importance of having a familiar face at the clinic at which she works so people know that their information is safe and that they won't be reported (U). Similarly, a county health worker would only recommend places that they knew would be safe for undocumented people, especially the Department of Public Health and their partner sites (L). This may be due to fear among the undocumented community of being pulled over by law enforcement when they drive (E, S)[1]. Furthermore, some families may not have more than one car for other family members to use while others are working (S). These interviews with the participants reveal

[1] The initials here refer to the participants listed in Table 1.

that it is important for providers of COVID care to be prepared to serve undocumented people, and their willingness to recommend a location is representative of that need. If a participant believes that a place will check for documentation status, they will not send an undocumented person to that site (Figure 6).

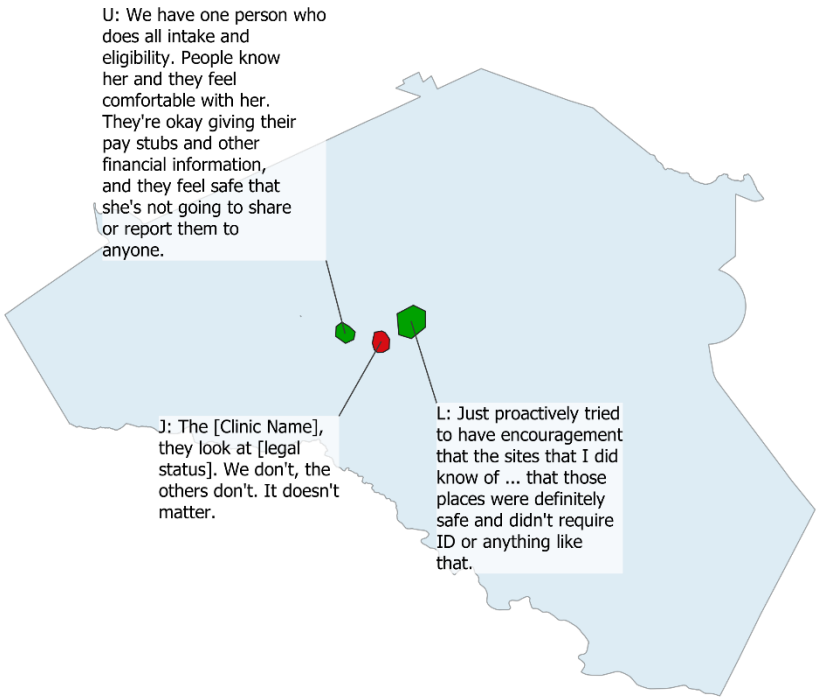

Figure 6 The Spatial Experience of Fear and Fear of Policing

Knowledge

Many participants were not fully aware of the efforts that other community clinics and health-promoting organizations that they were not connected or familiar with were putting in place to support undocumented people to access COVID-19 health care and resources (Figure 3). For example:

Participant L: I just don’t know what […] other facilities require or ask for.

Participant U: I don’t know if [they] accept undocumented patients. I know we do.

> Participant S: I just don't have knowledge of it and how it's working, so I have not recommended it especially

These types of comments were likely to be made about the healthcare providers in the center of town rather than those that exist outside of town. The healthcare providers that are in the center of town are closer to each other, yet people were unaware about the workings of those clinics. This indicates that proximity does not equate to knowledge.

The participants also expressed concerns that undocumented people may not always have all the information necessary for adequate access to COVID-19 care and resources because it has not been communicated to them. One notable story that a community health worker shared was of an undocumented person who, after receiving a positive test for COVID, thought that "because we don't have insurance, they didn't give us medication" (A), They believed that they were being excluded from care. A representative of the Department of Public Health and a community health worker both expressed how there was initial confusion about what a positive COVID-19 test means and what quarantine guidelines are (L, E). Another community health worker said that in her experience people do not know what to do when they feel sick (R). As a result, undocumented people end up waiting until the last minute to seek care and go to the emergency room.

A lack of communication of medical information may leave undocumented people vulnerable to misinformation. Two community health workers (V, S) expressed that some undocumented people still have expressed "genuine concerns" (S) with vaccinations "for whatever reason they have" (V). Undocumented people were also concerned about getting free COVID testing and vaccinations in fear that they could be accused of public charge, or the rule that imposes sanctions on non-citizen immigrants for using public programs (Touw et al., 2021, S). This is important because public charge prevents undocumented people from applying for citizenship.

However, public charge is only applicable to a certain group of people, not all immigrants. Nonetheless, this lack of communication of medical information has prevented undocumented people from seeking care that they are eligible to receive.

Undocumented immigrants are not the only people who are misinformed. Clinicians were misinformed as well and can perpetuate that misinformation. One community organizer told the story of how one undocumented individual was denied a vaccine because the pharmacist was asking for a social security number, which some undocumented immigrants don't have. The community organizer asks, "is that just is that a misinformed individual? Is it an individual, you know, imposing their own values? Was it poor training?" (S).

Lack of knowledge is also a barrier is when it prevents clinics, health workers, and community organizers from understanding the role each one has in providing healthcare or ensuring healthcare access for undocumented people. In the interviews, the participants were unsure about the types of services that other organizations were able to provide undocumented people: "I don't know if they accept undocumented patients," (U), "the department of Health, they look at [documentation status]. We don't, the others don't" (J). When the clinics are unaware of what sorts of resources and support exist, they are not able to share them with undocumented people and do not aid in bettering their access to healthcare services and resources.

These disparities in access to the internet and other forms of digital technologies were manifested in this study through the problem of misinformation and the inaccessibility of technologies to receive care. One participant identified an urgent care clinic as a place to receive COVID-19 tests:

> "Hay otro lugar que está en Atlanta Highway que también hay, pueden irse a hacer la prueba de COVID, pero no hay nadie que hable español y la información, la gente la

> puede encontrar solamente en internet y la mayoría de la gente que no tiene, no saben navegar muy bien el internet. Si en el internet en línea, entonces sí creo que eso complica un poquito que la gente no sepa de estos lugares" (R).
>
> [Translation: There is another place on Atlanta Highway, they can go take a COVID test, but there is no one who speaks Spanish, and people can only find the information on the internet and the majority of people don't have it, they don't know how to navigate the internet well. Yes, on the internet, online, and so I believe that complicates things a little because people do not know about those places]

This participant identifies the drawbacks of this urgent care site including that there are no Spanish speakers, and that information is only available online for a population with low digital literacy. Later on in the interview, the participant identifies its location and the quick care as the main benefit of this particular site.

Language barriers are another example of how knowledge can affect healthcare access, especially when they prevent people from receiving adequate healthcare. A community organizer expressed that it is hard to know what language services some clinics may offer and fears that a non-English speaker may not have their questions or concerns addressed (S). Another community clinic staff told the story of how language barriers may have caused a miscommunication in which a patient understood that they could not be helped when that may not have been what was tried to be communicated (U). When language barriers become too difficult, one community health worker said that people had to resort to non-verbal forms of communication: "eventually, the point does get across the features and hand signs, but overall, there is a lack of understanding" (E). Not only were undocumented people struggling to receive information about what to do when they were sick, but they also weren't receiving pertinent COVID-19 medical information in Spanish,

particularly towards the beginning of the pandemic (L). As a result, members of the Hispanic community have been “put aside, and that is discrimination” (E).

Figure 7 Effects of Employment on Health Access, location identified by researcher

CHAPTER 3

DISCUSSION AND CONCLUSION

Web of Causation:

Structural and Social Determinants of Health for Undocumented People

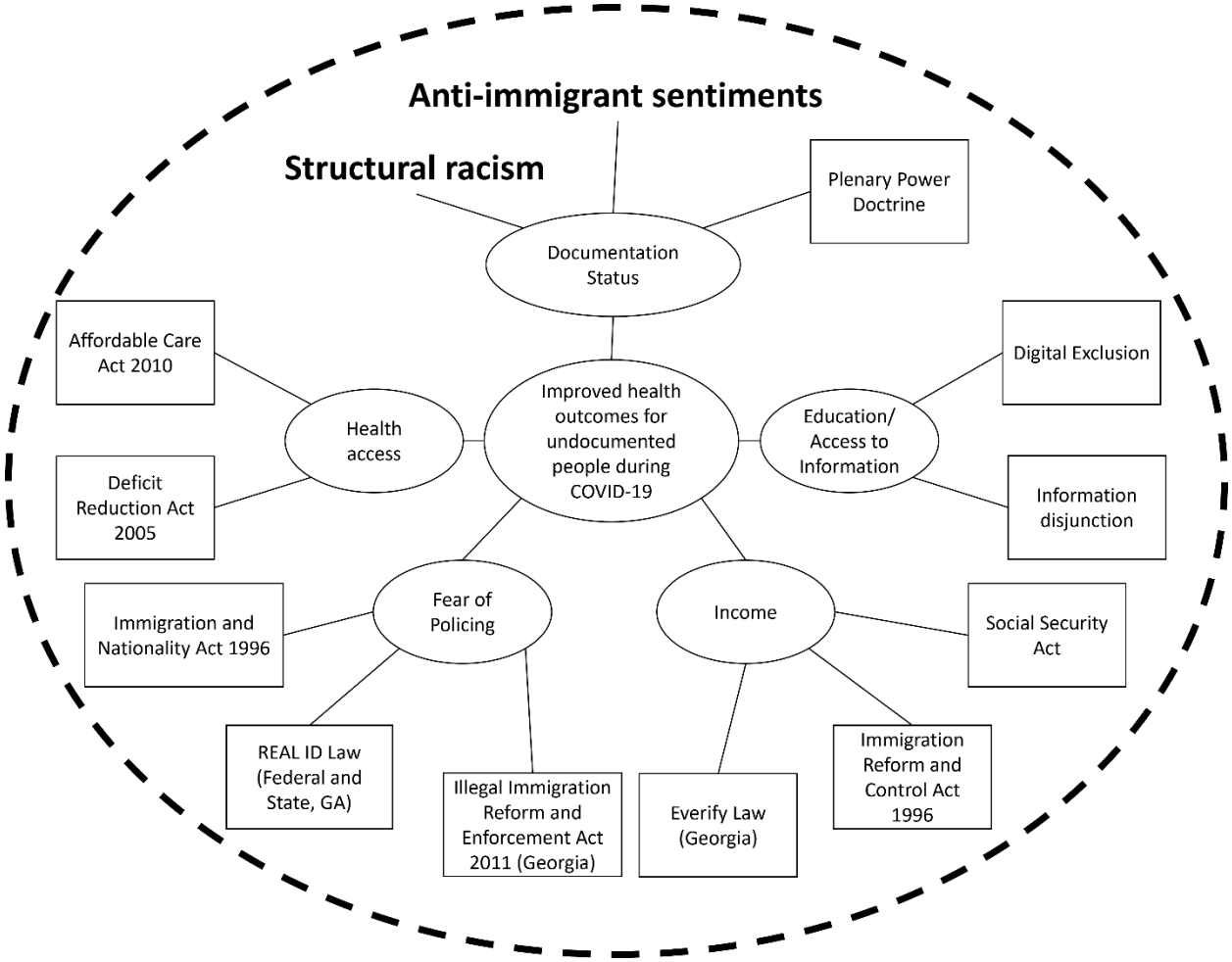

Figure 8 This figure identifies the structural and social determinants of health for undocumented people as found through this project. The social determinants are in ovals and the structural determinants are in dark, bolded rectangles.

One major theme that arose during these interviews was how a lack of health insurance negatively impacted health access for undocumented people. Undocumented people expressed

concerns about the quality of care they receive, such as in COVID testing result turnout times, compared to people who do have health insurance. They also expressed concerns with the high cost of urgent care without health insurance, the long wait time to schedule an appointment at low-cost health providers when they are sick, the lack of opportunity to create long lasting relationships with primary care providers, and the necessity to forgo medical care. In Figure 5, we trace the relationship between the environments of poor health access that are directly produced and reproduced by policy restrictions on insurance eligibility for undocumented people. One such policy is the Deficit Reduction Act of 2005 which required that applicants for Medicaid provide documentation of their citizenship status. As a result, undocumented people were ineligible for this type of insurance, and there was a decrease in coverage among undocumented people (Sommers, 2010). The Affordable Care Act of 2010 also prohibits undocumented people from applying for insurance through the government marketplace (Zuckerman et al., 2011). The effects of these policies can be confirmed with a study that estimates that 42% of undocumented immigrants were uninsured compared to 26% of lawfully present immigrants and 8% of citizens (Kaiser Family Fund 2020).

Another theme that arose in these interviews is the effect of immigrant policing on health behaviors. Immigrant policing is a system of governance that depends on fear and trauma, and it becomes an embodied form of self-governance that makes undocumented people avoid particular spaces and delay care. One fear among undocumented people was that a clinic would report them for being undocumented, so undocumented people were careful to choose medical care sites at which they knew the staff would be willing to provide care to people of their documentation status. Undocumented people also chose sites that were conveniently located off major roads and with large parking spots where they wouldn't face the high density of policing in the central part of the

city. In the United States, there are federal and state level policies that contribute to the problem of immigrant policing as outlined in Figure 5. The Secure Communities Program granted local police the right to enforce national immigration laws, including allowing deportation authority to local jails and police stations. Section 287(g) of the Immigration and Nationality Act of 1996, county sheriffs and local law enforcement could serve as federal immigration agents. Several laws were also passed at the local level. The state of Georgia passed the Illegal Immigration Reform and Enforcement Act of 2011. It required immigrants to carry proof of their legal status, and it permits law enforcement to demand proof of legal status from anyone suspected of being undocumented. This policy also criminalized aid to undocumented people, including providing transportation in a vehicle and providing non-emergency health services using public funds, but these provisions of criminalizing assistance were overturned in court. Many immigrants' rights groups deemed these laws to be racial profiling. The state of Georgia employs the Real ID laws which does not permit immigrants to procure driver's licenses, so undocumented people are at high risk of being pulled over for driving infractions, arrested for driving without a license, and risk deportation. Racial profiling by law enforcement can potentially explain with Latin American immigrants have the highest rates of deportation (Kohli, 2011). The results of this study coincide with another study, also in the state of Georgia, the demonstrate how immigrant policing can influence undocumented people's health behaviors, including where they seek health services (Kline, 2017). In the Kline (2017) study and in the present study, immigrants avoided seeking health care because driving without a license would put them at risk of being arrested or even deported.

The participants also recounted the financial difficulties undocumented people face. Since undocumented people lack the opportunity to apply for employment in traditional settings, they

often work low wage jobs in conditions of limited stability and safety. That financial instability makes seeking healthcare difficult, and these limitations can be traced to several federal and state levels policies (Figure 5) such as the Immigration Reform and Control Act, the Georgia Everify law, and the Social Security Act. The Immigration Reform and Control Act of 1996 required that employers verify employment eligibility. The Georgia Everify Law requires that all contractors and subcontractors on public contract with a government agency confirm the eligibility of their employees to work in the United States. Undocumented immigrants are often not able to fulfill these verification checks as they require information such as Social Security Number and proof of legal presence. As a result, undocumented people must seek jobs through non-traditional means. Without legal protections, undocumented people are subject to exploitation by their employers. In the interviews, we saw this play out when undocumented people felt they were not able to request time off from work to seek COVID-19 related health care.

The interviews revealed that undocumented people were limited to COVID-19 related information. Some undocumented people lacked information about testing/vaccination sites, and others had concerns about vaccinations. Many activities were shifted online which highlighted disparities in technology access, literacy, and use among undocumented populations. Prior to COVID, there was already research on how limited English proficiency can compound to increase digital exclusion among for immigrants (Adkins & Moulaison Sandy, 2020; Mitchell et al., 2019). There has been research done in European countries about the “information disjuncture” of immigrants adapting to the technology and digital life of a host country and the instability in digital information access (Kaufmann, 2018; Wall et al., 2017). Undocumented immigrants as a group already experience reduced internet access which may have been exacerbated further by the COVID-19 pandemic (Beaunoyer et al., 2020; Mitchell et al., 2019). Moreover, a loss of income

might make Internet access unaffordable which demonstrates a connection between the social determinant of income and the structural determinant of digital exclusion. The pandemic closed public libraries which many immigrants rely on for internet access and important COVID-19 information (Grossman et al., 2021). Shifts to telemedicine may also exclude immigrants who are less likely to use the Internet as a health resource (Katzow et al., 2020). The pandemic has highlighted disparities in information access among immigrant populations.

The participants were asked to express what steps could be taken to improve health access for undocumented people, and most participants advocated for safe access to citizenship along with changes in policy to ensure insurance eligibility and a more affordable healthcare system. Historic attempts to persuade the court to provide more protection for immigrants eventually led to the establishment of the "plenary power doctrine" in which the judiciary branch had to defer matters of naturalization and citizenship to Congress. Since noncitizens are not able to exert power or voice their concerns in the ballots or the courts, they were left with very few ways of advocating for their protection. The withholding of citizenship (documentation status) through the structural power of the plenary power doctrine further disenfranchises immigrants and leaves them vulnerable to poor health outcomes. Undocumented immigrants cannot advocate for their own rights and rely on American citizens to advocate on their behalf.

Furthermore, documentation status as well as health access, fear of policing, income, and access to information are all inextricably linked to anti-immigrant sentiments and structural racism. This is depicted in the chart by connecting documentation status with structural racism and anti-immigrant sentiments while leaving them un-boxed to demonstrate how these policies and norms permeate all structural determinants of health. Anti-immigrant sentiments perpetuate stereotypes of immigrants to negate citizenship and belonging and leads to both more restrictive policies

against aid for immigrants as well as enforcement of those policies. While most conversations around structural racism center around the experiences of Black and Indigenous communities, inequities prevail among Latino communities who have also been racialized as non-White. These structural inequalities are codified through documentation status and immigration policy, immigration policing and criminalization, and economic exploitation.

One example of an initiative that has taken on the task of both gathering pertinent health information and communicating it with undocumented people is Quetzales de Salud (https://quetzaleshealth.org/), based at Harvard Medical School in collaboration with other universities, schools, and community organizations. Those programs aim to provide important health information, including risk factors, symptoms, and guidelines, to undocumented people, and to communicate what medical services there are eligible for. This type of work is important because the organization takes the role of sorting through important health information to provide what is most pertinent in an understandable way. The organization also helps undocumented people navigate the healthcare system and connects them to testing sites and healthcare centers. They actively seek out places to refer undocumented people that do not discriminate against their legal status. This program arose during the realization that COVID-19 was disproportionately affecting underserved, vulnerable communities. They acknowledge that anti-immigrant sentiments and limited health insurance have deterred undocumented people from seeking the health they need. This organization arose out of the necessity to help undocumented find the help they need. Unfortunately, they cannot reach every single undocumented immigrant, so a broader fix could be making the healthcare system less complicated overall. However, the extent of Quetzales' work stops at the level of the social determinants of health. For such an approach t o make a more structural change, they would need to be advocating for changes in policy.

Benefits of Using a Grounded Visualization Approach

When developed visualizations for this project, I encountered the problem of scale. The boundary of this research was limited to Athens-Clarke County, but some of the participants wanted to name areas in which people can access health care and resources in the surrounding counties. This limitation on the scale also limited the places that the participants were able to talk about in the interviews. The scope of this project was to talk about the realities at the scale of county and excluded the realities of health access at the smaller scales of the household and neighborhood and the larger scales of the state and country. By asking community health workers and organizers about the health access at the county level, I gathered information about the realities of health access at that specific scale. The ability to identify the varying scales at which data is gathered, produced, and analyzed is one of the benefits of a grounded visualization approach.

To understand health access for undocumented people, I had to rely on the expertise of community health workers and organizers. It was indirect approach, but this serves to highlight the fact that the realities of health access for undocumented people can be reached at through the knowledge and experiences of others. The ability to highlight, or at least acknowledge, the existence of multiple realities is one of the strengths of a grounded visualization approach.

Grounded visualization was an important part of this analysis because it allowed for reflexive and iterative exploration for similarities and differences, patterns and meanings, gaps and omissions of the spatial data that was gathered through the sketch map interviews. Grounded theory helped us visualize how any given representation of the data that was gathered was only one of many representations that could occur. This was especially useful when it came to mapping the structural determinants of health. The aggregated sketch map did not contain the nuances of identifying the places where the effects of structural determinants were clearly felt, and grounded

visualization encourages the ability to provide different representations in an inductive and recursive way to draw out new forms of understanding the sketch map data. Thus, the data is no longer fixed in its representation rather fluid to alternative productions of data and knowledge.

Conclusion

This study has revealed other topics that require further investigation that are outside the scope of this paper. It would be interesting to perform a geospatial analysis to identify patterns in the response. For example, a heat map could help identify the areas of high occurrence of recommended or not recommended locations. A geospatial analysis could also be used to identify areas with the highest disparities in recommendation. Further research could consider more specific types of information that undocumented people are in need from and the reasons why they lack it. This could be elaborated further to include sources of information and trusted points of contact. Furthermore, future research could focus on the types of policy changes that are required to make effective change in health access for undocumented people.

This research is particularly interesting because it was held over Zoom video conferencing. This is different from the more traditional pen and paper approach to sketch mapping. Due to the rise of work-from-home during COVID-19, I expect that these distance-based approaches to research will continue to grow in popularity. A limitation of this research is that the results are not easily generalizable nor applicable to all contexts, not even within the country, state, or region. Factors affecting healthcare access have a specific geographic context, especially since laws, policies, and culture around the rights of undocumented people can vary greatly from region to region. This research suggests that sketch maps are valuable tools to illustrate the geographic contexts of healthcare and the experiences of undocumented people. They provide nuanced approaches to health access that traditional forms of GIS analysis are not able to provide. Through

this case study and the previous literature, we can collect valuable information about the experiences of the undocumented community, analyze the social processes of information networks, and further our knowledge about the potential for qualitative GIS approaches.

Identifying the root causes of poor health for undocumented people is of utmost importance. As we continue to identify these structural determinants of health, and as we work to undo them, changes will occur in the social environments of undocumented people. A shared understanding of how race/ethnicity are impacted by policy is important to combat inequalities.

REFERENCES

Aday, L. A., & Andersen, R. M. (1981). *Equity of Access to Medical Care: A Conceptual and Empirical Overview* (Vol. 19, Issue 12).

Adkins, D., & Moulaison Sandy, H. (2020). Information behavior and ICT use of Latina immigrants to the U.S. Midwest. *Information Processing and Management*, *57*(3). https://doi.org/10.1016/j.ipm.2019.102072

APHA, (Am. Public Health. Assoc.). (2012). Opposing the DHS-ICE Secure Communities Program. *Washington: APHA*.

Arasteh, K. (2021). Hypertension, diabetes and poverty among Latinx immigrants in New York City: implications for COVID-19. *International Journal of Migration, Health and Social Care*, *17*(2), 208–241. https://doi.org/10.1108/IJMHSC-09-2020-0088

Artiga, S., & Hinton, E. (2018). Beyond Health Care : The Role of Social Determinants in Promoting Health and Health Equity What are Social Determinants of Health ? Focus on Health in Non-Health Sectors. *The Henry J. Kaiser Family Foundation*, *May*, 1–23. https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/%0Ahttps://twitter.com/SArtiga2%0Ahttps://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of

Assoc.), A. (Am. P. H. (2009). Border Crossing Deaths: Public Health Crisis along the U.S.-Mexican Border. *Washington: APHA*.

Assoc.), A. (Am. P. H. (2011). Improving Access to Higher Education Opportunities and Legal

Immigration Status for Undocumented Immigrant Youths and Young Adults. *Washington: APHA*. https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/29/13/40/improving-access-to-higher-ed-opportu

Athens-Clarke County Unified Government. (2020). *Athens-Clarke County By the Numbers*. https://www.accgov.com/DocumentCenter/View/535/Athens-Clarke-County-By-the-Numbers

Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: evidence and interventions. *The Lancet*, *389*(10077), 1453–1463. https://doi.org/10.1016/S0140-6736(17)30569-X

Beaunoyer, E., Dupéré, S., & Guitton, M. J. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Computers in Human Behavior*, *111*. https://doi.org/10.1016/j.chb.2020.106424

Boschmann, E. E., & Cubbon, E. (2014). Sketch Maps and Qualitative GIS: Using Cartographies of Individual Spatial Narratives in Geographic Research. *Professional Geographer*, *66*(2), 236–248. https://doi.org/10.1080/00330124.2013.781490

Castañeda, H., Holmes, S. M., Madrigal, D. S., Young, M. E. D. T., Beyeler, N., & Quesada, J. (2015). Immigration as a social determinant of health. In *Annual Review of Public Health* (Vol. 36, pp. 375–392). https://doi.org/10.1146/annurev-publhealth-032013-182419

Chang, C. D. (2019). Social Determinants of Health and Health Disparities Among Immigrants and their Children. *Current Problems in Pediatric and Adolescent Health Care*, *49*(1), 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009

Chun Tie, Y., Birks, M., & Francis, K. (2019). Grounded theory research: A design framework for novice researchers. *SAGE Open Medicine*, *7*, 205031211882292.

https://doi.org/10.1177/2050312118822927

Crear-Perry, J., Correa-de-Araujo, R., Lewis Johnson, T., McLemore, M. R., Neilson, E., & Wallace, M. (2020). Social and Structural Determinants of Health Inequities in Maternal Health. *Journal of Women's Health*. https://doi.org/10.1089/jwh.2020.8882

Elwood, S. (2010). Thinking Outside the Box: Engaging Critical Geographic Information Systems Theory, Practice and Politics in Human Geography. In *Geography Compass* (Vol. 4, Issue 1, pp. 45–60). https://doi.org/10.1111/j.1749-8198.2009.00289.x

Gee, G. C., & Ford, C. L. (2011). Structural racism and health inequities: Old Issues, New Directions. *Du Bois Review*, *8*(1), 115–132. https://doi.org/10.1017/S1742058X11000130

Grossman, S., Agosto, D. E., Winston, M., Nancy Epstein, R. E., Cannuscio, C. C., Martinez-Donate, A., & Klassen, A. C. (2021). How Public Libraries Help Immigrants Adjust to Life in a New Country: A Review of the Literature. *Health Promotion Practice Month XXXX*, *XX*, 1–13. https://doi.org/10.1177/15248399211001064

Gulliford, M., Figueroa-Munoz, J., Morgan, M., Hughes, D., Gibson, B., Beech, R., & Hudson, M. (2002). What does "access to health care" mean? *Journal of Health Services Research and Policy*, *7*(3), 186–188. https://doi.org/10.1258/135581902760082517

Gurrola, M. A., & Ayón, C. (2018). Immigration Policies and Social Determinants of Health: Is Immigrants' Health at Risk? *Race and Social Problems*, *10*(3), 209–220. https://doi.org/10.1007/s12552-018-9239-z

Hacker, K., Anies, M., Folb, B. L., & Zallman, L. (2015). Risk Management and Healthcare Policy Dovepress Barriers to health care for undocumented immigrants: a literature review. *Risk Management and Healthcare Policy*, *8*, 175–183. https://doi.org/10.2147/RMHP.S70173

Haraway, D. J. (2009). Situated Knowledges: the Science Question in Feminism of Partial and the Privilege. *Feminist Studies*, *14*(3), 575–599.

Heiman, H. J., & Artiga, S. (2015). Beyond Health Care : The Role of Social Determinants in Promoting Health and Health Equity What are Social Determinants of Health ? Focus on Health in Non-Health Sectors. *The Henry J. Kaiser Family Foundation*. https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/%0Ahttps://twitter.com/SArtiga2%0Ahttps://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of

Institute of Medicine, C. on M. A. to P. H. S. (1993). *Access to Health Care in America*. http://www.nap.edu/catalog/2009.html

Katzow, M. W., Steinway, C., & Jan, S. (2020). Telemedicine and Health Disparities During COVID-19. *Pediatrics*, *146*(2), 20201586. https://doi.org/10.1542/peds.2020-1586

Kaufmann, K. (2018). Navigating a new life: Syrian refugees and their smartphones in Vienna. *Information Communication and Society*, *21*(6), 882–898. https://doi.org/10.1080/1369118X.2018.1437205

Kline, N. (2017). Pathogenic Policy: Immigrant Policing, Fear, and Parallel Medical Systems in the US South. *Medical Anthropology: Cross Cultural Studies in Health and Illness*, *36*(4), 396–410. https://doi.org/10.1080/01459740.2016.1259621

Knigge, L., & Cope, M. (2009). Grounded Visualization and Scale: A Recursive Analysis of Community Spaces. In *Qualitative GIS: A Mixed Methods Approach* (pp. 95–114).

Knigge, La Dona, & Cope, M. (2006). Grounded visualization: Integrating the analysis of qualitative and quantitative data through grounded theory and visualization. *Environment*

and Planning A, *38*(11), 2021–2037. https://doi.org/10.1068/a37327

Knigge, La Done, & Cope, M. (2009). Grounded Visualization and Scale: a recursive analysis of community spaces. In *Qualitative GIS: A Mixed-Methods Approach* (pp. 95–114).

Kohli, A. E. A. (2011). Secure communities by the numbers: An analysis of demographics and due process. *… Institute on Law …*, *October*, 1–20. http://www.draftinghumanrights.berkeley.edu/files/Secure_Communities_by_the_Numbers.pdf

Marmot, M. G., & Bell, R. G. (2011). Improving health: Social determinants and personal choice. *American Journal of Preventive Medicine*, *40*(1 SUPPL. 1), S73–S77. https://doi.org/10.1016/j.amepre.2010.10.010

Mayer, M. L. (2006). Are We There Yet? Distance to Care and Relative Supply Among Pediatric Medical Subspecialties. *Pediatrics*, *118*(6).

Mitchell, U. A., Chebli, P. G., Ruggiero, L., & Muramatsu, N. (2019). The Digital Divide in Health-Related Technology Use: The Significance of Race/Ethnicity. *Gerontologist*, *59*(1), 6–14. https://doi.org/10.1093/geront/gny138

Nightingale, A. (2003). A feminist in the forest: Situated knowledges and mixing methods in natural resource management. *ACME*, *2*(1), 77–90.

Page, K. R., & Flores-Miller, A. (2021). Lessons We've Learned: Covid-19 and the Undocumented Latinx Community. *New England Journal of Medicine*, *384*(1), 5–7.

Page, K. R., Venkataramani, M., Beyrer, C., & Polk, S. (2020). Undocumented U.S. Immigrants and Covid-19. *New England Journal of Medicine*, *382*(21), e62. https://doi.org/10.1056/nejmp2005953

Rodríguez, M. A., Vargas Bustamante, A., & Ang, A. (2009). Perceived quality of care, receipt

of preventive care, and usual source of health care among undocumented and other Latinos. *Journal of General Internal Medicine*, *24*(3 SUPPL.), 508–514. https://doi.org/10.1007/s11606-009-1098-2

Schneiderman, N., Llabre, M., Cowie, C. C., Barnhart, J., Carnethon, M., Gallo, L. C., Giachello, A. L., Heiss, G., Kaplan, R. C., LaVange, L. M., Teng, Y., Villa-Caballero, L., & Avilés-Santa, M. L. (2014). Prevalence of diabetes among hispanics/latinos from diverse backgrounds: The Hispanic Community Health Study/Study of Latinos (HCHS/SOL). *Diabetes Care*, *37*(8), 2233–2239. https://doi.org/10.2337/dc13-2939

Sommers, B. D. (2010). Targeting in Medicaid: The costs and enrollment effects of Medicaid's citizenship documentation requirement. *Journal of Public Economics*, *94*(1–2), 174–182. https://doi.org/10.1016/j.jpubeco.2009.11.004

Statistics, N. C. for H. (2022). *Health Disparities: Provisional Death Coutns for Coronavirus Disease 2019 (COVID-19)*. COVID-19 Death Data and Resources.

Thomas-Henkel, C., & Schulman, M. (2017). Screening for Social Determinants of Health in Populations with Complex Needs: Implementation Considerations. In *Center for Health Care Strategies, Inc* (Issue October). www.chcs.org/sdoh-screening/.

Touw, S., McCormack, G., Himmelstein, D. U., Woolhandler, S., & Zallman, L. (2021). Immigrant Essential Workers Likely Avoided Medicaid And SNAP Because Of A Change To The Public Charge Rule. *Health Affairs (Project Hope)*, *40*(7), 1090–1098. https://doi.org/10.1377/hlthaff.2021.00059

US Census Bureau. (2000). *2000 Census Population Statistics*.

US Census Bureau. (2020). *QuickFacts Athens-Clarke County unified government (balance), Georgia; United States*.

https://www.census.gov/quickfacts/fact/table/athensclarkecountyunifiedgovernmentbalancegeorgia,US/AGE775221

US Department of Commerce. (1990). *1990 Census of Population: General Population Characteristics*. https://www2.census.gov/library/publications/decennial/1990/cp-1/cp-1-12.pdf

Vargas Bustamante, A., Fang, H., Garza, J., Carter-Pokras, O., Wallace, S. P., Rizzo, J. A., & Ortega, A. N. (2012). Variations in healthcare access and utilization among Mexican immigrants: The role of documentation status. *Journal of Immigrant and Minority Health*, *14*(1), 146–155. https://doi.org/10.1007/S10903-010-9406-9

Wall, M., Otis Campbell, M., & Janbek, D. (2017). Syrian refugees and information precarity. *New Media and Society*, *19*(2), 240–254. https://doi.org/10.1177/1461444815591967

Winders, J. (2006). "New Americans" in a "New-South" city? Immigrant and refugee politics in the Music City. *Social and Cultural Geography*, *7*(3), 421–435. https://doi.org/10.1080/14649360600715151

Wong, N. J., Chien, L. C., & Alamgir, H. (2019). Geospatial Analysis of Refugee Access to Primary Care Physicians in San Antonio, Texas. *Journal of Immigrant and Minority Health*, *21*(6), 1349–1355. https://doi.org/10.1007/s10903-018-00854-6

Zuckerman, S., Waidmann, T. A., & Lawton, E. (2011). Undocumented immigrants, left out of health reform, likely to continue to grow as share of the uninsured. *Health Affairs*, *30*(10), 1997–2004. https://doi.org/10.1377/hlthaff.2011.0604

Appendix

"Si no entiende algo, por favor déjeme saber. No va ser ofensivo para mi."

Introduction

Talk through the consent process.

At the beginning of the individual interviews, I will ask if they consent to be voice recorded, but the video will be captured but not of them. Ask them to turn off their camera.

Guide to Zoom:

Turn the phone horizontal.

Instruct how to find pen, different colors, and widths.

*****************START RECORDING*****************

Sketch Map Portion of the Interview

1. **Mark in pen -** What are all the places you know people can receive medical assistance for COVID-19 – both testing, care, and vaccination?
2. HIGHLIGHT GREEN - Of all these places, which are the **most accessible/available, which do you most often recommend** for undocumented people? Why do you feel they are the best?
3. HIGHLIGHT RED - Would you discourage undocumented people from going to any of these places? Why?
4. Would you like to say anything about the places you didn't highlight?

Post-Sketch Map

5. Looking at a list of sites you identified, it seems like these are some reasons why they are good or bad. *Synthesis of reasonings.*
6. To what extent do these factors we've identified reflect discrimination based on documentation status or race?
7. What are some of the most important things that can be done (solutions) to improve some of the problems or barriers to access that came out during our discussion?