Executive Summary

Nationwide, barriers such as lack of insurance or underinsurance, inability to get to a doctor, and language obstacles have been implicated in less, or lack of, preventative care for Black women and Latinas. At the same time, combined socioeconomic and environmental factors make access to preventative, quality care crucial for the health and survival of women of color based on the risks they face. This project utilizes GIS to analyze access to clinics that offer services specific to women’s health for Black women and Latinas in Travis County. This research analysis was conducted based on geospatial resources and information regarding clinics throughout the county. The study area was delineated based on major concentrations of Blacks and Hispanics in the region. Clinics were then mapped based on distance, whether they were reachable via walking, short commute, or bus route. In addition, each spatial analysis details the type of clinic and whether they accept uninsured, Medicaid, or Medicare patients. Along with financial and geographic barriers, one access map indicates Spanish speaking clinic distribution. This latter map moves towards questions of both access and quality, a suggestion for future research. Based on the findings from these maps, fewer clinics are located near Black and Hispanic concentrations. However, the clinics that are available to offer care that addresses the financial or linguistic barriers these populations face. For both groups, underserved census block groups cluster further from the I-35 corridor, though there are some blocks within the corridor that lack clinic and bus route access as well. This study contributes an understanding of how racial and economic disparities intersect with the geographic access to women’s health services. The analysis of underserved areas indicates where clinic and bus route resources could be best located to improve access for both Black and Latina women, and for the entire populations of which they are part.
I. Introduction

When activist Audre Lorde wrote “I am not only a casualty, I am also a warrior”, she was one of thousands of Black women battling breast cancer (Lorde 1984). Throughout her writings, Lorde positioned her well-being and that of other women of color in the social context of oppression. She and other scholars situate minority women’s health as “inextricably tied to their history, [and to] their status within a dominant society that affords them a secondary role” (Bair and Cayleff 1993). From this perspective, the health and illness of women of color is understood within the structural inequalities they live. Using GIS analysis, this project explores the ways in which these inequalities manifest as socioeconomic, geographic, linguistic barriers to preventative care.

African-American and Hispanic women are more likely to be casualties of diseases that may be early detected or preventable through routine women’s exams. Because of the barriers they experience, women from both groups are more likely to delay or forgo exams that could save their lives. The following analysis of these barriers and their spatial implications adds to a rich literature of GIS and health care research. This body of study has focused on the spatial organization of health services and how people gain access to these services (McLafferty 2003). Researchers have increasingly noted the ways “geographical barriers health intersect with those based on class, race, and ethnicity leading to complex patterns of disadvantage” (McLafferty 2003). The methods, and analysis engaged here further consider gender within these patterns of disadvantage.

Black women and Latina Health: National Context

Preventative care is critical for health maintenance among all women. The Agency for Healthcare Research and Quality (AHRQ) recommends the following routine exams for women: mammograms every 1 to 2 years starting at age 40, pap smears every 1 to 3 years if a woman has been sexually active and is between the ages of 21 and 65, and STD screening (“Healthy at Any Age”). This project highlights access to breast exams, mammograms, and pap smears, services included in well women exams. These services are highlighted because they are recommended for all women, regardless of sexual activity or history. Pap smears and breast exams are promoted as fundamental to a woman’s health. In addition, they are key preventative measures for diagnosing leading causes of death for Black women and Latinas, including breast and cervical cancer. Well women’s services can also detect STDs which, if left untreated, can cause serious disease and mortality. One example is the aforementioned HPV, known to cause cervical cancer.

Financial, linguistic, and geographic barriers to preventative care have been implicated in the high disease mortality rates among Latinas and Black women. In general, women of color tend to receive less treatment, follow up infrequently regarding abnormal tests, and they tend to have serious health issues diagnosed too late (“Minority Women’s Health”). Mortality rates from breast and cervical cancer among these groups demonstrate the critical impact of lack of access on women of color. While white women receive higher diagnoses of breast cancer, Black women are more likely to die from the
"I am not a casualty, I am also a warrior": Black Women and Latina Access to Preventative Care, Travis County

disease than any other racial group ("Cancer Facts and Figures: African Americans"). By the time the women undergo screening, the cancer is advanced and less treatable.

Multiple studies from governmental, non-profit, and biomedical sources have investigated these breast cancer disparities among Black women. Black women may receive care too late because they do not have insurance or the ability to pay for preventative care, and therefore delay their visit until it is too late (Williams 1995). The National Black Women’s Health Project (NBWHP) further points to issues of time and childcare. Black women tend to be the sole wage earners and parents within their households throughout the United States (Williams 2002). As single mothers, the women may have neither the time nor the money to seek preventative care. Lastly, transportation challenges and an inability to get to a doctor is a common barrier to African American women. ("Minority Women’s Health").

Latinas experience similar health risks and barriers to preventative services. The majority of new cervical cancer cases occur among Hispanic women, who have the second highest death rates from cervical cancer after African Americans ("Cancer facts and figures: Hispanics"). Unlike breast cancer, for which the cause remains unknown, most cervical cancer is caused by two variations of the human papillomavirus (HPV), which is sexually transmitted. An estimated 80% to 85% of deaths from cervical cancer could have been prevented with an annual pap testing ("Minority Women’s Health" and "Cancer facts and figures: Hispanics"). Low screening, poor follow up, and a lack of pap smears may lead to the higher mortality among Latinas. As in the case of Black women, Latinas may not seek, obtain, or continue preventative services due to cost and an inability to get to a doctor.

Aside from cost and transportation obstacles, Latinas are also more likely to be uninsured than women from other racial/ethnic backgrounds. On a national scale, Latinos account for 36% of the uninsured population, higher than any other racial/ethnic group ("The Uninsured"). About one out of every three Hispanic women does not have health insurance, a rate almost three times that of White women ("Minority Women’s Health"). For Latinas, language barriers may further limit health care access. One of the few studies regarding health care access for both documented and undocumented Latina immigrants was conducted in the Dallas/Fort Worth area (Marshall, et. al. 2005). The researchers found that 80% of the respondents spoke only Spanish and 5% of the undocumented women spoke some English. Latinas may therefore avoid or delay care because of anticipated communication difficulties with practitioners.

**Study Area: Travis County, Texas**

Barriers to preventative care take place in particular ways within the context of Travis County, Texas. Travis County is centrally located in the State of Texas. The Austin City limits span the majority of the county, including scattered areas within the furthest Western and Eastern reaches of the region. As a growing metropolitan area, Austin has historically dominated Travis County as the capital of Texas and as a major city. Austin’s historical and current socioeconomic landscape therefore largely shapes the health care
“I am not a casualty, I am also a warrior”: Black Women and Latina Access to Preventative Care, Travis County

landscape of Travis County. One historical impact has been the 1928 Austin city plan which induced systematic segregation, encouraging and forcing the settlement of people of color to the East of the I-35 corridor. Today, the effects of this city plan and on-going racism remain starkly apparent. West Austin and Travis County are predominantly white and wealthier, while lower-income, non-white populations primarily reside in the Northeast, East, and Southeast neighborhoods (ANC; also see map “Black and Hispanic Demographics: Travis County”, p. 7).

These neighborhoods comprise the highest concentrations of Blacks and Hispanics, encompassing census block groups that are the study area for this study. Blacks and Latinos primarily live within census block groups to the South and East of Highway I-35 (See map “High Black and Hispanic Populations: Study Area”, p. 8). Increasingly, however, the growing Latino population is settling throughout the county, especially on the far Western and Eastern outskirts. The distribution of Spanish speakers further emphasizes the broader spread of Hispanics. Highly populated Hispanic areas correlate with census block groups where Spanish speakers compose between 20% to 50% of the population (“Concentration of Spanish Speakers”).

These predominantly Latino and African American areas in Travis County further coincide with lower median incomes (See map, “Median Income: Study area” p. 9). The median income throughout Southern and Eastern Travis County ranges from no income to an upper limit of $69350. These areas represent the most extensive span of block groups in the county where incomes mainly fall within the lower income categories. Poverty rates underscore local, lower socioeconomic status. Here, poverty rates reach some of the highest in the city, revealing widespread block groups with poverty rates of 20% and higher (“Poverty Rates: Travis County”).

Black Women and Latina Health: Travis County

STEPS to a Healthier Austin is a federal government initiative which aims to address some of these disparities within the county. Low income Latino, African-American, and white population compose the Steps intervention region, a twenty contiguous zip codes that largely coincide with the census blocks that are the main focus of this project (“Steps”; also see STEPS Intervention Area map, pg. 10). The program aims to reduce diabetes, overweight, obesity, and asthma among target groups. As part of monitoring area health, STEPS compiles data from the Behavioral Risk Factor Surveillance System Report (BRFSS). Conducted yearly by the Center for Disease Control and Prevention, the BRFSS is a nationwide random telephone which monitors adult health behavior and risks by state. The data compiled by Steps sheds light on both the health status and insurance coverage of multiple populations, including Black women and Latinas.

Although the statistics for Black and Latino populations are drawn from small sample sizes on the BRFSS, the results largely reflect national statistics regarding women of color health and insurance coverage. Among the individuals who indicated being either overweight or obese, 77% of Black respondents described themselves as overweight, while 40% indicated obesity. About sixty-eight percent and 40% of Latinos indicated overweight or obesity, respectively (BRFSS Report). The report does not directly indicate
“I am not a casualty, I am also a warrior”: Black Women and Latina Access to Preventative Care, Travis County

how many Black women or Latinas responded to these questions; however, the statistics provide a general sense of overweight and obesity within these populations. In the context of women’s health, both overweight and obesity are risk factors for the abovementioned cancers, among other health problems (“Cancer facts and figures: African Americans”).

Regarding financial barriers, 20% of African Americans and 29.3% of Hispanics the expressed an inability to see a doctor within the past year due to costs (BRFSS Report). Monetary barriers are significant for Black women and Latinas because they are less likely to be insured through private or employer-based health insurance (Williams 2002). Blacks and Latinos represent the highest number of uninsured individuals nationwide, at 19.6% and 26.7% respectively (“The Uninsured”). Texas also claims the largest number of uninsured working individuals in the nation, with an estimated 27% of the population under age 65 in Texas is uninsured (“Access to Health Insurance”).

BRFSS responses reflect these insurance barriers for Blacks and Hispanics. While 30% of the Blacks who completed the survey did not have some type of insurance, 51% of Latinos did not (BRFSS Report). Compared to individuals with insurance, uninsured patients are more likely to avoid or delay treatment, to live with chronic conditions or illnesses without treatment, and to die prematurely. They are less likely to use preventative services (“The Uninsured”). For the Black women and Latinas, being uninsured can lead to delaying or to avoiding routine health care.

The Clinic Landscape: Safety Nets

These statistics hold particular implications for African American and Hispanic women. For one, researchers link high rates of uninsurance in Texas to the large immigrant (predominantly Latino) population, of which Latinas are part (Roberson 2007). In addition, though providers may accept uninsured patients, uninsured individuals typically come from a low income socioeconomic status, about a third below to 200 percent and a third above 200 percent of the poverty level (Bovbjerg and Ullman 2001). Paying out of pocket may not be financially feasible for an uninsured individual.

Providers who offer free or reduced services are therefore the most economically viable option for women of color discussed here, based on their general socioeconomic situation in the study area. Such providers are known as “safety net” resources and typically include community health clinics, public hospitals, and academic medical centers (Bovbjerg and Ullman 2001). Public insurance also contributes to this safety net by offering coverage for eligible low income individuals. Many of women of color have public health insurance, Medicaid and/or Medicare, which are administered by the state and federal governments (Williams 2002). Medicaid covers low income individuals who qualify, while Medicare is largest health insurance program in the nation and insures people who are 65 years of age and older, some disabled people under 65 years of age, and people with End State Renal Disease ("Medicaid" and "Medicare"). Based on this information, safety net providers and public health insurance may alleviate the obstacles to care Latinas and Black women may experience. They are included as important variables in the following analysis.
Hispanic and Black Population
Hispanic Population

<table>
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<th>0 - 300</th>
<th>301 - 650</th>
<th>651 - 1000</th>
<th>1001 - 1750</th>
<th>1751 - 4385</th>
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<td>Major Roads</td>
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Black Population

<table>
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<th>Blacks Per Census Block Group</th>
<th>0 - 124</th>
<th>125 - 450</th>
<th>451 - 700</th>
<th>701 - 1450</th>
<th>1451 - 2528</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Roads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:
City of Austin GIS Datasets. Available:
ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. [December 4, 2007].
TIGER 2000 Census Data, ESRI. Census Data. Available:

Author: Naya Jones, December 13, 2007
High Black and Hispanic Areas: Travis County

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007

Legend
Hispanic Demographics
tgr48000sf1grp.HISPANIC
0 - 135
136 - 305
306 - 999
1000 - 1300
1301 - 2500
2501 - 3000
3001 - 4385
I-35

Hispanics per Census Block Group
- 1000 - 1300
- 1301 - 2500
- 2501 - 3000
- 3001 - 4385

Blacks per Census Block Group
- 701 - 1264
- 1265 - 1591
- 1592 - 1889
- 1890 - 2528

I-35

High Hispanic Population

High Black Population
Median Income: Study Area

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:
City of Austin GIS Datasets. Available:
ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. [December 4, 2007].
TIGER 2000 Census Data, ESRI Census Data. Available:

Author: Naya Jones, December 13, 2007
II. Hypotheses

- Based on on-going socioeconomic disparities in Austin, there will be fewer clinics offering women’s health services near or within Black and Latino population concentrations.

- Transportation disparities will further shape clinic access. Areas that are clinically underserved will also lack public transportation to reach offices in other parts of the city. Black women and Latinas who reside furthest from I-35 will particularly lack bus services.

- Few clinics which are conveniently located (walkable or require a short commute) or accessible by bus for the African American and Latino populations will accept uninsured, Medicare, and/or Medicaid patients. Financial barriers will therefore limit clinic options for the focus populations.

- For Latinas who speak Spanish or feel more comfortable communicating in this language, a dearth of Spanish-speaking practitioners will reduce clinical care options for them.
III. Research Questions

Clinic Spatial Distribution
1. What is the relationship between income, racial demographics, and the spatial distribution of clinics?

2. What is the relationship between types of clinics and the highest concentrations of Blacks and Hispanics?

3. What is the relationship between clinics which accept uninsured, Medicaid, and/or Medicare patients and Black or Hispanic concentrations?

Access: Distance and Language
1. What is the spatial distribution of clinics that may be walkable or require only a short commute for African American and Hispanic women? Which of these clinics accept uninsured, Medicaid, or Medicare patients?

2. Are there accessible bus routes near high concentrations of Black and Latino populations, and do these routes connect the populations with a wide distribution of clinics? Which of these clinics accept uninsured, Medicaid, or Medicare patients?

3. Which census block groups with high Black and Latino populations are underserved in terms of clinical care and public transportation? Where might women’s services and bus routes be located to improve access?

4. Which clinics that are within walkable or bus route distance for Latinas offer Spanish speaking practitioners? Do these clinics also offer care for uninsured, Medicaid, or Medicare patients as well?
IV. Methodology

I identified necessary data based on a review of literature concerning Black and Latina women’s health. Financial, transportation, and linguistic challenges consistently surfaced in these studies, leading me to focus on this data for the maps and analysis. Here, I provide a brief description of some of the key decisions I made regarding data. I then summarize steps undertaken throughout the project.

Data Selection

- Study Area: I determined the study area for this project was delineated based on the highest concentrations of Blacks and Hispanics per census block group. These concentrations are based on Black populations greater than 700 and Hispanic populations greater than 1000, because the African Americans comprise a much smaller portion of the overall county population. Population is represented as the actual number of individuals rather than a percentage because of the importance of doctor to individual ratio in determining where clinics should be located or where they may be needed (McLafferty 2003).

- Clinics: I chose to map only clinics which offered some of all of the following services: pap smears, mammograms, breast exams, breast and cervical cancer screening and general well women’s exams. I categorized these clinics based on their overall structure and client focus into the following four areas:
  - Multispecialty: These health groups maintain multiple offices throughout the Austin area. They are partnered with several insurance providers and offer a wide range of health services from multiple physicians. These services may include family practice to dermatology care.
  - Women: These clinics offer services specifically for women such as gynecology, fertility, and reproductive care.
  - Private: These medical physicians are not affiliated with hospitals or clinics and have private practices, either as solo practitioners or a few other practicing physicians.
  - Community: These health centers provide care for uninsured and underinsured individuals. They are located in underserved communities and are funded by the government at state, county, and federal levels.

- Insurance: I elected to map which clinics accept Medicare and Medicaid because of they are designed for low income populations. Mapping these clinics also better indicated barriers within the Medicare and Medicaid system. For example, some clinics were not accepting Medicaid patients when I contacted them because only a certain number of these patients are accepted per month. Other clinics only accepted pregnant Medicaid patients.
“I am not a casualty, I am also a warrior”: Black Women and Latina Access to Preventative Care, Travis County

- Spanish speaking practitioners: I included this attribute as an indicator of both access to women’s services and to quality of care. Spanish speaking ability was a feasible measure to attain within the given time frame for the project. Within the Spanish speaking measure, I noted only those locations that had Spanish speaking doctors or nurses. While some clinics have Spanish speaking staff, these staff members are less likely to be available to patients than a nurse or doctor.

Data Compilation and Fieldwork

The above data decisions informed the geospatial and clinic information I gathered. Geospatial data and clinic attribute information were the two main datasets gathered for this project. While the geospatial data was gathered through public on-line resources, the clinic information involved a series of steps to obtain more in-depth information regarding insurance and services. Below are some of the key steps undertaken to complete this GIS analysis.

I. Descriptive maps of Study Area - I gathered geospatial information from the following resources to build the base maps for this project.

1. I downloaded census block group demographic and median income data from the ESRI, Geography Network website. When mapping the total number of Black and then Hispanics per census block group, I selected a 5 tier classification system. I manually adjusted the numbers of individuals per block group so that the upper levels for Blacks ranged from greater than 700 per census block and up. I did the same for Hispanics, making the scale range from 1000 per census block and up.

2. I based the study area for this project on the High Black and Hispanic population maps produced in the above step 1. To better represent these high populations, I made the symbology for classifications below 700 for the Black population a grey fill color; I repeated this step for the Hispanic population. The resulting map indicated only the highest numbers of Blacks and Hispanics in Travis County in color.

3. I further emphasized these high Black and Hispanic concentrations by using the Union tool in ArcGIS. I created a union between the data sets, joining them into a single color area to show their shared distribution throughout Greater East and South Travis County.

4. In addition to the racial demographic data, I downloaded median household income data for Travis County from the ESRI website. This shapefile and SF3 data table were joined in ArcMap to show the socioeconomic status among the population concentrations. The census block groups from the Black and Hispanic union were highlighted in blue, on top of the median income, to direct the audiences’ attention on the study area.
II. Clinics – In order to geocode clinic information and build an attribute table for the locations, I followed these steps.

1. I first researched clinic locations throughout Austin that offered women’s health services. I initially obtained information about area clinics from Justine Kaplan, director for STEPS to a Healthier Austin. I followed up on these leads and expanded my search using on-line directories (Yellow Pages and City Search).

2. The directories typically provided an address and phone number for each location. In addition, some providers listed a website to visit for further information. Using these websites, or through phone calls and e-mails, I built a clinics attribute table to add to the ArcMap document. The attribute table included the following fields (See Appendix 3: Clinics Attributes Table). A total of 63 clinics were included.
   a. Clinic address
   b. Clinic Type:
      - Multispecialty - These health groups maintain multiple offices throughout the Austin area. They are partnered with several insurance providers and offer a wide range of health services from a group of physicians. Example: Austin Diagnostics Clinic.
      - Women - These clinics offer services centered on women’s health, including gynecology, obstetrics, and fertility care. Example: Austin Whole Women’s Health.
      - Private - These medical doctors practice outside of a hospital or clinic network and have their own practices, either alone or with a few other associates.
      - Community - These centers provide either free or affordable care for low income populations. They operate with limited government resources and are located in underserved communities.
   c. Uninsured: Does this location accept uninsured patients? (Yes or No)
   d. Medicaid: Does this location accept Medicaid patients? (Yes or No)
   e. Medicare: Does this location accept Medicare patients? (Yes or No)
   f. Spanish Speakers: Are there Spanish speaking doctors or physicians at this location? (Yes or No)

3. While I mainly called clinics that did not have websites or e-mail contacts, I also randomly called clinics to verify information. Random calls proved important because the listings were not always up to date; locations had changed in some cases, whereas in others, the providers were no longer practicing or reachable at that number listed. Overall, I called about 30 clinics regarding uninsured care and insurance carriers. To inquire about Spanish speaking doctors or nurses, I called a total of locations. I e-mailed 7 inquiries and received responses from 6 providers.
4. All of the above information was entered into an Excel spreadsheet which was then added to the ArcMap document. I geocoded the spreadsheet using the Austin Streets address locator. I created this locator based on the Austin Streets shapefile, and by choosing the US Streets with Zone locator type.

5. The point features received a different color symbology depending on type:
   Multispecialty – red; Women - orange; Community - blue; Private – green. This symbology remained the same throughout each of the maps.

III. Convenient Clinics: To determine which clinics were conveniently located by foot, short commute, or bus, I analyzed distance according to “convenient” locations.

1. In separate layouts for Black and Latino populations, I selected by location all clinic locations located within a distance of 1 mile of the major concentrations. I then exported these shapefiles and maintained the clinic type symbology.

2. I further selected by attribute all clinics with the following situations: Medicare Only, Medicaid Only, Medicare and Medicaid, and No Medicare or Medicaid. I used a larger point symbology for these attributes so that they could appear along with the clinic type in the map display.

3. For both Black women and Latinas, I created another map layout indicating which block groups were served or underserved based on the 1 mile buffer “convenient” criteria. This map addresses the question of where clinics may be best located to reach underserved populations.

IV. Bus Accessible Clinics: To compare convenient clinics with those reachable by bus, I buffered the bus routes and selected clinics within these areas.

1. In separate layouts for Black and Latino populations, I added the Capital Metro Bus Routes shapefile. To determine accessible bus routes for the populations, I selected by location all bus routes that intersected with Black or Latino high population concentrations.

2. I then selected by location all clinic locations located within a distance of .5 mile of the accessible bus routes. I exported this shapefile as a new layer and then selected by feature all of the clinics that were not accessible by bus. For symbology, the accessible clinics appear as black points, while the non-accessible ones are yellow.

V. Case studies: I conducted these analyses in order to provide a “close up” of the highest population concentrations of Blacks and Hispanics in relationship to women’s health services. Significantly, each of these highest concentrations did not have a convenient clinic, and some of them were completely not served by bus routes.

1. For Black women’s access, I zoomed into the highest Black concentration area. Based on the accessible bus routes, I selected by location all clinics within a .5 mile buffer of these routes. The clinics maintained their type symbology and were then coded according to uninsured, Medicare, and Medicaid access. For Latina
access, I zoomed into the highest Latino concentration area and performed the same analysis as for Black women.

2. As an additional part of the Latina case study, I selected by attribute all providers who spoke Spanish. Because I selected these providers only from the clinics accessible by bus, bus routes are included in this display. I created a layer from these selected features. In Symbology, I added a slight halo around the clinics to improve their visibility on the display. I used a black point symbology to indicate those clinics which did not offer Spanish speakers.

VI. Underserved Block Groups: Convenient Clinics and Bus Accessibility

1. To indicate the block groups that were not served according to the “convenient” criteria (the 1 mile buffer around clinics and proximity to highly populated Black and Latino groups), I selected by feature all black groups adjacent to a clinic. The remaining census block groups were also selected by feature. Both of these files were exported as shapefiles and created a layer in the table of contents.

2. In order to display which block groups are underserved by bus routes, I added the High Black and Hispanic union layer along with the bus routes accessible for both populations. I selected by feature each census block which was either bordered by a bus route, or that had one within its boundaries. I considered these block groups to be served by the bus system.

3. In contrast, I then selected census blocks without adjacent bus routes. I also included extensive census blocks where routes may have been present for part of the area, but were confined to a very limited space compared to the size of the block itself. These blocks indicated a lack of bus service.

4. The bus routes maps also attempt to suggest which bus routes may be extended to reach these underserved areas. I color coded the bus lines differently and included their ID numbers in the legend.
V. Findings

I produced a total of 13 for this GIS analysis. The descriptive maps were included in the introduction of this report to provide general context of the racial demographics and clinic landscape in Travis County. The following pages display the analytical maps in which more than one variable or attribute was compared for spatial analysis.

Descriptive Maps

1. Black and Hispanic Demographics
2. High Black and Hispanic Populations
3. Median Income: Study Area
4. Clinic Distribution and Median Income
5. Uninsured access: Travis County
6. Convenient Clinics: Black Women
7. Convenient Clinics: Latinas
8. Bus Accessible Clinics: Black Women
9. Bus Accessible Clinics: Latinas
10. Spanish Speaking Providers
11. Access Case Study: Black Women
12. Access Case Study: Latinas
13. Underserved Black and Latino Areas: Convenient Analysis
14. Extendable Bus Routes: Underserved Areas

<table>
<thead>
<tr>
<th>Map Title</th>
<th>Page</th>
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<tbody>
<tr>
<td>Clinic Distribution and Median Income</td>
<td>19</td>
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<tr>
<td>Uninsured Access: Travis County</td>
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<tr>
<td>Convenient Clinics: Black Women</td>
<td>21</td>
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<tr>
<td>Convenient Clinics: Latinas</td>
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<td>Bus Accessible Clinics: Black Women</td>
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<td>Spanish Speaking Providers</td>
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<td>Underserved Black and Latino Areas: Convenient Analysis</td>
<td>28</td>
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<tr>
<td>Extendable Bus Routes: Underserved Areas</td>
<td>29</td>
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</table>
Clinic Distribution and Median Income
Median Income

- **0 - 30000**
- **30001 - 65000**
- **60001 - 85000**
- **80001 - 170758**

$ Clinics

- **Major Roads**
- **I-35**

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Uninsured Access: Travis County

Latina Accessible

Black Women Accessible

Clinics
- Community
- Multispecialty
- Accessible Routes
- Private
- High Hispanic Concentration
- High Black Population
- Women

0  4  8  16  Miles

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Convenient Clinics for Black Women

Clinic Type
- Community
- Multispecialty
- Women
  - Medicaid Only
  - Medicare Only
  - Medicaid and Medicare

Blacks per Census Block Group
- 700 - 1264
- 1265 - 1591
- 1592 - 1889
- 1890 - 2528

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Convenient Clinics for Latinas

Convenient Clinics - Latinas
- Community
- Multispecialty
- Private
- Women
- No Medicaid or Medicare
- Medicaid Only
- Medicare Only
- Medicaid and Medicare

Hispanics per Census Block Group
- 1000 - 2035
- 2036 - 3000
- 3001 - 4385

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Accessible Clinics: Black Women

Legend
- Bus Accessible Clinics
- Not Bus Accessible Clinics
- Capital Metro Routes
- High Black Population
- Census Block Group
- Accessible Routes
- I-35

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:
City of Austin GIS Datasets. Available:
ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. [December 4, 2007].
[December 4, 2007].
[December 10, 2007].

Author: Naya Jones, December 13, 2007
Bus Accessible Clinics: Latinas

Legend
- Bus Accessible Clinics
- Not Bus Accessible Clinics
- Capital Metro Routes
- Accessible Routes
- High Hispanic Concentration
- I-35

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Spanish Speaking Practitioners

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Access Case Study: Black Women

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:
City of Austin GIS Datasets, Available:
ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html [December 4, 2007].
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Author: Naya Jones, December 13, 2007
Access Case Study: Latinas

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)

Sources:

Author: Naya Jones, December 13, 2007

Clinic Type
- Community
- Multispecialty
- Private
- Women

Hispanics per Census Block Group

- Medicaid Only
- Medicare Only
- No Medicaid or Medicare
- Medicaid and Medicare
- Accessible Bus Routes

I-35

Legend
Accessible Bus Routes
Hispanic Demographics

Hill Country OB/GYN Associates
El Buen Samaritano Episcopal Mission
Seton McCarthy Clinic
Hill Country OB/GYN Associates
Brookside Women's Medical Center
East Austin Community Health Center
Health Care for the Homeless Services
Clinic at Brackenridge
Women's Group
Cindy Mingeas, MD
Emilio Torres, MD
Mary Mirtc, DO
Roberta Braun, MD
People’s Community Clinic
Gynics Associates
Austin Academic Family Medicine
Planned Parenthood, Downtown Clinic
Rosewood Zaragosa Community Health Center
Lisa M. Jukes, MD, PA

Clinically Underserved Populations

- Latino Population
- Black Population

Map Legends:
- Census Block Groups
- Underserved Block Groups
- Served Block Groups

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
Extendable Bus Routes: Underserved Areas

North Travis County

South/Central Travis County

Extendable Routes:

- 103
- 137
- 23
- 311
- 333
- 350
- 37
- 865

1L: North Lamar

I-35

Capital Metro Bus Routes

Underserved Census Block Groups

Served Census Block Groups

Census Block Group

Projection: GCS North American Datum
NAD 1983 State Plane Texas Central FIPS 4203 (Feet)
Sources:

Author: Naya Jones, December 13, 2007
This distribution further affirms my hypothesis about geographic disparities. In addition, this situation points to transportation disparities. If women are from these underserved, highly minority areas, they have less access to bus transportation. Here, access varies somewhat between Black women and Latinas because of their different population distributions. There are more Latinos in general, with a spread that reaches further South and Southwest where bus routes are available to most of the high Hispanic population block groups.

Overall, 72 bus lines offer direct access from where Latinas may live, while 46 serve high Black population areas. Again, areas served by buses are generally in or within the Highway 35 corridor. Nonetheless, the situation for Latinas shows significant exceptions. In the Cast Study map for Latinas, the high population concentrations are very close to Highway 35, and some of them have no bus or convenient clinic access.

The bus lines that are available significantly increase the number of reachable clinics. One interesting exception is the Austin Regional Clinic Pflugerville location in Northern Travis County which is in walkable or short commute distance for Black and Hispanic populations but does not have bus service nearby.

Access: Financial Barriers
In terms of financial access, most clinics accept uninsured patients in Travis County. However, as noted before, acceptance of uninsured patients does not necessarily indicate an alleviated barrier for Black women or Latinas. This is an important caveat for the analysis. When I contacted clinics, I was usually informed that uninsured patients, also significantly called “cash paying patients”, had to pay for services up front. In the case of Private practitioners, uninsured patients could occasionally receive a 10% to 15% discount. At the same time, the broad uninsurance category also indicates locations such as Community Health Centers which offer sliding scale services for low income individuals.

Based on the ambiguity of the uninsurance attribute, the spatial distribution of clinics which accept Medicaid and Medicare is perhaps a better indication of clinics accessible to low income individuals. Latinas have broader access to Medicaid and Medicare practitioners based, again, on their wider distribution. However, all the clinics most conveniently located near African American and Hispanic women generally accept Medicaid and/or Medicare patients. This finding ultimately did not support my hypothesis that fewer clinics located near the populations would be economically viable for low income women.

Access: Linguistic Barriers
The hypothesis which lacked the most support after producing these maps was my assertion that fewer Spanish speaking practitioners would be available for Latinas. Instead, 39 of the providers included in this project had Spanish speaking doctors, nurses, or translation services available. All of these providers are also reachable by bus, if not by walking or short commute.
VI. Future Studies

The maps produced for this project point to future directions for study. For example, the linguistic barrier map could be expanded to include more qualitative, ethnographic research regarding quality of care. I originally planned to assess quality of care by asking providers if they have cultural competency training. Understanding racial and cultural tensions or discrimination is important when discussing minority health. Respectively, only 5% and 4.5% of Blacks and Latinos are medical doctors, indicating that the women of color on which this study focuses are most likely to receive care from a practitioner from a racial or ethnic background other than her own (“National Healthcare Disparities”). In addition, a distrust of the medical system among Black women, and communication and cultural barriers between Latinas and providers, are also considered barriers to quality care for these populations (“Minority Women’s Health”). A future study could therefore include surveys regarding both cultural competency of practitioners as well as women’s experiences with the providers.

The maps indicating served and underserved areas, both for the convenient and bus routes analysis, also offer rich opportunities for future research. A suitability analysis could be performed based on these maps to ascertain where clinics might be better located or how bus routes may be extended beyond their current reach. An important caveat for this project is that some of the bus routes which abruptly stop before reaching high Black and Hispanic population areas, do so because the bus system is limited to the City of Austin. However, the growth of the city points to more areas being incorporated into it. In addition, a courtesy shuttle of some sort could be provided to individuals who live just outside the city limits, if clinics are not constructed nearby.

Lastly, future research may involve a more nuanced analysis of both financial and transportation barriers. Some of the clinics categorized as Medicaid providers for this project only accepted pregnant women; others only accepted certain Medicaid or Medicare plans. Including these details was beyond the scope of the project. In addition, bus transfers and travel time could be evaluated to better understand not only distance disparities for women of color but also questions of time.

In conclusion, Black women and Latinas in Travis County do experience geographic barriers to care that could be addressed through the construction of more convenient clinics, more clinics which offer reduced pay options for the uninsured, and greater bus access. This project indicates that the health care landscape of women’s services in Travis County does reflect entrenched socioeconomic disparities and can challenge the health of women of color.