The Effects of Implementation of the Affordable Care Act

Access to Hospitals in Travis County

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EXECUTIVE SUMMARY

In Texas, almost 24 percent of the population does not have health insurance—the highest rate in the country. Full implementation of the Affordable Care Act (ACA), including the optional Medicaid expansion, will increase the rates of health insurance coverage throughout Texas. The largest numbers of persons who will gain health insurance live in major metropolitan areas, and some rural counties with currently the lowest proportion of their population uninsured will become counties where the highest proportion of their population is insured. Within Travis County, large numbers of people in Central, East, South, and North Austin are projected to gain health insurance, as well as in suburban and exurban communities in the northern, northwestern, and eastern parts of Travis County. Although large numbers of people are expected to gain health insurance outside of Austin, the hospitals in Travis County are all clustered in Austin. However, the recent decision to construct a new medical school and teaching hospital in Travis County represents an opportunity to serve more people in the county. If the primary goal in deciding where the new hospital should be located were to serve large numbers of newly insured persons not currently living near an existing hospital, a new hospital would be located in one of three areas: the neighborhood between northern Austin and southern Pflugerville, Cedar Creek, or Colony Park in far East Austin. If the primary goal were to select a location near the University of Texas campus, the hospital would be located in East Austin near Airport Boulevard, the Mueller development, or where Oakwood Cemetery is currently located. This is based on a suitability analysis of vacant parcels fulfilling basic physical criteria and does not take into account political considerations and constraints. More generally, the spatial patterns of increasing numbers of people gaining health insurance in the peripheral areas of Travis County bring up questions about the suburbanization of poverty, and how to serve the needs of a metropolitan area that considers the needs of both the urban core and the outer areas.

INTRODUCTION

In Texas, 23.7 percent of people do not have health insurance – the highest rate in the country (Dunkelburg, 2012, “Choices and Challenges”). The uninsured are less likely to receive preventative care and experience worse health outcomes. Moreover, when illness or injury occur, paying for health care without insurance can leave individuals and families with large medical debts, leaving them financially vulnerable. In 2010, 27 percent of uninsured adults used all or most of their savings to pay medical bills (Kaiser Commission on Medicaid and the Uninsured [Kaiser]). Paying for the health care of the uninsured also creates a financial burden for communities. In 2008, uncompensated costs were $57 billion, and federal, local, and state funds paid almost $43 billion of these costs (Kaiser).

To address this problem, Congress passed the Patient Protection and Affordable Care Act (ACA) in 2010. Through a combination of strategies, including the provision of subsidies to support purchase of health insurance, the creation of health insurance exchanges where individuals can purchase insurance, the “individual mandate” to encourage purchase of health insurance, and an optional expansion of state Medicaid programs, the Affordable Care Act will dramatically affect the rates of health insurance coverage for people all
over the country. In Texas, the rates of health insurance coverage are projected to see the largest percentage increase in health insurance coverage of any state (Dunkelburg, 2012, “Choices and Challenges”).

The 2012 Supreme Court ruling ensured that ACA strategies that support individuals purchasing insurance in the private market would be implemented. However, the Court also ruled that the Medicaid expansion that would raise the eligibility cutoff to include adults earning up to 133 percent of the federal poverty guidelines (FPL) would be optional for states. In return for implementing the Medicaid expansion, the federal government would pay 100 percent of the costs of expansion for three years, to be reduced to 90 percent in later years. The Kaiser Family Foundation estimates the expansion would cost Texas $5.7 billion from 2013 to 2022.

In Texas, much uncertainty remains over to what extent Texas will choose to implement the portion of the ACA related to Medicaid expansion. Although Governor Perry publicly announced in July 2012 that the state would not participate in the expansion, the Texas legislature will debate the issue this spring.

In their analysis of the possible consequences of Medicaid expansion in Texas, researchers Michael Cline and Steve Murdock of the Hobby Center for the Study of Texas at Rice University project the effects of Medicaid expansion under three different scenarios: “limited,” “moderate,” and “enhanced.” Their methodology involves projecting changes for various subpopulations defined by age and income, which are affected differently by different parts of ACA legislation. Under the “limited” scenario, all subpopulations increase their rates of health insurance so that 25 percent of the gap between current rates of coverage and universal coverage is eliminated. This estimate is based on the increase in coverage experienced during the most recent expansion of public health insurance under the Children’s Health Insurance Program (CHIP). In the “enhanced” scenario, health insurance rates increase to 98 percent for all subpopulations except undocumented immigrants and legal permanent residents: this is the coverage rate for people over 65, who are mostly enrolled in Medicaid. The “moderate” scenario is defined as the midpoint between the limited and enhanced scenarios (Cline and Murdock).

The population that will be most affected by the ACA are low-income adults. Currently, low-income, childless adults are not eligible for Medicaid, and if their employers do not provide health insurance, they have no alternative coverage options. Under the Medicaid expansion, adults who earn less than 133 percent FPL ($14,857 for an individual) would be eligible for the program. Adults with children are currently eligible for Medicaid only if they are also eligible for cash assistance, which for a family of three means they earn a maximum income of $188 per month. Under the Medicaid expansion, parents earning less than 133 percent FPL, which is $25,390 for a family of three, would be eligible for Medicaid (Suehs).

THE IMPACT IN TRAVIS COUNTY

Travis County is a socioeconomically diverse and fast-growing county. The current population is 1,026,158, and has grown more than 25 percent in the last ten years. Population growth in the county is also tied to an increase in racial and economic diversity. Just over 51 percent of Travis County is white. During the past ten years, the
Hispanic population has increased from 28 to 33 percent of the population, and the Asian population has increased from 4.6 to 5.4 percent. The African-American population has fallen from 9 to 8 percent. However, population growth does not mean increased prosperity: median household income in Travis County is $54,044, which represents a decline of approximately $6,000 since 2000 (Capital Area Council of Governments).

Current estimates indicate that 22.8 percent of the population of Travis County is uninsured, with an expected increase of 53,000 to 169,000 newly insured persons as a result of the Affordable Care Act (Cline and Murdock). This change in coverage, along with rapid population growth in the county, creates a need for expanded provision of services in county infrastructure, education, and health care. While gaining health insurance is an important step in removing a barrier to health care access, the proximity and capacity of hospitals remains an important consideration in gaining full access to high-quality health care. Research indicates that gaining health insurance is correlated with a small increase in the probability of hospital utilization (Finkelstein, et.al.). Current trends in private-practice physicians joining hospitals also point to more and more people receiving their health care from hospitals.

In November, Travis County voters passed Proposition 1, which approved a property tax increase that will finance a variety of health care projects, including the construction of a new University of Texas medical school and affiliated teaching hospital. This confluence of events represents an opportunity to increase access to hospitals for the previously uninsured.

In this project, I explore:

- Where the ACA will increase health insurance coverage the most
- The location of hospitals in Travis County relative to areas expecting the largest increases in health care coverage
- Suitable locations for the construction of a new teaching hospital in Travis County

**Problem Statement**

How and to what extent the Affordable Care Act will be implemented in Texas is uncertain; what is certain is that the ACA will have a dramatic effect on increasing the numbers of Texans who have health insurance. This project seeks to better understand the spatial dimensions of implementation of the Affordable Care Act in order to know who will gain the most from full implementation of the ACA. A more sophisticated understanding of the spatial dimensions of ACA implementation can help persuade legislators to adopt the Medicaid expansion and prepare communities to better serve the needs of the newly insured. Because a small increase in hospital utilization is expected with the expansion of health insurance, this project will explore if there is a spatial mismatch between areas that are expected to see the highest increases in coverage and the locations of hospitals. More specifically, this project seeks to answer the following questions:

- In which counties are numbers of insured residents expected to increase the most in the state of Texas?
• Where are health insurance rates projected to increase the most in Travis County?
• Are hospitals located in or near areas projected to see large increases in the number of residents with health care coverage?
• Where are suitable locations for the construction of a new teaching hospital?

**METHODOLOGY**

My analysis proceeds in three stages:

1) State of Texas analysis
2) Travis County analysis
3) Suitability analysis for construction of new hospital

**DATA**

For the state analysis, I needed data on the current status of health insurance coverage in Texas, disaggregated by county, to use as a baseline measure. I also needed projections for how many people are expected to have health insurance coverage after implementation of the ACA in order to determine the increases.

For the Travis County analysis, I also needed an estimate of the current levels of health insurance coverage within Travis County, disaggregated at a geographical unit of analysis smaller than the county. I then needed projections for future health insurance rates after implementation of the ACA.

To evaluate whether or not hospitals are currently located in Travis County near areas projected to see large increases in the number of residents with health care coverage, I needed to know the locations of existing hospitals.

For the suitability analysis, I needed to use the locations of existing hospitals in order to identify underserved areas. I then needed to define criteria to evaluate the suitability of vacant parcels for development.

For my analysis on counties in the state of Texas, I used data from a recent report produced by Steve Murdock and Michael Cline from the Hobby Center for the Study of Texas at Rice University, “Estimates of the Impact of the Affordable Care Act on Texas Counties.” This report includes current estimates of the population of insured and uninsured in each county in Texas, as well as projections for increases in coverage under three different scenarios.

The Travis County analysis was more difficult. I was unable to find data on the uninsured population within Travis County at a unit of analysis smaller than the county. Therefore, I decided to use data on income and age from the US Census American Community Survey (ACS), which is disaggregated by census tract, as a basis for making estimates of current and future rates of health insurance. Because current and future rates of health insurance are linked to age and income because of eligibility requirements for public programs such as Medicaid, these can be used as a reasonable proxy to determine future rates. The ACS reports income as a percentage of the poverty level, but not at the 133
percent cut-off which would define the optional Medicaid expansion. The ACS reports income at a cut-off of 125 percent FPL; therefore, my predicted estimates will be skewed.

The City of Austin provided hospital locations. Geospatial data related to criteria for the suitability analysis, such as vacant parcels, various attributes of vacant parcels, and roads were available from the Capital Area Council of Governments (CAPCOG).

**Steps in Analysis**

**State-Level Analysis**

- Show current numbers of uninsured Texans by county
  - Using Cline and Murdock data, display number of persons uninsured and percentage of population uninsured in each county in Texas. This provides a visual representation of the scope of the problem.
- Show three different possible scenarios of ACA implementation
  - Limited Scenario: Additional number of persons insured and rates of health insurance by county
  - Moderate Scenario: Additional number of persons insured and rates of health insurance by county
  - Enhanced Scenario: Additional number of persons insured and rates of health insurance by county
- Add major cities to maps as a geographical reference

**County-Level Analysis**

*Estimate Current Number of Persons with Health Insurance in Each Census Tract*

- Create estimates of current rates of health insurance coverage by census tract
  - Download census data on “Age by Ratio of Income to Poverty Level in the Past 12 Months”
  - Sum number of persons in the following three groups in each census tract:
    - Group 1: Adults age 18-64 with income less than 125% FPL.\(^1\)
    - Group 2: Adults age 18-64 with income between 126-200% FPL.\(^2\)
    - Group 3: Adults age 18-64 with income between 201-400% FPL.\(^3\)
  - Use rates from Cline and Murdock to estimate current health insurance coverage in each census tract:\(^4\)
    - Number of persons in Group 1 * 48% = Estimated number of currently insured persons in Group 1

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\(^1\) These adults will gain coverage through Medicaid and subsidies.
\(^2\) These adults are not eligible for Medicaid but will be eligible for subsidies and may receive a penalty for not purchasing health insurance.
\(^3\) These adults are not eligible for Medicaid but will be eligible for subsidies and may receive a penalty for not purchasing health insurance.
\(^4\) Current rates of health insurance by income group are derived from the American Community Survey for 2008–2009.
- Number of persons in Group 2 \( \times 56\% \) = Estimated number of currently insured persons in Group 2
- Number of persons in Group 3 \( \times 71\% \) = Estimated number of currently insured persons in Group 3
  - Sum all three estimates for total estimate of currently insured persons in each census tract

**Estimate Future Number of Persons with Health Insurance in Each Census Tract**

- Apply projected enrollment rate increases from Cline and Murdoch to predict increases in health insurance coverage in Travis County under three different scenarios.
  - Limited scenario:
    - Group 1: Increase from 48 to 71 percent
    - Group 2: Increase from 56 to 67 percent
    - Group 3: Increase from 71 to 78 percent
  - Moderate scenario
    - Group 1: Increase from 48 to 85 percent
    - Group 2: Increase from 56 to 83 percent
    - Group 3: Increase from 71 to 88 percent
  - Enhanced scenario:
    - Group 1: Increase from 48 to 98 percent
    - Group 2: Increase from 56 to 98 percent
    - Group 3: Increase from 71 to 98 percent
- Calculate the differences between the current and limited, current and moderate, and current and enhanced scenarios to get three calculations of the changes in coverage
- Manually make classification cut-off points the same in all three scenarios to provide a better visual comparison of the different impacts within Travis County
- Add bodies of water, cities, and towns for geographical reference

**Suitability Analysis**

I conducted two suitability analyses with two different goals. In the first analysis, the primary goal in selecting a site for a new hospital is to locate in an underserved area, which I define as being far from existing hospitals but includes a large number of persons expected to gain health insurance after full ACA implementation. In my second analysis, the primary goal in selecting a site for a new hospital is proximity to the University of Texas campus.

**Select a Site that is Located in an Underserved Area**

- Determine criteria for suitability analysis:
  - Inaccessible to current hospitals
  - Near large numbers of newly insured persons
  - Close to a major road – To ensure quick and easy access to hospitals for patients, I define this criterion as being located within a half-mile of a major road.
Outside of a floodplain – Locating outside a floodplain is critical for sustainability
Large enough for a hospital – I measured the acreage of St. David’s Hospital, which is relatively small. St. David’s sits on a parcel of land that is around 15 acres, so I define “large enough” as “greater than 15 acres.”

- Identify census tracts that are inaccessible to current hospitals – I operationalized this criterion by identifying census tracts located outside a 5-mile service area of existing hospitals.
  - Using Network Analyst, create a 5-mile service area around each hospital. Network Analyst uses road networks to calculate distance, providing a more refined estimate of service area than a circular buffer.
  - Identify census tracts that are not within the 5-mile service area

- Identify census tracts that are near large numbers of newly insured
  - Of the census tracts not within the 5-mile service area, use the moderate scenario to select the census tract with the most newly insured person

- Identify vacant parcels within selected census tract

- Identify vacant parcels close to a major road
  - Identify major roads in selected census tract
  - Display vacant parcels within half-mile of major road

- Identify vacant parcels located outside of a floodplain
  - Identify and display vacant parcels in selected census tract that do not intersect a 100-year floodplain

- Identify vacant parcels that are large enough for a hospital
  - Identify and display vacant parcels greater than 15 acres

- Intersect parcels to determine final selection of suitable parcels

Select a Site near the University of Texas campus

- Determine criteria for suitability analysis:
  - Close to UT – I defined this as within a 2-mile buffer of the UT Campus
  - Close to a major road – To ensure quick and easy access to hospitals for patients, I define this criterion as being located within a half-mile of a major road.
  - Outside of a floodplain – Locating outside a floodplain is critical for sustainability
  - Large enough for a hospital – I measured the acreage of St. David’s Hospital, which is relatively small. St. David’s sits on a parcel of land that is around 15 acres, so I define “large enough” as “greater than 15 acres.”

- Identify vacant parcels close to UT
  - Define a two-mile buffer around the UT Campus
  - Identify vacant parcels within buffer

- Identify vacant parcels close to a major road
  - Identify major roads within buffer
  - Display vacant parcels within half-mile of major road

- Identify vacant parcels outside of a floodplain
Identify and display vacant parcels within buffer that do not intersect a 100-year floodplain

- Identify vacant parcels large enough for a hospital
  - Identify and display vacant parcels greater than 15 acres
- Intersect parcels to determine final selection of suitable parcels

**FINDINGS**

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Current Situation: Uninsured Texans by County in 2012

Number of Uninsured Persons

- 600,000 - 1,025,922
- 225,000 - 599,999
- 75,000 - 224,999
- 25,000 - 74,999
- 19 - 24,999

Percentage of Population Uninsured

- 25% - 28.5%
- 23.2% - 24.9%
- 21.7% - 23.1%
- 20.1% - 21.6%
- 17.2% - 20%

Created by Jennifer Lee on November 28, 2012

Projections: NAD 1983 State Plane Texas Central FIPS 4233
Sources: Texas Natural Resources Information, Texas State Data Center, Hobby Center for the Study of Texas

Miles
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Health Insurance Coverage Under Limited Scenario

Number of Insured Persons

- Insured Persons
  - 843,855 - 3,277,168
  - 389,012 - 843,854
  - 174,276 - 389,011
  - 55,136 - 174,275
  - 70 - 55,135
  - Major Cities

Percentage of Population Insured

- Percentage Insured
  - 85.3% - 87.3%
  - 84.3% - 85.2%
  - 83.1% - 84.2%
  - 81.5% - 83%
  - 78.2% - 81.4%
  - Major Cities

Created by Jennifer Lee on November 28, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4200
Sources: Texas Natural Resources Information, Texas State Data Center, Hobby Center for the Study of Texas
Note: In the limited scenario, increases eliminate one-quarter of the gap between current and universal coverage.
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Health Insurance Coverage Under Moderate Scenario

Number of Insured Persons

- 904,825 - 3,521,976
- 414,069 - 904,824
- 187,295 - 414,068
- 57,678 - 187,294
- 75 - 57,677

Percentage of Population Insured

- 91.4% - 92.6%
- 90.6% - 91.3%
- 89.7% - 90.5%
- 88.3% - 89.6%
- 85% - 88.2%

Created by Jennifer Lee on November 28, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: Texas Natural Resources Information, Texas State Data Center, Hobby Center for the Study of Texas
Note: In the moderate scenario, rates are midway between the limited and enhanced scenarios.
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Health Insurance Coverage Under Enhanced Scenario

Number of Insured Persons

Percentage of Population Insured

Created by Jennifer Lee on November 28, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: Texas Natural Resources Information, Texas State Data Center, Hobby Center for the Study of Texas
Note: In the enhanced scenario, insurance rates match Medicare coverage rates (nearly universal).
Effects of Implementation of the Affordable Care Act

Increases in Health Insurance Coverage in Travis County: Limited Scenario

Additional Persons Insured
- 2,000 - 2,449
- 800 - 1,999
- 500 - 799
- 200 - 499
- 0 - 199

Travis County
- I-35
- Water

Created by Jennifer Lee on November 29, 2012
Projection: NAD 1983 State Plane Texas Central FIPS
Sources: Texas State Data Center, Hobby Center for it
Note: In the limited scenario, increases eliminate on
Projections were determined by applying percentage
with income below 400% FPL. See Cline and Murdock for more details.
Effects of Implementation of the Affordable Care Act

Increases in Health Insurance Coverage in Travis County: Moderate Scenario

Additional Persons Insured
- 2,000 - 3,984
- 800 - 1,999
- 500 - 799
- 200 - 499
- 0 - 199

Travis County
- I-35
- Water

Created by Jennifer Lee on November 29, 2012
Projection: NAD 1983 State Plane Texas Central FIPS
Sources: Texas State Data Center, Hobby Center for...
Note: In the moderate scenario, rates are midway between projections determined by applying percentage with income below 400% FPL. See Cline and Murdock for more details.
Effects of Implementation of the Affordable Care Act

Increases in Health Insurance Coverage in Travis County: Enhanced Scenario

Additional Persons Insured
- 2,000 - 5,413
- 800 - 1,999
- 500 - 799
- 200 - 499
- 0 - 199

Travis County
- 1:35
- Water

Created by Jennifer Lee on November 29, 2012
Projection: NAD 1983 State Plane Texas Central FIPS
Sources: Texas State Data Center, Hobby Center for it
Note: In the enhanced scenario, insurance rates may
Projections were determined by applying percentages
with income below 400% FPL. See Cline and Murdock for more details.
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Five-Mile Hospital Service Area in Travis County

Hospital Accessibility
- Hospitals
- 5-mile Service Area

Additional Persons Insured
- 2,000 - 3,984
- 800 - 1,999
- 500 - 799
- 200 - 499
- 0 - 199

Travis County
- 1-35
- Water

Created by Jennifer Lee on November 29, 2012
Projection: NAD 1983 State Plane Texas Central FIPS
Sources: City of Austin, Texas State Data Center, HHS
Note: Moderate implementation scenario pictured. Persons can be reached within 5 miles from hospitals by road.
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Census Tracts Outside Hospital Service Area with Most Newly Insured Persons

Hospital Accessibility

- Tract with > 2,000 Increase
- Tract with > 1,250 Increase
- 5-mile Service Area
- Hospitals

Additional Persons Insured

- 2,000 - 2,449
- 800 - 1,999
- 500 - 799
- 200 - 499
- 0 - 199

Travis County

- 1-35
- Water

Created by Jennifer Lee on November 29, 2012
Projection: NAD 1983 State Plane Texas Central FIPS
Sources: City of Austin, Texas State Data Center, Hol
Note: Moderate implementation scenario pictured. Figure shows that 1-35 persons can be reached within 5 miles from hospitals by road.
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Suitability Analysis of Vacant Parcels in Census Tract 18.41

Vacant Parcels Land-Use
- Vacant Lot
- Agricultural Acreage
- Non-Agricultural Acreage
- Farm/Ranch Improvements

Criteria 1
- Not In Floodplain

Study Area
- Census Tract 18.41
- Major Roads

Criteria 2
- Close to Major Road

Criteria 3
- Larger than 15 Acres

Created by Jennifer Lee on December 11, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: CAPCOG, City of Austin
Note: Parcels “close to major road” are within half-mile of a major road.
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Possible Hospital Construction Sites in Census Tract 18.41

Final Selection
- Possible Hospital Sites
- City of Pflugerville
- City of Austin
- Census Tract 18.41
- Major Roads

Created by Jennifer Lee on December 11, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: City of Austin, CAPCOG
Figure 1: Parcel at Dessau Rd and Tudor House Rd

Figure 2. Parcel at Magic Hill Dr and Immanuel Rd
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Vacant Parcels Within Two Miles of University of Texas Campus

Vacant Parcels - Land Use
- Yellow: Vacant Lot
- Red: Non-Agricultural Acreage
- Blue: Commercial Improved

Study Area
- Light Green: Two-Mile Buffer
- Light Blue: Water
- Dark Green: UT Campus
- Light Gray: Major Roads
- Dark Gray: Hospitals

Created by Jennifer Lee on December 7, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: City of Austin, CAPCOG
Effects of Implementation of the Affordable Care Act

Vacant Parcels Within Two Miles of UT Campus and Not In Floodplain

Criteria 1
- Vacant Parcels Not In Floodplain

Study Area
- Two-Mile Buffer
- Water
- UT Campus
- Major Roads
- Hospitals

Created by Jennifer Lee on December 7, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: City of Austin, CAPCOG
Effects of Implementation of the Affordable Care Act

Vacant Parcels Within Two Miles of UT Campus and Larger than 15 Acres

Criteria 3
- Vacant Parcels Larger than 15 Acres

Study Area
- Two-Mile Buffer
- Water
- UT Campus
- Major Roads
- Hospitals

Created by Jennifer Lee on December 7, 2012
Projection: NAD 1983 State Plane Texas Central FIPS 4203
Sources: City of Austin, CAPCOG
Figure 3. Parcel at I-35 and East Martin Luther King, Jr Blvd (Oakwood Cemetery)

Figure 4. Parcel at Airport Blvd and Oak Springs Dr
Figure 5. Parcel at Barbara Jordan Blvd (Mueller)
ANALYSIS

State-level maps show that in no county in Texas does less than 17 percent of the population lack health insurance, and in many counties in Texas close to 30 percent of the population lacks health insurance. The highest numbers of uninsured persons live in the metropolitan areas of Houston, Austin, Dallas, Fort Worth, San Antonio, and El Paso, while the rural areas of South and West Texas with relatively low levels of population experience the highest percentage of the population living without health insurance.

Many of these rural counties are expected to change from having among the lowest percentages of their populations insured to the highest percentages of their populations insured after full implementation of the Affordable Care Act. However, challenges to health insurance remain even after ACA implementation, especially in South Texas, which will continue to experience relatively low levels of health insurance. Furthermore, although the largest increases of newly insured persons will happen in metropolitan areas, these metropolitan counties will still experience challenges in reaching universal coverage rates.

In Travis County, implementation of the ACA will bring the largest gains in health insurance coverage in the suburban communities in the northern Austin/southern Pflugerville area, Cedar Park, East Riverside, and Brentwood. Large numbers of people who live in the outskirts of Travis County, such as in Leander, Manor, Elgin, and Hornsby Bend, will also gain health insurance.

Most of the hospitals in Travis County are located centrally in Austin. This is not surprising, as Austin is the urban core of Travis County and hospitals may experience economies of scale from locating near each other. However, recent trends indicate that the population growth in Travis County is happening not only in Austin but also in suburban communities and the outlying areas of Travis County. A significant population of people who live in the eastern and northwestern edges of Travis County stand to gain the most from implementation of the Affordable Care Act, but they also lack quick access to hospitals.

When analyzing the places where the most people will gain health insurance after ACA implementation but are not located near existing hospitals, the areas in Travis County that are most underserved but include a relatively large population are the area between northern Austin and southern Pflugerville, Cedar Park, and the far East Austin neighborhood of Colony Park, located near Walter E. Long Lake. In the suitability analysis to identify a location for a hospital that will serve the most underserved people, I identified Census Tract 18.41 in between Pflugerville and Austin as the study area. I identified two possible sites for hospital construction in the future: a parcel located at the intersection of Dessau Road and Tudor House Road, and a parcel located at the
intersection of Immanuel Road and Magic Hill Drive. The analysis to locate a site for hospital construction near the University of Texas Campus produced three possible locations: two contiguous parcels located east of I-35 and south of Martin Luther King, Jr. Boulevard, a parcel near the intersection of Oak Springs and Airport Boulevard, and a parcel near the intersection of Barbara Jordan Boulevard and Lancaster Drive.

LIMITATIONS AND QUESTIONS
My suitability analysis is based on a few basic criteria; alternate criteria and limitations can apply, including construction of a new hospital on land that is not currently vacant.

In general, one of the limitations of this project is a lack of information on the political considerations involved in hospital siting decisions. The fact that the most underserved study area lies in between Pflugerville and Austin, and that Pflugerville lies in part in Williamson County, may factor into the feasibility of hospital construction there. Pflugerville and Williamson County have different political and institutional contexts than Austin and Travis County, and the hospital’s connection to the University of Texas may restrict construction of the hospital to within Austin. Competition between adjacent county jurisdictions may also play a role.

However, finding a hospital site close to the University of Texas campus is difficult. Little vacant land exists close to campus, and three of the four parcels identified in the final suitability analysis are identified as “vacant” by CAPCOG but are currently in use. Oakwood Cemetery is located on two of the parcels that are contiguous to the UT Campus, and although the cemetery is located in a convenient area for a hospital, it is considered a historic site and political restrictions make construction there unlikely. Another site, located in East Austin near Airport Boulevard, is currently the location of a soccer park. It is unclear how residents’ preferences for a hospital versus a soccer park would affect the feasibility of construction there. The final site is located on vacant land in the Mueller development, across the street from the Dell Children’s Hospital. It is unclear whether or not locating so close to an existing hospital makes construction more or less feasible. Clustering of hospitals may provide benefits to the hospital and to the neighborhood, but political considerations could also hinder the construction of a public hospital so close to Dell Children’s Hospital.

The validity of the project is based on a large extent on the accuracy of the Cline and Murdock projections. My estimates of the currently insured and projected future insured population within Travis County are based on data collected by the American Community Survey, but my predictions will be skewed because ACS data are not reported at the 133 percent FPL eligibility requirement for the optional Medicaid expansion, and are instead reported at the cut-off of 125 percent FPL.
One question that may arise from the findings is what the primary goal should be in choosing a construction site for a new hospital. This is a normative question that must be answered by the community, and different goals may conflict—for example, in my two analyses, proximity to the University of Texas conflicted with the goal of serving the most underserved areas.

CONCLUSIONS

My analysis raises questions about to what extent the suburbanization of poverty exists in Travis County, and how policymakers can or should respond to this phenomenon. If the differences in income between the central city of Austin and certain outer areas in Travis County continue to grow, inequities may also exist in the ability of local communities to provide essential services for their citizens not only in health care, but in education and infrastructure. If Austin benefits from the healthiness of its surrounding communities, planning and policy decisions may require greater coordination between cities and towns in Travis County or at the county level. More generally, my project indicates a need to balance the benefits of centralizing key services, such as hospitals, with providing wide access to the growing population of people who live outside the City of Austin. In making decisions about locating institutions that will serve multiple jurisdictions, gathering stakeholder input from all jurisdictions should be a key component.

ADDITIONAL RESEARCH

Because construction of a hospital is a long-term capital investment, additional research could be conducted to analyze the rates of population growth in different areas of Travis County to see where future needs may be most concentrated. My analysis assumed that the entire population would have similar health care needs. More research could analyze data on the location of health needs within Travis County relative to the health care providers that serve those needs. For example, research could be conducted mapping the population in different age groups, such as children or the elderly, and the health care facilities tailored towards health care providers that specialize in pediatrics and geriatrics. Another project could map the distribution of gender across Travis County along with clinics that provide health care for specific genders. Certain health conditions may be more prevalent among different racial or ethnic groups as well.

REFERENCES


APPENDIX
DATA SOURCES


Cline, M.E & Murdock, S.H. [Data file]. (2012). Alternative estimates of the insured and uninsured for counties in Texas. Houston, TX: Hobby Center for the Study of Texas. (Available from Marcus Denton, Intern at the Center for Public Policy Priorities, 7020 Easy Wind Drive #200, Austin, TX)


ANALYSIS

Data Acquisition

- Download counties of Texas from Texas Natural Resources Information System
  - Project to NAD 1983 State Plane Texas Central FIPS 4203
- Download places in Texas from Texas Natural Resources Information System
  - Project to NAD 1983 State Plane Texas Central FIPS 4203
- Download Travis County census tracts from Texas State Data Center
  - Project to NAD 1983 State Plane Texas Central FIPS 4203
- Download streets from City of Austin website
- Download Travis County water shapefile from Texas State Data Center
  - Project to NAD 1983 State Plane Texas Central FIPS 4203
- Download hospitals shapefile from City of Austin
- Obtain Cline and Murdock data from Marcus Denton on the total population, number of uninsured Texans, and projected increase in coverage for each county in Texas
- Download data on ratio of income to federal poverty level (FPL) for families within the last 12 months, from the American Community Survey

**Data Management**

- County-level data from Cline and Murdock were ready to use. Removed top header row and renamed bottom header row.
- Create estimates of current rates of health insurance coverage by census tract
  - Download Census data on Age by Ratio of Income to Poverty Level in the Past 12 Months
  - Sum number of persons in three groups in each census tract and put values in new columns
    - Group 1: Adults age 18-64 with income less than 125% FPL in each census tract
    - Group 2: Adults age 18-64 with income between 126-200% FPL in each census tract
    - Group 3: Adults age 18-64 with income between 201-400% FPL in each census tract
  - Use current rates from Cline and Murdock to estimate current health insurance coverage for each income group in each census tract
    - Number of persons in Group 1 * 48% = Estimated number of currently insured persons in Group 1
    - Number of persons in Group 2 * 56% = Estimated number of currently insured persons in Group 2
    - Number of persons in Group 3 * 71% = Estimated number of currently insured persons in Group 3
  - Sum all three estimates for estimates of currently insured persons in each census tract (“Current Estimated Insured Total”)
- Apply projected enrollment rate increases from Cline and Murdoch to predict increased health insurance coverage in Travis County under three different scenarios.
  - **Limited scenario:**
    - Group 1: Increase from 48 to 71 percent
    - Group 2: Increase from 56 to 67 percent
    - Group 3: Increase from 71 to 78 percent
    - Sum all three increases for each census tract to arrive at “Limited Total”
  - **Moderate scenario**
    - Group 1: Increase from 48 to 85 percent
    - Group 2: Increase from 56 to 83 percent
- Group 3: Increase from 71 to 88 percent
- Sum all three increases for each census tract to arrive at “Moderate Total”
  - Enhanced scenario:
    - Group 1: Increase from 48 to 98 percent
    - Group 2: Increase from 56 to 98 percent
    - Group 3: Increase from 71 to 98 percent
    - Sum all three increases for each census tract to arrive at “Enhanced Total”

- Calculate the difference between the current and limited, current and moderate, and current and enhanced scenarios to get three calculations of the changes in coverage
- Join the table created above to the Travis County census tracts shapefile
  - Add field NAME10_NUM to census tracts attribute table
  - Use field calculator to population NAME10_NUM with value of NAME10 as type “double,” not “string”
  - Join income data to census tracts shapefile by Census Tract Number field
  - Export data and create new layer

MAP CREATION

Make Texas state maps that show the current numbers of uninsured Texans by county, projected increase in health insurance enrollment after full implementation of the ACA, percentage of population who is currently uninsured, and percentage of population projected to be uninsured after ACA implementation.

- Current numbers of uninsured Texans by county / percentage of population who is currently uninsured (Map 1)
  - Create two data frames
  - Add Texas counties shapefile to both data frames
  - Add Texas places shapefile for reference
    - Select Austin, San Antonio, Dallas, Fort Worth, El Paso, and Houston, and create new layer of major cities
    - Convert features to points
    - Label points with names of cities
  - Classify numbers of uninsured Texans (Data frame 1)
    - Manually stretch color ramp to highlight range
  - Classify percentage of uninsured Texans (Data frame 2)
    - Manually stretch color ramp to highlight range
  - Flip symbols so that darkest colors are highest numbers
  - Insert two legends, scale bar, north arrow, notes, titles, and subtitles

- What insurance rates look like after ACA implementation (Map 2)
  - Create two data frames
  - Add Texas counties shapefile to both data frames
  - Add large cities shapefile for reference, and label points with names of cities
  - Classify numbers of insured Texans (Data frame 1)
• Manually stretch color ramp to highlight range
  o Classify percentage of insured Texans (Data frame 2)
• Manually stretch color ramp to highlight range
  o Flip symbols so that darkest colors are highest numbers
  o Insert two legends, scale bar, north arrow, notes, titles, and subtitles
• Repeat for Moderate and Enhanced scenarios (Map 3 and 4)

Make Travis County maps

• Increases in health insurance under Limited scenario (Map 5)
  o Create one data frame
  o Add Travis County census tracts shapefile to data frame
  o Add Places shapefile for reference
    ▪ Select places with population greater than 5,000
    ▪ Symbolize with ‘no color’
    ▪ Label places for reference
  o Classify increases in insured Texans
    ▪ Manually stretch color ramp to highlight range
  o Flip symbols so that darkest colors are highest numbers
  o Add bodies of water for reference
  o Add I-35 for reference
    o Select I-35 from Roads shapefile
    o Create new layer; export data
    o Clip by Travis County boundary
    o Symbolize with gray line; label
  o Insert two legends, scale bar, north arrow, notes, titles, and subtitles
• Repeat for Enhanced and Moderate scenarios (Map 6 and 7)
  o Manually set classifications to rounded cut-off points from Limited classification using natural breaks

Conduct a suitability analysis with primary goal of serving the most newly insured Texans.

• Determine criteria for suitability analysis:
  o Inaccessible to current hospitals
  o Large number of newly insured
  o Proximity to major road
  o Outside of floodplain
  o Parcel of a certain size
• Create a service area for existing hospitals: (Map 8)
  o Enable Network Analyst in Extensions
  o Create network dataset from Streets shapefile
  o Add Streets Network Dataset to map
  o Create new service area
    ▪ Load hospitals as locations
    ▪ Create 5-mile service area
    ▪ Dissolve all features in service area
- Clip by Travis County
- Symbolize with hatches
  - Identify census tracts that are not within service areas (Map 9)
    - Select census tracts that are within service area
    - Switch selection to select census tracts that are not within service area, and create new layer
    - Query census tracts within new layer to select tract with change greater than 1,250 in the moderate scenario
    - Symbolize with blue outline
    - Select census tracts outside service area with change greater than 2,000 in moderate scenario
    - Symbolize with purple outline
- Create map with four data frames (Map 10)
  - **Data Frame 1:** Identify vacant parcels and land uses within highest-need census tract
    - Zoom in on identified census tract 18.41
    - Add vacant parcels shapefile
    - Clip by census tract boundary; export data to create new shapefile
    - Symbolize land-use type
    - Using metadata as a reference, change labels from codes to descriptions
    - Delete codes that do not appear on study area extent
    - Symbolize outline of census tract in red
    - Symbolize and label major roads; clip by census tract boundary
  - **Data Frame 2:** Identify parcels outside of floodplain
    - Select parcels within census tract that are outside of floodplain. (This is an attribute in the vacant parcels shapefile: ‘Y’ = in floodplain, ‘N’ = not in floodplain.); export as new shapefile
  - **Data Frame 3:** Identify parcels close to major roads
    - Select parcels within census tract that are half a mile of a major road; export as new shapefile
    - Symbolize with yellow
  - **Data Frame 4:** Identify parcels large enough for a hospital
    - Select parcels that are larger than 15 acres. (This is an attribute in the vacant parcels shapefile called ‘acreage.’); export as new shapefile
- Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Make final selection of parcels (Map 11)
  - Intersect shapefiles for parcels near major road, outside of floodplain, and larger than 15 acres to create final shapefile
  - Symbolize with blue
  - Create new layer from Texas places shapefile of Austin; symbolize with transparent green
  - Create new layer from Texas places shapefile of Austin; symbolize with transparent yellow
  - Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Locate parcels using Google Earth; copy images
Conduct a suitability analysis using proximity to UT Campus as primary goal

- Draw UT campus shapefile by comparing to map
- Add roads shapefile
  - Select major roads; create new layer
  - Delete original roads shapefile
- Create 2-mile buffer around UT Campus; zoom into this layer
  - Select vacant parcels within 2-mile buffer
  - Export as new shapefile
- Classify parcels by land-use (Map 12)
- Identify parcels outside of floodplain (Map 13)
  - Select parcels within census tract that are outside of floodplain. (This is an attribute in the vacant parcels shapefile: ‘Y’ = in floodplain, ‘N’ = not in floodplain.); export as new shapefile
  - Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Identify parcels close to major roads (Map 14)
  - Select parcels within census tract that are half a mile of a major road; export as new shapefile
  - Symbolize with yellow
  - Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Identify parcels large enough for a hospital (Map 15)
  - Select parcels that are larger than 15 acres. (This is an attribute in the vacant parcels shapefile called ‘acreage.’); export as new shapefile
  - Symbolize with purple
  - Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Make final selection of parcels (Map 16)
  - Intersect shapefiles for parcels near major road, outside of floodplain, and larger than 15 acres to create final shapefile
  - Symbolize with blue
  - Insert legend, scale bar, north arrow, notes, titles, and subtitles
- Locate parcels using Google Earth; copy images

METADATA

All data were projected to the NAD 1983 State Plane Texas Central FIPS 4203 feet projected coordinate system.

Land-Use Codes:

A1 SINGLE FAMILY RESIDENCE
A2 SINGLE FAMILY RESIDENCE MH
A3 SINGLE FAMILY RESIDENCE DETAILS
A4 CONDOS
A5 CONDOS DETAILS
A9 HS COMMERCIAL HIGHEST & BEST USE
B1 MULTIFAMILY
The project assumes that Texas decides to implement the optional Medicaid expansion of the Affordable Care Act. The validity of the project is based on a large extent to the accuracy of the Cline andMurdoch projections, which assume that Texas expands...
Medicaid to adults earning less than 133 percent of FPL. Furthermore, my estimates of the currently insured and projected future insured population within Travis County are based on income data collected by the American Community Survey. These predicted estimates will be skewed because ACS data are not reported at the 133 percent FPL eligibility requirement for the optional Medicaid expansion but are reported at the cut-off of 125 percent FPL. My suitability analysis is based on criteria and weighting scheme selected from my own background and knowledge; other criteria, weighting schemes, and limitations are applicable. One of the major limitations is my ability to map the political context of hospital site decisions. Competition between Williamson County and Travis County may be a factor in construction of a hospital near their border. Some of the parcels indicated as vacant in the CAPCOG land-use inventory are currently in use as cemeteries, golf courses, and parks, and it may not be desirable to replace these uses with hospitals. Vacant land use may also not be a restriction. If necessary, a hospital could be constructed on a parcel that is currently not vacant.