# Strategic Plan for Population Health Innovation and Improvement
University of Texas at Austin

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David L. Lakey, MD
Chief Medical Officer and Associate Vice Chancellor
Office of Health Affairs
The University of Texas System
601 Colorado Street
Austin, Texas 78701-2982

Dear Dr. Lakey:

The Dell Medical School's Department of Population Health produced the attached Strategic Plan for Population Health Innovation and Improvement at The University of Texas at Austin for the UT System's Collaborative on Population Health Innovation and Improvement. The Strategic Plan will guide activities to improve population-level health in Austin/Travis County and four other surrounding Central Texas counties through a collaboration between Dell Medical School and other University of Texas at Austin schools and departments.

The Strategic Plan for Population Health Innovation and Improvement presents the state of health based on data gathered from the State of Texas, city and county governments, local hospital systems, community-based organizations, focus groups and interviews of community members, and a survey of University of Texas at Austin faculty and staff regarding their population health activities. Priorities for population health are based on this assessment data and input from community members.

On behalf of The University of Texas at Austin we endorse the Strategic Plan and look forward to collaborating with UT System components to make Austin and the surrounding counties a model healthy community.

Sincerely,

Gregory L. Fenves, PhD
President
The University of Texas at Austin

S. Claiborne "Clay" Johnston, MD, PhD
Dean, Dell Medical School
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Table of Contents:

In 2011, Texas Senator Kirk Watson proposed building a medical school from the ground up as part of a 10 year plan to improve the health of Austin and Travis County residents; this would be the first medical school built at a top tier research university in nearly 50 years.[1] One year later, these residents voted for Proposition 1, committing $35 million annually from increased property taxes as investment in the school, with the promise of improved health outcomes. Working with multiple partners including the Seton Healthcare Family, Central Health, and multiple departments and colleges within the University of Texas at Austin, the new Dell Medical School was designed with both the capacity and the intention of transforming health outcomes and improving quality of life of Central Texas.

SECTION 1: IDENTIFIED CATCHMENT AREA FOR THE HEALTH INSTITUTION

To fulfill its mission and those of its partners, the Dell Medical School embraces a five-county the catchment area in Central Texas that includes Travis, Bastrop, Caldwell, Hays, and Williamson counties.

Travis County

The current population of Central Texas is estimated to be 2,117,292 with an annual growth rate of approximately 60,000; the fastest growth is expected in Travis and Williamson counties (see graph below).[3] Median age is also expected to increase as the share of individuals ≥ 45 grows.[2] The following racial/ethnic composition trends have been identified prior to 2010 and are expected to continue for at least the next 15 years.
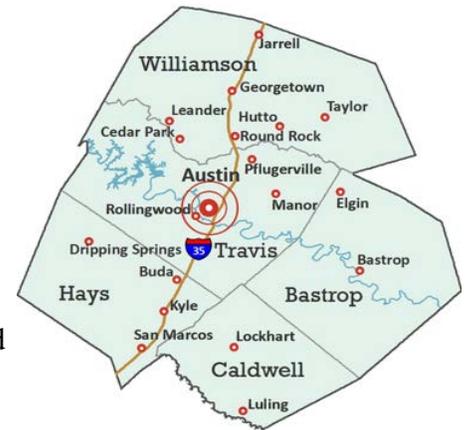

The *non-Hispanic white* population, while projected to grow absolutely, will decline in share of total population by almost 10% between 2016 and 2030. The same downward trend is observed for the *African-American* population, albeit to a lesser extent: <2%. Conversely, *Latinos* and *Asians*, particularly East and South Asians, are expected to increase both in absolute number and in share of the total population.[2]

Travis County contains Austin, the capital of Texas and the most populous and demographically diverse city in the Dell Medical School catchment area. With an estimated 931,830 residents in 2016, it is the largest city in Central Texas and also the most rapidly growing city in the U.S., gaining more than 20,000 residents per year (2.5%).[4] Since the 2010 Census, Austin has been a "majority minority" city, with other racial/ethnic groups outpacing the substantially declining share of the population held by non-Hispanic whites.[4] This shift is being driven mainly by immigration from both within and outside of the United States. Intra-national migration has helped to increase immigrant socioeconomic diversity, bringing entrepreneurs and college-educated, skilled workers in addition to the many working class international immigrants. The influx of these skilled individuals has also helped offset losses due to suburban outmigration of lower SES families.
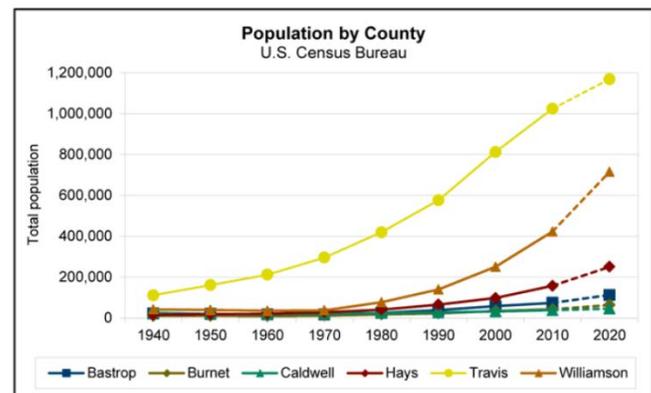
According to Travis County Health and Human Services, Austin is the most economically segregated city in the United States.[5] Although slavery ended in Texas on June 19th, 1865, Austin continued to have a troubled history regarding race and ethnicity, particularly with African-Americans and Latinos.[6] In 1928, despite laws against *de jure* segregation in Austin, East Austin was designated a "Negro district" by zoning and "separate but equal" legislation that included ordinances banning African-American and Mexican-Americans from renting or owning homes outside of this region, and by denying African-Americans who lived in homes

outside of the district access to city utilities or services.[6] The I-35 freeway became a racial dividing line, and most Latinos and African-Americans still live east of it.[7] From 2010-2015 alone, housing prices within the urban core increased from 20-80% in some regions. Particularly noteworthy is that two of the three zip codes showing extremely high (>80%) increases were those within East Austin and heavily occupied by lower income African-Americans, many of whom could not afford the increased cost of living. These inhabitants were forced out of the city into areas lacking the services and benefits associated with an urban environment.[8]

Bastrop County

Bastrop is a relatively rural county, with its two largest cities: Bastrop (population: 7218) and Elgin (8135), cumulatively containing 17% of the region's estimated 88,852 residents.[4] The population is expected to grow, due in part to immigration of Travis county residents seeking lower housing costs.[9] As with Travis County, the majority non-Hispanic white population share is expected to decline by more than 10% within the next 15 years as the Latino population grows. [4] However, unlike Travis County, while the population is expected to age, the change is only reflected by the reduction in individuals ages 45-64 and corresponding share increase of the 65 and above age group. The other age groups are expected to remain relatively constant.[4]

Caldwell County

With 44,428 estimated residents in 2016, Caldwell County is the smallest within the catchment area, and the only one with a majority Latino population; their share is expected to grow as the non-Hispanic white population share is expected to decrease. As with Bastrop, the population is primarily rural, containing only two cities in 2010 with populations greater than 2,000.[4]

Hays County

Hays county, estimated population 206,220, has been named by the U.S Census Bureau as the fastest growing county in Texas and the fifth fastest in the nation. The Latino population share is expected to increase, with an anticipated decrease in the non-Hispanic white population. Age is also projected to increase, particularly in the 25-44 age group share and with a corresponding reduction of the 0-24 age group share. 45+ age groups will maintain a consistent share of approximately 30%.[4]

Williamson County

Williamson is the second largest county in the catchment area with an estimated 540,242 residents, and the largest by area, encompassing 1,118.3 square miles. While Latinos will still show the largest share growth in coming years, Asians are also expected to increase significantly. Among Central Texas counties, Williamson will experience the most significant aging, with residents ≥65 years comprising the largest age group by 2050.[4]

Central Texas (All Counties)

As a whole, Central Texas is experiencing four trends. 1) The population is expected to grow from 1.9 million residents in 2010 to >2.4 million by 2030 or 36,000 persons annually.[4] 2) Latinos will experience the most significant share of growth while non-Hispanic whites will see the sharpest reduction. African Americans should remain relatively constant though migration has occurred. Asians communities are expected to grow as well, though to a lesser extent than with Hispanics. 3) The population is aging. Over the next 15 years, individuals aged 44 and below will drop more than 10%, and by 2030 more than 40% of the catchment area population will be comprised of individuals over the age of 45, and 15% over the age of 65. 4) The economic status of Central Texas will improve. Unemployment rates have dropped by more than 3% for each county in the past six years, and all remain below both the 2016 national and state rates of 4.9% and 4.7% respectively.[10] Yet medical insurance rates will likely remain below state levels for each county, with only Williamson county having less than 15% uninsured in 2014.[11] Furthermore, while per capita income has shown steady increase during the most recent American Community Survey summary, the percent of the population living in poverty has remained almost stagnant, with each county except Williamson fluctuating between 15% and 20%.[12] As the population of Central Texas grows, this suggests that the raw number of uninsured, medically vulnerable patients will continue to grow. [Note: additional demographic data can be found in Appendix 1.]

Mortality

Chronic diseases and illness are the leading causes of death, disability, and health care costs.[2] Austin/Travis County found that in 2013, 57% of all deaths were due one of five causes: cancer, heart disease, accidents, chronic lung disease, and stroke, generating 12,185 hospitalizations and a cost of $702 million.[13] Listed below are the age-adjusted mortality data per 100,000 persons for all five counties in UT-Austin's defined catchment area.[14] The most complete data were for Travis and Williamson counties, which had lower rates of cancer, heart disease, stroke, chronic lung disease, and diabetes than Texas as a whole; Travis County had a higher rate of accidents. Bastrop and Caldwell counties had higher rates of cancer, and Bastrop County had more accidents and suicides than Texas. Hays County had lower rates of heart disease and chronic lung disease and Alzheimer's disease than the state.

	Bastrop		Caldwell		Hays		Travis		Williamson		Texas	
	Population: 78,703		Population: 39,231		Population: 175,412		Population: 1,108,503		Population: 463,178		Population: 26,448,193	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Deaths from All Causes	626	795.5	305	761.7	897	688.1	4962	652.4	2195	595.2	178,501	749.2
Cancer (All)	157	188	80	191.4	209	148.6	1056	136.3	512	129.8	38,289	156.1
Lung	46	54.3	19	N/A	40	28.3	209	27.6	128	32.3	9,416	38.4
Breast	14	N/A	N/A	N/A	18	N/A	89	19.6	35	14.9	2,744	20.1
Prostrate	N/A	N/A	N/A	N/A	10	N/A	45	14.6	25	17.8	1,762	18.7
Colon	10	N/A	N/A	N/A	20	N/A	95	11.6	48	12.4	3,593	14.6
Heart Disease	129	164.8	68	163.8	181	143.1	902	120.9	375	104.1	40,150	170.7
Accidents	53	68.2	19	N/A	47	31.2	491	53.6	122	29.2	9,341	36.8
Motor Vehicles	23	28.3	N/A	N/A	18	N/A	20	10.8	27	6	3,511	13.4
Cerebrovascular Dis. (Stroke)	36	45.9	16	N/A	51	41.7	236	34.1	119	34.3	9,238	40.1
Chronic Lower Respiratory Disease	47	59.9	13	N/A	29	23.2	241	36	113	31.8	9,787	42.3
Alzheimer's	16	N/A	N/A	N/A	36	32.7	128	19.9	78	24.3	5,284	24.4
Kidney Disease	N/A	N/A	N/A	N/A	21	17.3	82	11.9	48	13.7	3,727	15.9
Liver Disease	N/A	N/A	N/A	N/A	23	14.5	96	9.7	45	9.9	3,410	12.8
Diabetes	N/A	N/A	10	N/A	20	N/A	120	16	39	10	5,262	21.6
Suicide	19	N/A	N/A	N/A	18	N/A	139	12.8	54	11.9	3,047	11.6
Septicemia	N/A	N/A	N/A	N/A	10	N/A	65	8.6	35	9.8	3,879	16.4
Influenza/Pneumonia	N/A	N/A	N/A	N/A	<10	N/A	76	10.5	21	5.8	3,338	14.4

*Age-Adjusted death rates per 100,000 population (all ages)
*Compiled data from Center for Health Statistics, Department of State Health Services, Health Facts Profiles, 2013

Race and Ethnicity

Over the past few decades, mortality rates for all races/ethnicities in Austin/Travis county have dropped; however, Austin/Travis County Health and Human Services Department (HHS) notes in their 2016 report: "*Despite improvements, disparities in mortality rates still exist among racial/ethnic groups.*"[13]

Race and ethnicity impact mortality rates, socioeconomic status, and barriers to care nationally as well as in the five county catchment area. For people of color, this impact can be seen even at infancy. Age-adjusted mortality data from the Health and Human Services Department reveals that African-Americans have the highest mortality rates from heart disease, cancer, and stroke and chronic lung disease.[13] With almost all causes, Latinos have better health outcomes than all races included in the data. Latinos have more than double the mortality rate for diabetes than Caucasians, and higher rates of stroke, however African-Americans have higher

mortality rates than all other races included.[13] In Williamson County, African-Americans have the highest mortality rates for diabetes, cancer, heart disease, and stroke. In contrast, non-Hispanic whites have higher mortality rates for lung disease, suicide, and unintentional injuries.[15]

Socioeconomic Status

     Economic stability can affect health in a variety of ways, including but not limited to: the ability to pay copayments, purchase prescriptions and healthy foods, and afford transportation to medical appointments. In Travis County, those who had lower incomes not only had the highest rates for diabetes, cardiovascular disease, obesity, and mental health outcomes, but they also were less likely to smoke.

     Income is also disproportionately related to race.[16] Austin/Travis County reported that 52% of African American children and 33% of Latino children under the age of 5 live at or below federal poverty levels, compared to 5.4% of Caucasian children.[17] Travis County is highly economically segregated, with areas of poverty limited to its east and south.[16] Each of the five counties have noticeable differences in poverty by region and zip code, despite Travis, Hays, and Williamson county residents having higher life expectancy the state average. A recent analysis of income inequality, as measured by the ratio of households with income in the 80th percentile to households in the 20th percentile, found that Hays county (5.4) was higher than both state (4.9) and


national (4.6) levels.[18] The areas in Hays county that have over 40% poverty also have a high concentration of seniors.[19] Williamson has higher education rates, higher income levels, and lower unemployment rates than the state of Texas as a whole. In 2016, Williamson County was for the seventh consecutive year rated as one of the top three healthiest counties in Texas, scoring high in health outcomes, overall health factors, health behaviors, clinical care, and social and economic factors.[15] However, these outcomes vary widely based on zip code, and so by transitivity: income, race and ethnicity.
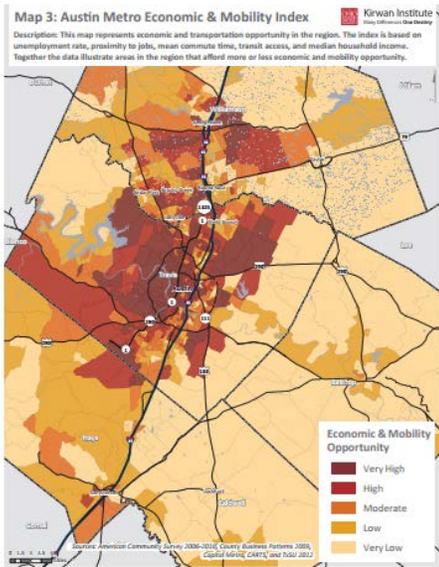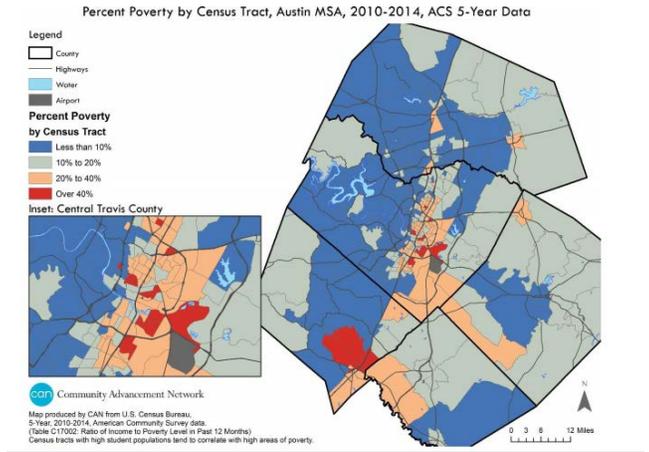
Education and Unemployment

     Using data from 2000 to 2010, the Kirwan Institute for the Study of Race and Ethnicity and Green Doors Austin released a report mapping Austin's opportunities. Two maps are shown: economics and mobility, and education index. For the first (left), several components: proximity to jobs, unemployment, commute time, transit access, and median income levels, were analyzed. Results indicated that regions with the highest SES had the greatest opportunities for economic development. For the second map (right), graduation rates, enrollment, student-to-teacher ratios, proficiency, and adult educational attainment were
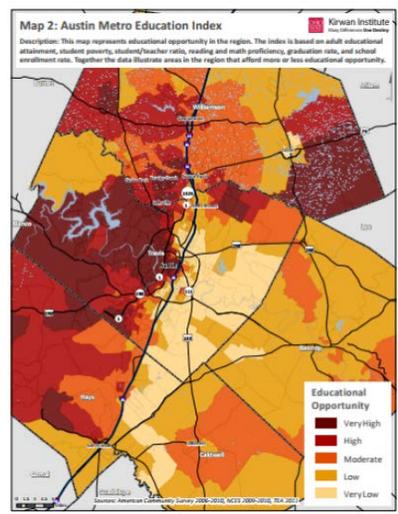

taken into account.[20] Both show a divided Travis County, with I-35 continuing to act as a dividing line, consistent with Austin's "Negro District" segregation outlined in Section 1.[6,20] The majority of opportunities are located on the west side of the city, while the majority of Latinos, African-Americans, and persons living in poverty reside on the east side.[20]

Illustrating this dichotomy, studies found that, in 2015, only 30% of low income students in Central Texas were considered "school ready," compared to 51% of non-low income. African American (40%) and Latino (44%) children were much less likely to be school ready when compared to non-Hispanic whites (64%).[21] Additionally, in Travis county, unemployment was more highly correlated with having cardiovascular disease than any other factor other than age,[13] yet while the 2015 rate was a low 3.2%, the Community Advancement Network found that 69% of the jobs created from 2005 to 2015 did not pay enough to meet the basic needs of a resident family of 1 adult and 2 children.[16]

Health Insurance

Individuals without insurance are less likely to receive medical care, more likely to die earlier, and more likely to have poor health status.[22] Prior to the passage of the Affordable Care Act, Texas had the highest uninsured rate in the nation at 27% compared to 18% nationally.[23] The rate has dropped to 21% in 2014, but Texas' still remains one of the highest among the states.[11] The chart above shows the rate of insurance by county from 2010-2014, compared to the

Uninsured under 65 years by County

Source: SAHIE 2010 - 2014

Bastrop
Caldwell
Hays
Travis
Williamson
Texas
HP2020
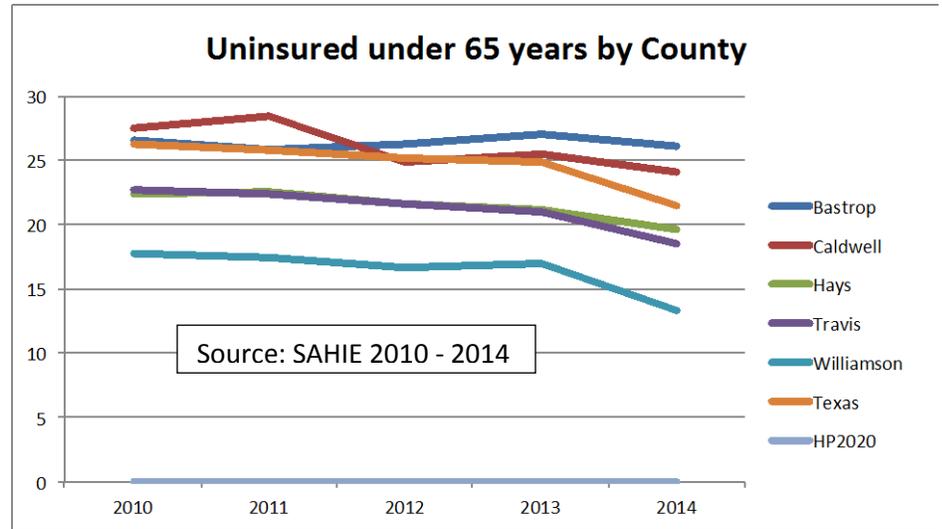
HealthyPeople 2020 goals of 100% insurance by 2020.[24] In Central Texas, Bastrop and Caldwell had the highest uninsurance rates, while Williamson had the lowest; however 20% of Latinos in Williamson County lack health insurance compared to 10% for non-Hispanic whites.[11,15] Furthermore, Austin/Travis County Health Department reports that 33% of Latino Austinites were uninsured.[17]

Data from 2004-2006 showed disparities in subpopulations: 24% of Native Hawaiians and Pacific Islanders and 31% of Korean Americans did not have insurance. Asian Americans altogether are the 2nd largest uninsured race in Texas.[17] This may be in part due to their working in small businesses that do not offer insurance.[17]

Disparities in Sexual Orientation and Identity

People self-described as LGBTQ (Lesbian, Gay, Bisexual, Transgender and Queer/Questioning) face multiple socioeconomic barriers, discrimination and stigma regarding access to care, quality of care, and relevance of care.[17] They have been described as "hard to reach" by health care providers.[17] These barriers of discrimination and stigma are even greater for LGBTQ individuals who are also people of color, and who are more likely to have medical comorbidities including: HIV/AIDS and other chronic conditions such as heart disease and diabetes, among others.[17] According to the CDC[25]:

● LGBT youth are 2 to 3 times more likely to attempt suicide.
● LGBT youth are more likely to be homeless.
● Lesbians are less likely to seek preventive services for cervical and breast cancer.
● Gay men are at higher risk of HIV and other STDs, especially among communities of color.
● Lesbians and bisexual women are more likely to be overweight or obese.
● Transgender individuals have a high prevalence of HIV/STDs, victimization, mental health issues, and suicide, and are less likely to have health insurance than heterosexual or LGB individuals.
● Elderly LGBT individuals face additional barriers to health because of isolation, lack of social services, and lack of culturally competent providers.
● LGBT populations have the highest rates of tobacco, alcohol, and other drug use.

Cancer

Cancer was the leading cause of death in all five Central Texas counties, and has been the leading cause of death in Travis county since 2007.[13] While breast cancer and prostate cancer have more than double the incident rates in Travis county, lung cancer has higher mortality.[13] Cancer was highest in Bastrop and Caldwell both in comparison to the other counties and to the state of Texas as a whole.

Breaking down data by country of origin, the American Cancer Society reports smoking rates are low for Chinese women both in the United States and in China, but lung cancer rate is high. A possible explanation may be due to indoor environmental exposure to biofuels, cooking oils at high heat, secondhand smoke, or genetic susceptibility; however, further research is needed.[26] Cancer has been the leading cause of death in Asian-American women nationally since 1980.[27] Vietnamese Americans' cervical cancer incidence rates are five times higher than those of non-Hispanic white women. Vietnamese American men have the highest liver cancer rates and Korean Americans have higher rates of stomach cancer than all other racial/ethnic groups.[27]

Heart and Cerebrovascular Disease

Heart and cerebrovascular disease for the most part share risk factors and treatments, and together are the greatest killers of Central Texans. Heart disease has been the leading cause of death nationwide and in the state since 1950, and is currently is currently the highest in the overall catchment area; however in Travis County it was replaced by cancer in 2007.[13] Austin/Travis County Health and Human Services suggests that the change in heart disease related-deaths may due to reductions in cigarette smoking;[13] however, as discussed previously, age, race and socioeconomic factors all contribute.

As shown on the table on the first page of this section, all five Central Texas counties had rates of heart disease prevalence below the Texas average of 171 per 100,000, with Williamson (104) and Travis (121) being the lowest. However, the rates of cerebrovascular disease in Bastrop (45 per 100,000) and Caldwell (42) were higher than the state rate (40) while Williamson and Travis (34 each) had rates of cerebrovascular disease below the Texas average.[14]

Diabetes

Most people with diabetes have type-II, which is a major risk factor for cardiac and cerebrovascular disease, blindness, renal disease, and neuropathy leading to pain and lower extremity amputations. For instance, adults with diabetes have higher prevalence rates of cardiovascular disease (23%) in contrast to non-diabetic adults (3.5%).[22] Although type-II diabetes prevalence was lower than state average (22 per 100,000 persons) in Caldwell (10), Williamson (10) and Travis (16) counties, it disproportionately affects African-Americans and Latinos.[22] While accounting for only 0.6% of the population in Travis County in 2000, American Indians/Alaskan Natives have the highest rates of diabetes nationwide.[28] Other risk factors for diabetes include being age 65 or older and not graduating high school. The American Diabetes Association found that of the 29 million Americans with type-II diabetes, 8 million are undiagnosed. Non-Hispanic whites have the lowest undiagnosed rate at 25%, compared to 33% of non-Latino Blacks, 37% of Latinos, and 40% of Asian-Americans.[28] The rates for diagnosed diabetes vary by subgroup both among Asian-Americans and Latinos.[28] Data gathered from the Asian-American Resource Center shows that Asian-American immigrants were seven times more likely to have diabetes than the general population.[22] They also found that although acculturation was associated with increased likelihood of obesity, current BMI standards that link obesity to type-II diabetes in other races may not be an accurate predictor of risk for diabetes in Asian-Americans.[17,27] Diabetes will continue to be a concern with aging populations as nationally 26% people aged 65 or older have type-II diabetes.[28]

Accidents and Natural Disasters

Accidents in Bastrop and Travis counties were noticeably higher than state averages. In Texas, and nationwide, motor vehicle accidents are a leading cause of death.[22] Health promotion/disease prevention interventions might focus on occupational health and public safety, e.g. reducing cell phone use while driving.

Both Bastrop and Travis counties have experienced natural disasters (storms) in March, April, and June of 2016 and received funds from the Federal Emergency Management Administration for disaster assistance.[29-30] Hays had two major floods in 2015, straining the county's social services,[18] while wildfires in 2011 destroyed 1,600 homes in Bastrop County. Natural disasters impact mortality and economics, and survivors may also have unique physical, emotional and mental health needs in response to physical and mental trauma.

Tobacco

Austin/Travis County attributed 785 deaths to tobacco in 2013, higher than the combined total of deaths from suicide, car accidents, homicide, crack, heroin, cocaine, HIV/AIDS, and fire.[13] Almost 90% of lung cancer cases in men and 80% in women are attributed to smoking or secondhand smoke.[13] Tobacco use is also associated with increased risk for other types of cancer along with heart disease, stroke, and chronic lung disease; maternal smoking is the leading newborn health risk.[13] There are clear disparities in tobacco use by income and race.[13] National data show that 75% of people with mental illness or addiction smoke cigarettes compared to 23% of the general population.[31]

Obesity and Physical Activity

Obesity has been linked to poor diet and lack of physical activity with resulting increased risk of heart disease and its risk factors—type-II diabetes, hypertension—as well as osteoporosis and certain cancers.[22] In Travis County, African-Americans and Latinos have higher obesity prevalence rates than non-Hispanic whites.[17] Additionally, residents lacking a high school diploma are 50% more likely to be obese (30%) compared than high school graduates (20%). Income is also significant, as 28% of those with incomes under $25,000 were obese, compared to 25% of people with a salary of $25,000 - $75,000 and only 14% of those with incomes over $75,0000.[13] Older adults also had an increased prevalence of obesity as did women. The table on the next page shows rates of obesity and physical activity by county and gender for 2001, 2009, and 2011.[32] Texas had more obesity and less physical activity in all groups in both years than the national average, with worsening rates of both as time passed. Hays, Travis, and Williamson counties had less obesity and more physical activity than the Texas average in 2001 for men and women, but obesity rates increased over time, especially for Hays County.

Life Expectancy

Life expectancy has improved significantly from 2001-2011 (see table below) and Williamson, Travis and Hays counties have higher life expectancies than both the state and national average. However Bastrop and Caldwell have lower rates than the state of Texas. Life expectancy for Texans also differs significantly by race and ethnicity.[33] African-American men in 2012 had 4.1 years' lower life expectancy than non-Hispanic white men while African-American women lived on average 3.3 years less than whites. Latino men and women the highest life expectancies of all races, living 1.2 years longer than the total for all other racial/ethnic groups in 2012.[33]

Obesity Rates: 2001, 2009, and 2011

State/County	Male obesity prevalence, 2001 (%)	Female obesity prevalence, 2001 (%)	Male obesity prevalence, 2009 (%)	Female obesity prevalence, 2009 (%)	Male obesity prevalence, 2011* (%)	Female obesity prevalence, 2011* (%)	Difference in male obesity prevalence, 2001-2009 (percentage points)	Difference in female obesity prevalence, 2001-2009 (percentage points)
United States	26.1	28.7	32.8	35.1	33.8	36.1	6.7	6.4
Texas	27.7	31.3	34.9	38.0	36.0	38.9	7.2	6.7
Bastrop	26.0	31.7	35.3	37.7	36.5	38.4	9.3	6.0
Caldwell	26.8	33.1	35.9	42.1	36.9	43.1	9.1	9.0
Hays	23.2	28.5	33.8	36.3	35.1	36.4	10.6	7.8
Travis	20.8	26.0	28.4	32.7	29.3	33.5	7.6	6.6
Williamson	23.9	26.5	32.6	32.0	33.5	32.9	8.7	5.4

*Methodological changes in the 2011 BRFSS may affect comparability between the 2011 estimates and estimates from earlier years

Source: Institute for Health Metrics and Evaluation , 2001-2011

Physical Activity Rates: 2001, 2009, and 2011

State/County	Male sufficient physical activity prevalence, 2001 (%)	Female sufficient physical activity prevalence, 2001 (%)	Male sufficient physical activity prevalence, 2009 (%)	Female sufficient physical activity prevalence, 2009 (%)	Male sufficient physical activity prevalence, 2011* (%)	Female sufficient physical activity prevalence, 2011* (%)	Difference in male sufficient physical activity prevalence, 2001-2009 (percentage points)	Difference in female sufficient physical activity prevalence, 2001-2009 (percentage points)
United States	56.8	46.7	57.8	51.3	56.3	52.6	1.0	4.7
Texas	55.2	44.1	56.4	48.4	54.1	49.5	1.3	4.3
Bastrop	53.9	45.8	57.4	49.4	56.4	50.5	3.5	3.6
Caldwell	53.9	44.7	55.6	49.0	53.2	50.4	1.7	4.3
Hays	61.6	51.6	63.9	56.6	61.6	57.8	2.4	5.0
Travis	64.7	51.3	64.4	56.1	62.2	56.6	-0.2	4.8
Williamson	64.6	54.5	63.5	56.9	62.2	57.8	-1.0	2.4

*Methodological changes in the 2011 BRFSS may affect comparability between the 2011 estimates and estimates from earlier years
Source: Institute for Health Metrics and Evaluation , 2001-2011

Life Expectancy: 2001, 2009, and 2011

State/County	Male life expectancy, 1990 (years)	Female life expectancy, 1990 (years)	Male life expectancy, 2000 (years)	Female life expectancy, 2000 (years)	Male life expectancy, 2010 (years)	Female life expectancy, 2010 (years)	Difference in male life expectancy, 1985-2010 (years)	Difference in female life expectancy, 1985-2010 (years)
United States	71.5	78.3	74.1	79.2	76.1	80.8	5.2	3.0
Texas	71.2	78.4	73.9	78.9	75.8	80.4	5.3	2.4
Bastrop	71.6	78.7	74.1	79.5	75.6	79.8	5.3	0.2
Caldwell	72.3	78.5	73.9	78.3	75.6	79.6	4.8	0.3
Hays	74.1	79.9	76.3	80.3	77.6	81.3	4.5	1.6
Travis	73.2	79.7	75.9	80.1	78.4	82.4	6.5	3.5
Williamson	73.7	80.2	77.4	81.2	79.9	82.7	7.5	3.2

[Data Source: Institute for Health Metrics and Evaluation, 1985-2010]

Mental Illness

People with serious mental illness (SMI) die an average of 25 years earlier than their peers.[31] A multi-state study published in 2006 found that on between the years of 1997-1999 people with SMI living in Texas had between 28 years of potential life lost.[34] While suicide is a significant concern in this population, people with an SMI diagnosis are more likely to die of chronic health problems and illnesses at rates of 2-3 times higher than the general population.[31] Texas Department of State Health Services estimates that the prevalence for serious and persistent mental illness is a little under 3% or the population, although various factors including stigma and lack of adequate screenings can lead to underdiagnosis, late diagnosis, and lack of treatment.[8] Additionally people living with a SMI had increased health risk factors including smoking, harmful alcohol use, overweight/obesity, poor diet, excessive salt intake, and lack of exercise.[22]

Aging Population

All five Central Texas counties are aging, but Williamson and Travis county are expecting a particularly large growth in the aging population.[4,15] Almost 21% of the population age 50 and older in Travis County lives at or below 200% of poverty.[17] Austin MSA has the third fastest growing population of adults 65 and older in the country and the fastest growing population of adults age 55-64. Yet the number of physicians who are accepting new Medicare patients dropped from 78% in 2000 to only 58% in 2012.[17] Age is a significant risk factor for chronic illnesses including heart failure, diabetes, and dementia, yet Austin/Travis County surveys found that prevention services are less utilized by elderly persons of color.[17] An Austin/Travis County Task Force on Aging found that seniors found transportation problems to be is a serious barrier to care.[17]

Alzheimer's Disease

Alzheimer's disease is the 6th leading cause of morbidity in Texas and its prevalence was higher than state averages in Hays County.[14] African-Americans and Latinos may be at higher risk for Alzheimer's, and its incidence is expected to grow as life expectancy increases.[22]

<u>Suicide</u>

Suicide was notably more prevalent in Travis County, than other counties. In Austin/Travis county the mortality rate from suicide increased from 9.8 per 100,000 in 1999 to 13 per 100,000 in 2013, higher than Texas state rate of 12.[14] In 2013, non-Hispanic whites accounted for 82% of suicides in the City of Austin.[35] The majority of deaths by suicide (72%) were committed by men. The Texas Department of State Health Services estimated in 2014 that the years of potential life lost due to suicide before age 65 (67,276) was much higher than years lost to homicide (41,700).[36]

Suicide differs dramatically across age groups. Nationally, it is the second leading cause of death in ages 15-34 years old, the third leading cause of death in ages 10-14, the fourth leading cause in people aged 34-55, the fifth in ages 45-54, and the seventeenth leading cause of death in people 65 and older. Multi-racial adults over the age of 18 reported the highest rate of suicidal thoughts in the previous 12 months (8%) compared to all other ethnic groups including non-Hispanic whites (4%).[37] As mentioned earlier, LGBTQ youth are at increased risk of suicide.[25]

<u>HIV/AIDS</u>

HIV/AIDS disproportionately affects African-American communities in Travis County: HIV prevalence in African American men is double that of non-Hispanic white men, and prevalence among African-American women is 12 times higher than non-Hispanic white women.[35] African-Americans are also more likely to die from HIV/AIDs, with age-adjusted mortality of 15 deaths per 100,000 in comparison to 1.6 deaths per 100,000 for non-Hispanic whites.[35] Below is a chart from

Table 8.3. Percentage of Persons Living with HIV by Gender, Race/Ethnicity and Exposure Category, Travis County, 2012.

Gender	Race/ethnicity	Exposure Category				
		MSM (%)	IDU (%)	MSM/IDU (%)	Heterosexual (%)	Pediatric and Other Adult (%)
Male	White	85.6	3.0	9.7	1.4	0.3
	Black	54.8	17.6	12.5	14.4	0.7
	Hispanic	80.2	5.7	6.8	6.8	0.5
	Other	73.2	7.4	7.7	11.6	0.0
	All males	77.9	6.6	9.3	5.6	0.5
Female	White	-	41.9	-	57.2	0.9
	Black	-	29.5	-	66.8	3.6
	Hispanic	-	15.6	-	81.6	2.8
	Other	-	40.0	-	60.0	0.0
	All females	-	28.5	-	68.8	2.8

Data Source: TB/HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

Austin/Travis County's Critical Indicators Report.[35] They found that men who have sex with men (MSM) comprised 78% of people living with HIV/AIDS (PLWHA) and 86% of non-Hispanic white men living with HIV/AIDS compared to 55% of African-American PLWHA and 80% of Latino PLWHA who were MSM. Intravenous drug use (IDU) and heterosexual exposure were highest among African-American PLWHA.[35] IDU was highest among African-American women with HIV/AIDS while heterosexual exposure was highest among Latino women with HIV/AIDS.

<u>Birth Outcomes and Infant Mortality</u>

Birth outcomes and infant mortality has one of the highest disparities by race/ethnicity. African-American women are 2-3 times more likely to give birth to premature or low birth weight babies than non-Hispanic white women,[21] regardless of education level, income, and access to care. College-educated African-American women with access to prenatal care have worse birth outcomes than non-Hispanic low-income women who have only a GED.[35] However, in Travis County, disparities in access to care increase the risk of negative birth outcomes, as 41% of African-American women and 53% of Latinas do not receive any prenatal care in the

Infant Mortality Rates by Race/Ethnicity for for Travis County, 2000 - 2011

* Due to low number of infant deaths, rates were not calculated for 2011
Data Source: Center for Health Statistics, Texas Department of State Health Services

first trimester, compared to 19% of non-Hispanic white women. Women who give birth without prenatal care are 3-4 times more likely to die from complications from pregnancy.[17] Infant mortality by race is shown in the figure on the right; of note, the Healthy People 2020 goal is to reduce infant mortality to 6.0 deaths per 1,000.[38]
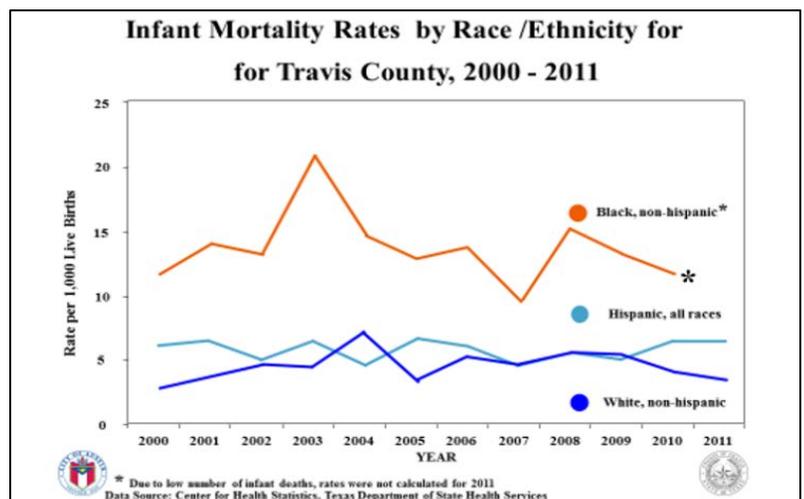
Infant, Neonatal, Fetal, Perinatal, and Maternal Deaths by Public Health Region, County and City of Residence
Texas, 2009
(Rates, Ratios Per 1,000 Live Births)**

County	Live Births	Infant Deaths		Neonatal Deaths		Fetal Deaths		Perinatal Deaths	
	No.	No.	Rate	No.	Rate	No.	Ratio	No.	Rate
TEXAS	401,599	2,394	6	1,514	3.8	2,098	5.2	3,612	8.9
BASTROP	914	7	7.7	3	3.3	6	6.6	9	9.8
CALDWELL	494	2	4	2	4	3	6.1	5	10.1
HAYS	2,087	11	5.3	7	3.4	10	4.8	17	8.1
TRAVIS	16,430	93	5.7	66	4	74	4.5	140	8.5
WILLIAMSON	6,284	25	4	18	2.9	30	4.8	48	7.6

- Rate/Ratio is not computed if number of deaths is equal to 0.
* Rate/Ratio is not computed if number of live births is 20 or less.
** Perinatal Rate per 1,000 Live Births and Fetal Deaths (20+ weeks).
+ Indicates city is located in more than one county.

Finally, listed to the left are infant deaths by county. Caldwell and Bastrop had higher rates than Texas as a whole for both fetal and perinatal deaths although these counties have had less than 1,000 deaths per county. [39]

Teenage Pregnancy

In Travis County, 3 out of every 100 births is by a mother aged 15-17. Latinas have the highest percentage of teenage births – 5.3% – compared to 0.6% of non-Hispanic white women. African-American women had the highest number of births for women less than 20 years old (15%).[35]

Sexually Transmitted Infections

Chlamydial infections are the most commonly reported STIs in Travis County and the United States. Infections have increased 90% between the years 2003 and 2012, with most cases reported by women at a rate of 124% compared to men.[35] African-Americans had an incidence rate that was five times higher than for non-Hispanic whites. Latinos also had high incidence rates – 43% of all known cases[35], though still not as high as those of African Americans.

In 2012 Travis had the 4th highest rate of *syphilis* in the state, and primary and secondary syphilis rates have increased by more than 300% since 2003. Men accounted for almost 95% of cases, and more than half (53.7%) the diagnosed were between the ages of 20 and 34.[35] Although incidence rates in African-Americans declined in 2012, they were twice as high as in non-Hispanic whites. Rates among Latinos have been increasing dramatically since 2010.[35] Consequently, focus on African-American and Latino men should be a priority; the incident rate in women has decreased by 52% since 2008 while the rate for men has increased.[35]

Gonorrhea is the second most reported STI in Texas and also disproportionately affects African-American men and women. From 2011-2012 African-Americans had incidence rates 8-10 times higher than that of non-Hispanic whites.[35] Gonorrhea incidence among African-American men in 2012 (691 per 100,000) was more than six times higher than their non-Hispanic white counterparts (103), whereas African-American women had an incidence rate 13 times that of White women (552 compared to 41).[35]

People without Homes

Austin ECHO does yearly counts to assess the homeless population in Travis County and has found it to be increasing, from 6104 in 2014 to 7054 in 2015.[40] Compared to people with homes, homeless individuals have worse physical and mental health, as well as higher rates of hypertension, diabetes, tuberculosis, asthma, HIV/AIDs, and medical hospitalizations.[41] They are also more frequently incarcerated. A 2009 study published by the American Psychology Association noted that as many as 1 in 6 persons incarcerated was homeless, and that many people released from incarceration experience homelessness.[41]

Approximately 32% of people experiencing homelessness are considered chronically homeless. The most common causes of homelessness for single adults is lack of affordable housing, unemployment, mental illness, and substance abuse.[40] Despite comprising only 8% of the population of Travis County, African-Americans are more likely to experience homelessness than any other race or ethnicity and are five times more likely to have stayed in a homeless shelter than non-Hispanic whites.[40]

Racial and Ethnic "Othering" in Data Analysis

      While data reflects differences between African-Americans, Latinos, and non-Hispanic whites, much of the data available and utilized in this plan does not report separately on Asian Americans; rather, it includes them under the term "other." This is problematic due to the increasing numbers of Asian Americans and their unique health needs. Moreover, the term "other" can be stigmatizing. During a key informant interview, an Asian American woman stated:

> *"I think as a minority group we have been overlooked and ignored historically, and we also don't speak up because we don't even think we're counted, we are not counted. The State of Texas does not even consider us a person: it's "other." Other to me means you're too small to matter, and you're too small to count at all, you're that insignificant. Even when you do collect [data on] Asian Americans, we are very diverse, as you know, many different ethnic groups. We are very varied in our health needs and issues, yet they again refuse to do that due to lack of time and funding, they don't even ask what the scope would be to study us or disaggregating data."*

      Given the current limitations of state and county data, we utilize "other" for the purposes of this report to group all other racial/ethnic groups other than Latinos, African-Americans, and non-Hispanic whites. However, future efforts should assess data among Asian Americans as both their aggregate and individual country-of-origin subgroups. This also applies to Latinos, as their health can vary dramatically based on country of origin as well.

Additional Data Considerations

      One barrier in preparing this report is the lack of uniform data across counties. While Austin/Travis County Health and Human Services maintains detailed health data across race, ethnicity, demographic and socioeconomic status for Travis, counties with smaller populations such as Bastrop and Caldwell have significantly less data regarding these topics, which may hinder the way services can be and are delivered, as well as the specificity of this Strategic Plan.

Methodology

We had two approaches to gathering information about the health needs and priorities of Central Texas: examining pre-existing data sources and interviews with key informants. The data sources reviewed included: *Seton Community Health Assessments* published 2016 for Travis, Hays, Caldwell, and Bastrop counties and the 2016 *Community Health Assessment for Williamson County* prepared by Williamson County and Cities Health District. Additional assessment tools include *Health Inequities in Austin Travis County* (2016) and *Community Health Assessment Austin/Travis County, Texas* (2012) by Austin/Travis County HHS; dashboards from the Community Advancement Network's *Austin - "Family-Friendly" City: Perspectives and Solutions from Mothers in the City* produced by Mama Sana/Vibrant Woman; *Southeast Georgetown Needs Assessment: Documenting Resident Stories and Community Conditions* (2015) by the Georgetown Health Foundation and UT-Austin's Institute for Urban Policy Research and Analysis; *Outreach and Engagement Strategies for Asian American Sub-Populations* and *Demystifying "Other" Exploring PI Health Inequities* by the Asian American Resource Center; *Geography of Opportunity in Austin*, and the *Geography of Opportunity in Austin* by the Kirwan Institute for the Study of Race and Ethnicity.

Additionally, we also performed a series of key informant interviews with various stakeholders including Texas Senator Kirk Watson; Teresa Wagner, Director, Literacy Coalition of Central Texas; Regina Rogoff, CEO, People's Community Clinic; Paula Rojas, community organizer and community equity strategy consultant for Dell Med's Department of Population Health; and from Austin/Travis County DHHS: Stephanie Hayden, Deputy Director, Cassandra DeLeon, Chronic Disease Prevention and Control Program Manager, and Adrienne Sturrup, Program Manager. We also performed structured interviews with eight of the nine members of Dell Med's Department of Population Health's Community Strategy Team (CST). The CST was formed in June 2016 and consists of nine grassroots leaders, connectors and advocates from various counties in Central Texas who represent or work in or with 22 distinct communities. All interviews were audio recorded to ensure accuracy. Finally, we conducted focus groups with 13 Central Texas residents along with a similar number of Dell Medical School faculty and staff who attended a reception for persons who had applied for CST membership but had not been selected. They were divided into three focus groups each with 2-3 facilitators (a mix of Dell Medical School staff and graduate students UT-Austin's School of Social Work and the University of Health Sciences School of Public Health, Austin Regional campus. The facilitators recorded participants' responses and guided discussion. They later debriefed, and were asked to individually review the notes with CoPHII team in order to ensure accuracy. The identified needs reflected in this report are largely based on the key informant interviews, CST applicant discussion forum and pre-existing assessments.

Language

Difficulty communicating within and outside of health systems due to language discordance is a recurring issue. For health systems, language incapacity permeates all aspects of the system, from each level of health care provider to all forms of written communication (paper forms, medical records, notes, and electronic resources such as patient portals). As an example, when one key informant's child was hit by car, neither the paramedics nor the emergency department staff spoke the child's and family's native Spanish; the admission interview and medical history were given in English without a translator, delaying care in a time-sensitive emergency situation. The informants also felt that non-English speakers are stigmatized and might not seek care from health care providers who only speak English.

In another example, an informant described a program designed to teach healthy cooking that focused on Latino foods. The program was attended by mainly Latinos, many of whom were only fluent in Spanish. Yet, it provided cookbooks that were written only in English, lessening its possible impact. Furthermore, while health educational material is being provided increasingly in both English and Spanish, few health care venues provide translation services in East and South Asian languages, although Asian minorities comprise >7% of Central Texas. However, even with proper translation services, lack of health literacy may limit effective provider-patient communication, and consequently sound decision-making.

Cultural Humility and Cultural Competence

Informants stressed the need for service providers to be culturally sensitive, competent, and respectful. For example, CST members felt provider-patient communication suffers when Western providers automatically reject their Asian American patients' use of herbs and traditional Eastern medicines. One CST member suggested doctors should do a better job explaining their processes to patients, especially during referrals and care handoffs. Not only are patients unaware of their rights and responsibilities, but their confusion can also lead to mistrust and their feeling less valued, resulting in care nonadherence. An African-American CST member felt she was always represented her race: "*When we walk in...we are never individuals—ever.*" Such demeaning stereotypes inhibit good communication. CST members felt there were generic problems with providers treating patients as individuals and with respect and dignity without regard to race/ethnicity, economic status, educational level, sexual orientation, identified gender, physical ability level, literacy, physical appearance, history of incarceration or interaction with the criminal justice system, homelessness, country of origin or immigration status, diagnosis, or ability to see or hear. They felt health care providers and medical students could benefit from focused training to combat discrimination for any reason and strongly urged that Dell Medical School include minority groups in designing and delivering such programs.

CST members and applicants encouraged the medical school to learn from and potentially implement successful models developed elsewhere. Almost everyone felt that Central Texas should emulate community health worker and patient navigator interventions that have been successful elsewhere in enhancing access to high-quality, low-cost care. Informants also discussed a need for shared electronic records that could improve the coordination of care and identifying those whose needs are not being met. Other successful models for improving health mentioned by informants included: an international community health center in Seattle focused on integrating health care for immigrants; a mental health circle in Philadelphia to help people process traumatic experiences surrounding deportation; a clinic in Minneapolis containing information posted "*in every language you can think of*;" and progress made in New York and California treating immigrant populations. They felt that groups in Central Texas suffering from health inequities might benefit from similar programs.

Social Determinants of Health

A number of social factors impact health, as shown at right.[42] Austin/Travis County HHS noted in their 2015 report that "*the absence of disease does not automatically equate to good health.*"[14] Key informants and CST members and applicants agreed: interventions must address the needs of the whole individual. "*Health is not accomplished in doctor's office.*" When asked what population health meant to her, an African-American woman stated, "*I would like it to mean the overall health and wellness – something holistic and inclusive of person. What all people need to thrive. Not just about health outcomes but social determinants of health.*"

Social Determinants of Health

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	
Medical bills	Playgrounds	Higher education			Quality of care
Support	Walkability				

Health Outcomes
Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Focusing on factors outside of health care that affect health – addressing the overall wellbeing of the community – was seen as priority by most key informants. Caring for health extended beyond doctor visits, screenings and health care facilities, and into to ability to exercise, access to green spaces, healthy and affordable foods, transportation, and affordable housing, many of which are lacking in Austin.

Holistic Care

Informants acknowledged the complexities of living in Central Texas and stressed the need for solutions that treat the person as a whole, at all levels, via integrated care models designed to treat acute ailments, chronic disease, mental health, and substance use disorders. Further, they stressed the need to provide inclusive wraparound services attuned to patients' languages and literacy levels, including access to and education about healthy foods and nutritional services, dental care, pharmacy access, childcare, exercise services, acupuncture

and other services for relaxation and stress relief, substance misuse, sexual function, transportation, and social services, e.g. food pantries and financial aid. Most CST members supported use of community health workers and in-home care. Particularly concerning to the members were urban stress and psychological trauma from accidents, physical violence and abuse, bullying, life-threatening illnesses, incarceration, and racism. Several informants identified the ability to navigate complex health systems as a need.

Patient-Centered Care

Informants discussed the need for health and social services to be patient centered and focus on the needs of the individual within the context of the community. Interventions should be community based to build trust to reduce barriers to care. "*Meet them where they are,*" one informant stated. CST members also stressed working with existing community organizations rather than introducing new, competing services. They called for use of mobile care clinics and telemedicine to enhance access for those in the most rural areas facing increasing transportation barriers.

Economics and Housing

Housing in Austin is increasingly expensive and unaffordable for many longtime residents. Stakeholders noted that lower income African-Americans and Latinos are being pushed out of the city. As people struggle to provide for basic needs, they have less money for medications, insurance copays, etc. CST members felt that for those with long-term chronic illnesses, the cost of medications can be a monthly stressor, noting that even with insurance, treatment costs for some diseases (e.g. HIV) can be $200-500/month. A review of the calls made to the United Way's 2-1-1 hotline, as shown in the table to the right, shows that of the 318,544 calls made in 2015, the most common issues: assistance with rent and electricity along with seeking

Top Needs for 2-1-1 Callers	2015 COUNT
Electric Service Payment Assistance	31,341
Rent Payment Assistance	27,303
Food Stamps/SNAP	25,658
Food Pantries	23,475
Medicaid Applications	16,781
Low-Income Housing	11,611
Adult State/Local Health Insurance	5,245
Prescription Expense Assistance	5,137
Homeless Shelters	4,870
Community Clinics	4,580

low-cost housing and information on homeless shelters (totaling 24% of all calls), were all related to housing.[43] They also report that 77% of callers were women, the majority of whom were single working mothers. A higher percentage of calls were made from outside of Travis County, mainly Hays, Williamson, and Caldwell counties. The hotline also received calls from counties outside of the five counties in the Dell Medical School's catchment area, suggesting that Austin/Travis County is the closest source of social services for many surrounding rural counties (mainly Burnet, Llano, Fayette and Blanco[43]).

Affordability of Health Care

Not only does Austin have a rising cost of living, especially housing, health care costs are becoming prohibitive. Texas was one of 19 states that refused to expand Medicaid eligibility under the Affordable Care Act, leaving 766,000 Texans without realistic access to health care and stressing an already overburdened public health care system.[44] This has resulted in rationing health care based on one's ability to pay. Although Central Health provides coverage to Travis County residents below 200% of FPL, there are still significant out-of-pocket expenses, and other Central Texas counties are not included. Moreover, the working poor are hard-hit due to ineligibility for Central Health's Medical Assistance Program, or Medicaid. As a result, with little access to preventative services, these vulnerable residents often seek care only in emergency departments.

Earning Trust

Several key informants and Senator Watson emphasized the importance of Dell Medical School earning the community's trust. Travis County residents voted themselves a property tax increase in 2012 to support the medical school on the promise that it would improve the health of Austin, especially that of residents unable to afford care.[1] Only by delivering on this promise will Dell Med and UT-Austin earn the that trust. This will take time; UT has a history of negative interactions with the community, e.g. in 1965-1982 when it expanded east, displacing black homeowners from areas condemned as being, "blighted." [6] The City Council then cheaply these sold homes and land to the University under eminent domain legislation. From 1980 to 1992, The

Blackland Neighborhood Association fought against UT's administration over land in Chicon Street, the University's 6th annexation, until a compromise was made that halted further annexation. [6]

Moreover, African-American informants mentioned that the Tuskegee Study, for which President Clinton apologized in 1996,[45] had erected a wall of distrust between the black community and medical research in general and more specifically the schools that perform such research. Informants also noted that Dell Med is located in the shiny glass and steel urban development area of Austin that seems inaccessible and uninviting to them. When asked to write down one word describing a barrier the Dell Medical School and UT-Austin will face in working with local communities, one informant wrote, "*Castle.*" When asked what she meant, her response was that the Dell Medical School's complex was foreboding. To be effective, Dell Med must be accessible and outward facing, addressing health equity barriers in the community. Therefore, gaining the trust of the community will require Dell Med's listening to and being present in those communities in which people suffering from health inequities live.

Finally, key informants underlined that medical personnel, care providers and social workers should not only be culturally competent, but also representative of the people they serve. This means having doctors, medical students, nurses, social workers, and other health providers who are racially, ethnically, and socioeconomically diverse and thus better reflect the composition of the communities. Therefore, an effective diversity program in the Dell Medical School will be key to garnering the community's trust. CST members suggested that one way to accomplish this is, whenever possible, to hire employees from the local communities.

Research and the Community

Despite Tuskegee, most informants recognized that research is one of UT's missions and could benefit the community if focused on understanding and solving local problems. They called for increased collaboration with the community members to identify cogent research questions. An example given by a Latino CST member was the effects of the risk of being deported on one's mental health; providers paid little attention to this issue until a UT professor wrote about it. Other suggested research topics included health risks of on Asian Americans and Asian subpopulations, historical trauma and health, and means for increasing cancer screening of African Americans. CST members insisted that information gained from research be shared with the community and impact community health improvement activities.

Being an Advocate for Enhancing Community Infrastructure

Informants realized that healthy lifestyles require access to both healthy food and safe recreational spaces. Because such infrastructure is publicly funded, they encouraged UT and Dell Med to help community leaders advocate for improvements in built infrastructure. They felt that the voices of doctors, nurses, and other health care providers were heard, especially when partnering with community activists. One CST member stated, "*If you are not talking [about positive change] you are holding up the status quo.*"

Better transportation is an urgent need in Central Texas. in 2012, Austin was the 4th most congested U.S. city, above both New York City and Washington, D.C., with an estimated cost >$200 million annually.[46] Residents ability to take advantage of health resources such as grocery stores selling healthy foods, health centers, clinics, and hospitals hinges on their being able to move to and access them cheaply and efficiently. For Austin, they identified two city-wide priorities: improve transportation infrastructure and create more accessible, easy-to-use public transportation. Austin has taken some steps to increase road capacity, and a proposition for $720 million in transportation improvement bonds is on the 2016 ballot.[47]

Even when there is public transportation, barriers exist to its use. The most common complaint among informants was service efficiency. Many routes are crowded and sometimes difficult for low-income residents of Travis County to access. Moreover, it suffers from the congestion of Austin's roads. However, informants felt that even if it did operate at maximum efficiency, the current CapMetro bus system would still struggle with the sheer volume of passengers needing service, especially as Austin's population continues to grow rapidly. There was hope that solutions already being implemented or considered would help. One of the largest—

Connections 2025—is a 10 year plan set to be approved for January 2017 that aims to increase route frequency and reduce fares, which according to informants is another barrier to public transportation use.[48] Currently, only those with a medical disability, over the age of 65, or enrolled in Medicaid are eligible for reduced fares.[48] The program was not designed to assist those with demonstrated medical need, not economic need, and consequently, a number of low-income residents cannot afford to use the transport network and must instead resort to alternative, less efficient means of transportation.

In addition to the aforementioned priorities, which are geared toward enabling residents to travel to health resources, informants emphasized bringing health resources closer to the patients where they live throughout the catchment area. Improving pervasiveness of primary health care along with healthy food distributors, particularly in low-income areas, was a recurring recommendation made during interviews.

Primary Care

With over 8% of the total catchment area population enrolled in Medicare alone, government affiliated health services such as Medicare, Medicaid, and CHIP are some of the most pervasive healthcare resources within the region.[49] In addition, under Texas' most recent 1115(a) Waiver, titled the Texas Healthcare Transformation and Quality Improvement Program, efforts have been made to expand Medicaid, better compensate providers for care costs, and through use of Delivery System Reform Incentive Payments (DSRIP), incentivize major players in the healthcare system to experiment with transformative approaches to healthcare delivery. Within the catchment area, hospitals, Federally Qualified Health Centers (FQHCs), and non-profit organizations alike have participated in the program. Seton Family of Hospitals, the largest hospital system in Central Texas, is currently engaged in 20 DSRIP activities alone, with incentives worth $193 million, most of which are in partnership with local hospital district Central Health. Additionally, the University Medical Center Brackenridge and Dell Children's Medical Center as part of Seton are the only level 1 trauma centers in Central Texas.[49]

Central Health is taxing authority within the State of Texas that serves one in ten citizens in Travis County and works to improve and increase access to health care services for people who are uninsured and living at or below 200% of federal poverty levels (FPL). In 2015, it provided care for 109,428 people during 304,974 encounters, including 276,949 primary care visits, 47,332 dental visits, and 24,643 behavioral health care visits.[50] Central Health's Medical Access Program (MAP) provides access to low-cost services for qualifying uninsured Travis County residents. Interviews are conducted in English and Spanish. Applicants do not have to be U.S. citizens but must meet all requirements for the program including income. MAP does not satisfy the shared responsibility individual mandate of the Affordable Care Act and therefore is not considered health insurance. It does significantly lower the cost for clinic or provider services, pharmacy services, emergency care, dental, and diagnostic x-rays and other laboratory tests.[51] Central Health also sponsors Sendero IdealCare which, along with Seton Health Plan, Blue Cross Blue Shield, and Superior HealthPlan, provides Medicaid and CHIP support to Travis County residents.

Central Health contracts with *CommUnityCare*, a network of 22 Federally Qualified Health Centers in Travis County including the Women's Health Center and the Austin Resource Center for the Homeless.[50] CommUnityCare accepts MAP, ACA coverage, Texas Medicaid, and operates on a sliding fee scale based on income and household size.[50] In addition, it also helps individuals who qualify for Ryan White HIV/AIDS Program and the AIDS Drug Assistance Program (ADAP).[52] In 2015, CommUnityCare provided care for 88,340 individuals over 321,020 total visits. This included 260,566 medical visits, 14,091 behavioral health visits, and 46,363 dental visits.[50]

Apart from CommUnityCare, four other FQHC organizations operate within the catchment area: *People's Community Clinic* (PCC), *Lone Star Circle of Care*, *Barrio Comprehensive Family Health Care Center*, and *Community Health Centers of South Central Texas*. With 71,000 patients served in 2015, Lone Star Circle of Care is the second largest in the catchment area.[53] Facilities are located in Bastrop, Travis, and Williamson counties, serving most primary care and behavioral health needs. People's Community Clinic is the fastest growing FQHC, having just doubled its annual patient's seen in the past year to >20,000 while opening a new clinic.[53] Community Health Centers of South Central Texas and Barrio Health Care Center serve Bastrop/Caldwell and Hays counties respectively. In addition to standard primary care for all ages, each FQHC also provides onsite services for chronic disease management, behavioral health, and women's health, and, with the exception of PCC, dental and vision care.

Hays County Indigent Health Care Program (CIHCP) supports health care for residents meeting income requirements and ineligible for Medicaid or any other state of federal health care assistance programs. CIHCP

covers health care provider services, three prescriptions per month, laboratory and x-ray services, family planning services, skilled nursing facility services, inpatient and outpatient hospital services.[54]

There are a number of non-FQHC nonprofit health care providers in Central Texas. *El Buen Samaritano* focuses on Latino families, providing primary care; mental health and substance abuse treatment; health education including diabetes management, health education, sexual and reproductive health; and support for caregivers. They also provide emergency food assistance programs and family literacy support.[55] The 50-year-old *Volunteer Healthcare Clinic* in Austin is staffed almost entirely by volunteers, offers evening walk-in clinics and chronic disease management for Travis county residents below 200% of FPL.[56] The *C.D. Doyle Clinic* is a free student-run volunteer clinic located in downtown Austin that provides medical advice, wound care, vaccinations, blood pressure checks, and blood sugar checks.[57] A compendium of health care resources is available.[58]

Mental and Behavioral Health Care

Austin Travis County Integral Care (ATCIC) is the largest behavioral health service provider in Travis County, serving 23,960 individuals in over 525,000 visits in 2015.[59] It serves as Travis County's Local Mental Health Authority and Local Authority for Intellectual and Developmental Disabilities, with its more than $90 million budget supporting 46 facilities countywide. ATCIC provides behavioral health services for adults, integrated services in collaboration with CommUnityCare, services for intellectual and developmental disabilities, child and family clinics for residents with developmental disabilities, mental issues, and substance misuse along with 24-hour psychiatric crisis services. ATCIC also provides prevention and wellness services, e.g. mental health first aid, suicide prevention and tobacco cessation.[59]

Hill Country Community Mental Health Mental Retardation (MHMR) Center offers services in several counties in Texas including Hays, providing a 24-7 hour crisis line and services for mental health, substance misuse for adults and children, children with developmental disabilities, and veterans.[60] *Bluebonnet Trails Community Services* operates a 24-7 crisis line and provides services in Bastrop, Caldwell and Williamson counties including mental health counseling, substance abuse treatment, services for autism, developmental disabilities and crisis services for children, adolescents and adults. It also provides day programs, vocational training, supported employment services, residential supported living, group homes and foster homes for individuals who are uninsured, have Medicaid or Medicare. Bluebonnet's Texas Correctional Office on Offenders with Medical or Mental Impairments Program works to coordinate and provide services for individuals who have a severe or persistent mental illness and are on parole or probation.[61]

Capital Area Counseling in Austin provides low-cost, no-limit counseling for individuals, couples, families, children and groups.[62] Central Texas Counseling has locations in Round Rock and Austin and provides individual therapy, couples and family counseling, substance abuse treatment, Christian Counseling and play/activity therapy for children and offers sliding scale fees for uninsured.[58] Hill Country Counseling serves Travis County Medicaid and Medicare residents and provides outpatient individual and family therapy, intensive outpatient mental health services, partial hospitalization and a 24-hour emergency.[63]

Austin State Hospital (ASH) provides adult, adolescent, and child psychiatric services and accepts Medicaid, Medicare and private insurance.[64] Brackenridge Hospital's Psychiatric Emergency Services Department opened in 2014 and cares for hospitalized patients needing mental health services.[65] Austin Lakes Hospital provides psychiatric services for adults age 19 and older. They provide a Psychiatric Intensive Unit, inpatient care, acute dual diagnosis program for adults with mental health or alcohol/substance use disorders, and a senior adult program. They also provide a step-down program and an intensive outpatient program.[66]

Other Community Resources

In addition to the health care service providers listed there are numerous non-profit organizations and coalitions that work to assist with health and social issues for marginalized populations in Central Texas. These

include but are not limited to: Community Advancement Network, Literacy Coalition of Central Texas which has a Health Literacy Department, Go Austin/Vamos Austin, National Association of Mental Illness (NAMI) Austin, Casa Marianella, Mama Sana/Vibrant Women, Sustainable Food Center, Grassroots Leadership, Alliance for African American Health in Central Texas, Asian American Resource Center, LifeWorks, United Way Austin, ECHO Coalition. The dozens of health and social service organizations are listed in a compendia published in 2013 by Southwestern University.[67] Categories of support include abuse, activism/public policy, athletics, crisis, environment/sustainable living, food/necessities, general, health, housing/homelessness, human trafficking, immigration, LTBT, Latino populations, legal system/incarceration, literacy, religious, seniors, special needs, and youth. Finally the United Way maintains the 2-1-1 online social service referral system.[68] The most common needs of 2-1-1 callers in 2015 are shown in the Table in Section 3.

Additional Identified Community Strengths and Concerns

In 2016, the Dell Medical School's Department of Population Health issued a call to the Central Texas community to empanel a Community Strategy Team in order to assist its understanding of the needs of Central Texas and how to best meet them. Interns in the Dell Med Department of Population Health interviewed applicants to identify what they believed to be the strengths of their respective communities. All applicants agreed that City of Austin's green spaces—parks, rivers, etc.—as well as events and campaigns organized to promote their use, are significantly beneficial to community health. Other public resources such as libraries, schools and some aspects of the transportation system were also listed as strengths. Community members also commented on Austin's potential as a technology innovation center to create new ways to improve healthcare delivery and efficiency. The applicants also praised Austin's safe and inclusive culture. They agreed that very rarely did they feel unsafe within the city, and furthermore they were impressed with outreach efforts toward international immigrants.

They did express concerns, however, that efforts to enhance the healthy infrastructure of the city, especially in lower income areas, could accelerate gentrification and push out those low-income residents whom such improvements are meant to serve. Outmigration of low-income and minority residents was seen as a major threat to public health as those with health needs are often relocating to the more outlying, rural areas of Central Texas where there are few health and social support services and little pre-existing transportation infrastructure to allow them easy access to their regular sources of care and support in Austin.

Treating Risk Factors and Antecedents of Death and Disability

In identifying the health priorities of Central Texas we must focus on the antecedents of the local common causes of death and disability: cancer, heart disease, stroke, trauma (accidents, homicides, and suicides), lower respiratory disease, and mental health disorders (including Alzheimer's disease). To address these, efforts must be made to improve the following factors: exercise, diet, weight control, smoking, substance abuse, and known identified cardiovascular risk factors (e.g. hypertension and lipid disorders). Doing so effectively requires systemically addressing health inequities between and among different communities in Central Texas.

We again relied heavily on our CST and non-CST informants when compiling a list of health priorities for our catchment area. For example, an African American woman emphasized that she was hesitant to refer to specific diseases, such as diabetes, when discussing health challenges because doing so would draw focus away from the larger, non-disease specific barriers. She also stated that to really impact community health one must address the non-medical antecedents to poor health, e.g. "*racism, stress, abuse—all of those things that also contribute to the reason people's health is where it is and why people's outcomes are what they are.*"

This reactive mindset is especially noticeable with government medical programs such as Medicare and Medicaid. According to our key informants, while these programs are designed and equipped to provide treatment options for those affected by specific diseases, they fall short with regards to prevention, especially prevention that requires enhancement of built infrastructure. An example of this is Medicaid diabetes coverage. Texas' programs provide for comprehensive care, equipment, and supplies to treat the disease: insulin shots, glucose monitors, syringes, etc.; however, they do not fund patients' purchases of orthopedic shoes, pedometers, or healthy foods that can ameliorate diabetes and prevent its adverse outcomes. An effective positive example is the YMCA: in a randomized, controlled trial[69] where than 500 persons with pre-diabetes received usual care or usual care plus involvement in the YMCA's adaptation of the Diabetes Prevention Program (DPP),[70] those persons randomized to the YMCA arm had significantly more weight loss and fewer cases of frank diabetes than usual care controls. As a result, the national YMCA has adopted the DPP and the Centers for Medicare and Medicaid Services (CMS) now pays for it. CMS believes that, in the long run, preventing diabetes pays.

Eliminating Tobacco

The single most effective action a smoker can take to increase length and quality of life is to stop smoking. A number of factors contribute to tobacco use. Although socioeconomic factors and peer pressure are major determinants of smoking, research suggests that stress contributes to an established adult smoker's frequency and continued smoking, and that psychological stress may be linked to smoking in adolescence.[71] A study of women with age ranging from young adulthood to late mid-life found that increased financial difficulties as well as psychological maladjustments (depression and anxiety) were related to higher rates of smoking, and others have linked the resulting lung disease to these maladjustments as well.[72] Therefore, a holistic approach is required for effective smoking cessation interventions.

Austin/Travis County HHS has implemented interventions for eliminating smoking and use of other forms of tobacco. The Latino HealthCare Forum's program Manantial de Salud promotes a smoking cessation campaign for the City of Austin and a no soda pledge.[73] The School of Social Work's Health Behavior Research and Training Institute has behavioral interventions for tobacco and substance use based on principles from the transtheoretical model of change, and the UTH School of Public Health Austin Regional Campus hosts the Michael and Susan Dell Center for Healthy Living, which focuses on the reduction of tobacco use and promotes tobacco regulation in addition to activities pertaining to exercise and childhood obesity reduction.[74-75]

Through UT's Eliminate Tobacco use initiative, UT-Austin became a tobacco free campus in 2012.[76] While faculty, staff and students are not required to quit tobacco use, cessation is strongly encouraged and use of cigarettes, cigars, water pipes, e-cigarettes, and smokeless tobacco are prohibited on campus. The university enforces the policy through anonymous reporting and communication toolkits for employees, students, and

managers.[76] Additionally, UT-Austin provides resources and tools for health care providers and EMR vendors, a multilevel approach for college students, and partnerships and program evaluation for community coalitions.[77]

<u>Enhancing Healthy Food Access</u>

According to the 2010 Census, over 38% of Travis County's urban population does not have access to healthy and affordable food.[78] Particularly vulnerable are low income households with limited transportation options. In Austin alone, 82% of the population of areas with more than 40% of residents' incomes below twice the FPL lack access to public transportation, a bicycle, or a vehicle. They therefore have difficulty accessing healthy foods in supermarkets and farmers' markets. Where there is public transportation available, lack of healthy food access drops to 33%. Yet in Austin, that group still contains more than 100,000 individuals.[79]

Geographic barriers notwithstanding, key informants agreed that there also exist cultural barriers to healthy food access. Every race and ethnicity uses unique combinations of foods, spices, etc. For example, one key informant shared that while most Asian Americans know how to cook healthy meals, some necessary ingredients for these meals often cannot be obtained at an everyday supermarket, only an Asian grocery store, few or none of which may be available within their local region. Furthermore, some might simply be more comfortable shopping at an ethnic grocery store than a generic one.

Another barrier discussed during the CST Applicant Forum: SNAP gap. While they may have geographic and cultural access to healthy food, members of the population who depend on SNAP (the federal Supplemental Nutrition Assistance Program, formally called Food Stamps) only receive $649 monthly for a family of four, or $1.75 per meal.[80] Multiple studies have confirmed that this is simply not enough alone to maintain a healthy diet.[81, 82] Therefore, financial insecurity for food purchases must also be addressed.

Lack of access to healthy food is one of the largest contributing factors toward obesity, which remains a problem for Central Texas. While Travis County's obesity rate has improved in recent years, more than 300,000 members of Central Texas were considered obese in 2013. Therefore, obesity remains a problem and mitigation through access to healthy food consequently remains a priority.[83]

<u>Addressing Mental and Behavioral Health</u>

Our key informants emphasized the importance of providing mental health services because of the high prevalence of mental health issues and their adverse impact on comorbid chronic illnesses. In particular, informants noted that individuals with uncontrolled mental health issues may also be more prone to misuse substances such as alcohol or drugs to self-medicate, putting them at higher risk for adverse health outcomes.

A key barrier to meeting this need is the lack of mental health providers in Central Texas, especially outside of Austin. Specifically, according to CMS, compared to Texas as a whole where in 2015 there was one mental health provider for every 1580 residents, the rate was 428:1 in Travis County, 1064:1 in Williamson County, 1115:1 in Hays County, 1561:1 in Bastrop County, and 1731:1 in Caldwell County.[84] The largest mental health provider in Central Texas is Austin Travis County Integral Care (ATCIC), funded by property taxes. It was established in 1967 and provides mental/behavioral health services for adults, children and families, persons with intellectual development disorders, psychiatric emergencies, and jail diversion. It's one of the largest mental/behavioral health programs in the country, serving 26,000 persons in 46 locations.[85] Yet despite the above-average number of mental health providers and ATCIC, Travis County is under-resourced to provide sufficient mental and behavioral health care. According to Travis County's 2012 Community Health Assessment, 20% of Travis County residents (or 240,000 persons) experienced ≥5 days of poor mental health in the past month.[86] Moreover, the Seton 2016 Community Needs Assessment identified needs for substance abuse treatment in addition to routine preventive mental health services, as opposed to crisis intervention.[87]

In general, CST members felt that local mental health providers should be more adept at treating mental health issues caused by trauma and should especially focus on addressing oppression, discrimination, systemic racism, historical and/or intergenerational trauma as factors affecting mental health. A Latino man stated that when working with immigrant populations, fear of deportation is an underappreciated source of stress, especially when treating depression among immigrants. Another CST member noted that HIV-infected women

don't realize the relationship between HIV and mental health. Issues such as incarceration and homelessness are also sources of stress and trauma that mental health providers must be equipped to address. Finding mental health providers who speak a language other than English presents an additional challenge, especially in more rural areas. Furthermore, it is even more difficult to find mental health providers who can speak a non-Spanish second language. CST members noted that this is a challenge because selected communities require special health services and outreach. For example, older Chinese women have the highest suicide rates among women over 65, nearly 10 times those of their Caucasian counterparts.[27]

Some key informants suggested telepsychiatry was a potential tool to counteract the lack of mental health services providers and the stigma of seeking mental health care. Additionally, informants felt that factors such as oppression, systemic racism, and historical and intergenerational trauma, must also be addressed.

Removing Barriers to Health Care

In addition to improving social health determinants and prevention measures, emphasis must be placed on reducing barriers to accessing patient-centered care and prevention services. The biggest barrier – lack of health insurance – was mitigated by the Affordable Care Act for tens of millions of Americans. The impact was less in Texas and the 18 other states that did not expand Medicaid.[88] Although lessened by the 1115(a) Waiver program,[89] Texas has the highest percentage and total number of uninsured residents.[90] Therefore, a priority for accessing preventive and therapeutic care is insuring that patients eligible for coverage under the Affordable Care Act or through Central Health's Medical Assistance Program are enrolled in them. Unfortunately, even those with health insurance often lack access to important preventive care, especially vision and dental care.

A number of systemic barriers to care disproportionately affect historically marginalized communities: lower income, lower education, LGBTQ, immigrants, formerly incarcerated, homeless, differently abled, those with mental health issues, and communities of color, among others. Members of some of these groups are at increased risk of adverse outcomes, e.g. heart disease and stroke among persons of color and HIV/AIDS among gay men. To address these, we must first acknowledge the existence of these groups' multiple damaging stigmas. And second, we must recognize that they can combine to further impact health and health care. A black man, a queer black man, and a formerly incarcerated black man will each have unique health and social needs that the health care system must have the capacity to address.

Implementing a Multifactorial Approach

In a diverse community, there are multiple risks to health and longevity, so priority must be given to multifactorial solutions, preferably transparent ones that involve the targeted community in the decision-making processes. One examine is Austin's Restore Rundberg program, a collaborative effort by a coalition of community leaders and stakeholders to improve quality of life for three Austin neighborhoods over a three year period funded by a $1 million grant from the U.S. Department of Justice.[91] Although only containing 5% of the city's population, Rundberg historically accounted for 9% of the Austin's Part II crimes, 11% of violent crime, 7% of property crime, and 34% of prostitution arrests.[91] Furthermore, 95% of school children enrolled in the area were considered economically disadvantaged, and 59% had limited English proficiency.[91] The program operated eight working groups each designed to address a unique need: healthcare, key property revitalization, code compliance, afterschool programs, homelessness, housing affordability, economic and workforce development, and prostitution.[91]

Restore Rundberg has been successful.[24] It has deployed 24 multilingual community health workers who have implemented an integrated approach to address housing, transit, language access, and healthy food access issues. They have cleaned up empty lots, painted bridges, and improved other infrastructures. They have deployed youth engagement programs and hired mental health workers to serve Rundberg residents. Working with the Austin public school system, they have increased attendance by 55% and academic achievement by 60% while lowering serious behavioral offenses by a whopping 85%. Effects on long-term health outcomes will require additional funding, which program leaders are seeking as its original grant has ended.

Health Information Exchange

Health care and health promotion/disease prevention activities are information intensive. The quality, efficiency, and value of these activities depend heavily on the availability of the right information at the right place at the right time. Too little or too much poorly organized data result in poor decisions and errors. The HITECH Act[92] has resulted in >90% of non-federal acute care hospitals and >80% of physician now having and using electronic health records (EHRs).[93] Yet while the National Coordinator for Health Information Technology has emphasized health information exchange (HIE) and data interoperability, few hospitals and physicians participate in HIEs where data are readily shared between institutions. Of the more than 100 existing HIEs, studies have shown that they reduce emergency department visits and, sometimes, costs. But few have been independently sustainable without public subsidies.[94]

Central Texas lacks a region-wide HIE. Two notable efforts are the Integrated Care Collaborative (ICC) and CriticalConnections. The ICC is supported by Central Health and other stakeholders and captures data from hospital systems and networks of federally qualified health centers (FQHCs) for a subset of the approximately 200,000 residents of Travis County for whom Central Health is responsible for funding their health care. The data are incomplete and not used by health care providers, only by Central Health and its affiliates for health care management. CriticalConnections captures notes from physicians' offices and, more recently, laboratory test results from Travis County's main clinical laboratory service provider, and imaging study results from Austin Radiological Associates (ARA), which performs more than 95% of all imaging studies. ARA maintains its own data repository through which it provides physicians with remote access to images and reports. To date, CriticalConnections has linked more than 700 physicians and has contracts to increase this to 1500; however, this is only 35% of the 4260 physicians practicing in Central Texas.[95]

All existing HIEs globally contain only data from health care providers EHRs. But there are other health-related data available in digital format that could be helpful to enhancing the health of the residents of Central Texas, especially for improving the social and behavioral determinants of health. Useful data include U.S. census data, data from the Environmental Protection Agency (e.g. results of tests of water, soil, and air), transportation information, traffic data, weather, criminal justice, school records, county and state health department data, housing, location of grocery stores and corner markets, etc. Although compilations of such data are available,[96] for example, reports by Children's Optimal Health in Austin,[97] they are not comprehensive and lack any health care data.

Availability of HIE, especially an HIE that includes both patient care data and non-clinical health-related data, is a technology gap for Central Texas. The Director of the Austin/Travis County Health Department and the Chair of Dell Medical School's Department of Population Health are co-leading a collaborative effort to establish a region-wide HIE in Central Texas that includes both health care and non-clinical health-related data. It will require a Director and Program Manager, administrative assistance, database developers and administrators, interface engineers, data mappers, data managers, data analysts, and business managers. Establishing the Central Texas HIE and connecting most health care providers in Central Texas will cost approximately $5 million (Kansky J, CEO, Indiana Health Information Exchange, personal communication, 2016). The annual cost to maintain this system will be $3-5 million, approximately equal to the current cost of ICC. The need for this HIE is absolute: one cannot improve any aspect of population health without the ability to measure it, both at baseline and in response to interventions.

Coalition of Community Service Organizations

Another infrastructure gap is the lack of an organizational structure to coordinate activities among the many public and nonprofit service organizations in Central Texas. Yet as indicated in Section 5, population health is multifactorial, and interventions effective in measurably improving population health region wide must likewise be multifactorial. Restore Rundberg is a perfect example.[91] If coalitions need to be built for each initiative, there will be significant inertia hampering broad improvements in population health.

There have been some efforts to overcome this lack of coordination. As mentioned in Section 3, there are compendia of social services available in the Austin region[67] and a social service hotline.[68] However, these are reactive resources meant to support those seeking social and other services. Central Health supports an organization called Community Health Champions that meets quarterly to discuss approaches to improving health in Travis County, as well as share stories.[98] No collaborative activities have been planned to date.

Another existing organization is One Voice Central Texas,[99] a coalition of more than 100 nonprofit health and human service organizations. Its goal is to educate and influence policymakers and the public about needs and resources for population health improvement. It does provide a platform for multifactorial program development, but it has no connections to health care provider organizations or academia. It is largely an advocacy organization.

Therefore, there is an organization gap in Central Texas to allow the health care, academic, public, and nonprofit social service organizations to plan, fund, and implement multifactorial, multidisciplinary population health improvement initiatives. Establishing such an organization should be led by UT-Austin because of its broad interests across multiple schools and departments and its having both depth of knowledge of multiple disciplines and its being part of the UT System's Collaboration on Population Health Innovation and Improvement initiative. Establishing such an umbrella organization for population health would take leadership (a part-time Director and Program Manager), administrative support, and funds to support regular meetings and planning sessions. Startup and maintenance should cost $150,000–$250,000 annually.

This umbrella organization will be crucial to any significant movement of health indicators which will come from the above-mentioned HIE. Data from the HIE will help define needs, model solutions, and monitor the results of social/human service interventions.

As mentioned in previous sections, improving population health is a "team sport" requiring broad involvement of multidisciplinary expertise in the academic, health care, public, and nonprofit sectors. This section will concentrate on the academic sector: the various schools and departments at the University of Texas at Austin.

The new Dell Medical School's Department of Population Health will be the UT-Austin lead for community engagement for enhancing population health and convening those departments, centers, and faculty engaging in population health improvement. The first step was to survey of those schools and departments for ongoing population health activities. We developed an online survey, which we sent to the Dean's Office of each UT-Austin school/college who then agreed to forward it to all faculty within their departments. This was done during the two weeks just prior to the beginning of the Fall 2016 semester. It is unclear how many faculty members received the survey, but 850 responded, of whom 260 (31%) self-reported that they were involved in population health related activities. [A full report can be found in the appendix] Respondents' *primary schools* are shown below. The six most common schools were the Dell Medical School, the College of Natural Sciences, Nursing, Engineering, Pharmacy, and Social Work.
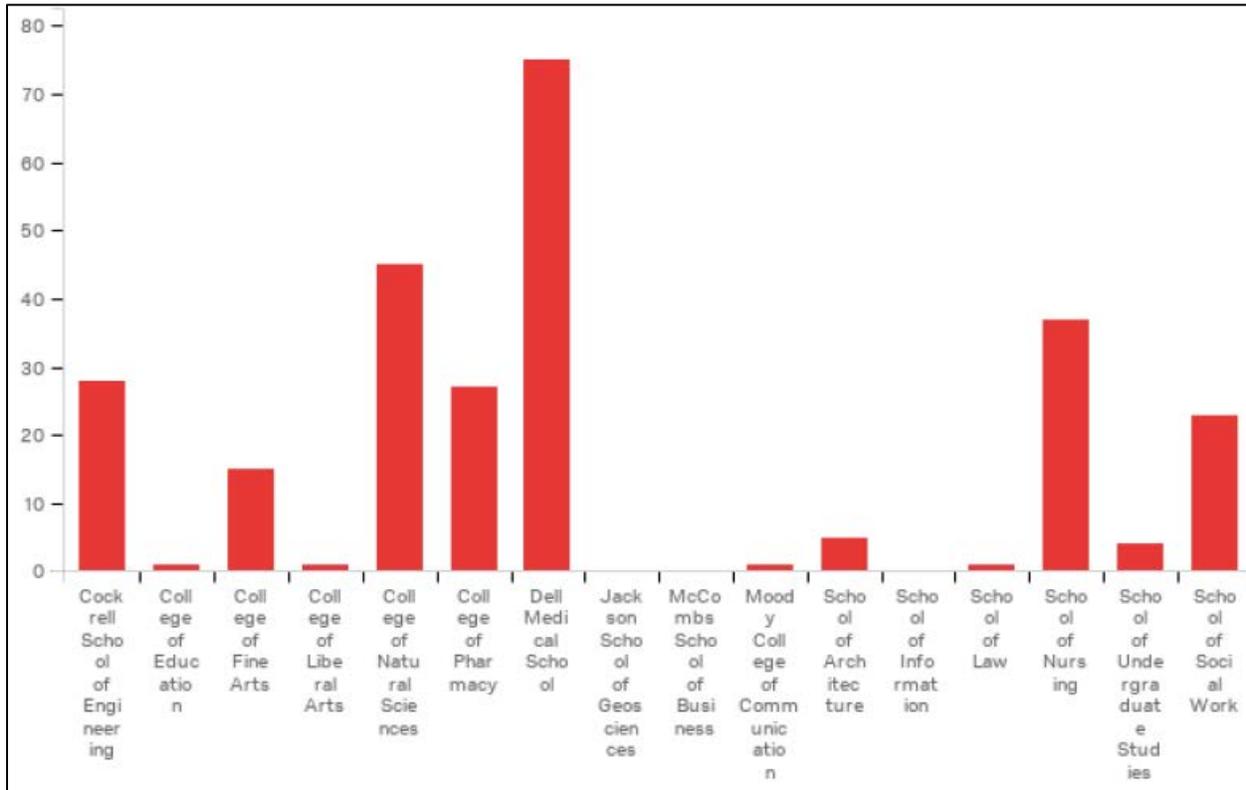

Of the 315 reporting the *primary mission* of their population health activities, 102 (32%) were in research, 84 (27%) were in education, 75 (24%) were in patient care, and 54 (17%) were in community service. Of the 102 reporting population health research, 93 reported their size of their research sample: 22% <100, 23% 101-500, 12% 501-1000, 19% 1001-5000, 10% 5001-10,000, 9% 10,001-50,000, and 6% >50,000.

Of the 182 reporting the main county in Central Texas in which their activities occurred, 45% were in Travis, 21% Williamson, 16% Hays, 10% Bastrop, and 8% Caldwell. Ninety faculty reported focusing on a racial/ethnic group: 36% Latino, 22% African-American, 16% non-Hispanic white, 13% Asian, 7% native American or Alaskan native, and 7% Hawaiian or Pacific Islander. Only 61 focused on SES level, with 67% focusing on low SES persons. Eighty-two had an age group focus: 34% <18 years old, 23% 18-24, 15% 25-44,

16% 45-64, and 12% >65 years old. Of the 57 with a gender focus, 44% focused on women, 33% focused on men, and 23% transgender or gender fluid.

The distribution of diseases or risk factors among the 272 respondents reporting such a focus follows:
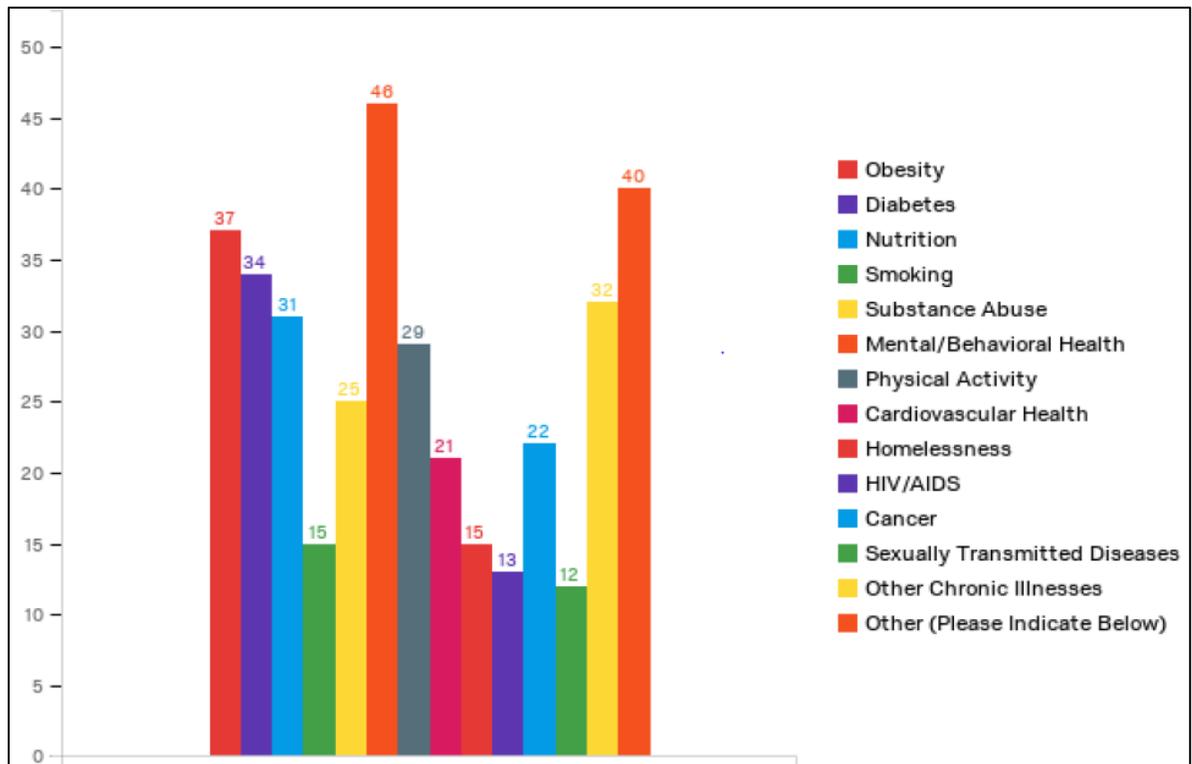
The kinds of activities engaged in by 252 responding faculty were quite variable as shown below, the top five being health promotion, access to care, and outcomes analyses, health needs assessments, and community partnerships.

Of the 186 faculty who reported that their work focused on the social determinants of health, 30% focused on clinical health care services, 24% education, 23% social and community context, 15% neighborhood and built environment, and 10% economic stability.

Population Health Workforce Needs at UT-Austin

It is clear that there is considerable ongoing population health activity in more than a dozen UT-Austin schools. Therefore, we don't anticipate needing any new graduate (master's, PhD) training programs. The Dell Med curriculum includes a Primary Care, Family & Community Medicine Clerkship where students spend a half-day per week for years 2 and 3, half in a continuity clinic following their own panel of primary care patients and half in either a variety of community settings or didactics. Also, during nine months of their third year, students can get a master's degree in either public health, business administration, educational psychology, or engineering, or they can design and conduct a project in population health, health care delivery, or translational research. No additional population health training is needed nor anticipated.

CoPHII will be managed within Dell Med's Department of Population Health's Community Engagement and Public Health Division, which is directed by Dr. Alexandra García. She is an Associate Professor in the Family and Public Health Nursing Division of the UT-Austin School of Nursing. She will bring the strengths of both Medicine and Nursing to CoPHII and be assisted by a full-time Program Manager. However, the Dell Medical School is just building its Data Analysis Core and is actively recruiting two PhD-level data analysts (biostatistician/epidemiologist), two master's level data analysts, and two master's level data managers.

Dell Med's Chief Information Officer is also building an informatics research and development team consisting of software engineers, database administrators, interface engineers, and data mappers to populate the cloud-based HIE Dell Med is developing, initially for the 200,000 Travis County residents who are the responsibility of Dell Med and Central Health. Data captured will include ADT (admission, discharge, transfer) data from all Central Texas hospitals and outpatient clinics, drug data from the single source employed by Central Health for pharmaceutical benefit management, clinical lab data from hospitals and CPL (Clinical Pathological Laboratories, the primary provider of lab tests in Austin), imaging test reports from ARA, and all inpatient and outpatient notes. With support from the Austin/Travis County, the health systems, and local foundations, this HIE platform will be made available to the Central Texas HIE for which community-wide discussions are now under way. The Department of Population Health at Dell Med has recently hired a full-time Director of Data Integration who will manage the data interfaces with health systems and non-clinical health-related data on demographics, built infrastructure, public health, and social and behavioral health determinants.

Dell Med's health information technology developer team will also implementation an e-mail/tablet computer system for capturing reports of outcomes, symptoms, quality of life, and satisfaction from inpatients and outpatients, capturing these data into the local HIE. They will also be available for developing mobile technologies, from personal monitors to patient and provider decision support systems triggered by the clinical and non-clinical data in the HIE. We anticipate the informatics and data analysis teams will be at full strength by mid-2018 at the latest.

Additional faculty and staff will be needed to implement Dell Med's population health activities and convene population health discussions and collaborations among UT-Austin schools. At the minimum this will include three physicians, one each in collaboration with Internal Medicine, Pediatrics, and Psychiatry. Two behavioral scientists are also being sought who will enhance population health assessments and interventions, co-recruiting with the schools of Nursing, Public Health, Social Work, Pharmacy, and the College of Communication. This should also be completed with faculty on site by mid-2018 at the latest.

Community Health Workers

Specific interventions at the community level require specialists trained to reach out and support health within the community. Community health worker (CHW) models provide an interface between public health, health care systems, community organizations, and the households and neighborhoods of Central Texas. CHWs,

also known within the Latino community as *promotores* (health promoters) are trained and are either paid or volunteer community members who provide bidirectional outreach into their respective communities. According to the Texas Department of State Health Services (DSHS) website, CHWs/promotores, "provide cultural mediation between health care and social services, and the community."[100] CHWs and promotores are often regarded as trusted members of the community, and are meant to identify and understand the people they serve. CHWs/promotores also may share the same race/ethnicity, language, socioeconomic status and life experiences of the target population.[101]

Texas DSHS provides CHW certification for Texas residents who complete a 160-hour competency based CHW training program or those who can verify that they have served at least 1,000 cumulative hours of CHW services within the last six years.[100] Austin/Travis County Health and Human Services, the Literacy Coalition of Austin, CST members, and our key informatics, including leaders of Austin/Travis County HHS, the Literacy Coalition, all voiced support for engaging CHWs to assess and meet community health needs. Austin/Travis County HHS leaders would like to implement the CHW model as it is evidenced-based and has been an effective model for addressing health inequities.[102] They report that while Houston and Harris county currently have an effective CHW model in place, efforts to implement this in Austin/Travis county have been slow moving. Another factor is that previously CHWs were not reimbursable services, although that has changed recently.[102] The CHW/promotores model may also be effective in more rural counties such as Bastrop and Caldwell. The Latino Healthcare Forum in Austin provides CHW certified training where one of their programs, Secure Your Health/Asegure Su Salud, successfully used promotores to help uninsured and underinsured individuals gain coverage through the Affordable Care Act by providing enrollment assistance in English and Spanish. [101]

We intend to use CHWs as both the primary interface between UT-Austin, health systems, and Central Texas communities and households, being the "boots on the ground" for the household-level assessments and the place-based initiatives discussed in Section 9. It is unclear at this time how many are needed, as this will be determined by the funds available to launch household-level health needs assessments and initial population health interventions. Regardless, local training programs through the Latino Healthcare Forum and Austin Community College graduate more than two dozen CHWs/promotores annually who, to date, have had difficulty obtaining sustained employment. We therefore don't anticipate difficulties in immediately hiring as many CHWs/promotores as we need.

SECTION 8: ASSESSMENT OF ADDITIONAL NEEDS

None.

The Dell Medical School's Department of Population Health (DPH) will develop and implement UT-Austin's strategic plan for population health. Activities will reflect DPH's own priorities and plans to enhance the health of the residents of Central Texas. However, the DPH will also organize and convene the many faculty and staff from other UT-Austin schools engaged in population health activities to enhance cross-school collaboration and the campus' impact on the health of Central Texas residents. Those strategic plans are summarized in the following table. Short-term outcomes from each activity will be those expected to be realized in 1-3 years. Long-term outcomes will be those expected to be realized in 5-7 or more years. Some of the anticipated activities will depend on obtaining funding and hence are aspirational.

Priorities and Planned Activities	Inputs, Activities, Outputs, and Outcomes
Priority: Assess health needs of the residents of Central Texas Planned Activity: Household level assessments (HOLA)	• Inputs: Information from prior assessments by Central Texas cities and counties and the State of Texas; prior door-to-door assessments performed by other UT campuses and schools; experience from the AMPATH program's door-to-door program in Kenya where 1.4 million persons were approached with 98% complete data capture. • Activities: Focusing on a diverse zip code—78724—perform a feasibility study with focus groups, key informant interviews; develop and test a mobile data collection program; pilot interviews with 100 households; initiate HOLA, beginning in geographic areas of Travis County with the lowest SES; extend to the other 4 counties, beginning in those receiving outmigration of low-income Austin residents. • Outputs: Number of household members identified; current unmet health needs; current health assets; prioritization of needs by household members • Short-term outcomes: Revision of HOLA's methods to garner community trust and capture of the most relevant information; record data for up to 50,000 residents of Travis County. • Long-term outcomes: Data capture for 75% of the residents of all five Central Texas counties (will depend on availability of funding).
Priority: Enhance access to primary health care Planned activity: Establish community-centered health homes (CCHH) in primary care clinics	• Inputs: Information on the CCHH approach;[103,104] interest and suggestions from current primary care clinics run by Dell Med, Seton, CommUnityCare, and Lone Star Circle of Care. • Activities: Design plans for identifying local community organizations with missions to meet residents' social and economic determinants of health, integrating them with primary care clinics to meet local needs (including needs identified by HOLA); recruit, hire, and train community health workers (CHWs) to be the implementers of activities identified through clinic-community collaborations to meet individual patients' health needs; identify a single clinic in which to pilot the program; revise plans and methods; implement CCHH in additional clinics. • Outputs: List of patients needing clinic and community resources; specific protocols for referral from clinic to community organizations of patients with social/economic needs and referral from community to clinic of persons with health needs; documentation whether needs were met on an individual basis; satisfaction of clinic personnel, community organization personnel, CHWs, patients, and community residents with the CCHH program. • Short-term outcomes: revised methods and plans for implementation; number of referrals between community and clinic for persons cared for in one target clinic or living its surrounding community; refined CHW role; documentation of health needs met; documentation of financial sustainability; roll-out of CCHH model to 2 additional clinics. • Long-term outcomes: adoption of revised CCHH model by all Dell Med and CommUnityCare clinics; documentation of health needs met.
Priority: Improve function and reduce institutionalization among elders	• Inputs: Details of the GRACE and HABC programs; identification of frail and cognitively dysfunctional elders through the Dell Med and selected CommUnityCare primary care clinics and HOLA. • Activities: Build a multidisciplinary team capable of delivering both GRACE and HABC

Planned activity: Implement the GRACE model for frail community-living adults[105] and HABC model for elders with cognitive dysfunction[106]	interventions; perform pilot testing of the models with iterative feedback and revisions; implement both programs sequentially in selected primary care clinics. • Outputs: Details of the revised models customized to Central Texas' needs; results of initial pilot tests; number of patients enrolled and outcomes (e.g. hospitalization, health care costs, ability to perform activities of daily living) compared with similar patients in non-intervention clinics; details of implementation in selected primary care clinics • Short-term outcomes: Implementation of GRACE and HABC models in 2-3 primary care clinics and the neighborhoods they serve; reduction in institutionalization and costs and maintenance of ADLs in enrolled patients. • Long-term outcomes: Implementation of GRACE and HABC models in 5-10 primary care clinics with similar reductions in institutionalization and costs and salutatory effects on ADLs.
Priority: Identify, resource, and implement local solutions to local health needs Planned activity: Launch a Center for Place-Based Initiatives	• Inputs: Ideas from individual community members for improving community and individual health • Activities: Broadcast calls for ideas (using various media and approaches) every 6 months; vet submitted ideas through Dell Med's Community Strategy Team (CST); develop approved ideas into detailed proposals; present final proposals to CST which will choose 2-3 that are resourced with up to $50,000 of financial and in-kind support; implement resourced proposals with formal measurement of impact; seek funding for wider dissemination of successful ideas. • Outputs: Description of resourced proposals and expected outcomes; results of outcomes assessments; plans for dissemination of successful interventions. • Short-term outcomes: Engagement of faculty and students from multiple UT-Austin schools; improvement in health needs that are targeted by early projects; submission of grant and contract proposals to research funding and service agencies based on outcomes of resourced projects. • Long-term outcomes: Sustained funding of the Center for Place-Based Initiatives through competitive grants and contracts and philanthropy; continued engagement of multiple UT-Austin schools; continued call for ideas every 6 months and resourcing of 2-3.
Priority: Accept responsibility for the health and health improvement of a Travis County neighborhood Planned activity: Launch a multifactorial approach to health improvement focused on a single geographic area	• Inputs: Assessment of local health needs through HOLA and community engagement activities; effects of best practices identified in Central Texas and nationally. • Activities: Design a multifactorial intervention, with an emphasis on community-level health promotion and disease prevention and removing barriers to health care and enhancing access to community-level social support and healthy food and nutrition, in a single selected neighborhood of 10,000-50,000 residents; engage primary care clinics serving that area; through large grocery stores, convenience stores and corner markets, and community gardens enhance access to fresh produce and healthy food options; identify local health needs and engaging social service agencies and health care providers to meet them; identify and improve places and resources to enhance physical activities; assess and refine the neighborhood approach in a continuous quality improvement paradigm. • Outputs: Person-specific measures relevant to the interventions implemented; assessments of the cost-effectiveness of the individual interventions and the neighborhood approach as a whole. • Short-term outcomes: A sustained comprehensive health promotion/disease prevention program for a single neighborhood with ongoing engagement of community organizations and health care providers. • Long-term outcomes: Demonstrable improvement in health indicators for that geographic area; financial sustainability of the approach through resources committed to health care and public health; active plans for extending the neighborhood approach to other geographic areas of Central Texas.
Priority: Eliminate tobacco use Planned activity:	• Inputs: current city, county, and state laws and regulations; insights from advocates; best practices from other states; identifying partner organizations at city, county, and state levels. • Activities: Work collaboratively with partners to inform and educate local policy-makers

Inform and advocate for tobacco elimination policies	regarding various tobacco elimination policies including increasing taxes on tobacco products, eliminating smoking and vaping in all public places, eliminating smoking and vaping in public housing; and continuing to monitor successful approaches in other cities, states.
	• Outputs: documentation of persons contacted, new policies considered, outcomes of policies enacted and implemented.
	• Short-term outcomes: Reduction of use of tobacco products to less than 10% of Central Texans
	• Long-term outcomes: Reduction of use of tobacco products to less than 5% of Central Texans
Priority: Improve housing in Central Texas Planned activity: Develop a multisector plan for a comprehensive health-focused mixed-income housing community	• Inputs: Successful examples of mixed-income housing; available financial resources; interest of leaders in the academic, government, developer/builder, financial, health care, transportation, and recreational sectors (e.g. UT-Austin, City of Austin, builder organizations, Federal Reserve Bank, Seton, CapMetro, and the YMCA — all of which have expressed interest in such a collaboration to meet the rapidly expanding needs for housing and health in Central Texas).
	• Activities: Review of successful examples in other cities and states; develop a specific plan for a mixed-income housing complex that also includes a medical clinic, a YMCA or similar recreational facility, a grocery store, community gardens, green space, transportation to the city center, etc.; seek funding for this plan; initiate the plan and assess its effects on housing and health.
	• Outputs: A specific mixed-income, mixed-use housing plan for Austin and Central Texas; assessments of the use of facilities; HOLA assessments of the health and met/unmet health needs of its residents; plans for replication in other areas of Central Texas.
	• Short-term outcomes: Stable health-enhanced housing for 500-1000 Central Texas residents.
	• Long-term outcomes: Stable health-enhanced housing for 2000-5000 Central Texas residents.
Priority: Improve mental health care Planned activity: Enhance community-based mental health care through telepsychiatry	• Inputs: number of patients currently receiving care for mental/behavioral health issues and substance use disorders in Central Texas; estimated number of people needing treatment for these disorders; assessment of unmet need.
	• Activities: Design a user-friendly telepsychiatry system that supports brain health care and treating substance use disorders; pilot test it in a single mental/brain health clinic; refine and further implement the resulting telepsychiatry system in mental/brain health clinics of the Dell Medical School and Austin Travis County Integral Care (ATCIC); assess the number of telepsychiatry care encounters and compare their care with care delivered at Dell Med and ATCIC clinics not using telepsychiatry.
	• Outputs: Telepsychiatry system use; satisfaction of users and patients; comparison of care delivered and outcomes between clinics using and not using the telepsychiatry system.
	• Short-term outcomes: 2-3 mental/behavioral health clinics using the telepsychiatry system; improved mental/brain health outcomes (fewer emergency department visits and hospitalizations, better control of depression and anxiety assessment scores, lower costs) among clinics using telepsychiatry compared to control ATCIC clinics.
	• Long-term outcomes: Widespread use of telepsychiatry in Dell Medical School and ATCIC clinics; expanded use in Central Texas counties outside of Travis; improved mental health care and outcomes in Central Texas.
Priority: Improve data-based decision-making for health care and health Planned activity: Implement a HIE for Central Texas.	• Inputs: Comprehensive data, initially a one-time download but eventually in real time, from health care delivered in Central Texas to the approximately 200,000 patients for whom Central Health has financial responsibility for their health care, including visit data (date, site, providers, diagnoses, disposition), lab and imaging study reports, drugs prescribed and dispensed, and clinical notes.
	• Activities: Develop a cloud-based clinical data repository of the above data for up to 200,000 Central Health patients; develop and implement user-friendly data viewing and reporting tools; launch a clinical database analysis team of data managers and data analysts familiar with the complex and messy nature of clinical data; expand the data repository to accept data

	on other patients from a wide range of Central Texas health care providers; provide health care providers with real-time access to individual patient data and tools for summarizing those data for population health management.
	• Outputs: Numbers of patients with data in the clinical data repository; estimation of patients and data not captured; number of times per day/week/month/year that clinicians access the data; number of reports produced; dashboards and reports of selected quality indicators (e.g. from University Health System Consortium).
	• Short-term outcomes: Comprehensive real-time health information exchange for the approximately 200,000 patients for whom Central Health has responsibility and its regular use to support health care delivery, health care management, clinical and operational decision-making, quality improvement; and research.
	• Long-term outcome: Comprehensive real-time capture of health information into a user-friendly and accessible HIE for Central Texas; its regular use to support health care delivery, health care management, clinical and operational decision-making, quality improvement; and research.
Priority: Support population health interests and activities at UT-Austin Planned activity: Convene and facilitate ongoing discussions among faculty, staff, and community members interested in population health	• Inputs: Results of an annual survey of population health activities being performed, planned, or contemplated by faculty and staff in UT-Austin schools and colleges; detailed descriptions of active projects; federal, state, and local funding opportunities; Central Texas health needs from HOLA and public sources; local ideas to meet local needs from community members via the Center for Place-Based Initiatives and engagement of interested and motivated community members. • Activities: Survey all UT-Austin faculty annually concerning their ongoing population health activities and relevant interests and plans; compile survey results into a report and disseminate it UT-Austin wide; establish and hold quarterly meetings of the UT-Austin Population Health Interest Group (PHIG) to share ideas, vet funding opportunities, and discuss plans for research and service activities, seeking potential collaborations; select community members from among those submitting ideas to the Center for Place-Based Initiatives to participate in these quarterly sessions; hold a monthly or bimonthly Population Health Work in Progress (PH-WIP) meeting where members of various UT-Austin schools can present their planned or ongoing work and seek feedback; convene an annual 2-day Population Health Scientific Session consisting of podium presentations, posters, workshops, and idea generation sessions for interested UT-Austin faculty and staff and community members. • Outputs: Number of faculty, staff, and community members participating in the Work in Progress, quarterly collaboration conferences, and annual scientific sessions; number of collaborative grant and contract proposals submitted and funded; satisfaction and continuous improvement of the collaboration and information sharing activities; number and impact of population health publications; short- and long-term effects of studies and service activities on the targeted population health measures. • Short-term outcome: A 20-50% increase in the number of population health proposals submitted to the Office of Sponsored Programs; at least two projects involving CoPHII organizations at other UT campuses; high level of satisfaction with collaboration and information sharing activities (average of ≥ 4 on a 1-5 scale). • Long-term outcome: A 50-100% increase in the number of population health proposals submitted to the Office of Sponsored Programs; ongoing collaboration with CoPHII organizations at other UT campuses; high level of satisfaction with collaboration and information sharing activities (average of ≥ 4 on a 1-5 scale).

There are other activities in the planning stage to meet the needs identified in earlier sections of this report. Examples include programs to improve childhood nutrition, increase mobility and exercise, reduce overuse of alcohol, reduce prescription narcotic and illegal drug use, lessen trauma and violence, attack health care disparities, and enhance access to health care especially for cancer screening. Interventions focused on these needs were not included in the table above because planning has not progressed to the point where inputs,

activities, outputs, and short- and long-term outcomes could be specified. No doubt, these will be the foci of the meetings where faculty interested and engaged in population health enhancement activities meet to discuss and plan future activities.

We anticipate no impact of UT-Austin's CoPHII activities on the campus' physical or environment infrastructure or surroundings. However, CoPHII activities could adversely impact the organizational structures and relationships both within UT-Austin and in the community.

Loss of Trust

Overpromising or failing to deliver on commitments could reduce trust within UT-Austin for population health activities. Collaborations may not be increased or enhanced, and as a result miss opportunities for leveraging the power, energy, and resources of the various schools and colleges.

Similarly, overpromising and not meeting commitments could sour relationships between UT-Austin and community organizations and individuals. Lack of respect for the community, whether intended or inadvertent, including failure to appreciate issues from their perspective, could reinforce and magnify the historical distrust of UT by the residents of East Austin, as mentioned earlier. "Parachute" research and research that serves investigators' needs but ignores the needs and opinions of community members could reinforce the belief that UT is out to serve UT. Therefore, we must be aggressive in community engagement and use the CST as intended: to strengthen ongoing bidirectional communication between the Dell Medical School, especially the Department of Population Health, and UT-Austin with the community members and organizations. Respectful listening, engagement, and acquiescence to community wishes will be key to increasing bilateral trust which is a *sine qua non* for making any headway in population health.

Waste of Resources

The strategic plan in Section 9 contains a very ambitious set of activities, which will take people, time, energy, and money to implement. If the plans are overly ambitious or under-resourced (especially with personnel), or if the resources are ineffectively implemented, then not only will we not achieve the desired outcomes, the opportunity costs of the investment of time, energy, and money will be lost. Conversely, if we are overly cautious and attempt less than we are capable of delivering, we will also squander the time, energy, and money committed to CoPHII. Therefore, we must continually reassess our ambitions and progress and make whatever adjustments are necessary to achieve an acceptable return on the investments of CoPHII and other UT-Austin schools and colleges in population health.

Lost or Restricted Opportunities

We also must be careful in right-sizing interventions. Even successful interventions could hamper population health innovation and improvement if they consume an inappropriate amount of resources. For example, it is possible that managing a health information exchange for Central Texas requires so much time, energy, and focus of the Dell Medical School's health informatics and data analysis resources, that other needed enhancements of clinical information systems are not designed and implemented. Similarly, committing to a large neighborhood project could consume a disproportionate amount of resources, stunting growth of other population health initiatives. We must continually monitor all programs, especially those that are most ambitious and far-reaching, and if they begin dominating and adversely impacting other activities, alternative approaches must be developed. For example, the HIE could grow overly large with the onboarding of most health care provider organizations, and we might consider creating a nonprofit company to manage it, especially its business/contractual aspects.

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The University of Texas at Austin
Dell Medical School

APPENDIX

UNIVERSITY OF TEXAS FACULTY AND STAFF

POPULATION HEALTH ACTIVITY SURVEY

QUESTIONS FOR UNIVERSITY OF TEXAS FACULTY AND STAFF POPULATION HEALTH ACTIVITY SURVEY

1. What college, department, and/or organizational unit are you affiliated with?

2. Are you or your program faculty and staff involved in any activities related in ANY way to the health of a defined population?

3. Approximately when (month/year) did your population health activities begin?

4. Which missions do your population health activities fulfill:

5. What is the size of your population covered, or research sample size?

6. Do your population health activities have a GEOGRAPHIC focus within one or more of the five following counties: Bastrop, Caldwell, Hays Travis, and Williamson? If so, which?

7. Do your population health activities have a DEMOGRAPHIC (Racial or Ethnic, Socioeconomic, Age, or Gender) based focus? If so, what if your focus?

8. IF APPLICABLE, which diseases or risk factors do your activities focus on?

9. Which attributes do your activities entail?

10. IF APPLICABLE, which social determinants of health do your activities focus on, and how would you best further describe them?

11. Would you be willing to discuss your activities in more detail with us either via email or a 10 minute phone call? If so, please provide contact information

12. Is there anyone else in your institution that is doing important activities related in ANY way to the health of a defined population? If so, please provide contact information.

UNIVERSITY OF TEXAS FACULTY AND STAFF

POPULATION HEALTH ACTIVITY SURVEY

## UNIVERSITY OF TEXAS FACULTY AND STAFF POPULATION HEALTH ACTIVITY SURVEY RESULTS

DELL MEDICAL SCHOOL DEPARTMENT OF POPULATION HEALTH

What College and Department are you affiliated with?
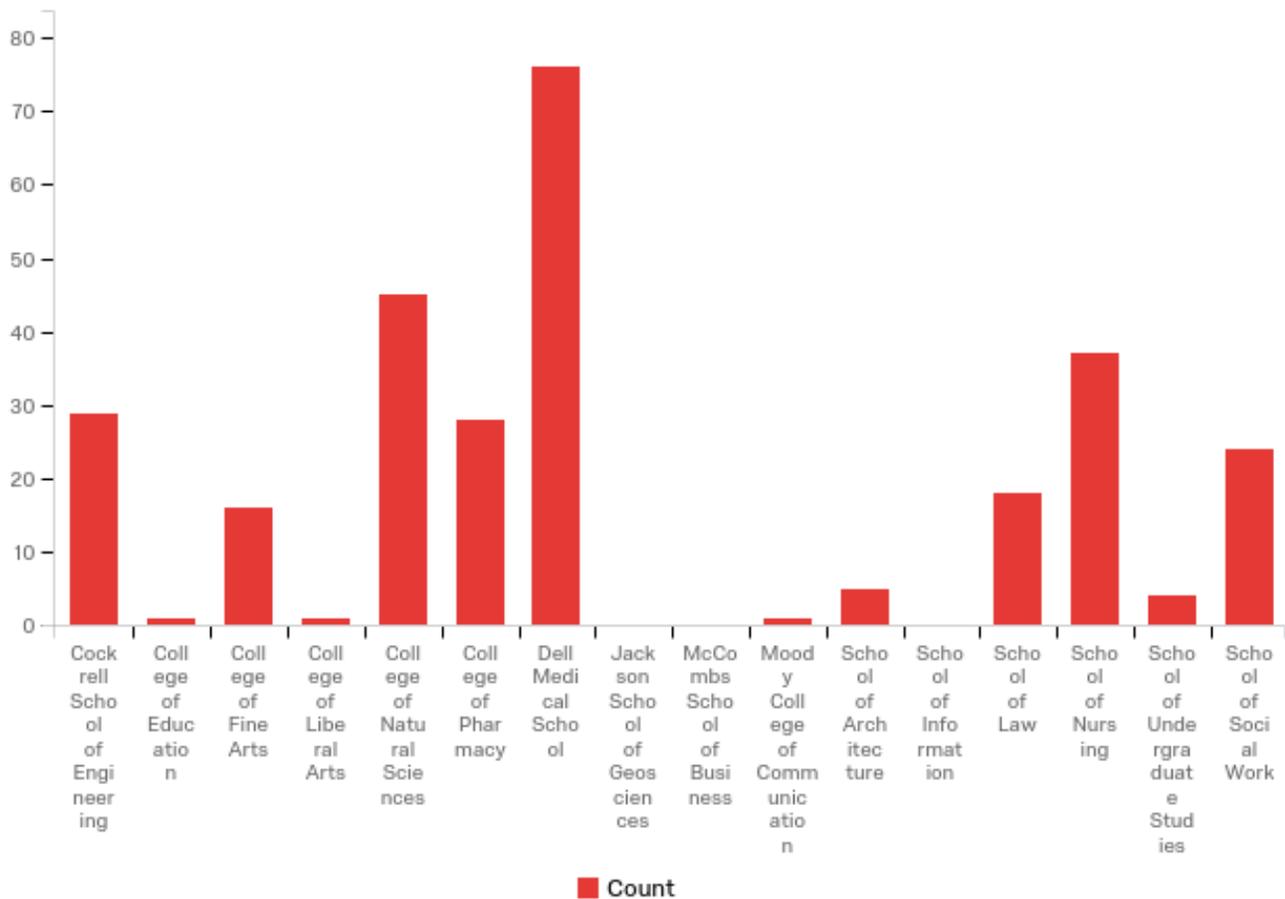
UNIVERSITY OF TEXAS FACULTY AND STAFF POPULATION HEALTH ACTIVITY SURVEY RESULTS
# DELL MEDICAL SCHOOL DEPARTMENT OF POPULATION HEALTH

What missions do your population health activities fulfill (check all that apply):
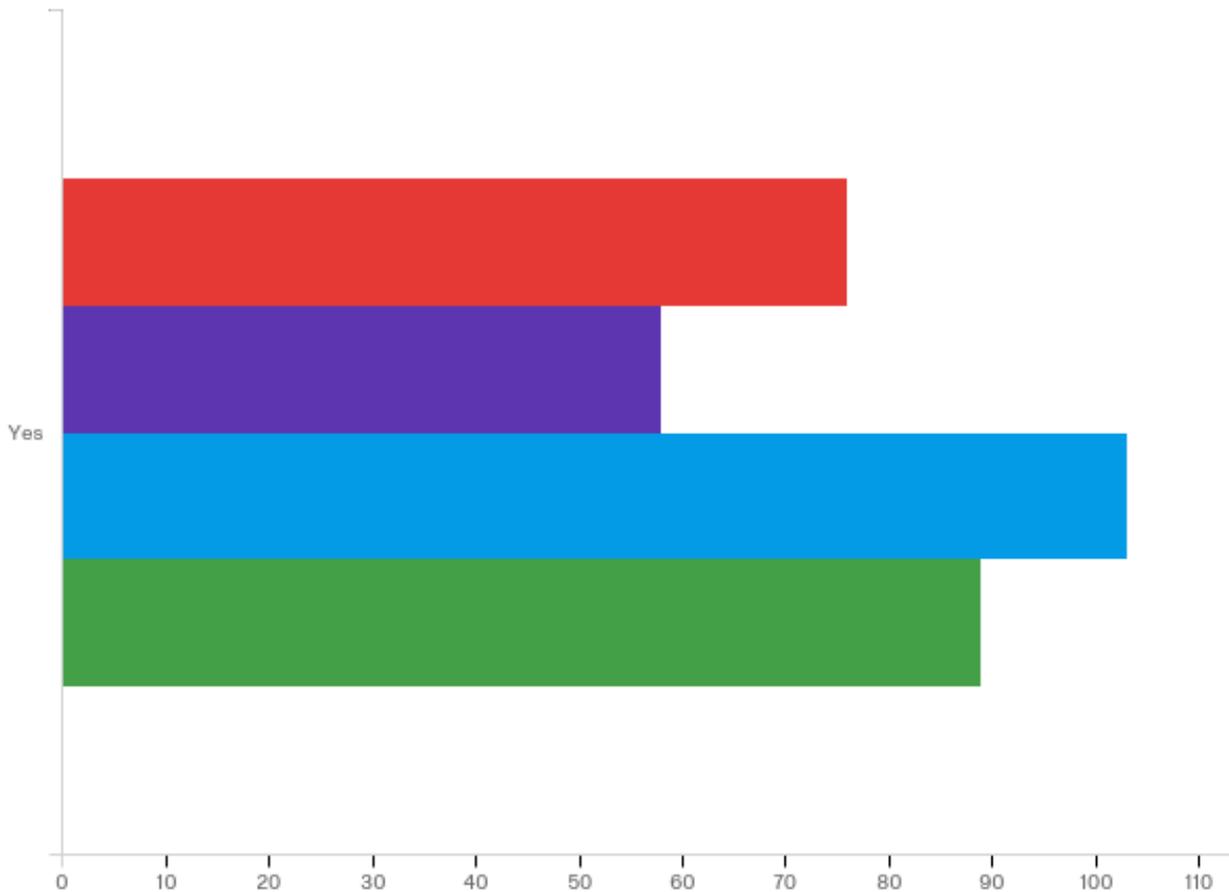
Question	Yes		Total
Clinical service (e.g. patient care)	100.00%	76	76
Community service	100.00%	58	58
Research	100.00%	103	103
Education	100.00%	89	89

UNIVERSITY OF TEXAS FACULTY AND STAFF POPULATION HEALTH ACTIVITY SURVEY RESULTS
DELL MEDICAL SCHOOL DEPARTMENT OF POPULATION HEALTH

What is the size of your population covered, or research sample size?
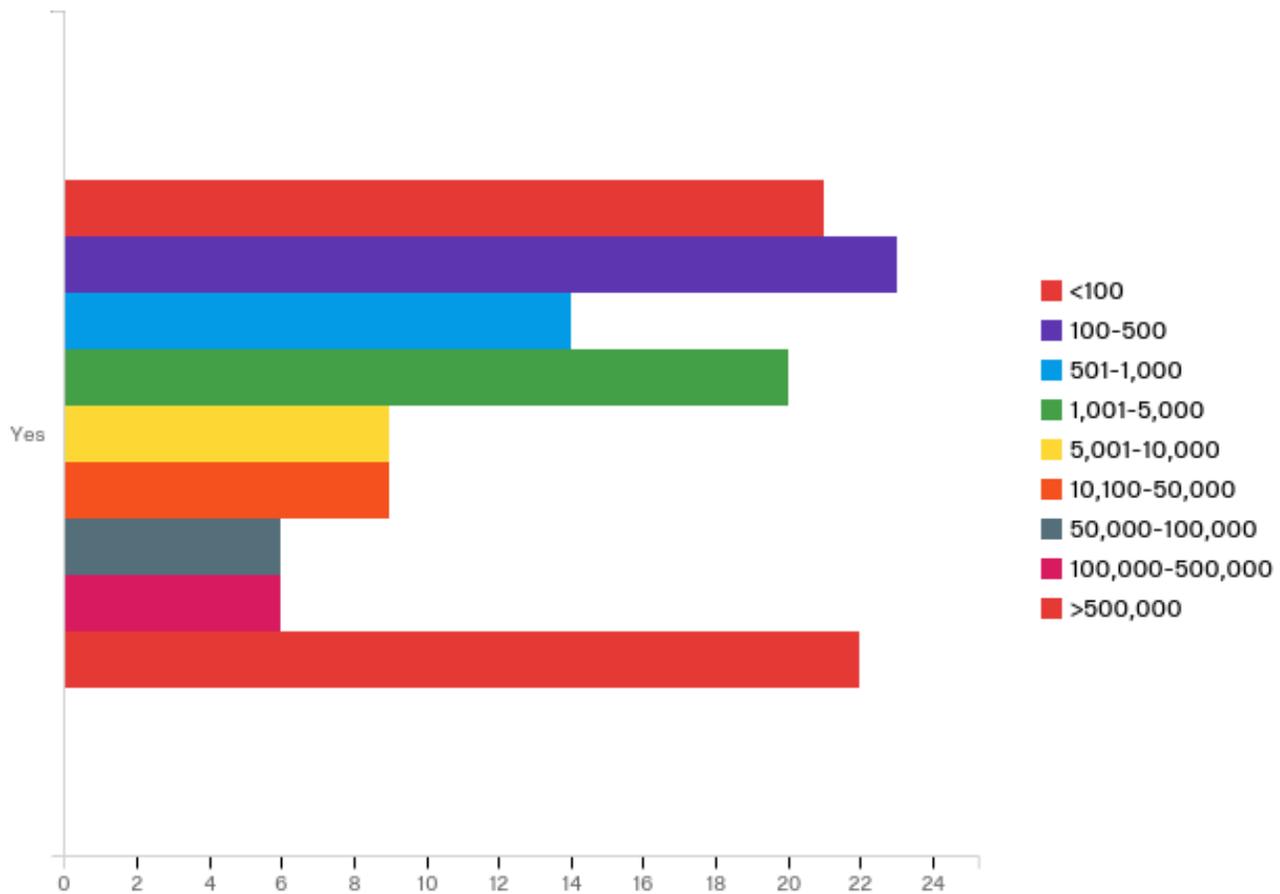
Question	Yes		Total
<100	100.00%	21	21
100-500	100.00%	23	23
501-1,000	100.00%	14	14
1,001-5,000	100.00%	20	20
5,001-10,000	100.00%	9	9
10,100-50,000	100.00%	9	9
50,000-100,000	100.00%	6	6
100,000-500,000	100.00%	6	6
>500,000	100.00%	22	22

If Applicable, which of the following counties is your geographic focus?
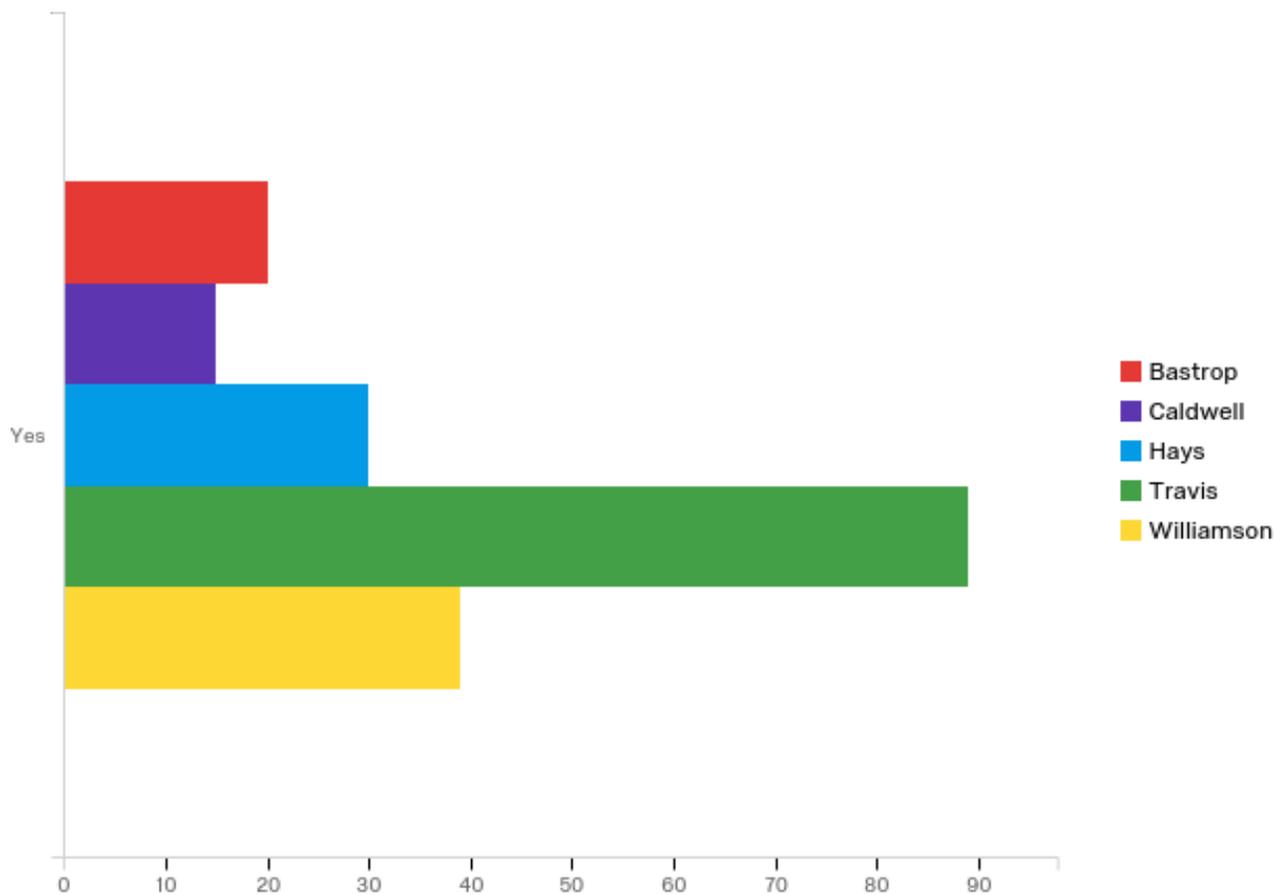
Question	Yes		Total
Bastrop	100.00%	20	20
Caldwell	100.00%	15	15
Hays	100.00%	30	30
Travis	100.00%	89	89
Williamson	100.00%	39	39

IF APPLICABLE, what is the RACIAL or ETHNIC focus of your population health activities?
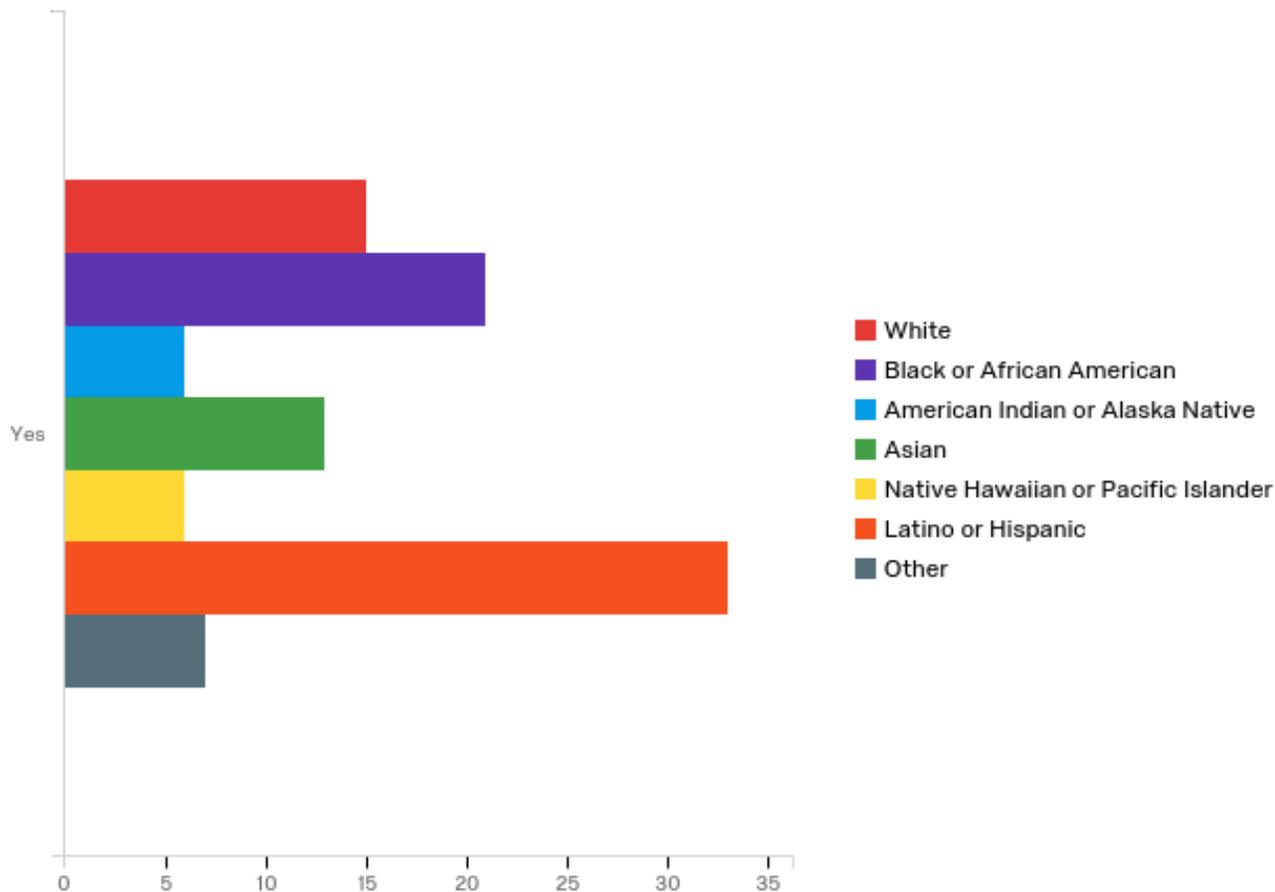
Question	Yes		Total
White	100.00%	15	15
Black or African American	100.00%	21	21
American Indian or Alaska Native	100.00%	6	6
Asian	100.00%	13	13

Native Hawaiian or Pacific Islander	100.00%	6	6
Latino or Hispanic	100.00%	33	33
Other	100.00%	7	7

IF APPLICABLE, what is the SOCIOECONOMIC STATUS focus of your population health activities?
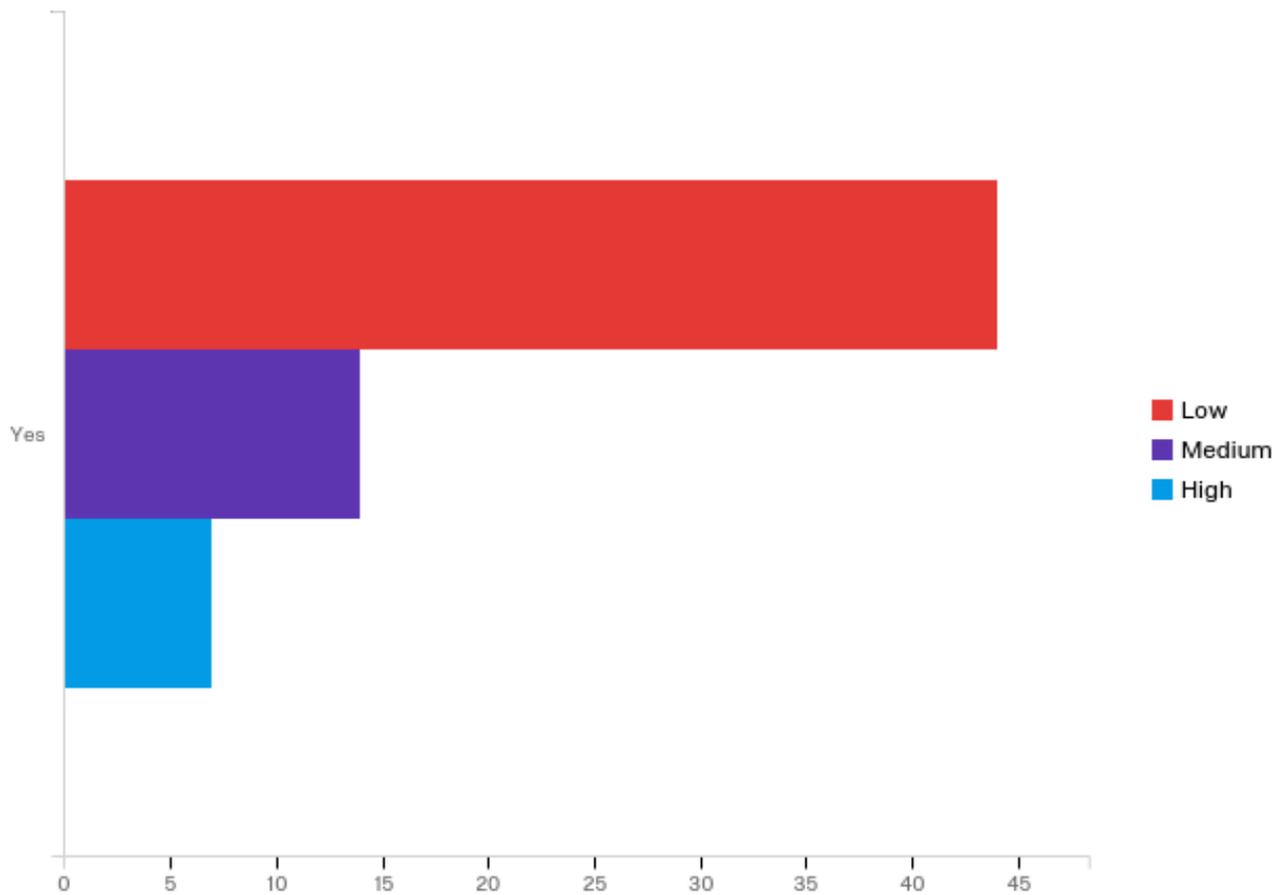
Question	Yes		Total
Low	100.00%	44	44
Medium	100.00%	14	14
High	100.00%	7	7

IF APPLICABLE, what is the AGE focus of your of your population health activities?
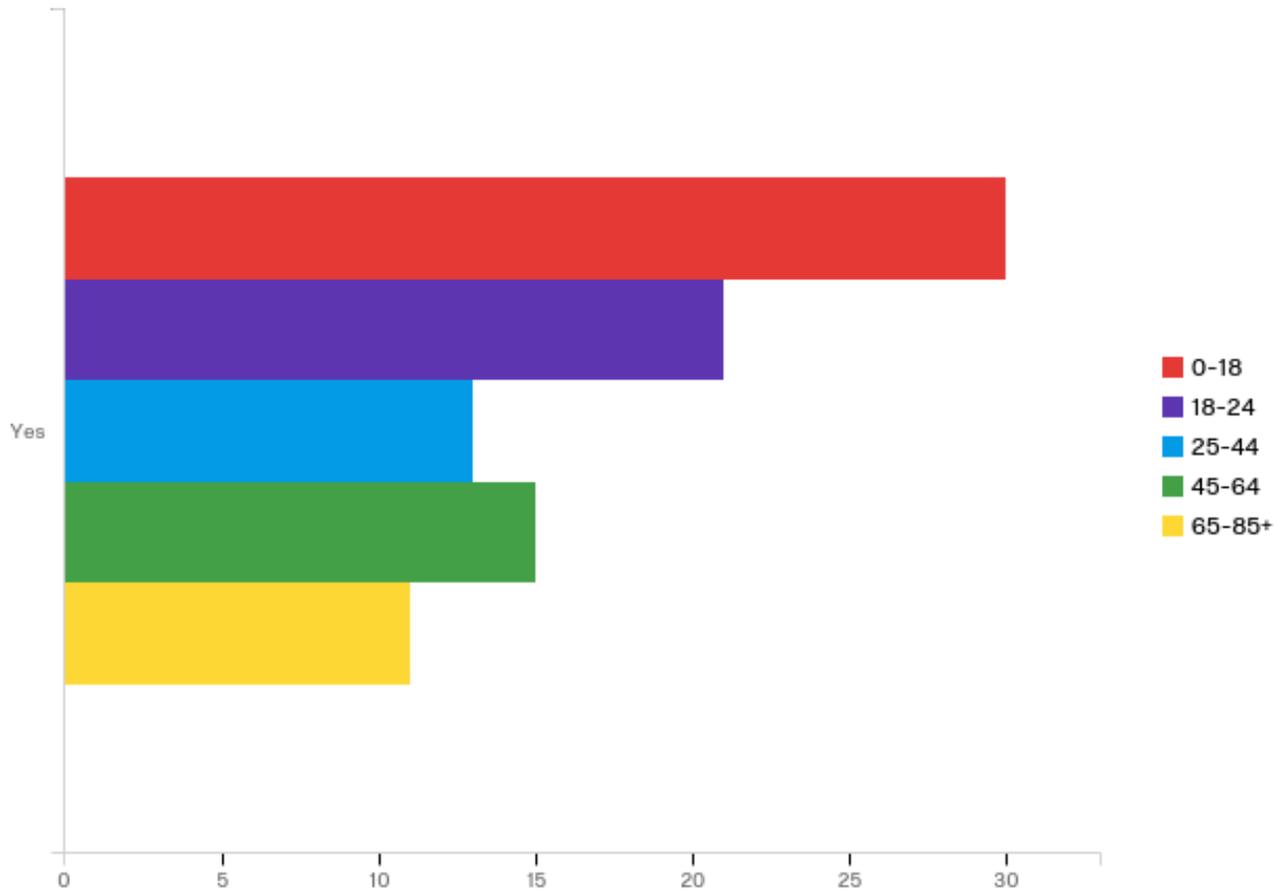
Question	Yes		Total
0-18	100.00%	30	30
18-24	100.00%	21	21
25-44	100.00%	13	13
45-64	100.00%	15	15
65-85+	100.00%	11	11

IF APPLICABLE, what is your GENDER focus of your population health activities?
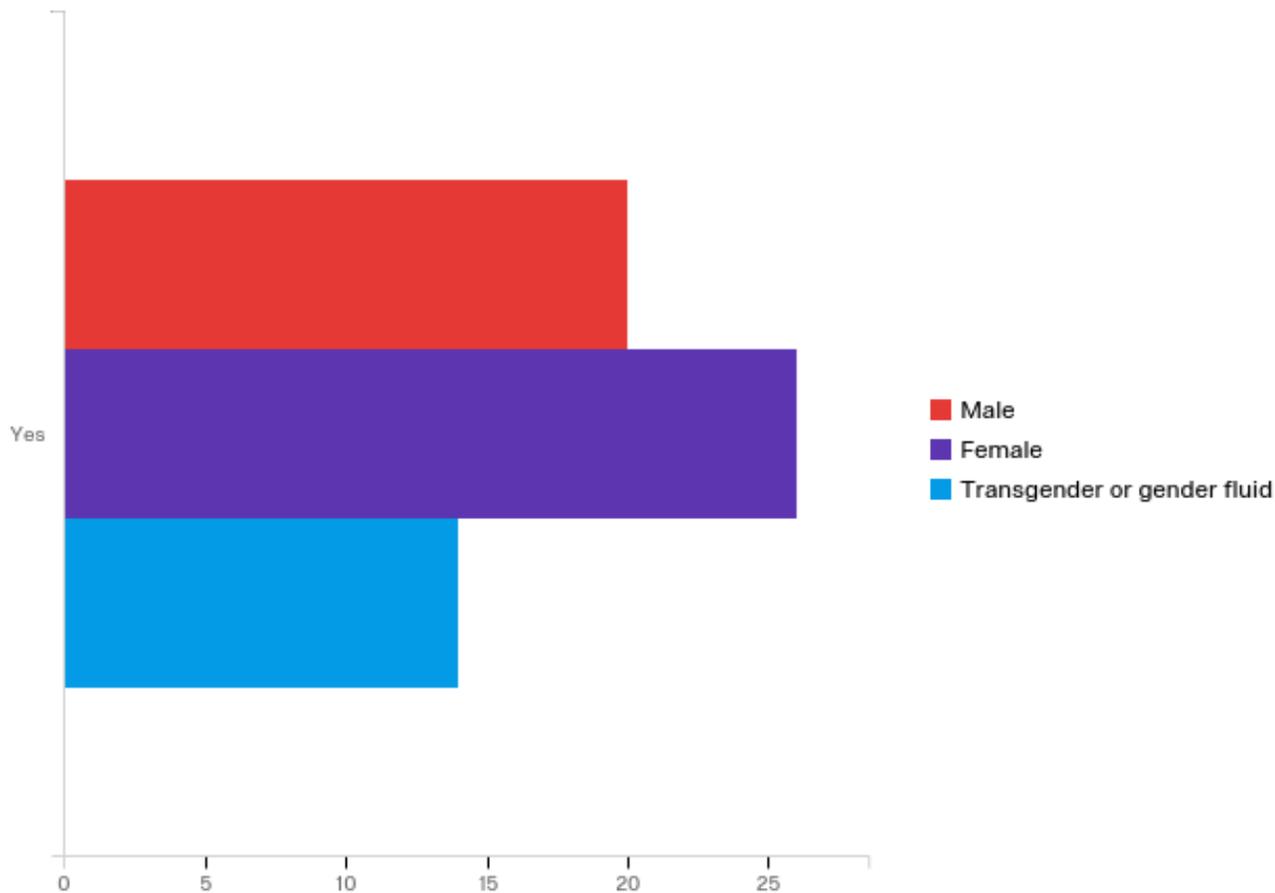
Question	Yes		Total
Male	100.00%	20	20
Female	100.00%	26	26
Transgender or gender fluid	100.00%	14	14

IF APPLICABLE, which diseases or risk factors do your activities focus on?
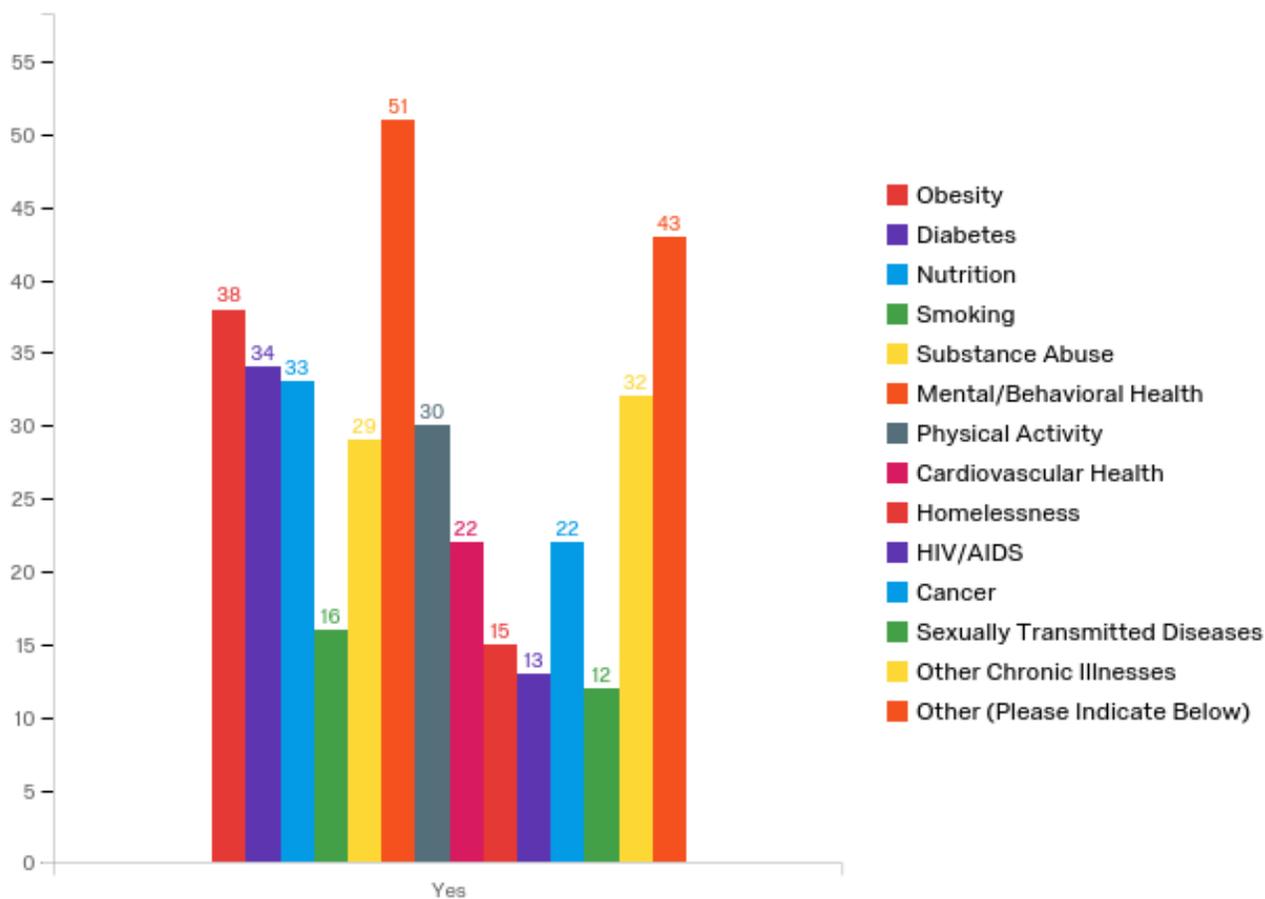
Which attributes do your activities entail? Check all that apply:
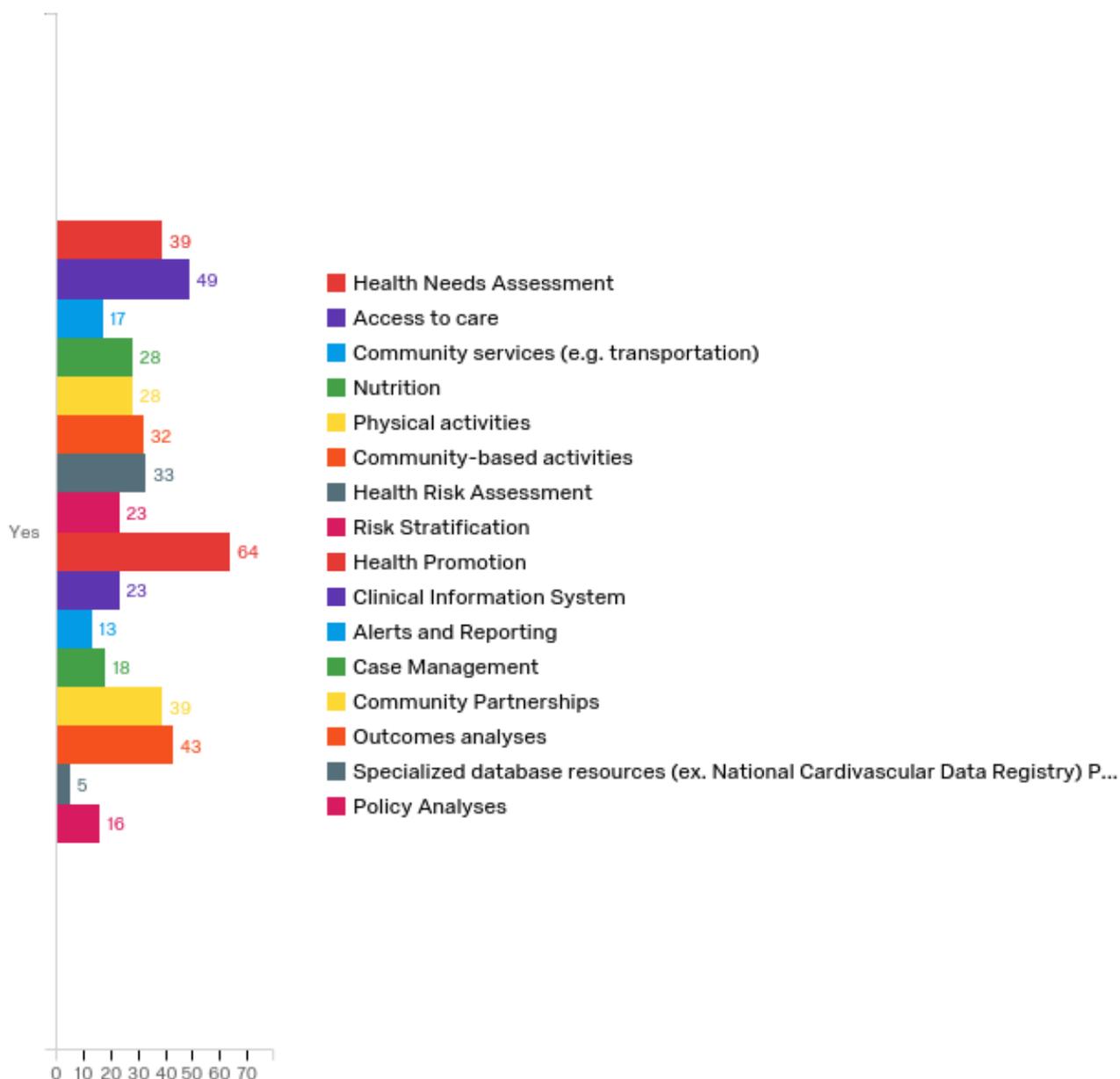
Legend:
- Health Needs Assessment
- Access to care
- Community services (e.g. transportation)
- Nutrition
- Physical activities
- Community-based activities
- Health Risk Assessment
- Risk Stratification
- Health Promotion
- Clinical Information System
- Alerts and Reporting
- Case Management
- Community Partnerships
- Outcomes analyses
- Specialized database resources (ex. National Cardiovascular Data Registry) P...
- Policy Analyses

Yes values:
39, 49, 17, 28, 28, 32, 33, 23, 64, 23, 13, 18, 39, 43, 5, 16

IF APPLICABLE, which social determinants of health do your activities focus on?
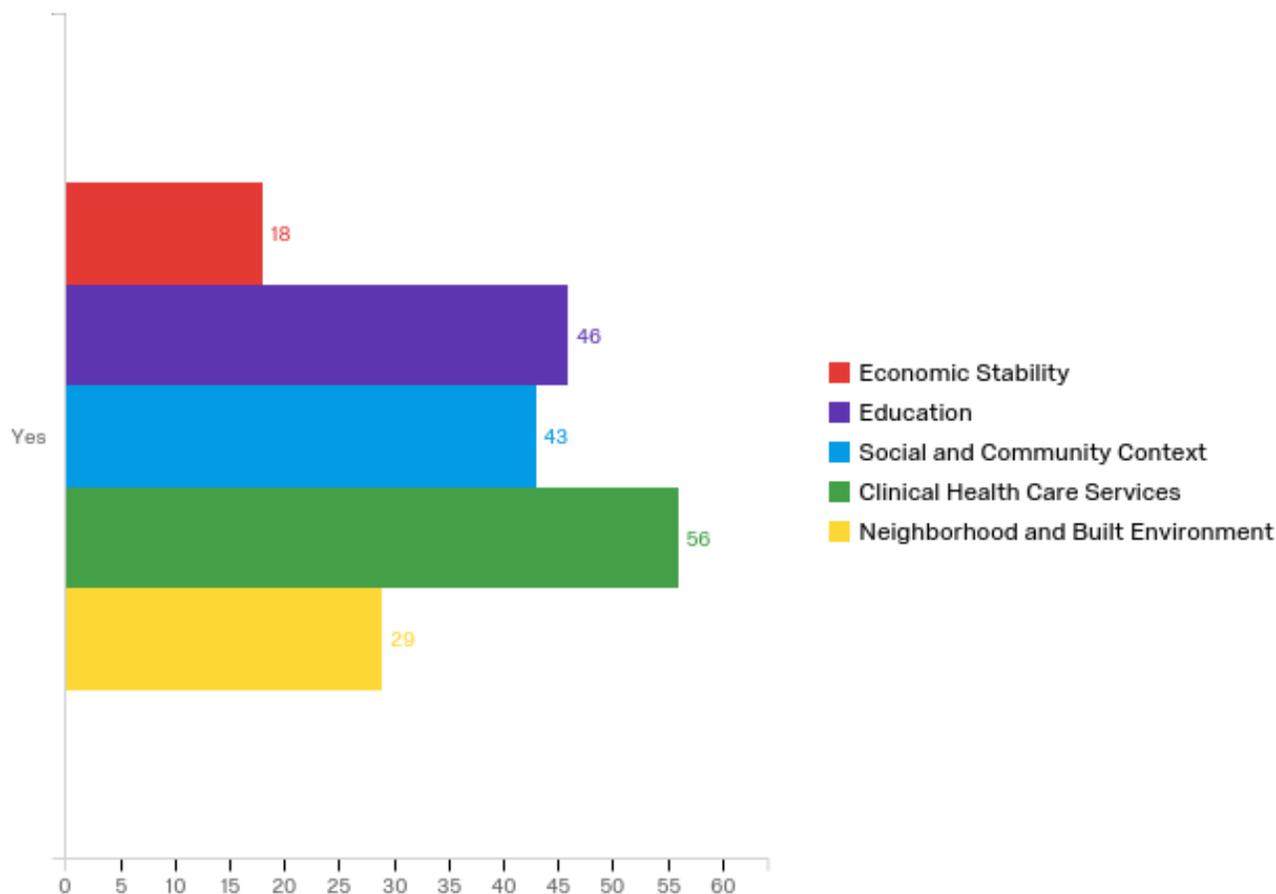
Question	Yes		Total
Economic Stability	100.00%	18	18
Education	100.00%	46	46
Social and Community Context	100.00%	43	43
Clinical Health Care Services	100.00%	56	56
Neighborhood and Built Environment	100.00%	29	29

APPENDIX

QUESTIONS FOR KEY INFORMANT

COMMUNITY STRATEGY TEAM MEMBERS

1. What does population health mean to you?

2. Who do you represent/serve?

3. What are the 3 biggest health challenges your clients/constituents are facing (regardless if they can receive treatment for these issues)? What do you think could be done to address these health issues?

4. What are the 3 biggest barriers your clients/constituents face? What do you think could be done to address these barriers?

5. What problems do you see in behavioral health care in Austin? How could these problems be addressed?

6. Who are you not serving/unable to serve? What challenges do you see arising with your population over the next 10 years?

7. What one thing would you like to say to the first Dell Medical School Class of 2020?

8. What would you like most for the Dell Medical School to accomplish?

9. If you are familiar with health outcomes in other states, what model did you most like/wish we could implement in Austin?

10. What do you think are the root causes of these health inequities?

APPENDIX

QUESTIONS FOR CST APPLICANT

DINNER AND DISCUSSION FORUM

1. What do you most wish you could change about the health in your county?

2. What do you see as important resources and strengths in your communities and/or communities that you serve?

3. How can these strengths be leveraged to improve the health of all residents in the community or communities you serve?

4. What are the biggest barriers that you or the people close to you face with regards to being healthy – either as an individual or as a service provider?

5. In one phrase, what is a barrier that Dell Medical School, as a part of the UT Institution, will face in working with communities?

6. What steps can Dell Medical School do to move past these barriers and be a resource to the communities that it serves?

7. In a perfect world, if there are no limitations on time or resources, what would a model for a healthy Austin and Central Texas look like to you?

8. What would you do to accomplish this? Within 2 years? Within 5 years?

Community Strategy Team Applicants – Thank you Reception and Discussion Forum September 22, 2016 5:30 – 7:30 Central Health Boardroom, 1111 East Cesar Chavez Austin, TX 78702   Invitees: 62 (including staff, volunteers)
Total attendees:

Time	Session/Task		Facilitation Notes/Responsible Person
	Supplies		Need: - 7 Flip charts and easels OR 7 stand-alone flip charts - 2 markers per table (14 total) - 1 pack of index cards - Blank name tags - 35 pens (standard) - Microphone/Speakers - at Central Health - Projector - *not required*
4:30 – 5:15 PM	**Room Set-up** **Facilitator Training** **Catering Set-up**		- Arrive at Central Health - Set up chairs and adjust room if needed, check A/V equipment, set up PowerPoint if necessary - Ethan - Bring Supplies from Dell to Central Health- Monique - Volunteer facilitators will arrive - discuss activities and guidelines for facilitating discussion - Monique - Harvey from Lavell's catering will deliver food at 4:30 and set up will be complete by 5 PM

5:15 – 5:30 PM	**CST Applicant/Guest Parking**
	
	 Guest Check-in (continue until 6:00 pm)
			- Applicants can park directly in front of Central Health. If the Central Health lot is full, they can park along the street on Waller, 2nd Street, or Willow Street.
			 - Ask volunteers to park on the street to allow more parking for applicants. Ask volunteers/guests not to park in Terrazas Library lot or they may be towed.
			
			 - Welcome guests (1 volunteer): Greet guests at the door - direct them to Sign-in table.
			 - Sign-In Table (2 volunteers):
			  - Greet applicants once they arrive in the boardroom
			  - Assign them a table and a blank name tag
			  - Direct participants to food
			  - Ask for volunteers for Spanish speaking table

5:30 – 6:00 PM	**Dinner and Icebreaker topic**		- Eat delicious food! There will be 6 CST applicants per table, and two volunteers per table will assist as facilitators for the night. - At each table, facilitators can ask participants as an icebreaker to think about and discuss with table: What do you most wish you could change about health in your county?

			(Informal question - not written down)
6:00 – 6:10 PM	**Welcome and Thank applicants**		- Bill and/or Jayne to do 10 minute intro - Thank you and opening remarks. Discuss purpose of the discussion forum. - If needed Paula will provide simultaneous translation to the group or to any individuals who need the assistance - based on RSVP.
6:15 – 6:30 PM	**Strengths**		- Briefly discuss icebreaker with the group - **3 minutes** **FOR THE REST OF THE DINNER: one facilitator will record participant responses on flip chart, the other will ask questions and solicit feedback from group members.** - Discuss at each table: What do you see as important resources or strengths in your community or communities you serve? - **5 minutes** How can these strengths be leveraged to improve the health of all residents in your community or the communities you serve? - **6 minutes** Paula will assist as a facilitator for Spanish speaking-table and assist with simultaneous translation or whatever is most needed for participants throughout the evening.
6:35 – 6:45 PM	**Gaps/Barriers**		- Discuss at each table: What are the biggest barriers you or people close to face in regards to being healthy - either as an individual or as a service provider?
6:45 – 7:00 PM	**Trust**		- Give each participant 3 index cards: For each: in one word, write down what you see as a barrier that Dell Medical School, as a part of the UT Institution, will face in working with communities. - **No more than 5 minutes** - Index pages will be placed at the center of the table - face up. - Ask: What steps can Dell Medical School do to move past these barriers and be a resource to the communities that it serves.
7:00 – 7:20 PM	**Perfect World**		In a perfect world, if there are no limitations on time or resources, what would a model for a healthy Austin and Central Texas look like to you?

			What would you do to accomplish this? Within 2 years? Within 5 years?
7:20 – 7:30 PM	**Closing/Thank you**		- One member from each table - Briefly share to large group what the table learned (30 seconds or less each) - Bill – Thank you and close

7:30 – 8:00 PM	**Debrief Facilitators/Cleanup**		- Invite participants to write additional thoughts on index paper
			
			- Depending on size
			   - Small: all debrief at once
			   - Large: Rotate - half the facilitators cleanup
			(those who have to leave early), the other half debrief with Ethan/Monique.

Group Facilitators (Graduate Students)
Deepti Agarwal, Graduate Student, School of Public Health; Daniela Bermea, Graduate Student, School of Social Work; Violet Resnick, Dual-degree Graduate Student, School of Social Work and School of Public Health; Bart Whittington, Graduate Student, School of Social Work

Group Facilitators (Dell Medical School Faculty and staff)
Jayne Nussbaum, Executive Director, Department of Population Health; Christina Jarvis, Executive Assistant, Department of Population Health; Lourdes Rodriguez, Director, Center for Place Based Initiatives; Kellie Sorenson, Program Manager, Primary Care and Value-Based Health, Population Health

Participants:
 Ainee Athar, CST applicant; Coalitions & Advocacy @ FWD.us Texas; Ric Bonnell, CST applicant; Global Health Director, Department of Population Health, Dell Medical School; Vince Cobalis, CST applicant; Vice-Chair Austin Asian American Quality of Life Commission; Vanessa Castro, CST applicant; Wellness & Health Program Coordinator, Emma S. Barrientos Mexican American Cultural Center; Harold Flenoy, CST applicant; Senior Administrator The UT Health Science Center, School ofPublic Health, Austin Regional Campus; Susan Millea, CST applicant; Director of Health Equity for American Heart Association; George Miller, CST applicant; President and CEO of Community Care; Nancy Neavel, CST applicant; Community Advocate; Frank Preketes, CST applicant; Business Process Assistant, Central Health; Tammy Watson, CST applicant; Community member, over 25 years nursing experience; William Tierney, Chair of Population Health; Paula Rojas, Community Organizer and the Department of Population Health's Community Equity Strategy Consultant; Kim Berger, Digital Strategist Web Designer, Dell Medical School Communications