The Burden of Diabetes In Texas

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A Report Prepared by the
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FAST FACTS:

PREVALENCE[1]

In 2010…

- An estimated 9.7 percent of adult Texans 18 years or older reported they had been diagnosed with diabetes. The prevalence of diabetes increased by 56.6 percent between 2000 and 2010.

- Approximately 1.8 million adults in Texas were living with diabetes.

- African Americans had the highest diabetes prevalence among race/ethnicity groups.

- Diabetes prevalence for African Americans was double that of whites.

- Diabetes prevalence steadily decreased with increasing education level.

- Diabetes prevalence decreased as annual household income level increased.

MORTALITY[2]

- Diabetes is among the top ten leading causes of death in Texas. In 2010, about 4,738 individuals died due to diabetes as the primary cause of death. The age-adjusted annual mortality rate (AAMR) was 21.7 deaths per 100,000 persons.

- The AAMR due to diabetes among African Americans, 36.8 deaths per 100,000 persons (95% CI 34.2–39.4), was more than double that of whites—16.5 deaths per 100,000 persons (95% CI 15.9–17.2).

- In Texas, from 2006 to 2010, the AAMR for diabetes among males decreased, except in 2008. This decrease was not statistically significant.

- From 2006 to 2010, the AAMR for diabetes decreased among female, white, African American, and Hispanic populations in Texas. These decreases were not statistically significant.

HOSPITALIZATIONS[3]

- In 2010, about 596,200 hospital inpatient stays occurred among patients with diabetes; i.e., diabetes was the principal reason for hospitalization or was a coexisting condition, accounting for 20 percent of the 2.9 million total hospital stays in Texas.

- Patients with diabetes as a principal diagnosis accounted for 44,496 discharges, or 1.5 percent of all hospital stays.

- The total charges for hospital stays with any mention of diabetes as either a principal or coexisting condition were $29.05 billion, over 27 percent of aggregate charges for overall stays ($105 billion).

RISK FACTOR PREVALENCE[1]

- In 2010, about one in twenty adults (5.2%) in Texas had been diagnosed with prediabetes, i.e. about 1 million adults.

- In 2010, about one in three adults (31.7%) in Texas were obese, and two in three (66.6%) were either overweight or obese.

- In 2010, more than one in three Hispanic (39.2%) and African American (41.4%) adults were obese in Texas. Both Hispanics and African Americans had significantly higher prevalence of obesity than whites (27.9%).

- All Texas Health Service Regions (HSRs) had overweight and obesity prevalence estimates above 60 percent for adults.

- In 2009, more than half (51.9%) of adults in Texas reported not meeting the recommendation for moderate or vigorous physical activity.

- In 2010, more than one in four adults (26.6%) in Texas reported no leisure time physical activity outside of work in the past month.

- In 2009, about three out of four adults (76.2%) in Texas consumed fewer than five servings of fruits and vegetables per day.

- HSRs 4 and 5 had significantly higher age-adjusted prevalence of consuming less than five servings of fruits and vegetables per day among adults than the state average.

QUALITY OF LIFE[1]

- Adults with diabetes had significantly higher prevalence of reporting fair or poor general health, poor physical health for five or more days in the past month, and poor mental health for five or more days in the past month compared to adults without diabetes.

References for Fast Facts:

1. Disease prevalence and risk factors: *Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services*. Population rate denominators: *2010 Population Finder, U.S. Census*.
2. Mortality: *Texas Vital Statistics, Center for Health Statistics, Texas Department of State Health Services*.
3. Hospitalizations: *Texas Health Care Information Collection, Texas Department of State Health Services*.

DATA SOURCES

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BRFSS	The Behavioral Risk Factor Surveillance System (BRFSS) is a random-digit dial telephone survey of adults 18 years and older living in a private residence; therefore, individuals living in institutions, group homes, and without telephones are excluded. Diabetes data include both type 1 and type 2 diabetes. Women diagnosed during pregnancy are excluded from diabetes prevalence. http://www.dshs.state.tx.us/chs/brfss/
Mortality	Mortality data are based on a subset of variables collected on the Texas Certificate of Death. Mortality data are available in two modules, one for the years 1990 through 1998 and one for the years 1999 through 2009. Two modules are necessary for death statistics because deaths occurring during 1990 through 1998 were coded using ICD-9 disease classification codes, while deaths occurring since 1999 are coded using ICD-10 codes. Death data are collected by the Vital Statistics Unit (VSU) at the Department of State Health Services (DSHS). http://soupfin.tdh.state.tx.us/deathdoc.htm
Hospital Discharge	The THCIC (Texas Health Care Information Collection) was created by the 74th Texas Legislature in 1995. THCIC's primary purpose is to provide data that will enable Texas consumers and health plan purchasers to make informed health care decisions. THCIC's charge is to collect data and report on the quality performance of hospitals and health maintenance organizations operating in Texas. The goal is to provide information that will enable consumers to influence the cost and quality of health care in Texas. - http://www.dshs.state.tx.us/thcic/DataAndReports.shtm - http://www.dshs.state.tx.us/thcic/hospitals/Inpatientpudf.shtm
HEDIS	The Healthcare Effectiveness Data and Information Set (HEDIS) is a set of standardized performance measures used to compare the quality of care of managed care organizations. The National Committee for Quality Assurance (NCQA), a private, nonprofit organization, convenes national healthcare experts to guide the selection and development of HEDIS measures. The performance measures reflect many significant public health issues such as cancer, heart disease, smoking, diabetes, and the care of pregnant women and children. Texas law requires basic service HMOs with 5,000 or more members to report HEDIS measures each year to the DSHS. http://www.dshs.state.tx.us/thcic/publications/HMOs/HMOReports.shtm
NHANES	The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations. NHANES is a major program of the National Center for Health Statistics (NCHS). NCHS is part of the Centers for Disease Control and Prevention (CDC) and is responsible for producing vital and health statistics for the Nation. http://www.cdc.gov/nchs/nhanes.htm

CHAPTER 1: CHILDHOOD DIABETES

Diabetes among children and adolescents is mainly type 1. The *SEARCH for Diabetes in Youth* study funded by the Centers for Disease Control and Prevention and the National Institutes of Health indicated that, across four years (2002-2005), 15,600 youth in the U.S. were newly diagnosed with type 1 diabetes annually, and 3,600 youth were newly diagnosed with type 2 diabetes annually.

Among youth aged less than ten years old, the rate of new cases was 19.7 per 100,000 each year for type 1 diabetes and 0.4 per 100,000 for type 2 diabetes. Among youth aged ten years or older, the rate of new cases was 18.6 per 100,000 each year for type 1 diabetes and 8.5 per 100,000 for type 2 diabetes.

In 2007, the Texas BRFSS phone survey added two questions regarding diabetes prevalence among youth. In households that include a child or adolescent, respondents are now asked if the child or adolescent has been diagnosed with diabetes, and if so, what type of diabetes they have (type 1 or type 2). While response to the question regarding type of diabetes has not been adequate to provide a reliable estimate of prevalence by type, the 2010 survey indicates that an estimated 14,000 Texas youth (0.2% of this age group, 95% CI 0.1–0.4) have been diagnosed with diabetes (type 1 and type 2). Diabetes prevalence among persons less than 18 years of age decreased from 2007 to 2010, but this decrease is not statistically significant (Figure 1). Diabetes prevalence did not differ significantly between boys and girls from 2007 to 2010. Diabetes prevalence also did not differ significantly among race/ethnicities from 2007 to 2010. Data is not available for the 'Other' race/ethnicity group because of small sample size. Childhood diabetes prevalence for African Americans in 2009 is unavailable because the estimate is not reliable.

Figure 1: Diabetes Prevalence among Persons Less Than 18 Years of Age by Sex and Race/Ethnicity, Texas, 2007-2010

	Texas	Boy	Girl	White	African American	Hispanic
2007	0.4	0.5	0.3	0.3	0.3	0.4
2008	0.3	0.3	0.3	0.3	0.3	0.3
2009	0.4	0.3	0.5	0.4	0	0.3
2010	0.2	0.2	0.3	0.2	0.2	0.3
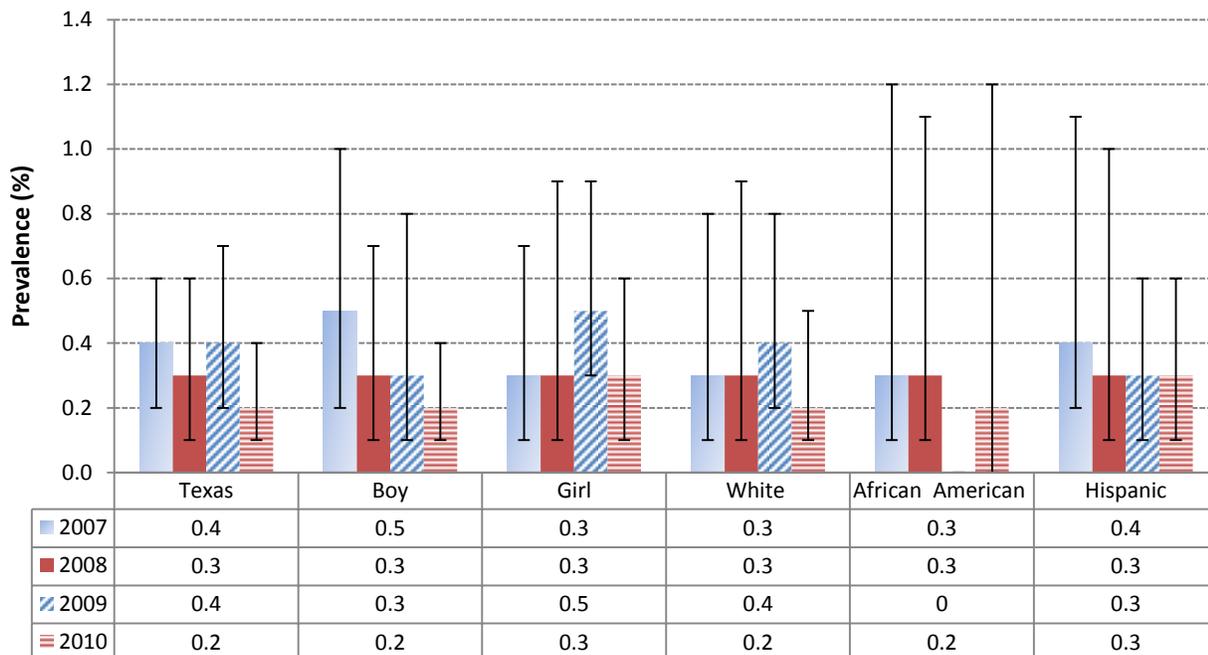
Data Sources:

- *Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011.*
- *Texas BRFSS, DSHS. The error bars represent 95% Confidence Intervals (CI).*

CHAPTER 2: PREDIABETES

I.   Prevalence

Prediabetes is a condition in which individuals have blood glucose or A1c levels higher than normal but not high enough to be classified as diabetes (see Glossary for definition of A1c).   People without diabetes were classified as having prediabetes if they had fasting plasma glucose values of 100 to 125 mg/dL or A1c values of 5.7 percent to 6.4 percent.[4] People with prediabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke. On the basis of fasting glucose or A1c levels, and after adjusting for population age differences, the percentage of U.S. adults aged 20 years or older with prediabetes in 2005−2008 was similar for whites (35%), non-Hispanic blacks (35%), and Mexican Americans (36%).[4]

Since 2008, respondents to the annual BRFSS phone survey have been asked the following questions:

1. Have you had a test for high blood sugar or diabetes within the past three years?
2. Have you ever been told by a doctor or other health professional that you have prediabetes or borderline diabetes?

Figure 2: Prediabetes Prevalence among Persons 18 Years of Age and Older by Demographics, Texas, 2008-2010

	U.S.	Texas	Male	Female	White	African American	Hispanic	18-29	30-44	45-64	65+
2008	4.8	4.9	4.0	5.9	5.5	6.4	4.0	2.5	5.0	6.0	6.4
2009	5.1	5.4	4.9	5.9	5.2	6.7	4.9	3.0	4.1	7.5	7.1
2010	5.4	5.6	6.2	5.1	5.3	7.5	4.3	4.4	4.0	7.3	7.7
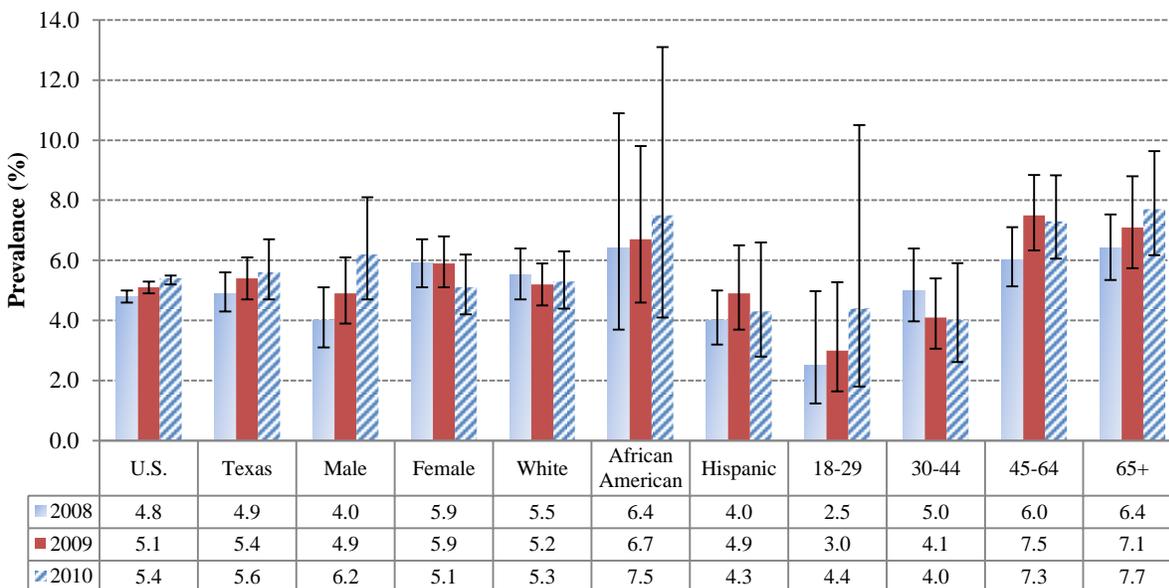
Data Source: Texas BRFSS, 2010 DSHS.

According to 2010 Texas BRFSS data, 5.6 percent of adults 18 years and older in Texas (95% CI 4.7–6.7) have been diagnosed with prediabetes, i.e. about 1 million adults (Figure 2). In the U.S., 5.4 percent (95% CI 5.2–5.5) of adults 18 years and older have been diagnosed with prediabetes; i.e., about 15 million adults. Prediabetes prevalence increased in Texas from 2008 to 2010, though this increase is not statistically significant—4.9 percent (95% CI 4.3–5.6) to 5.6 percent (95% CI 4.7–6.7). There were not any statistically significant differences in prediabetes prevalence between males and females for all three years. There were also not any statistically significant differences in prediabetes prevalence among race/ethnicities. Prediabetes prevalence increases with age as shown by BRFSS data.

CHAPTER 3. DIABETES PREVALENCE

In 2010, an estimated 9.7 percent (95% CI 9.1–10.4) of Texas adults reported that they had been diagnosed with diabetes (Figure 3). This translates to 1.8 million adults in Texas living with diabetes in 2010.

Figure 3: Diabetes Prevalence Among Adults, Texas, 1999-2010

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Texas	6.2	6.2	7.1	7.0	8.1	7.7	7.9	8.0	10.3	9.7	9.3	9.7
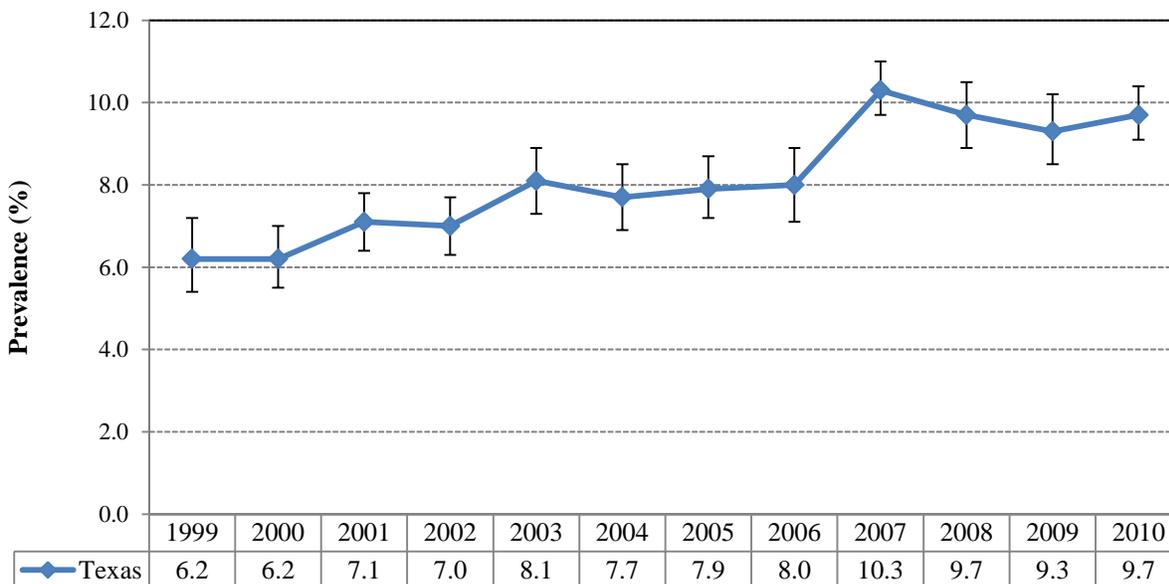
Data Source: Texas BRFSS, 2010 DSHS.

Overall, diabetes prevalence did not change significantly in Texas between 1999 (6.2%; 95% CI 5.4–7.2) and 2006 (8.0%; 95% CI 7.1–8.9) (Figure 3). Diabetes prevalence increased significantly from 2006 to 2007 (10.3%; 95% CI 9.7–11.0). In 2007, the Texas Behavioral Risk Factor Surveillance System oversampled counties along the Texas border. These counties have a large Hispanic population; therefore, Hispanics were better represented in the 2007 survey than surveys occurring before or after 2007. Diabetes prevalence remained steady from 2008 to 2010. HSRs 5 and 11 had statistically higher diabetes prevalence than the state prevalence (Figure 4).

Figure 4: Texas Diabetes Prevalence by Health Service Region

State Rate = 9.7% (95% CI: 9.0-10.4%)
National Rate = 9.3% (95% CI 9.1-9.4%)

Prevalence (%)

- 7.8 - 8.6
- 8.7 - 10.2
- 10.3 - 11.0
- 11.1 - 12.4
- 12.5 - 15.3
- Statistically Higher than State Rate
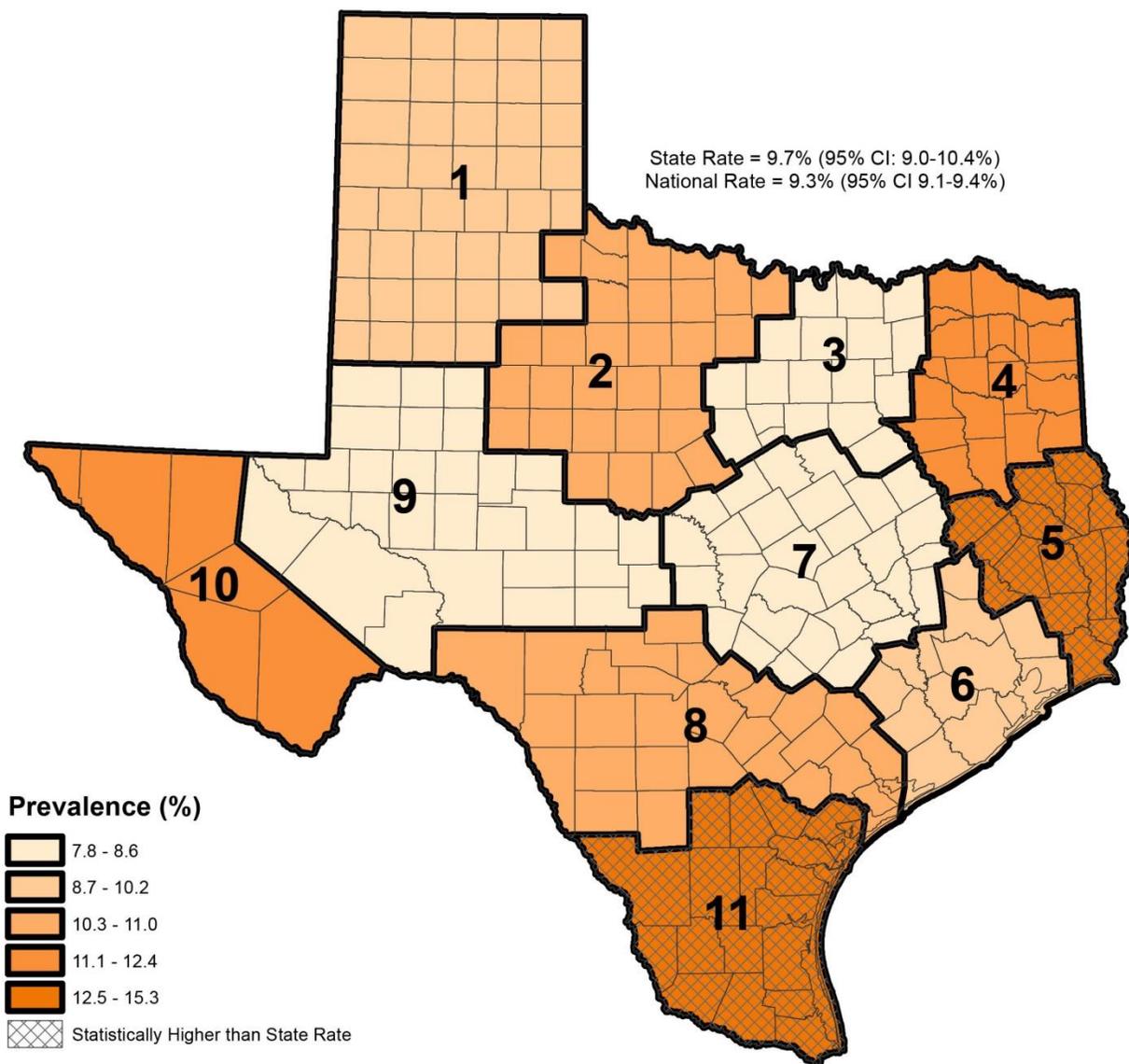
Data Source: Texas BRFSS, 2010. Center for Health Statistics, DSHS

Figure 5: Diabetes Prevalence among Adults by Demographics, Texas, 2008-2010

	U.S.	Texas	Male	Female	White	African American	Hispanic	Other	18-29	30-44	45-64	65+
2008	8.8	9.7	9.8	9.7	8.3	13.0	11.1	8.1	1.8	4.6	14.6	22.7
2009	9.1	9.3	10.0	8.6	8.0	14.4	9.7	9.2	0.7	5.2	13.7	20.7
2010	9.3	9.7	9.9	9.5	8.2	16.5	11.0	6.9	1.5	4.3	14.0	23.0
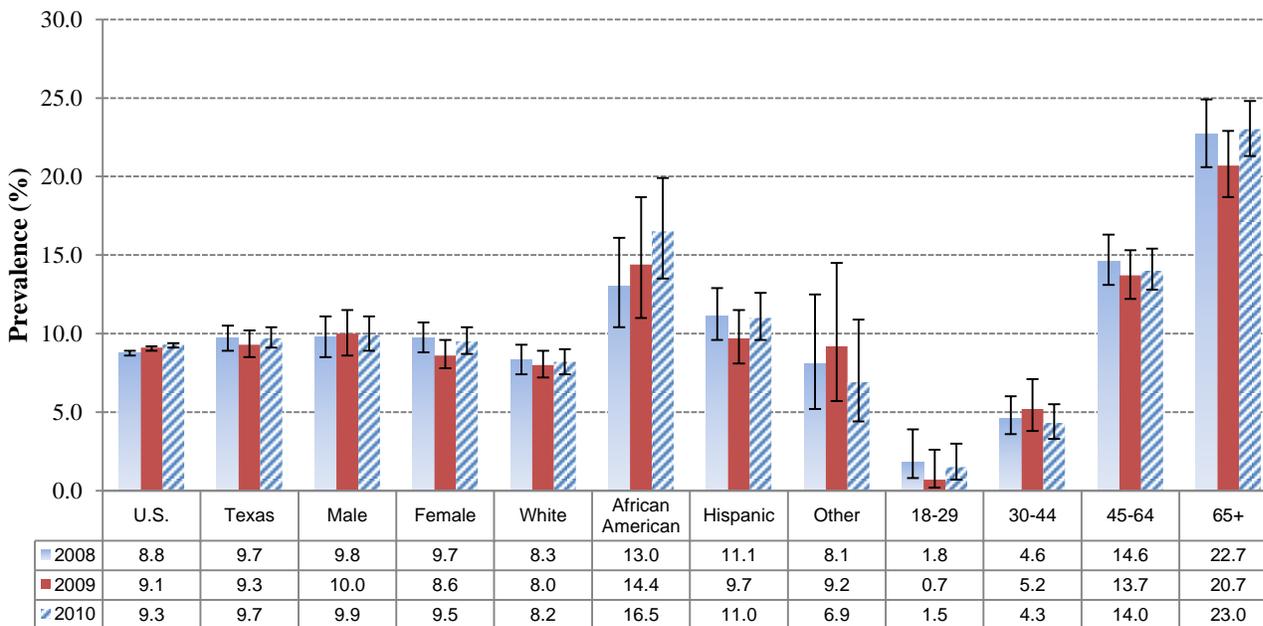
Data Source: Texas BRFSS, DSHS.

"Other" race group includes individuals who reported their race/ethnicity as Asian, American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, and Other.

Diabetes prevalence did not differ significantly between adult males and females in 2010 (Figure 5). African Americans had statistically higher diabetes prevalence, compared to other race/ethnicity subgroups.

In, 2010

- Diabetes prevalence for African Americans was **16.5 percent** (95% CI 13.5–20.0).
- Diabetes prevalence for Hispanics was **11.0 percent** (95% CI 9.6–12.5).
- Diabetes prevalence for whites was **8.2 percent** (95% CI 7.4–9.0).
- Diabetes prevalence for the "Other" race group was **6.9 percent** (95% CI 4.4–10.9).

Almost one in four adult Texans aged 65 and older had been diagnosed with diabetes in 2010 (23.0%; 95% CI 21.3–24.8).

Figure 6: Diabetes Prevalence among Adults by Educational and Household Income Level, Texas, 2010

	Less Than High School	High School Graduate	Some College	College +	Less Than $25,000	$25,000 thru $49,999	$50,000 or more
■2010	14.4	11.2	9.7	7.1	14.2	10.6	6.5
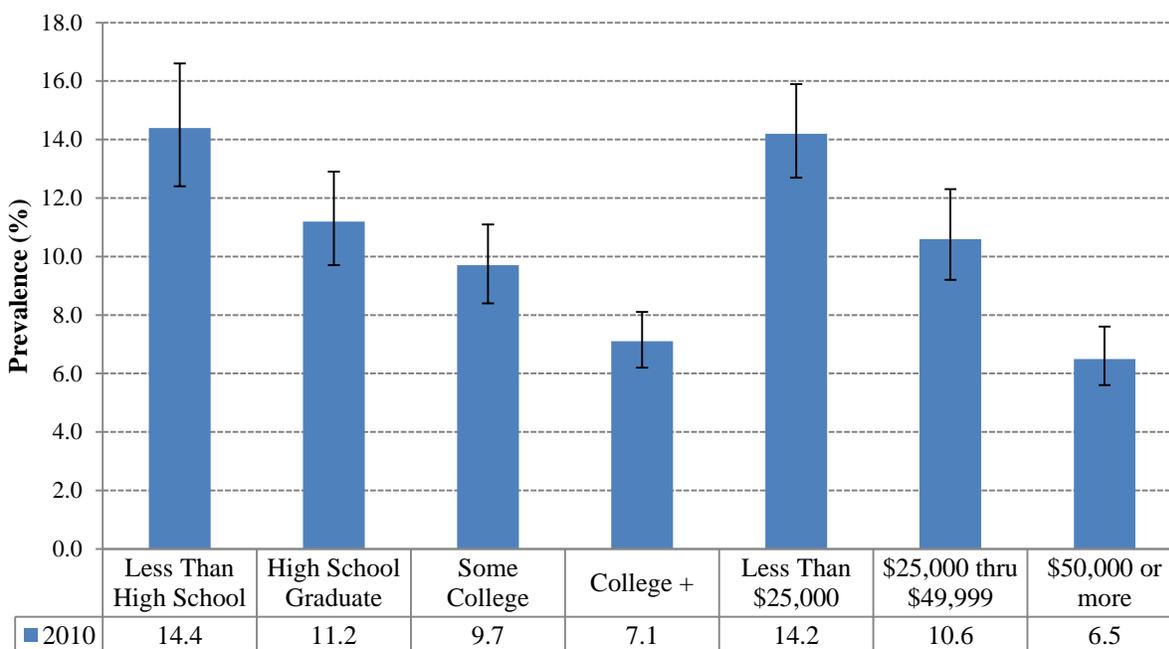
Data Source: Texas BRFSS, 2010, DSHS.

Diabetes prevalence was significantly lower among adults with some college education (9.7%; 95% CI 8.4–11.2) or who were college graduates (7.1%; 95% CI 6.2–8.1) than among adults with no high school diploma (14.4%; 95% CI 12.4–16.7). A decrease in prevalence of diabetes was seen as education level increased (Figure 6). Diabetes prevalence among adults decreased significantly as annual household income increased.

CHAPTER 4. HEALTHCARE EFFECTIVENESS DATA AND INFORMATION SET (HEDIS)

HEDIS is a tool used by more than 90 percent of America's health plans to measure performance. State law requires basic service health maintenance organizations (HMOs) to report HEDIS measures, including measures related to diabetes, to the Texas Health Care Information Council (THCIC). Findings from chart reviews conducted by Texas HMOs indicate progress in delivering care to persons aged 18 to 75 years who have diagnosed diabetes, although Texas generally falls

behind the nationwide average of 270 health plans called the Quality Compass (expressed as the measures for the United States in the tables that follow – see Glossary). HEDIS does not include Medicare or Medicaid non-managed care plans or self-insured HMOs that are not regulated by the Texas Department of Insurance.[5]

HEDIS currently tracks ten measures related to comprehensive diabetes care.

MEASURE 1: A1C TESTING

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had one or more A1c tests conducted within the past year.

	2007	2008	2009	2010	2011
Texas	78.2	79.2	81.7	83.4	85.6
U.S.	87.5	83.2	89.0	89.2	89.9

MEASURE 2: POOR A1C CONTROL (>9.0%)

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had their most recent A1c level greater than 9.0 percent during the past year. *Lower percentage indicate better performance for this measure.*

	2007	2008	2009	2010	2011
Texas	55.8	70.3	56.0	56.1	49.8
U.S.	29.6	43.4	28.4	28.2	27.3

MEASURE 3: A1C CONTROL (<8.0%)

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had their most recent A1c level less than 8.0 percent during the past year. *

	2007	2008	2009	2010	2011
Texas	N/A	N/A	N/A	14.6	35.1
U.S.	N/A	N/A	N/A	61.7	62.3

This measure was added to the Texas Subset beginning with HEDIS 2010.

MEASURE 4: A1C CONTROL (<7.0%)

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had their most recent A1c level less than 7.0 percent during the past year.*

	2007	2008	2009	2010	2011
Texas	N/A	N/A	N/A	28.1	26.4
U.S.	N/A	N/A	N/A	42.1	42.5

*This measure was added to the Texas Subset beginning with HEDIS 2010.

MEASURE 5: EYE EXAM

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had an eye screening for diabetic retinal disease within the past year or a negative retinal exam the previous year.

	2007	2008	2009	2010	2011
Texas	33.8	32.2	32.1	36.4	36.1
U.S.	54.7	46.9	56.5	56.5	57.7

MEASURE 6: LDL-C SCREENING

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had an LDL-C test done within the last two years.

	2007	2008	2009	2010	2011
Texas	75.4	77.2	79.9	81.3	83.2
U.S.	83.4	79.5	84.8	85.0	85.6

MEASURE 7: LDL-C CONTROL

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had an LDL-C test performed during the previous year with a level reading less than 100mg/dL.*

	2007	2008	2009	2010	2011
Texas	N/A	22.2	30.5	31.8	29.8
U.S.	N/A	35.0	45.5	47.0	47.7

This measure was added to the Texas Subset beginning with HEDIS 2008.

MEASURE 8: MEDICAL ATTENTION FOR DIABETIC NEPHROPATHY

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who received medical attention for nephropathy or evidence of already having nephropathy within the past year.

	2007	2008	2009	2010	2011
Texas	71.2	71.9	75.0	75.2	78.7
U.S.	79.7	74.1	82.4	82.9	83.6

MEASURES 9: BLOOD PRESSURE CONTROL

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had their most recent blood pressure reading at less than 140 mm Hg systolic and 80 mm Hg diastolic during the past year. *

	2007	2008	2009	2010	2011
Texas	N/A	28.5	28.7	12.1	35.4
U.S.	N/A	28.5	33.4	33.9	**

This measure was added to the Texas Subset beginning with HEDIS 2008.
*** Value not established or obtained.*

MEASURE 10: BLOOD PRESSURE CONTROL

The percentage of members 18 through 75 years of age with type 1 or type 2 diabetes using the HMO who had their most recent blood pressure reading at less than 140 mm Hg systolic and 90 mm Hg diastolic during the past year. *

|	**2007**	**2008**	**2009**	**2010**	**2011**
Texas	N/A	61.3	61.5	23.8	57.7
U.S.	N/A	56.8	65.6	65.1	65.7

This measure was added to the Texas Subset beginning with HEDIS 2008.

Data Source: *Guide to Texas HMO Quality: 2011. Through a combined effort of the State of Texas, Office of Public Insurance Counsel and the Department of State Health Services, Center for Health Statistics. January 2012.*

CHAPTER 5. MORTALITY

Diabetes Mellitus (defined as ICD-9 code 250 for deaths prior to 1999 and ICD-10 codes E10-E14 for 1999 and onward) was the seventh leading cause of death in Texas in 2010 (Figure 7). An explanation of ICD coding is found in the Appendix (see Glossary).

Figure 7: Leading Causes of Death in Texas, 2010

Data Source: *Texas Vital Statistics Unit, DSHS*
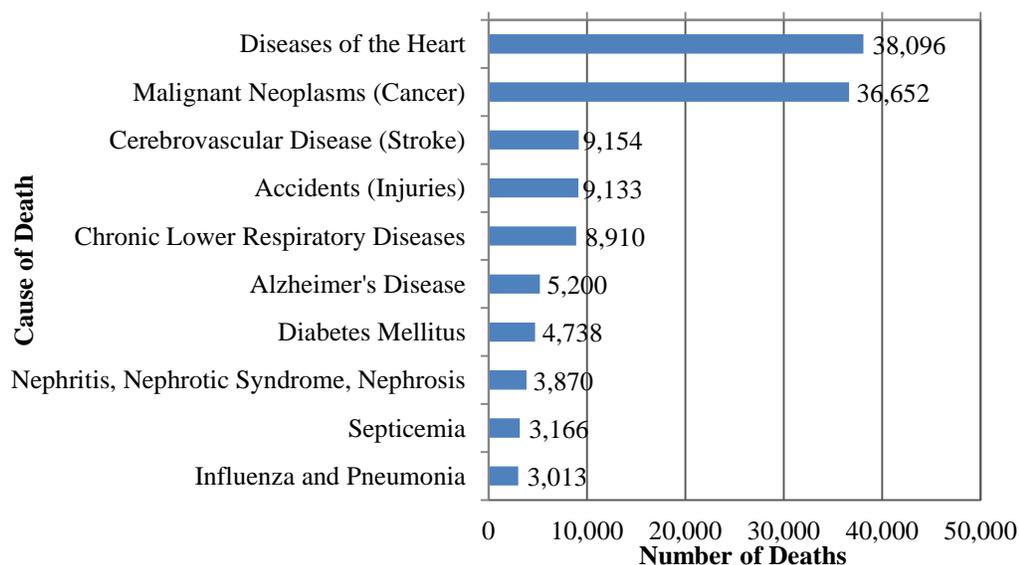
A number of counties in Health Service Regions 8 and 11 had significantly higher diabetes mortality rates than the state rate. Many counties along the eastern part of the state had higher diabetes mortality rates than the state, but these rates were not significantly different than the rate for the state as a whole. (Figure 8).

Figure 8: Diabetes Age-Adjusted Mortality Rate by County, Texas, 2007-2010.
Diabetes as underlying cause of death.
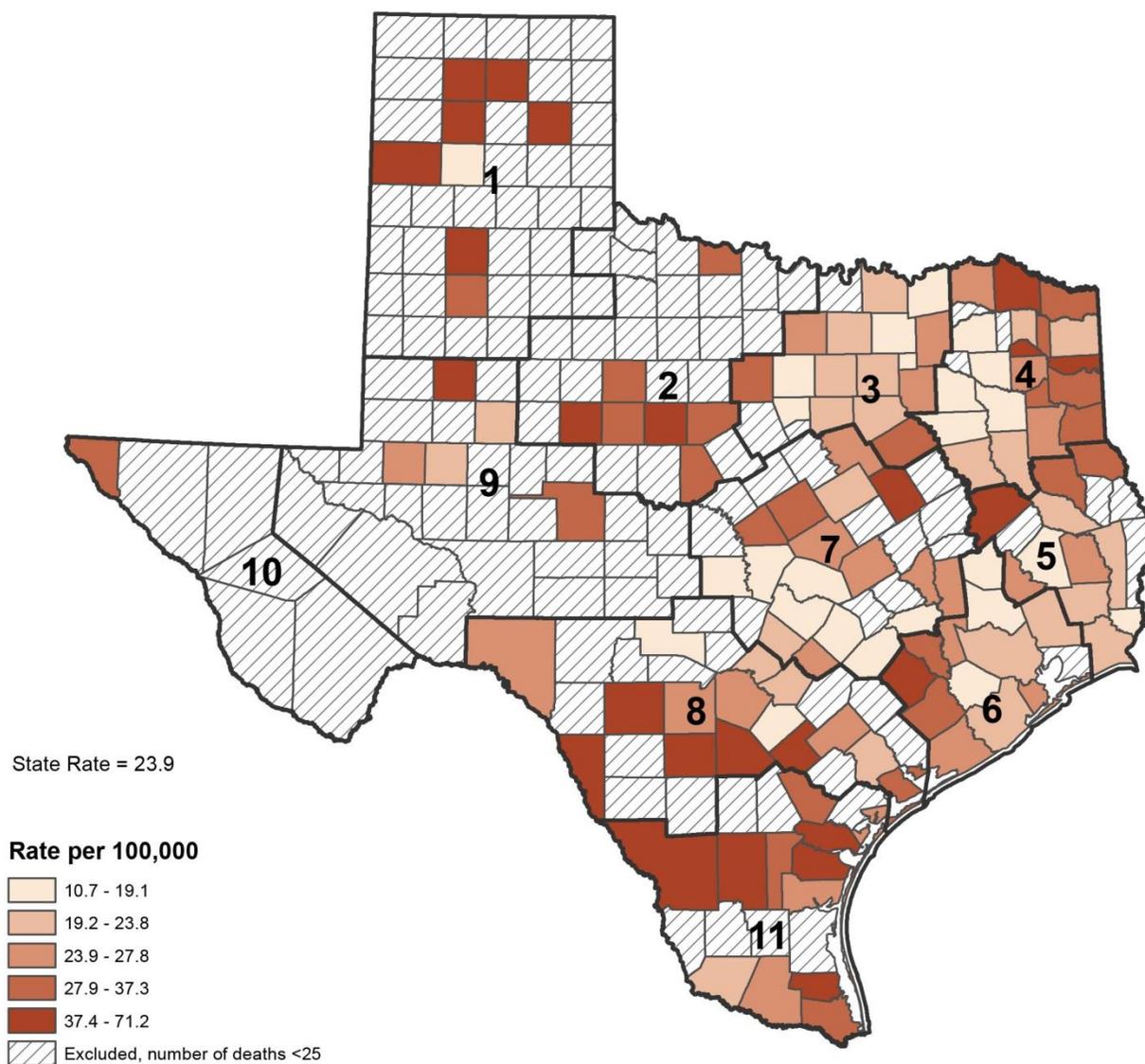
Texas Department of State Health Services, Texas Vital Statistics. ICD-10 codes for E10-E14.

Figure 9: Annual age-adjusted Mortality Rates per 100,000 for Diabetes by Sex and Race/Ethnicity, Texas, 2006-2010

	Texas	Male	Female	White	African American	Hispanic	Other
2006	26.6	28.9	24.6	20.2	48.7	41.0	19.9
2007	25.6	28.1	23.5	19.5	45.8	39.6	20.7
2008	25.5	28.7	22.7	19.5	44.2	38.6	22.9
2009	23.3	26.1	20.9	18.3	39.4	34.4	14.4
2010	21.7	25.3	18.6	16.5	36.8	32.6	15.0
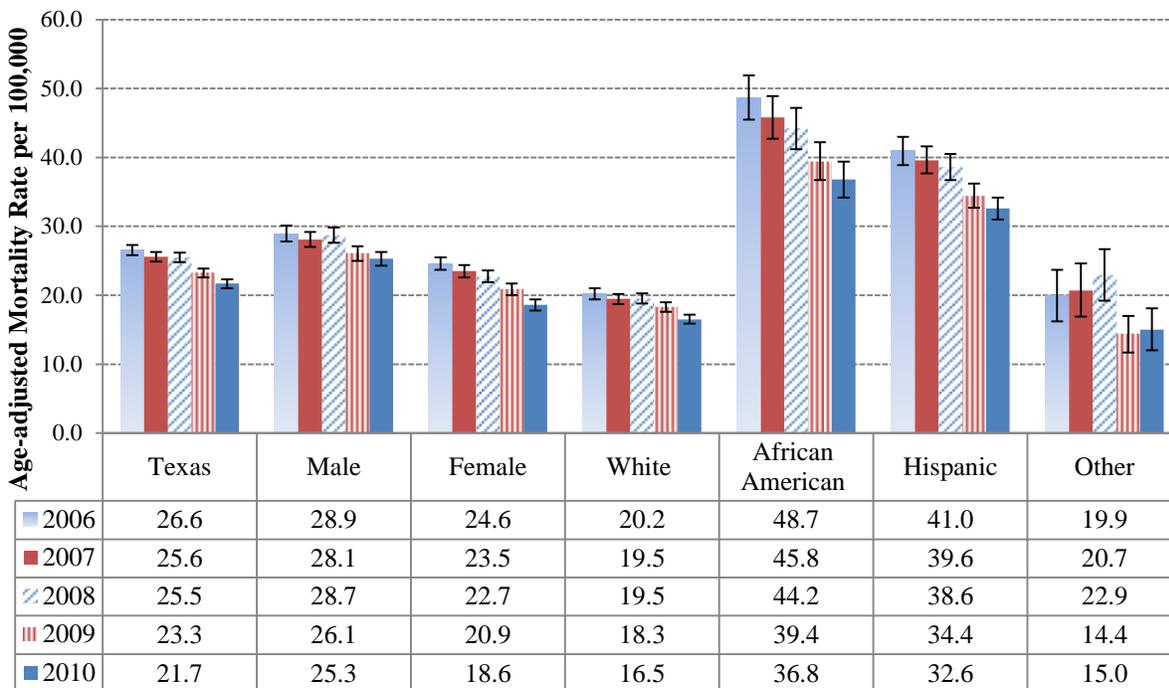
Data Source: Texas Vital Statistics Unit, DSHS

The following bullets describe data presented in Figure 9.

- Since 2008, the age-adjusted mortality rate (AAMR) for diabetes in Texas declined significantly from **25.5 per 100,000** (95% CI 24.8–26.2) to **21.7 per 100,000** (95% CI 21.0–22.3) population in 2010.

- The diabetes AAMR decreased significantly overall from 2008 to 2009—**25.5 per 100,000** (95% CI 24.8–26.2) to **23.3 per 100,000** (95% CI 22.6–23.9). It also decreased significantly from 2009 to 2010 (**21.7 per 100,000** in 2010, 95% CI 21.0–22.3).

- The diabetes AAMR for males decreased significantly from 2006 to 2010—**28.9 per 100,000** (95% CI 27.8–30.1) to **25.3 per 100,000** (95% CI 24.3–26.3). The diabetes AAMR for males also decreased significantly from 2008 to 2009—**28.7 per 100,000** (95% CI 27.6–29.8) to **26.1 per 100,000** (95% CI 25.0–27.1).

- The diabetes AAMR for females decreased significantly from 2006 to 2010—**24.6 per 100,000** (95% CI 23.7–25.5) to **18.6 per 100,000** (95% CI 17.8–19.4). The diabetes AAMR for females also decreased significantly from 2008 to 2009—**22.7 per 100,000** (95% CI 21.9–23.6) to **20.9 per 100,000** (95% CI 20.0–21.7).

- The diabetes AAMR for whites decreased significantly from 2009 to 2010—**18.3 per 100,000** (95% CI 17.6–19.0) to **16.5 per 100,000** (95% CI 15.9–17.2).

- The diabetes AAMR for African Americans decreased significantly from 2006 to 2010—**48.7 per 100,000** (95% CI 45.5–51.9) to **36.8 per 100,000** (95% CI 34.2–39.4).

- The diabetes AAMR for Hispanics decreased significantly from 2008 to 2009—**38.6 per 100,000** (95% CI 36.7–40.5) to **34.4 per 100,000** (95% CI 32.7–36.2).

- The diabetes AAMR for the "Other" race/ethnicity group decreased significantly from 2008 to 2009 —**22.9 per 100,000** (95% CI 19.2–26.7) to **14.4 per 100,000** (95% CI 11.7–17.0).

- African Americans had the highest diabetes AAMR among all race/ethnicity groups.

CHAPTER 6. HOSPITALIZATION

HOSPITALIZATION RATES FOR DIABETES (TYPE 1 AND TYPE 2) – TABLE 1

- The 2010 annual crude hospitalization rate for diabetes (type 1 and type 2) was 17.6 per 10,000 persons.

- The annual hospitalization rate per 10,000 persons increased with age.

- Males (17.1 hospitalizations per 10,000 persons per year) had a slightly higher hospitalization rate than females (15.9 hospitalizations per 10,000 persons per year).

- African Americans had the highest diabetes hospitalization rate (31.9 hospitalizations per 10,000 persons per year).

- Health Service Region (HSR) 5 had the highest diabetes hospitalization rate—20.8 per 10,000 persons per year, followed by HSRs 10 and 11 at 20.0 per 10,000 persons per year.

Table 1: Diabetes* Crude Hospitalization Rate per 10,000 Persons per Year, 2010

	Population	Crude Hospitalization Rate per 10,000 Persons per Year
TOTAL	25,145,561	17.7
Age Group		
< 45	16,510,648	9.4
45-64	6,033,027	29.1
65+	2,601,886	44.0
Sex		
Female	12,673,281	15.9
Male	12,472,280	17.1
Race/Ethnicity		
White	11,562,682	14.9
African American	3,003,149	31.9
Hispanic	9,460,921	16.2
Other	1,118,809	18.7
Health Service Region		
1	839,586	19.4
2	550,250	14.8
3	6,733,179	16.7
4	1,111,696	18.8
5	767,222	20.8
6	6,087,133	16.1
7	2,948,364	14.1
8	2,604,647	19.8
9	571,871	18.7
10	825,913	20.0
11	2,105,700	20.0

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

*ICD-9 codes used for diabetes are 25000, 25001, 25002, 25003, 25010, 25011, 25012, 25013, 25020, 25021, 25022, 25023, 25030, 25031, 25032, 25033, 25040, 25041, 25042, 25043, 25050, 25051, 25052, 25053, 25060, 25061, 25062, 25063, 25070, 25071, 25072, 25073, 25080, 25081, 25082, 25083, 25090, 25091, 25092, 25093.

HOSPITALIZATION RATES FOR TYPE 1 DIABETES – TABLE 2

- The 2010 crude hospitalization rate for type 1 diabetes was **4.5 per 10,000 persons** per year.
- The hospitalization rate per 10,000 persons per year for type 1 diabetes decreased with age.
- Females (4.3) had a slightly higher hospitalization rate per 10,000 persons per year for type 1 diabetes than males (3.9).
- African Americans had the highest type 1 diabetes hospitalization rate per 10,000 persons per year at 8.2.
- HSR 1 had the highest type 1 diabetes hospitalization rate per 10,000 persons per year at 6.4.

Table 2: Type 1 Diabetes* Crude Hospitalization Rate per 10,000 Persons per Year, 2010

	Population	Crude Hospitalization Rate per 10,000 Persons per Year
TOTAL	25,145,561	4.5
Age Group		
< 45	16,510,648	5.4
45-64	6,033,027	3.3
65+	2,601,886	1.6
Sex		
Female	12,673,281	4.3
Male	12,472,280	3.9
Race/Ethnicity		
White	11,562,682	4.6
African American	3,003,149	8.2
Hispanic	9,460,921	3.3
Other	1,118,809	4.3
HSR		
1	839,586	6.4
2	550,250	4.6
3	6,733,179	4.6
4	1,111,696	5.6
5	767,222	4.8
6	6,087,133	4.1
7	2,948,364	4.1
8	2,604,647	4.4
9	571,871	5.6
10	825,913	4.3
11	2,105,700	3.3

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

*ICD-9 codes used for type 1 diabetes are 25001, 25003, 25011, 25013, 25021, 25023, 25031, 25033, 25041, 25043, 25051, 25053, 25061, 25063, 25071, 25073, 25081, 25083, 25091, and 25093.

HOSPITALIZATION RATES FOR TYPE 2 DIABETES – TABLE 3

- The 2010 crude hospitalization rate for type 2 diabetes was 13.1 per 10,000 persons per year.
- The hospitalization rate per 10,000 persons per year for type 2 diabetes increased with age.
- Males (13.2) had a slightly higher hospitalization rate per 10,000 persons per year for type 2 diabetes than females (11.7).
- African Americans had the highest type 2 diabetes hospitalization rate at 23.7 hospitalizations per 10,000 persons per year.
- HSR 11 had the highest type 2 diabetes hospitalization rate per 10,000 persons per year at 16.7, followed by HSR 5 at 16.0.

Table 3: Type 2 Diabetes* Crude Hospitalization Rate per 10,000 Persons per Year, 2010

	Population	Crude Hospitalization Rate per 10,000 Persons per Year
Total	25,145,561	13.1
Age Group		
< 45	16,510,648	3.9
45-64	6,033,027	25.7
65+	2,601,886	42.4
Sex		
Female	12,673,281	11.7
Male	12,472,280	13.2
Race/Ethnicity		
White	11,562,682	10.3
African American	3,003,149	23.7
Hispanic	9,460,921	12.9
Other	1,118,809	14.5
HSR		
1	839,586	12.9
2	550,250	10.2
3	6,733,179	12.1
4	1,111,696	13.2
5	767,222	16.0
6	6,087,133	12.1
7	2,948,364	10.0
8	2,604,647	15.4
9	571,871	13.1
10	825,913	15.7
11	2,105,700	16.7

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

*ICD-9 codes used for type 2 diabetes are 25000, 25002, 25010, 25012, 25020, 25022, 25030, 25032, 25040, 25042, 25050, 25052, 25060, 25062, 25070, 25072, 25080, 25082, 25090, and 25092.

LENGTH OF STAY AND HOSPITAL CHARGES FOR TYPE 1 AND TYPE 2 – TABLE 4

- Total hospital charges for diabetes (both type 1 and type 2) were approximately $1.7 billion in 2010.

- The average length of stay (LOS) for diabetes (both type 1 and type 2) was six days.

- Average LOS for persons sixty-five years of age and older was double that of persons less than forty-five years of age—eight days versus four.

- LOS was similar for males and females—seven and six days respectively.

- The "Other" race/ethnicity group had the highest LOS at ten days.

- Medicare patients were treated for diabetes for an average of eight days, which is higher than all other payer sources.

- LOS was similar among the 11 health service regions, varying between five to seven days.

- Total hospital charges were higher for persons aged 45-64 years, Hispanics, Medicare patients and for persons residing in HSR 6.

LENGTH OF STAY AND HOSPITAL CHARGES FOR TYPE 1 DIABETES – TABLE 5

- Total hospital charges for type 1 diabetes were approximately $300 million in 2010.

- The average LOS for type 1 diabetes was four days. Average LOS for persons sixty-five years of age and older was more than double that of persons less than forty-five years of age—seven days versus three.

- LOS was the same for males and females at four days.

- LOS was also the same for all race/ethnicity groups at four days.

- Medicare patients were treated for diabetes for an average of six days, which was higher than other payer sources and double that of commercial, self-pay and other.

- LOS was similar among the 11 health service regions—approximately four days.

- Total hospital charges were higher for persons less than forty-five years of age, females, Hispanics, commercial payer source and in HSR 3.

Table 4: Length of Stay and Hospital Charges for Diabetes (both type 1 and type 2), 2010

	Total Number of Discharges		Length of Stay (LOS)		Hospital Charge	
	#	%	Total Days	Mean	Total Charge ($)	Avg. Charge per Stay ($)
Total	**44,416**	**100.0**	**267,708**	**6**	**1,715,790,671**	**38,630**
Age Group						
<45	15,442	34.8	62,347	4	411,068,086	26,620
45-64	17,531	39.5	116,400	7	751,225,075	42,851
65+	11,438	25.8	88,941	8	553,326,986	48,376
Invalid	5	0.0	20	4	170,524	34,105
Sex						
Female	20,181	45.4	114,628	6	727,708,828	36,059
Male	21,309	48.0	138,603	7	892,330,435	41,876
Unknown	2,926	6.6	14,447	5	95,751,408	32,724
Race						
White	17,237	38.8	102,873	6	659,820,062	38,279
Black	9,566	21.5	54,794	6	349,216,500	36,506
Hispanic	15,302	34.5	86,484	6	587,942,712	38,423
Other	2,094	4.7	20,328	10	103,874,712	49,606
Invalid	217	0.5	3,229	15	14,936,685	68,833
Payer						
Medicare	17,791	40.1	135,835	8	865,414,429	48,643
Medicaid	6,093	13.7	31,838	5	205,329,138	33,699
Commercial	10,594	23.9	53,823	5	362,297,504	34,198
Self Pay	8,471	19.1	38,387	5	239,107,523	28,227
Other	1,426	3.2	7,011	5	40,712,122	28,550
Missing	41	0.1	814	20	2,929,955	71,462
HSR						
1	1,626	3.7	9,881	6	59,833,145	36,798
2	817	1.8	5,197	6	29,930,170	36,634
3	11,272	25.4	67,818	6	415,973,942	36,903
4	2,086	4.7	11,684	6	82,845,299	39,715
5	1,595	3.6	9,376	6	55,971,491	35,092
6	9,813	22.1	67,374	7	433,808,330	44,208
7	4,146	9.3	20,447	5	129,737,055	31,292
8	5,167	11.6	27,347	5	172,971,276	33,476
9	1,068	2.4	6,086	6	31,511,173	29,505
10	1,650	3.7	9,783	6	83,919,341	50,860
11	4,212	9.5	27,065	6	179,157,355	42,535
Other	964	2.2	5,650	6	40,132,093	41,631

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

Table 5: Length of Stay and Hospital Charges for Type 1 Diabetes, 2010

	Total Number of Discharges		Length of Stay (LOS)		Hospital Charge	
	#	%	Total Days	Mean	Total Charge ($)	Avg. Charge per Stay ($)
Total	**11,390**	**100.0**	**43,853**	**4**	**309,215,889**	**27,148**
Age Group						
< 45	8,972	78.8	30,588	3	218,337,214	24,335
45-64	2,007	17.6	10,530	5	72,622,432	36,185
65+	409	3.6	2,371	7	18,220,149	44,548
Invalid	2	0.0	4	2	36,095	18,047
Sex						
Female	5,404	47.5	20,940	4	145,818,731	26,983
Male	4,890	42.9	18,823	4	134,620,967	27,530
Unknown	1,096	9.6	4,090	4	28,776,191	26,256
Race						
White	5,290	46.4	19,767	4	143,296,592	27,088
Black	2,453	21.5	9,872	4	68,428,339	27,896
Hispanic	3,140	27.6	11,834	4	83,477,852	26,585
Other	476	4.2	2,104	4	12,626,483	26,526
Invalid	31	0.3	276	9	1,386,624	44,730
Payer						
Medicare	1,833	16.1	11,057	6	78,449,681	42,799
Medicaid	2,391	21.0	8,837	4	59,182,544	24,752
Commercial	3,694	32.4	12,423	3	93,934,570	25,429
Self Pay	3,044	26.7	10,053	3	68,430,991	22,481
Other	426	3.7	1,475	3	9,196,498	21,588
Missing	2	0.0	8	4	21,605	10,803
HSR						
1	540	4.7	2,411	4	15,761,327	29,188
2	255	2.2	956	4	6,519,773	25,568
3	3,129	27.5	11,443	4	83,000,513	26,526
4	621	5.5	2,308	4	17,597,270	28,337
5	371	3.3	1,526	4	10,026,563	27,026
6	2,473	21.7	10,242	4	71,259,111	28,815
7	1,206	10.6	4,319	4	30,588,582	25,364
8	1,153	10.1	4,235	4	28,036,873	24,316
9	321	2.8	1,365	4	7,207,146	22,452
10	355	3.1	1,092	3	9,430,128	26,564
11	704	6.2	3,000	4	22,052,607	31,325
Other	262	2.3	956	4	7,735,996	29,527

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

Table 6: Length of Stay and Hospital Charges for Type 2 Diabetes, 2010

	Total Number of Discharges		Length of Stay (LOS)		Hospital Charge	
	#	**%**	**Total Days**	**Mean**	**Total Charge ($)**	**Avg. Charge per Stay ($)**
Total	**33,026**	**100.0**	**223,855**	**7**	**1,406,574,781**	**42,590**
Age Group						
< 45	6,470	19.6	31,759	5	192,730,872	29,788
45-64	15,524	47.0	105,870	7	678,602,644	43,713
65+	11,029	33.4	86,210	8	535,106,836	48,518
Invalid	3	0.0	16	5	134,430	44,810
Sex						
Female	14,777	44.7	93,688	6	581,890,097	39,378
Male	16,419	49.7	119,780	7	757,709,468	46,148
Unknown	1,830	5.5	10,387	6	66,975,217	36,598
Race						
White	11,947	36.2	83,106	7	516,523,470	43,235
Black	7,113	21.5	44,922	6	280,788,161	39,475
Hispanic	12,162	36.8	74,650	6	504,464,861	41,479
Other	1,618	4.9	18,224	11	91,248,229	56,396
Invalid	186	0.6	2,953	16	13,550,062	72,850
Payer						
Medicare	15,958	48.3	124,778	8	786,964,748	49,315
Medicaid	3,702	11.2	23,001	6	146,146,594	39,478
Commercial	6,900	20.9	41,400	6	268,362,934	38,893
Self Pay	5,427	16.4	28,334	5	170,676,532	31,450
Other	1,000	3.0	5,536	6	31,515,624	31,516
Missing	39	0.1	806	21	2,908,350	74,573
HSR						
1	1,086	3.3	7,470	7	44,071,818	40,582
2	562	1.7	4,241	8	23,410,397	41,656
3	8,143	24.7	56,375	7	332,973,429	40,891
4	1,465	4.4	9,376	6	65,248,029	44,538
5	1,224	3.7	7,850	6	45,944,929	37,537
6	7,340	22.2	57,132	8	362,549,218	49,394
7	2,940	8.9	16,128	5	99,148,473	33,724
8	4,014	12.2	23,112	6	144,934,403	36,107
9	747	2.3	4,721	6	24,304,027	32,536
10	1,295	3.9	8,691	7	74,489,213	57,521
11	3,508	10.6	24,065	7	157,104,748	44,785
Other	702	2.1	4,694	7	32,396,097	46,148

Data Source: Texas Health Care Information Collection (THCIC), DSHS, 2010

LENGTH OF STAY AND HOSPITAL CHARGES FOR TYPE 2 DIABETES – TABLE 6

- Total hospital charges for type 2 diabetes were approximately $1.4 billion in 2010.

- The average LOS for type 2 diabetes was seven days. The average LOS was higher for persons sixty-five years of age and older—eight days.

- LOS was similar for males and females at seven and six days respectively.

- LOS was higher for the "Other" race/ethnicity group at 11 days.

- Medicare patients were treated for diabetes for an average of eight days, which was higher than other payer sources.

- LOS was highest in HSR 2 and HSR 6 at eight days.

- Total hospital charges were higher for persons aged forty-five to sixty-four years, males, whites, Medicare patients and persons residing in HSR 6.

CHAPTER 7. RISK FACTORS

Risk factors for type 2 diabetes include older age, obesity, family history of diabetes, a prior history of gestational diabetes, impaired glucose tolerance, physical inactivity, and race/ethnicity.[3] African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes.[4]

Risk factors are less defined for type 1 diabetes than for type 2 diabetes, but autoimmune, genetic, and environmental factors are involved in developing this type of diabetes.[4]

The annual Behavioral Risk Factor Surveillance Survey (BRFSS) is the primary source of ongoing data regarding key risk factors for diabetes in Texans 18 years of age or older. Some risk factor questions appear on the survey every year, while others appear every other year. High blood pressure, high blood cholesterol levels, and obesity are the top three risk factors associated with diabetes prevalence.

HIGH BLOOD PRESSURE

High blood pressure is defined as greater than or equal to 140 mm Hg systolic and 90 mm Hg diastolic. BRFSS data for blood pressure, collected on odd-numbered years, shows that Texans with high blood pressure are up to four times more likely to have diabetes than those without high blood pressure (Figure 10). The percentage of adult Texans with high blood pressure who were ever told by a doctor, nurse, or other health professional that they also had diabetes remained steady between 2005 and 2009.

Figure 10: Texas Diabetes Prevalence by High Blood Pressure Status
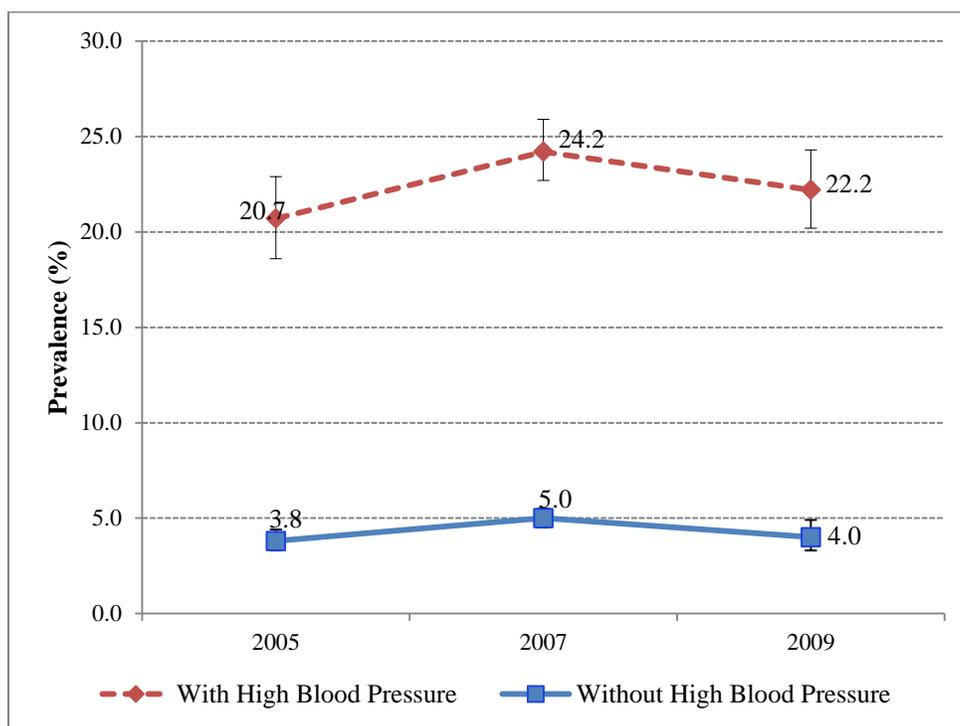
Data Source: Texas BRFSS, DSHS.

HIGH BLOOD CHOLESTEROL

High cholesterol is defined as having total cholesterol of 240 mg/dL and above. BRFSS data for 2009 relating to this diabetes risk factor, collected on odd-numbered years, show that approximately 18.7 percent (95% CI 16.9–20.7) of Texas adults with high blood cholesterol also had diabetes, whereas only 7.1 percent of those without high blood cholesterol had diabetes (Figure 18). Among adult Texans with high blood cholesterol levels, the prevalence of diabetes was consistently more than twice that of those without high blood cholesterol levels (Figure 11).

Figure 11: Texas Diabetes Prevalence by High Blood Cholesterol Status
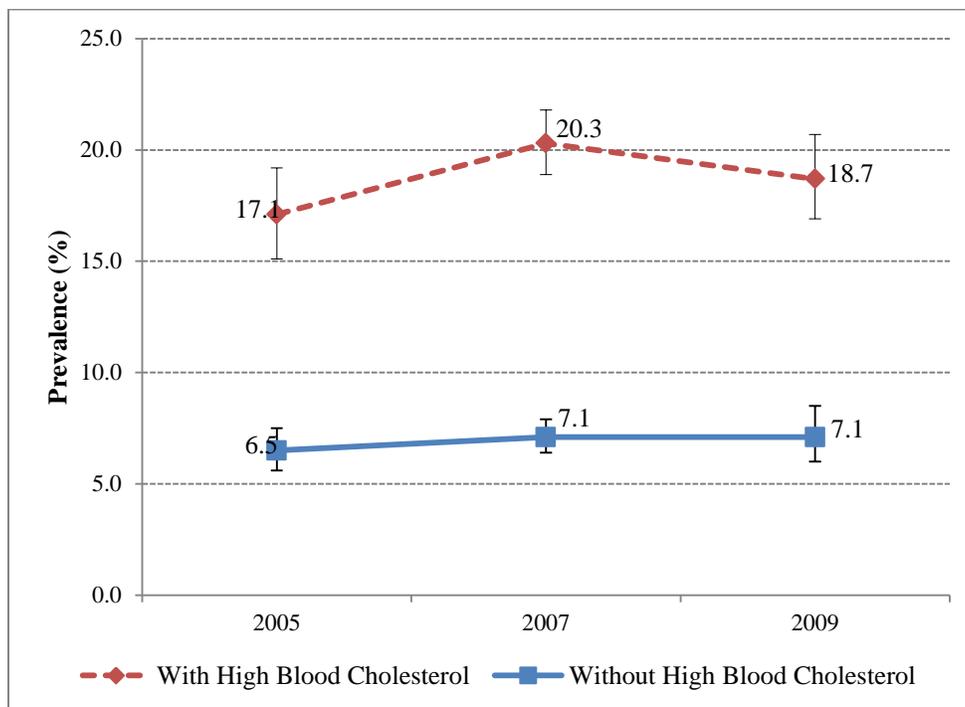
Data Source: Texas BRFSS, DSHS.

OVERWEIGHT AND OBESITY

Another key factor that is strongly associated with diabetes risk is being overweight or obese. These classifications are determined by the body mass index (BMI), which is based on an individual's weight-to-height ratio. Overweight is defined as a BMI between 25 kg/m^2 and 29.9 kg/m.^{2} Obesity is defined as a BMI of 30 kg/m^2 or higher.

State BRFSS data indicate that the percentage of Texas adults who were overweight and obese and also had diabetes increased from approximately 10.2 percent (95% CI 9.2–11.3) in 2005 to 12.5 percent (95% CI 11.6–13.5) in 2010 (Figure 12). This increase is statistically significant. Among adult Texans who were not overweight and obese, the prevalence of diabetes increased from 3.6 percent (95% CI 2.8–4.5) in 2005 to 4.2 percent (95% CI 3.4–5.0) in 2010. This change is not statistically significant. The percentage of Texas adults who were overweight and obese and had diabetes was consistently over twice that of those who are not overweight and obese (Figure 12).

Figure 12: Texas Diabetes Prevalence by Overweight and Obesity Status, 2005-2010
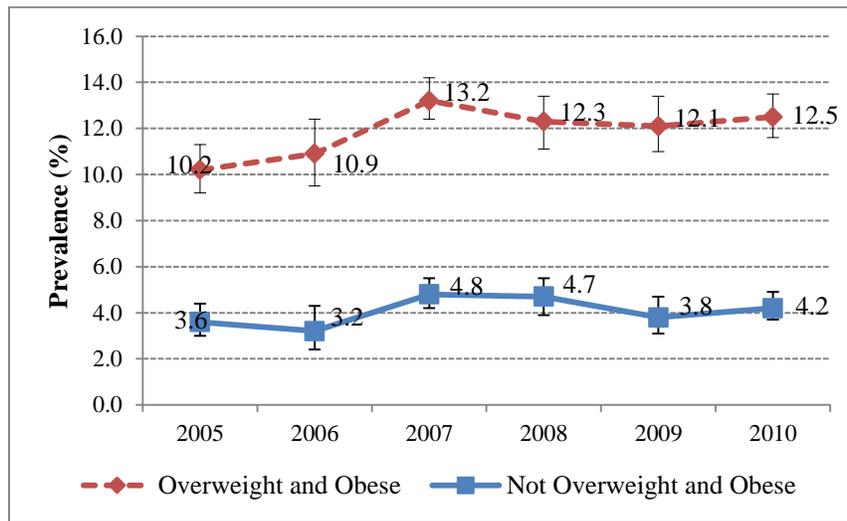
Data Source: Texas BRFSS, DSHS.

OBESITY

Additional BRFSS data that demonstrate the strong association between obesity and diabetes are represented graphically in Figure 13. The percentage of Texas adults who were obese and also had diabetes increased from approximately 15.2 percent (95% CI 13.3–17.3) in 2005 to 18.0 percent (95% CI 16.3–19.9) in 2010 (Figure 13). At the same time, prevalence of those who were not obese and had diabetes increased from approximately 5.1 percent (95% CI 4.5–5.9) in 2005 to 5.8 percent (95% CI 5.3–6.5) in 2010. Neither of these increases are statistically significant. The percentage of Texas adults who were obese and had diabetes was consistently over twice the rate of those who are not obese (Figure 13).

**Figure 13: Texas Diabetes Prevalence by Obesity Status, 2005-2010**
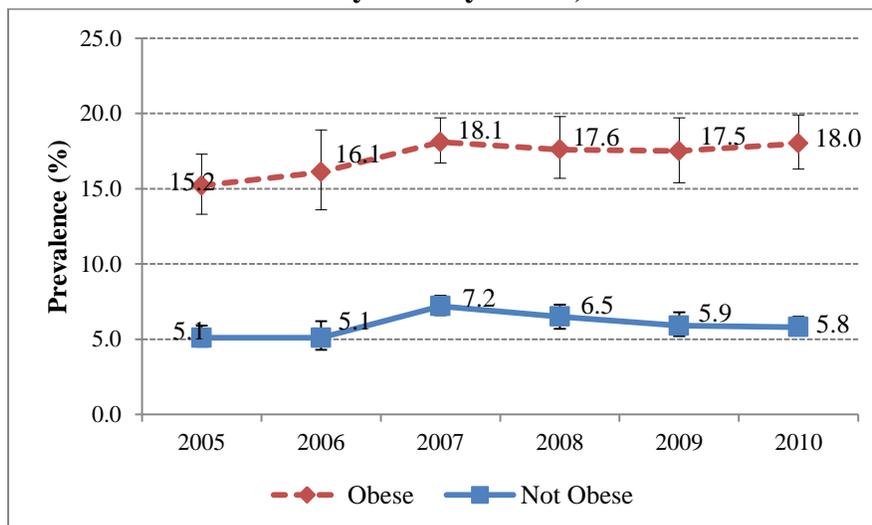
Data Source: Texas BRFSS, DSHS.

No Leisure-Time Physical Activity

The BRFSS survey determines the percentage of participants who report that they had engaged in no physical activity during their leisure time in the past month. In 2005, approximately 12.7 percent (95% CI 11.2–14.5) of Texas adults who did not engage in any physical activity in their leisure times had diabetes, while only 6.1 percent (95% CI 5.4–6.9) of those adult Texans who regularly engaged in physical activity in their leisure time had diabetes. In 2010, approximately 14.1 percent (95% CI 12.6–15.7) of Texas adults who did not engage in any physical activity in their leisure times had diabetes, while only 8.1 percent (95% CI 7.4–8.9) of those adult Texans who regularly engaged in physical activity in their leisure time had diabetes. Diabetes prevalence estimates were consistently higher among adults who reported no leisure-time physical activity than for those who did (Figure 14).

Figure 14: Texas Diabetes Prevalence by Leisure-Time Physical Activity Status, 2005-2010
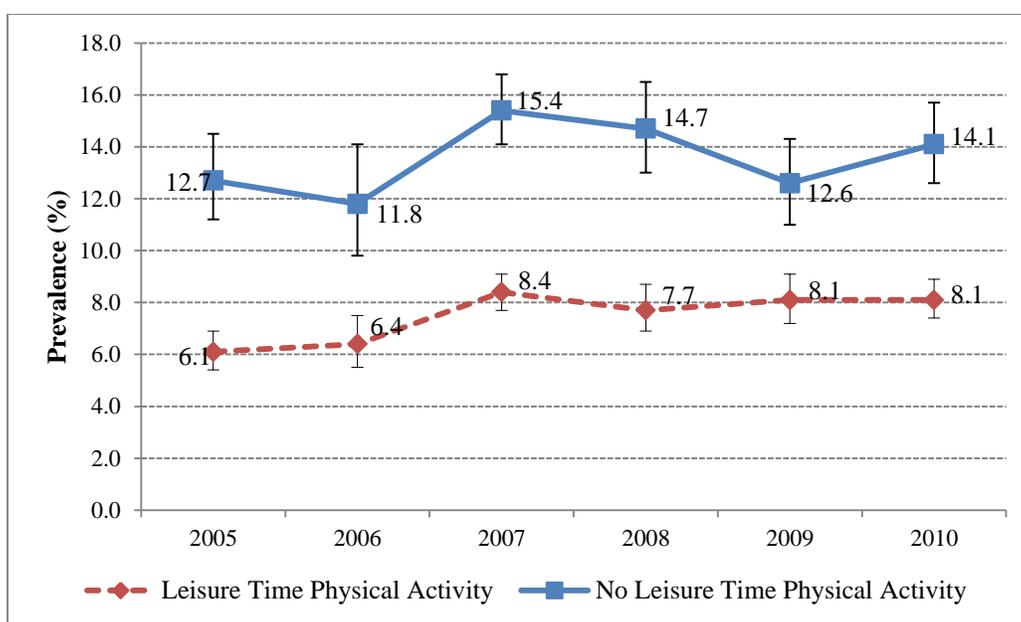
Data Source: Texas Behavioral Risk Factor Surveillance System, DSHS.

Diabetes Complications

- In Texas, BRFSS survey results showed that, in 2010, approximately 22.8 percent (95% CI 20.1–25.6) of persons with diabetes had **heart disease**, compared to 4.9 percent (95% CI 4.3–5.5) of those without diabetes (Figure 15). These are people who report that they had been diagnosed as having had a heart attack, myocardial infarction, angina, or coronary heart disease.

- BRFSS data also showed that approximately 27.2 percent (95% CI 24.3–30.2) of persons with diabetes had **cardiovascular disease**, compared to 6.2 percent (95% CI 5.6–6.9) of those without diabetes. These are people who report that they had been diagnosed as having had a heart attack, myocardial infarction, angina, coronary heart disease, or stroke.

- In 2010, 9.2 percent (95% CI 7.5–11.3) of persons with diabetes had a **stroke**, while only 2.1 percent (95% CI 1.8–2.5) of persons without diabetes had a stroke.

- According to 2009 BRFSS data 69.4 percent (95% CI 64.4–73.9) of persons with diabetes have been diagnosed with **high blood pressure**, versus 25.0 percent (95% CI 23.6–26.4) of persons without diabetes.

- According to 2009 BRFSS data 64.5 percent (95% CI 59.4–69.2) of persons with diabetes have been diagnosed with **high cholesterol**, versus 37.7 percent (95% CI 35.9–39.5) of persons without diabetes.

- The prevalence of current **smoking** among adults with diabetes in Texas was 13.2 percent (95% CI 10.8–16.1) in contrast to 16.1 percent (95% CI 14.9–17.4) among adults without diabetes in 2010. Current smoking is defined as persons who report that they have smoked 100 cigarettes in their lifetime and now smoke every day or some days.

Figure 15: Selected Diabetes Complications, Texas, 2010

	Heart Disease	CVD	Stroke	High Blood Pressure (2009)	High Blood Cholesterol (2009)	Current Smoker
With Diabetes	22.8	27.2	9.2	69.4	64.5	13.2
Without Diabetes	4.9	6.2	2.1	25.0	37.7	16.1
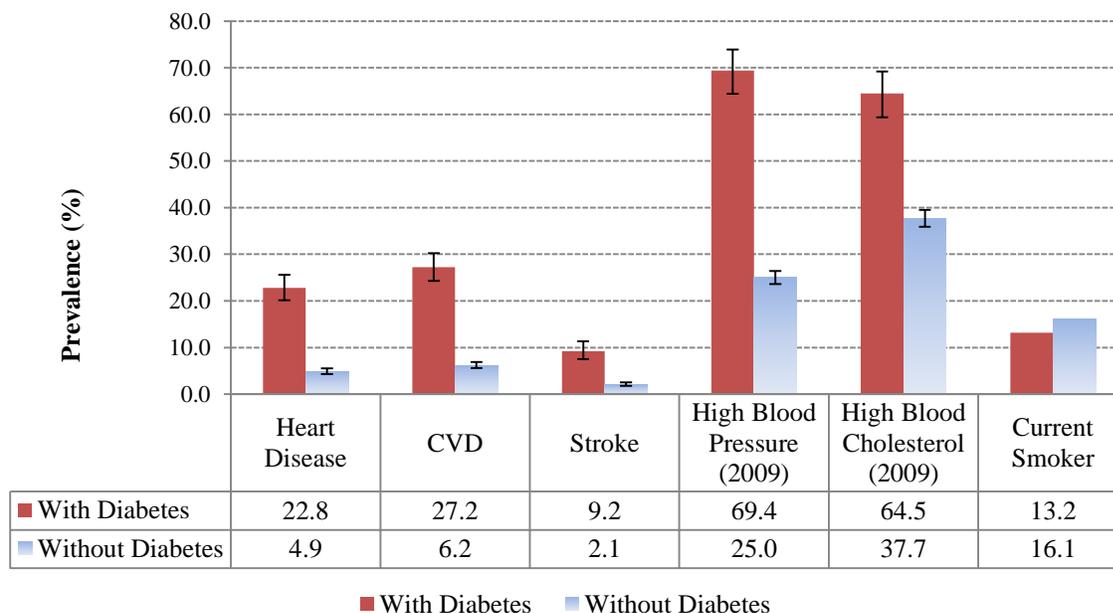
Data Source: Texas BRFSS, 2010, DSHS.

Diabetes is the most frequent cause of non-traumatic lower limb amputations.[3] Persons with diabetes have a risk of a leg amputation that is 15-40 times greater than for a person without diabetes.[3]

Lower-Extremity Amputations by Year with Hospitalization Charges, Texas

YEAR	Lower-Extremity Admissions	Total Amputation Charges per Year ($)	Mean Amputation Charges per Year ($)
2004	7,577	370,050,899	48,839
2005	7,730	420,562,432	54,407
2006	7,722	481,432,446	62,346
2007	7,863	537,449,901	68,352
2008	7,830	554,138,686	70,771
2009	8,194	609,291,990	74,358
2010	8,876	710,720,892	80,072

Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2010
http://www.dshs.state.tx.us/thcic/publications/hospitals/Statisticalreports.shtm

DIABETES AND QUALITY OF LIFE

According to 2010 BRFSS data, persons with diabetes have a poorer quality of life than persons without diabetes.

- In 2010, 26.4 percent (95% CI 23.2–29.8%) of persons with diabetes reported having five or more days of poor mental health in the past month compared to 19.4 percent (95% CI 18.1–20.9) of persons without diabetes (Figure 16).

- In 2010, 42.4 percent (95% CI 38.9–46.0) of persons with diabetes also reported having poor physical health on five or more days in the past month,. In contrast, only 18.0 percent (95% CI 16.8–19.3) of persons without diabetes reported having poor physical health five or more days in the past month (Figure 16).

- When asked about their general health, 47.9 percent (95% CI 44.4–51.5) of persons with diabetes reported their general health as being fair to poor versus only 14.1 percent (95% CI 13.0–15.2) of persons without diabetes.

- Persons with diabetes reported limited activity because of physical, mental or emotional problems more than persons without diabetes—38.4 percent (95% CI 35.1–41.8) versus 16.8 percent (95% CI 15.7–18.0).

- Persons with diabetes reported that they were kept from usual activities because of poor health five or more days in the past month more often than persons without diabetes —25.5 percent (95% CI 22.7–28.5) versus 10.6 percent (95% CI 9.7–11.6).

- 23.5 percent (95% CI 20.6–26.6) of persons with diabetes needed special equipment. In contrast only 5.7 percent (95% CI 5.1–6.4%) of persons without diabetes reported that they needed special equipment.

Figure 16: Quality of Life and Diabetes, 2010

|	5 or More Days of Poor Mental Health	5 or More Days of Poor Physical Health	General Health Fair to Poor	Limited Activity Due to Physical, Mental or Emotional Problems	5 or More Days Kept from Usual Activities by Poor Health	Needs Special Equipment
■ With Diabetes	26.4	42.4	47.9	38.4	25.5	23.5
▫ Without Diabetes	19.4	18.0	14.1	16.8	10.6	5.7
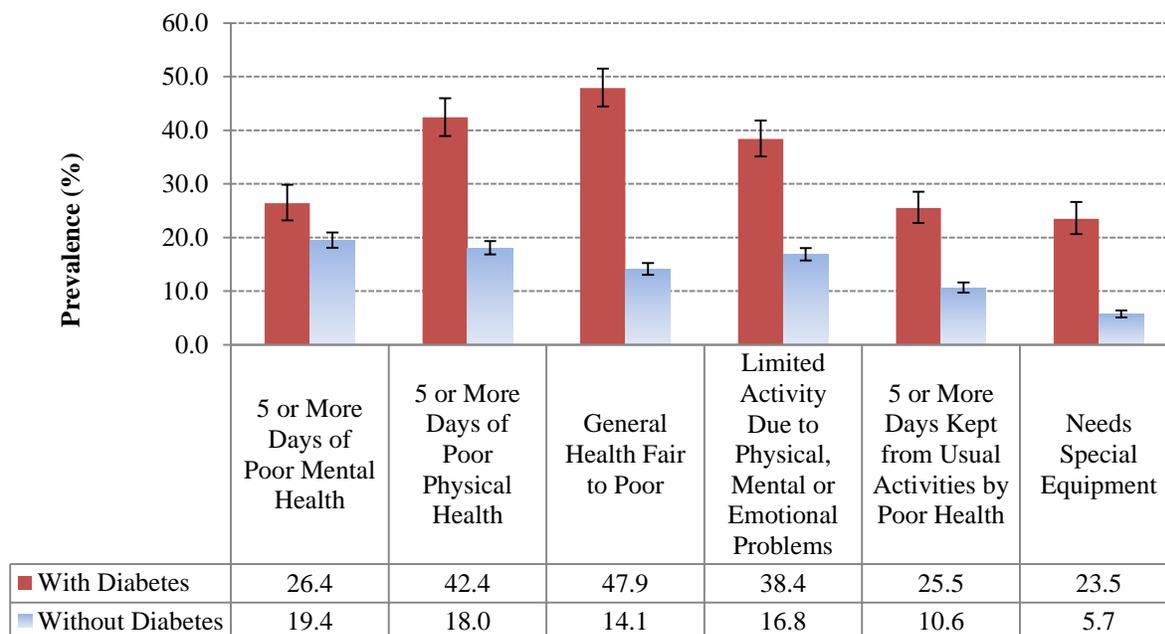
Data Source: Texas BRFSS, 2010, DSHS.

APPENDIX

TEXAS DEMOGRAPHICS

In 2010, Texas was the second most populous state in the U.S. with an estimated population of 25,145,561.

Race/Ethnicity

Texas is a racially and ethnically diverse state. In 2010, less than one-half (46.0%) of the population were white, non-Hispanic (Figure 17). Hispanics comprised nearly two-fifths (37.6 %) of the Texas population compared to 16.3 percent of the U.S. population. Between 2000 and 2010, the Hispanic population in Texas increased by 41.8 percent. In 2010, more than one in ten Texans (11.9%) were African American. Others (defined in Figure 17), accounted for 4.4 percent of Texas' population.

Figure 17: Race/Ethnicity Distribution, Texas, 2010
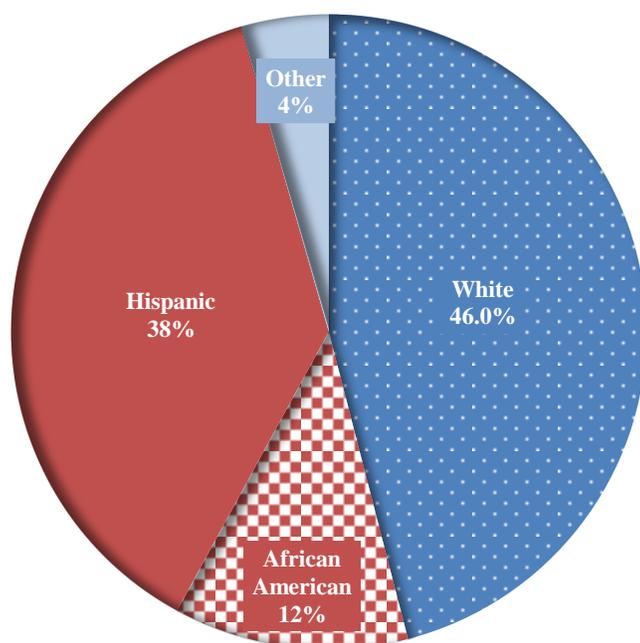
Data Source: Center for Health Statistics, DSHS

White = White, non-Hispanic
African American = African American, non-Hispanic
"Other" race group includes individuals who reported their race/ethnicity as Asian, American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, and Other.

Texas consists of 254 counties. In 70 of these counties, whites represented more than 75 percent of the population, making them the majority in 2010. Hispanics were the majority in 51 counties, primarily along the southern border of the state. The African American population was concentrated in East and Northeast Texas.

Figure 18: Texas Population of Whites, non-Hispanic, by County/Health Service Region, 2010

Percent of Total County Population
- 2.9% - 23.7%
- 23.8% - 51%
- 51.1% - 66.7%
- 66.8% - 79%
- 79.1% - 93.7%
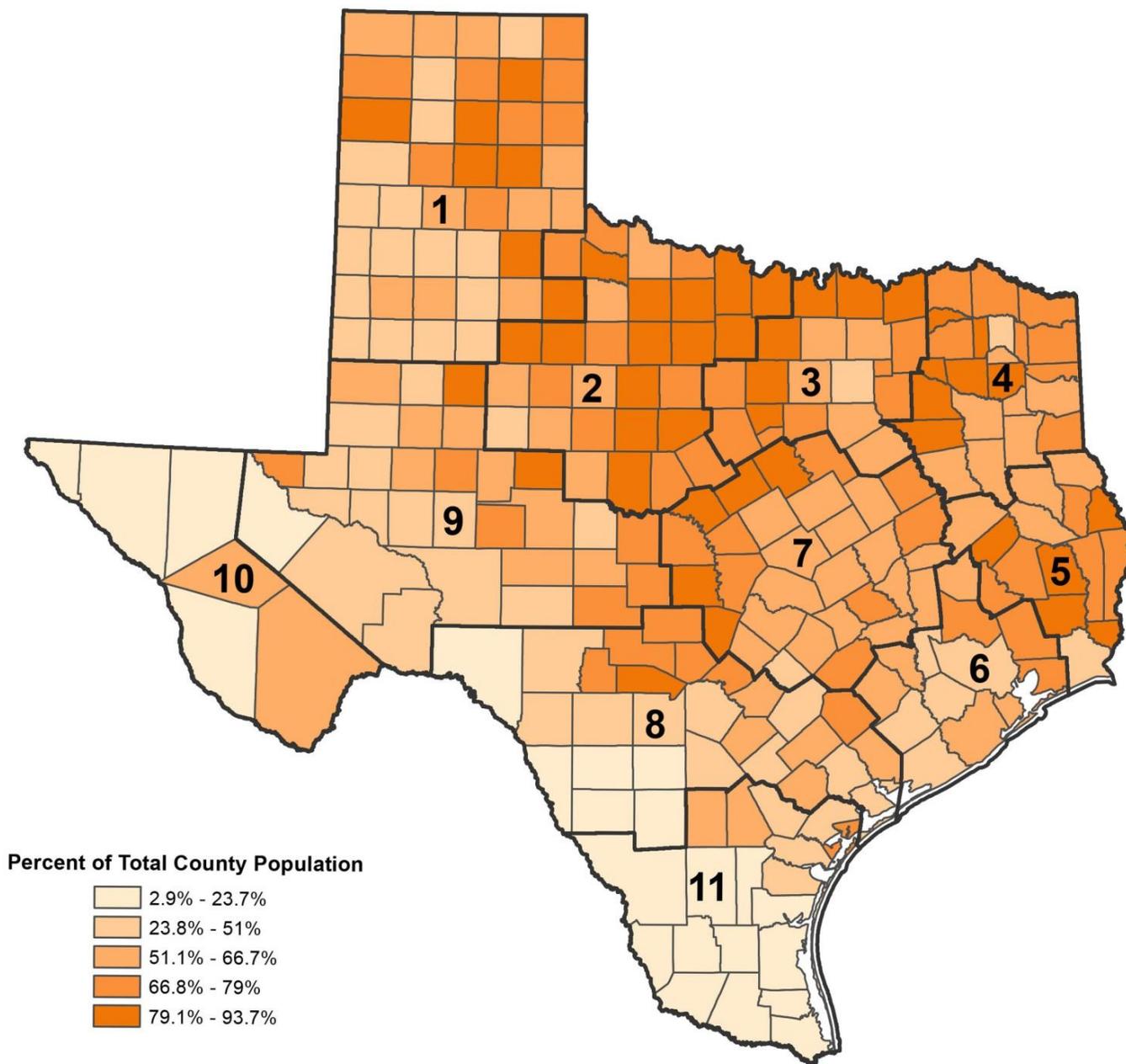
Data Source: Center for Health Statistics, DSHS

**Figure 19: Texas Population of African Americans, non-Hispanic, by County/Health Service Region, 2010**

Percent of Total County Population
- 0% - 2.3%
- 2.4% - 5.5%
- 5.6% - 10.5%
- 10.6% - 17.3%
- 17.4% - 34.1%
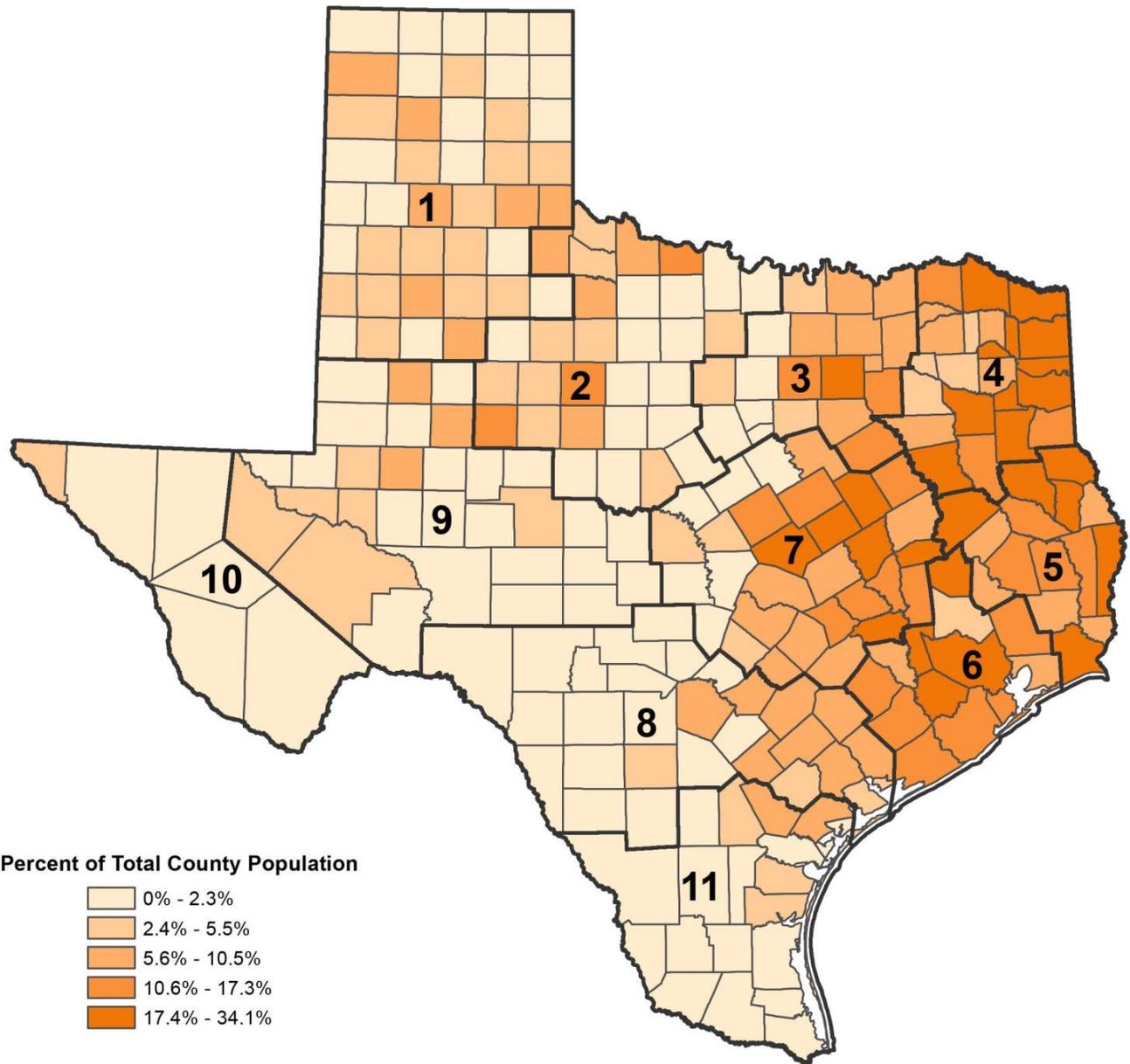
Data Source: *Center for Health Statistics, DSHS*

Figure 20: Texas Population of Hispanics by County/Health Service Region, 2010

Percent of Total County Population

- 2.8% - 14.9%
- 15% - 28%
- 28.1% - 44.4%
- 44.5% - 69.3%
- 69.4% - 95.7%
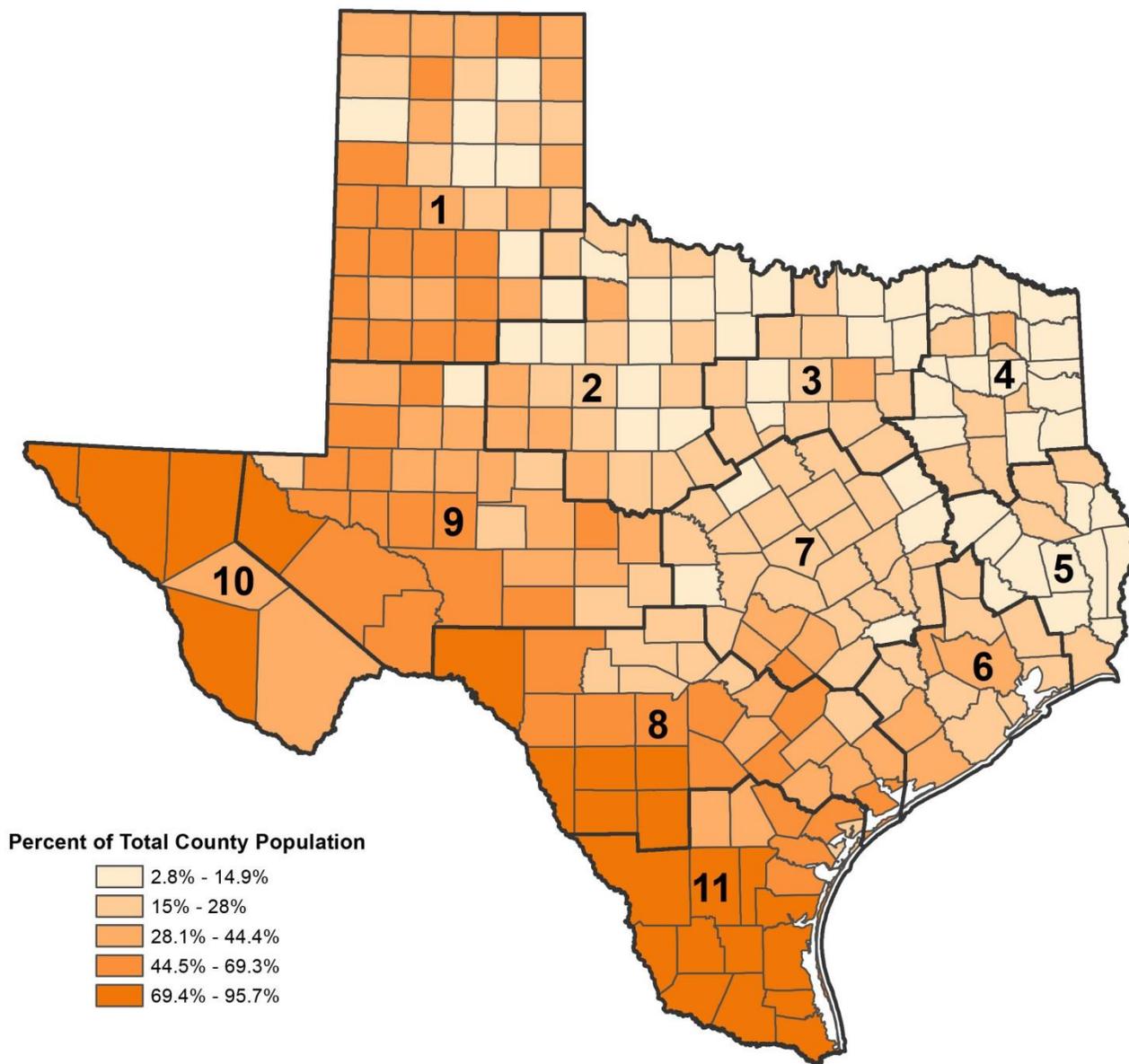
Data Source: *Center for Health Statistics, DSHS*

Figure 21: Texas Population of Other, non-Hispanic, by County/Health Service Region, 2010
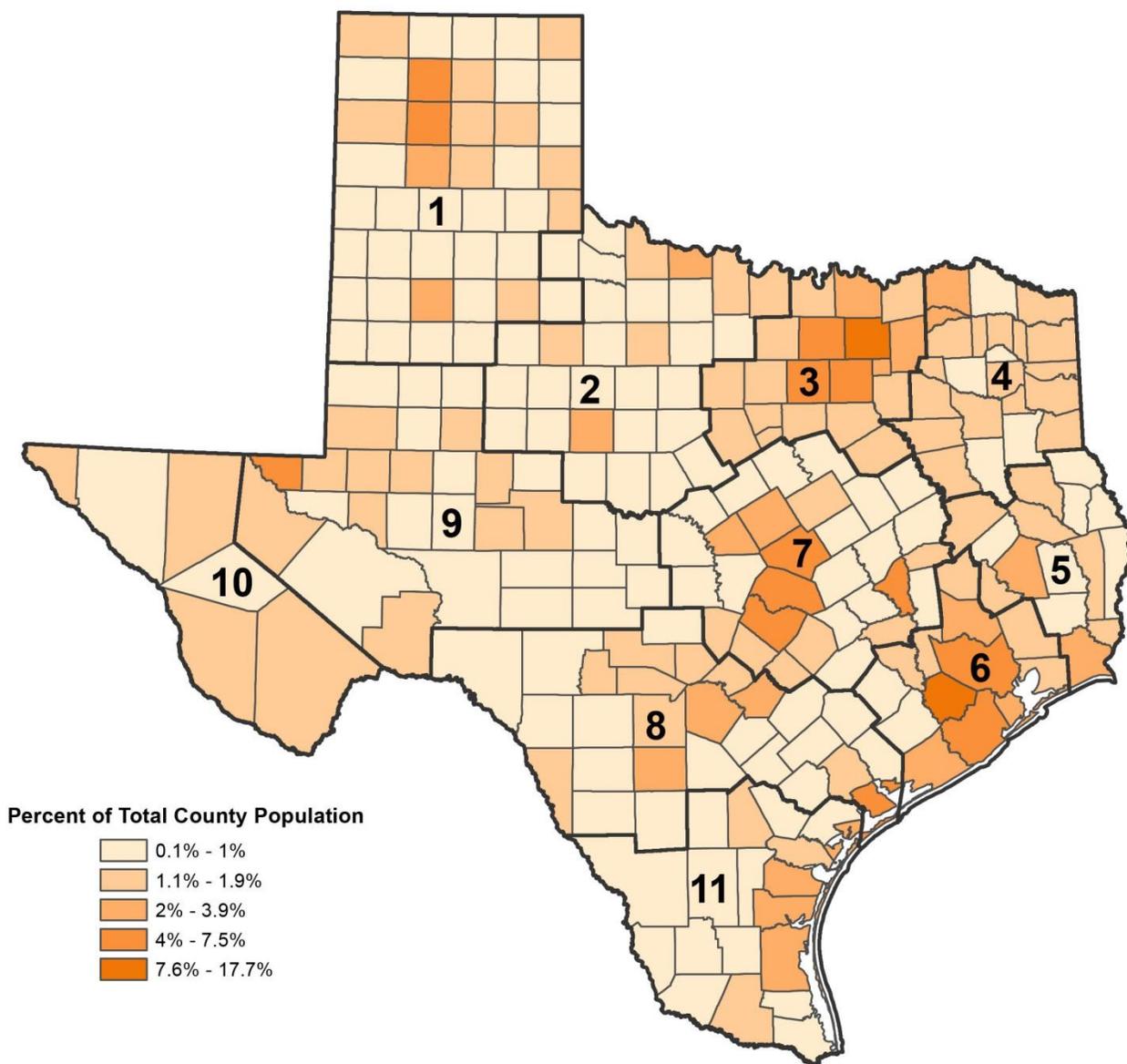
"Other" race group includes individuals who reported their race/ethnicity as Asian, American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, and Other.

Data Source: *Center for Health Statistics, DSHS*

Age and Gender

In 2010. . .
- More than one in four Texans (27.3 %) were under 18 years of age.
- Less than one-fifth (17.6%) were aged 18-29 years.
- More than four in ten (44.8%) were aged 30-64 years.
- One in ten (10.3%) were aged 65 years or older (Figure 22).

Figure 22: Age and Gender Distribution, Texas, 2010
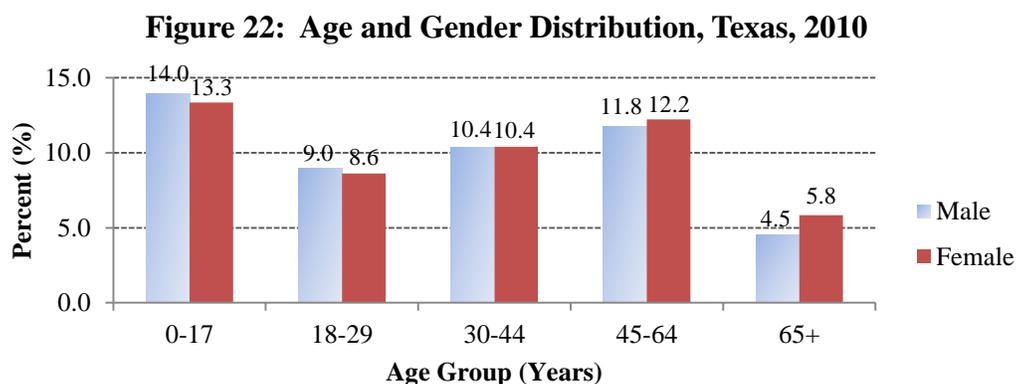
Data Source: Center for Health Statistics, DSHS

Education and Household Income Among Adults

In 2010, a significantly higher percentage, 13.6 percent (95% CI 12.6–14.7) of Texas adults did not graduate from high school as compared to 10.2 percent of adults in the U.S. (95% CI 10.0–10.4) (Figure 23). About one in four Texas adults (24.5%) graduated from high school or received their GED as their highest level of education completed. Approximately one in four (24.8%) had some college education and less than four out of ten (37.1%) graduated from college. Approximately three out of ten Texas adults (29.1%) had incomes less than $25,000 per year.

Figure 23: Education and Household Income, Texas and U.S. Adults, 2010

	No High School Diploma	H.S. Graduate or GED	Some College	College +	Less than $15,000	$15,000 thru $24,999	$25,000 thru $34,999	$35,000 thru $49,999	$50,000+
Texas	13.6	24.5	24.8	37.1	11.7	17.4	9.0	12.1	49.7
U.S.	10.2	27.8	26.2	35.9	10.8	16.0	10.5	13.7	49.1
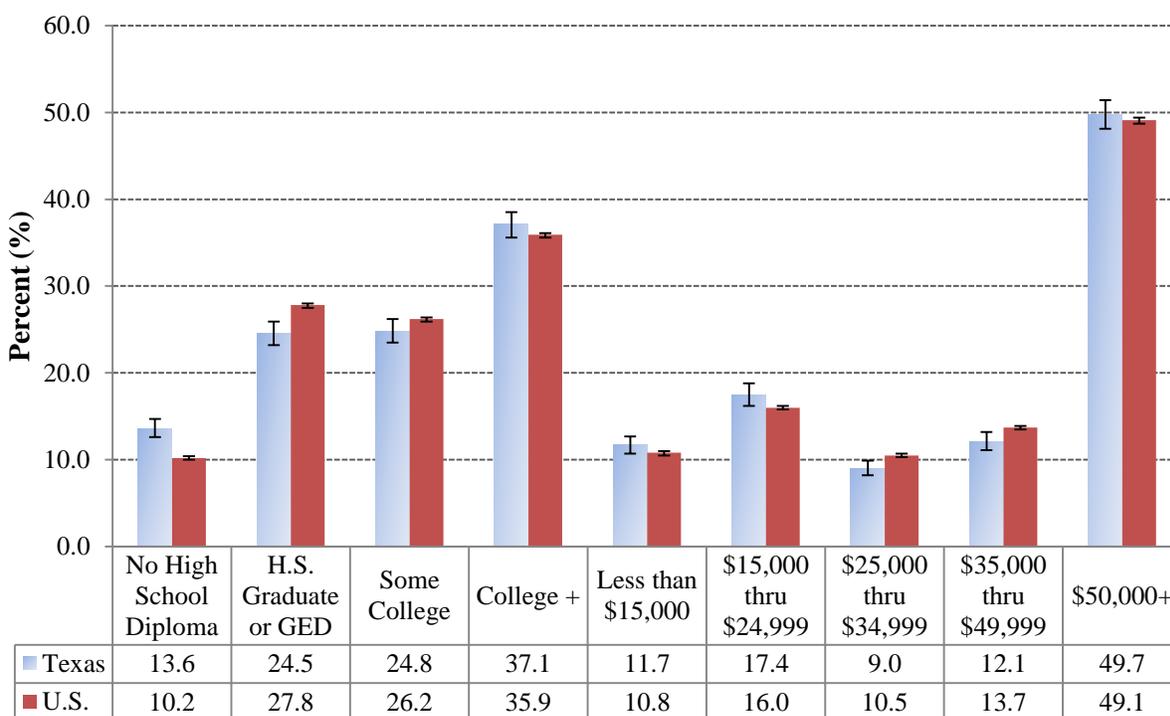
Data Source: Texas Behavioral Risk Factor Surveillance System, DSHS.
National Behavioral Risk Factor Surveillance System.
Error bars represent 95% confidence intervals (CI).

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GLOSSARY

- **The A1C test** is a blood test that provides information about a person's average levels of blood glucose, also called blood sugar, over the past 3 months. The A1C test is sometimes called the hemoglobin A1c, HbA1c, or glycohemoglobin test. The A1C test can be used to diagnose type 2 diabetes and prediabetes alone or in combination with other diabetes tests. When the A1C test is used for diagnosis, the blood sample must be sent to a laboratory that uses a National Glycohemoglobin Standardization Program (NGSP)-certified method for analysis to ensure the results are standardized.

Diagnosis	A1C Level
Normal	below 5.7 percent
Diabetes	6.5 percent or above
Prediabetes	5.7 to 6.4 percent

- **Age-adjusted mortality rate** – Adjusting for age is a technique used when the age distributions of populations to be compared are very different. For example, the Hispanic population in Texas may have larger numbers of persons in younger age groups, where death is less likely to occur, compared to whites in Texas who may be more concentrated in older age groups where death is more likely to occur. Mathematically weighting, or adjusting, for these differences in population distribution, using a standard population, can allow for more accurate comparison of mortality among racial/ethnic groups.

- **Confidence intervals** indicate the reliability of an estimate. The confidence interval expresses the range within which a result would occur for a particular proportion of times an experiment or test was repeated among a sample of the population. Wider confidence intervals suggest less reliability as opposed to small intervals which indicate a more reliable estimate.

- **The International Classification of Diseases (ICD)** is designed to promote international comparability in the collection, processing, classification, and presentation of mortality statistics. This includes providing a format for reporting causes of death on the death certificate. The reported conditions are then translated into medical codes through use of the classification structure and the selection and modification rules contained in the applicable revision of the ICD, published by the World Health Organization. These coding rules improve the usefulness of mortality statistics by giving preference to certain categories, by consolidating conditions, and by systematically selecting a single cause of death from a reported sequence of conditions. The single selected cause for tabulation is called the underlying cause of death, and the other reported causes are the nonunderlying causes of death. The combination of underlying and nonunderlying causes is the multiple causes of death. The ICD has been revised periodically to incorporate changes in the medical field. To date, there have been 10 revisions of the ICD.

- **Quality Compass** – The National Committee for Quality Assurance (NCQA) Quality Compass provides comparative and descriptive performance information on hundreds of commercial and Medicaid health plan submissions as well as national, regional and state benchmarks.