

The Burden Report: Cardiovascular Disease & Stroke in Texas



**Texas Cardiovascular Health
and Wellness Program**
www.dshs.state.tx.us/wellness

**Texas Council on Cardiovascular
Disease and Stroke**
www.texascvdcouncil.org

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EXECUTIVE SUMMARY

Highlights

- Cardiovascular disease (CVD) and stroke are serious and costly diseases.
- Heart disease is the leading cause of death in Texas.
- Stroke is the 3rd leading cause of death in Texas.
- Thirty-three percent of all deaths in Texas in 2004 were due to heart disease and stroke, more than any other cause.
- In Texas and the US during the period from 1967-2004, age-adjusted mortality rates have steadily declined.
- Age-adjusted mortality rates for ischemic heart disease declined from 202.4 per 100,000 in 1999 to 153.5 per 100,000 in 2004.
- Age-adjusted mortality rates for stroke declined from 66.3 per 100,000 in 1999 to 55.9 per 100,000 in 2004.
- In 2006, about 1.4 million Texas adults aged 18 years and older reported that they have CVD or have had a stroke.
- Overall, hospitalizations for CVD and stroke cost Texas over \$10 billion dollars in 2005. Ischemic heart disease alone accounted for 59% of this cost.
- Among Texans aged 18 years and older with CVD or stroke, 18% stated they did not have any type of health care coverage, 23% cannot see a doctor due to the cost, and 22% did not have a routine checkup within the past year in 2006.
- In 2005, only 9 % of Texas adults could correctly identify all heart attack signs and symptoms, 17 % could correctly identify all stroke signs and symptoms, and 85% recognized calling 911 as the first emergency response option for heart attack and stroke.
- High blood pressure and cholesterol are important health concerns for people in Texas. More than 24% of Texas adults have been diagnosed with high blood pressure and 34% with high blood cholesterol.
- People in Texas are increasingly overweight and obese. From 1995 to 2006, the percentage of Texans who are overweight or obese increased from 51.4% to 62.3%.
- The prevalence of diabetes, a major risk factor for CVD, has increased over the past decade in Texas from 5.2% in 1995 to 8.0% in 2006.
- Significant disparities exist among Texans with CVD or stroke and their risk factors.
- Generally, Texans who are older, poorer, have a lower education and are African American have a higher CVD prevalence, more risk factors, and are at higher risk of death from cardiovascular disease.
- The average EMS response time for a suspected cardiac event was approximately 8 minutes from the time the call was received to the time EMS arrived on the scene and nearly 40 minutes from the time the call was received to the time EMS arrived at destination (Hospital).

INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death in Texas and has been since 1940. CVD accounts for 2 out of every 5 deaths. In 2005 over 1,422,000 adults in Texas reported that they have had a diagnosed heart attack, a stroke, angina or coronary heart disease. Through the auspices of the Texas Council on Cardiovascular Disease (CVD) and Stroke, the Cardiovascular Health and Wellness Program at the Texas Department of State Health Services has continually collected and provided CVD and stroke health data and information and made data resources available to state partners. These data serve as a benchmark and determinant of progress toward stated goals and objectives as outlined in the State Plan to Reduce Cardiovascular Disease and Stroke, May 2002 (updated May 2005). In 2002, the Texas Cardiovascular Disease Surveillance System and Report was created to better monitor specific trends and risk factors related to CVD and stroke (see www.texascvdcouncil.org).

To better meet the needs of our state partners in reducing the excessive burden of the Number 1 cause of death in Texas, we have compiled the most relevant and useful data pieces collected thus far into this first edition of the “The Burden Report: Cardiovascular Disease and Stroke in Texas.”

Highlights of significant findings from this report include:

- 1) Cardiovascular disease accounted for 33% of all deaths in Texas for the five-year period from 1999 to 2004.
- 2) Total hospitalization charges for CVD and stroke in 2005 were over \$10 billion.
- 3) Total hospitalization charges for CVD and stroke have risen 67% from 2000 to 2005.

The Cardiovascular Health and Wellness Program of the Texas Department of State Health Services hopes this report will serve as a resource to guide current and future partners as they expand from a state vision to actual implementation of programs and activities proven effective in reducing the fiscal and physical costs of CVD and stroke in worksites, healthcare sites, schools, and communities across the state.

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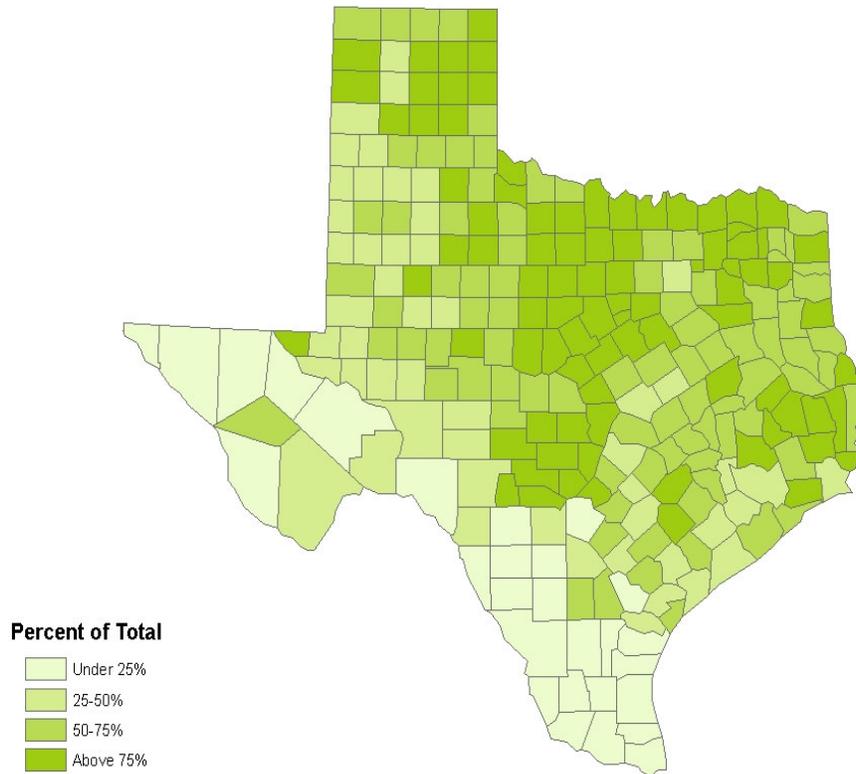
www.texascvdcouncil.org

DEMOGRAPHIC Information

Population Distribution By Race/Ethnicity

DEMOGRAPHICS: Race Group – Whites

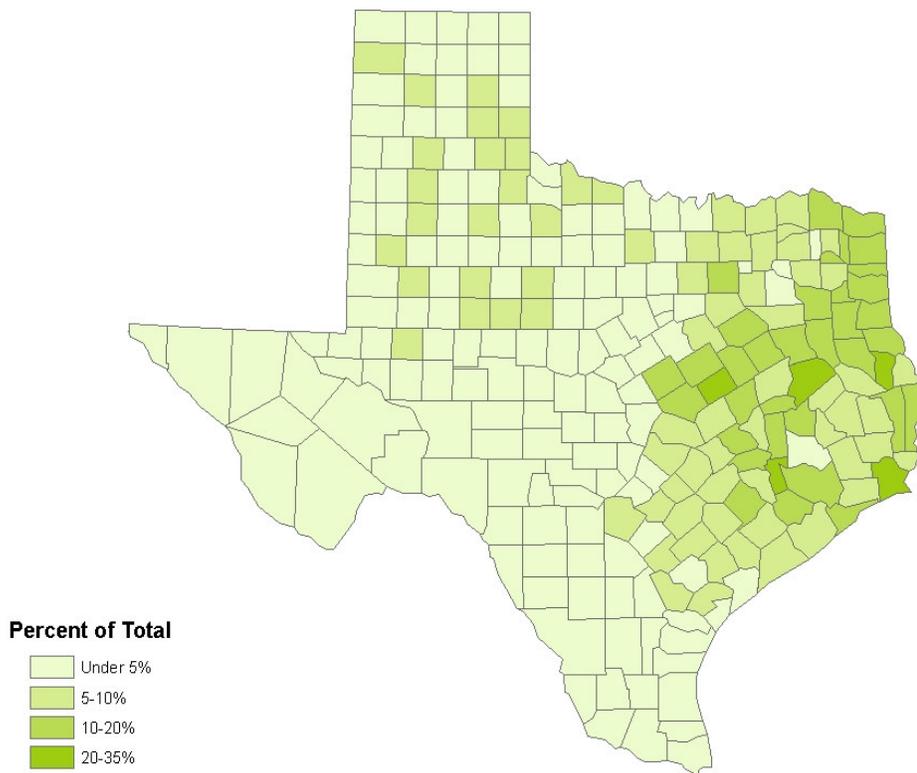
Percent of Total County Population Whites 2005 Population Estimate



-
- Shaded areas in the map show the percentage of county population that are White.
 - Ninety-nine of the 254 Texas counties have more than 75 percent of its county population who are White. Most of these counties are concentrated in the north and central parts of Texas.

DEMOGRAPHICS: Race Group – African Americans

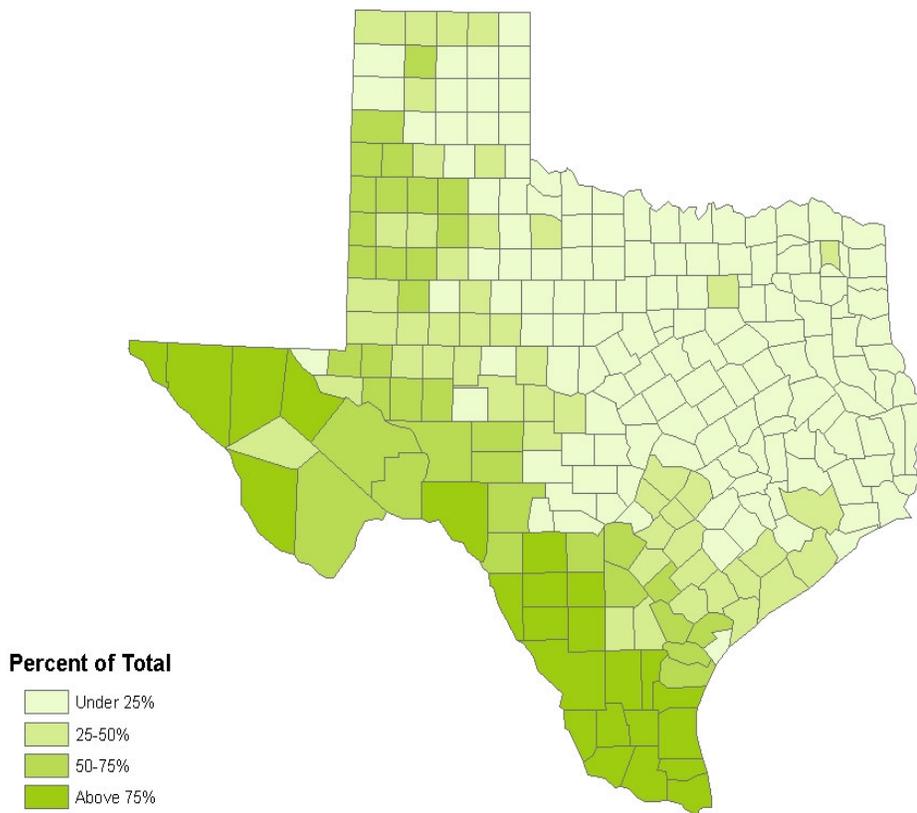
Percent of Total County Population African Americans 2005 Population Estimate



-
- Shaded areas in the map show the percentage of county population who are African American.
 - Twenty counties have more than 20 percent of its county population who are African American. Most of these counties are concentrated in the north and east parts of Texas.

DEMOGRAPHICS: Race Group - Hispanics

Percent of Total County Population Hispanics 2005 Population Estimate



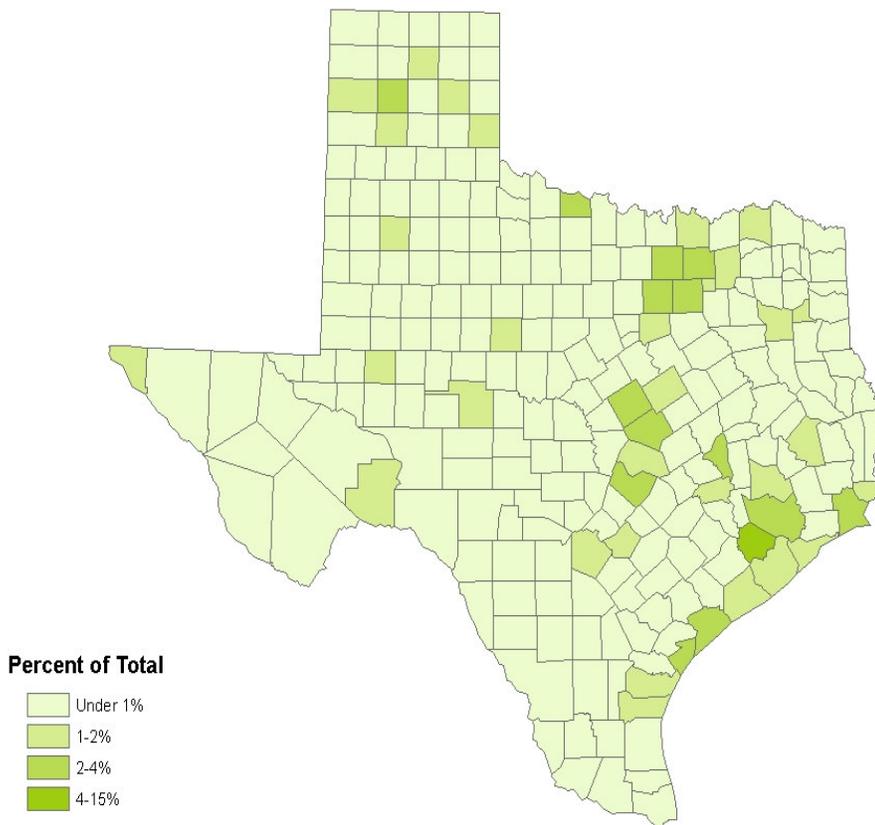
-
- Shaded areas in the map show the percentage of county population who are Hispanic.
 - Nineteen counties have more than 75 percent of its county population who are Hispanic. Most of these counties are concentrated in the South and West parts of Texas.

DEMOGRAPHICS: Race Group - Others

Percent of Total County Population

Others

2005 Population Estimate



-
- Shaded areas in the map show the percentage of county population who are classified with “Other” race group.
 - There are a total of 11 counties that have more than 4 percent of its county population who classified as American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, Multi-Racial or some other race.

MORTALITY DATA

Mortality - Leading Causes of Death

Heart disease was the leading cause of death in Texas for all races in 2004 (Table 1 and Figure 1). For the purpose of ranking mortality statistics, underlying cause of death is used, even though other conditions may contribute to that death. (The underlying cause of death is defined as the disease or injury that initiated the chain of morbid events leading directly to death). Multiple contributing causes can also be listed on the death certificate. Analyses based on a single underlying cause exclude a considerable amount of pertinent data, and may under report the actual number of CVD related deaths. 49,922 deaths in 2004 were listed as having heart disease or stroke as the leading cause of death (see table 1).

Table 1: Leading Causes of Death*: Texas, 2004
(Rates per 100,000 Estimated Populations)

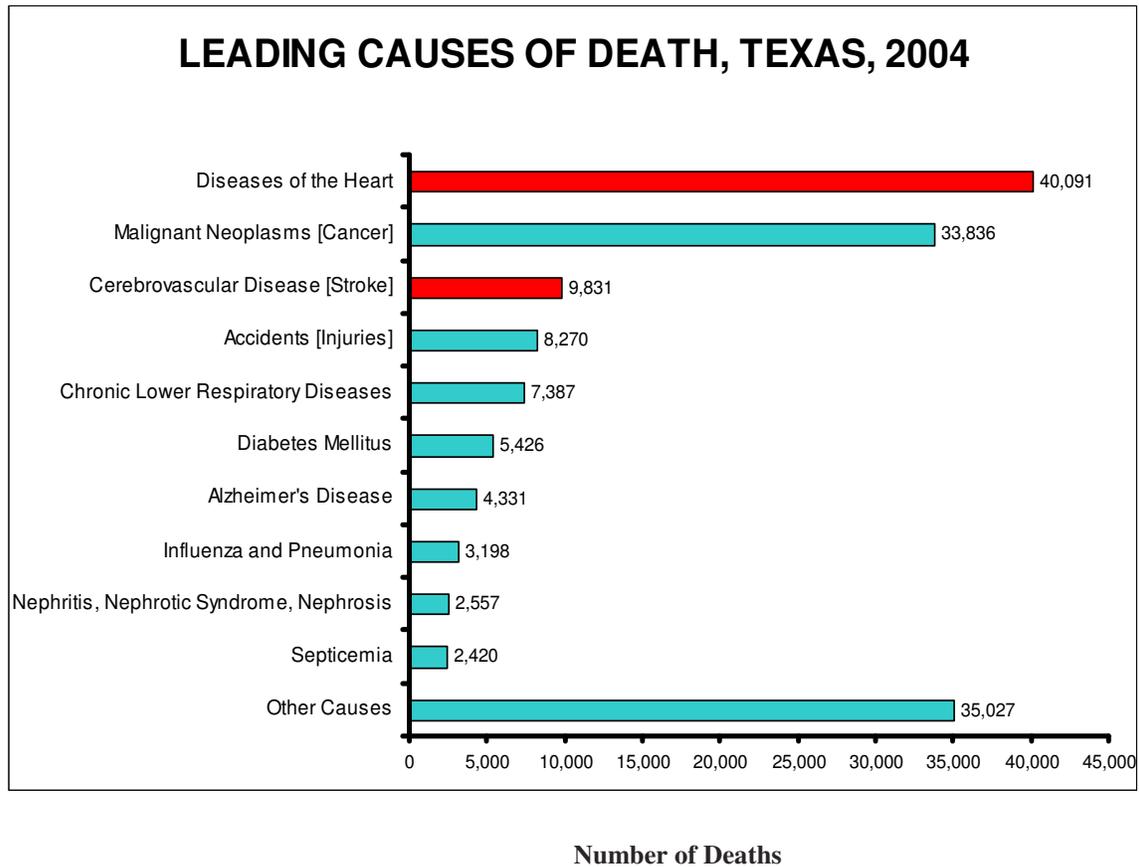
Rank	Cause	Number of Deaths	Crude Death Rate*	% Of Deaths
	All Causes	152,374	677.5	100
1	Diseases of heart	40,091	178.3	26.3
2	Malignant neoplasms	33,836	150.4	22.2
3	Cerebrovascular diseases	9,831	43.7	6.5
4	Accidents	8,270	36.8	5.4
5	Chronic lower respiratory disease	7,387	32.8	4.8
6	Diabetes mellitus	5,426	24.1	3.6
7	Alzheimer's disease	4,331	19.3	2.8
8	Influenza and pneumonia	3,198	14.2	2.1
9	Nephritis, nephrotic syndrome and nephrosis	2,557	11.4	1.7
10	Septicemia	2,420	10.8	1.6
	All Other Causes	35,027	155.7	23

* Leading Causes of Death of heart disease and stroke include ICD-10 codes: I00-I09, I11, I13, I20-I51, I60-I69. Rates expressed as deaths per 100,000 population.

-
- A total of 152,374 Texas residents died in 2004. The leading cause of death, diseases of the heart, accounted for 26.3 percent of those deaths, while the second most common cause of death, malignant neoplasms, accounted for 22.2 percent. Cerebrovascular diseases, injuries, and chronic lower respiratory diseases ranked third, fourth and fifth respectively. Together, these five leading causes of death represented 66.2 percent of all deaths in 2004.

Mortality - Leading Causes of Death

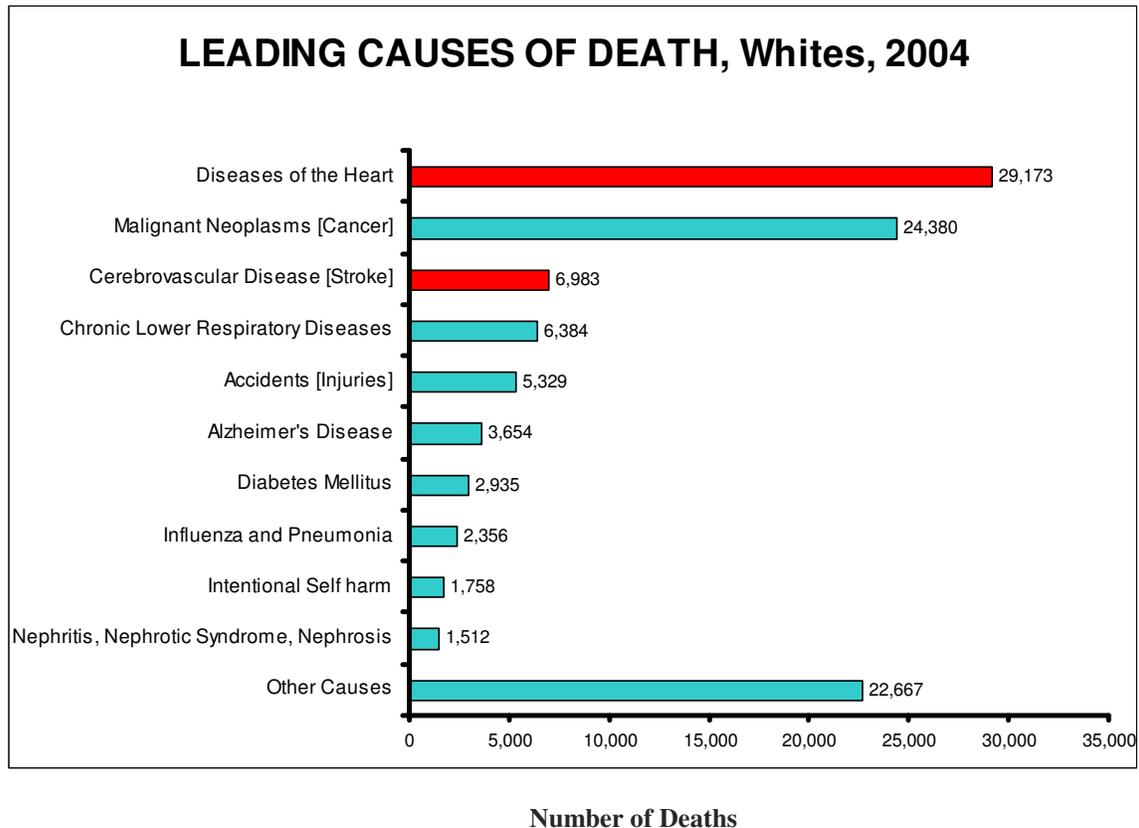
Figure 1: Leading Causes of Death in Texas - 2004



■ Figure 1 shows that rates for CVD deaths well exceed all other causes of death for the general population.

Mortality - Leading Causes of Death

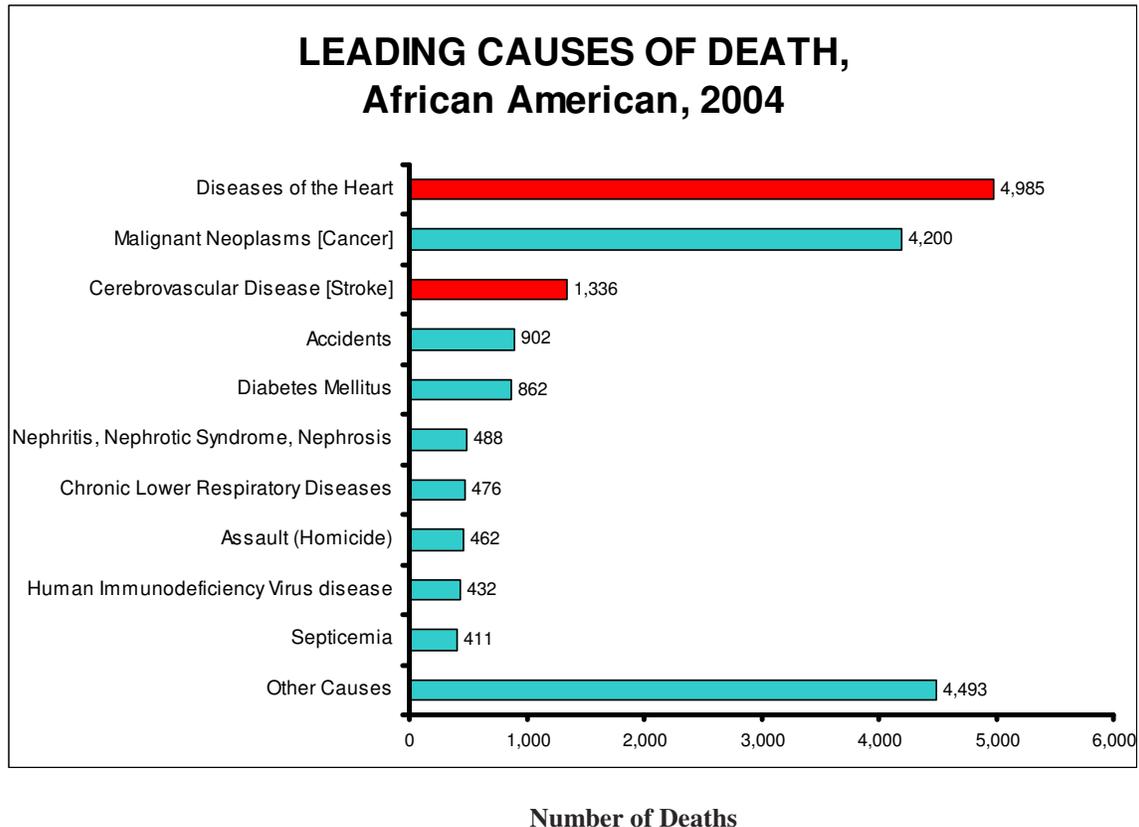
Figure 2. Leading Causes of Death in Texas
Whites, 2004



-
- A total of 107,131 White residents died in 2004. The leading cause of death, diseases of the heart, was responsible for 27.2 percent of these deaths while malignant neoplasms, the second most common cause of death, accounted for 22.8 percent. Cerebrovascular diseases ranked third and accounted for seven percent of all deaths among White residents in Texas. These top three leading causes of death accounted for over 67 percent of all White residents of Texas during 2004.

Mortality - Leading Causes of Death

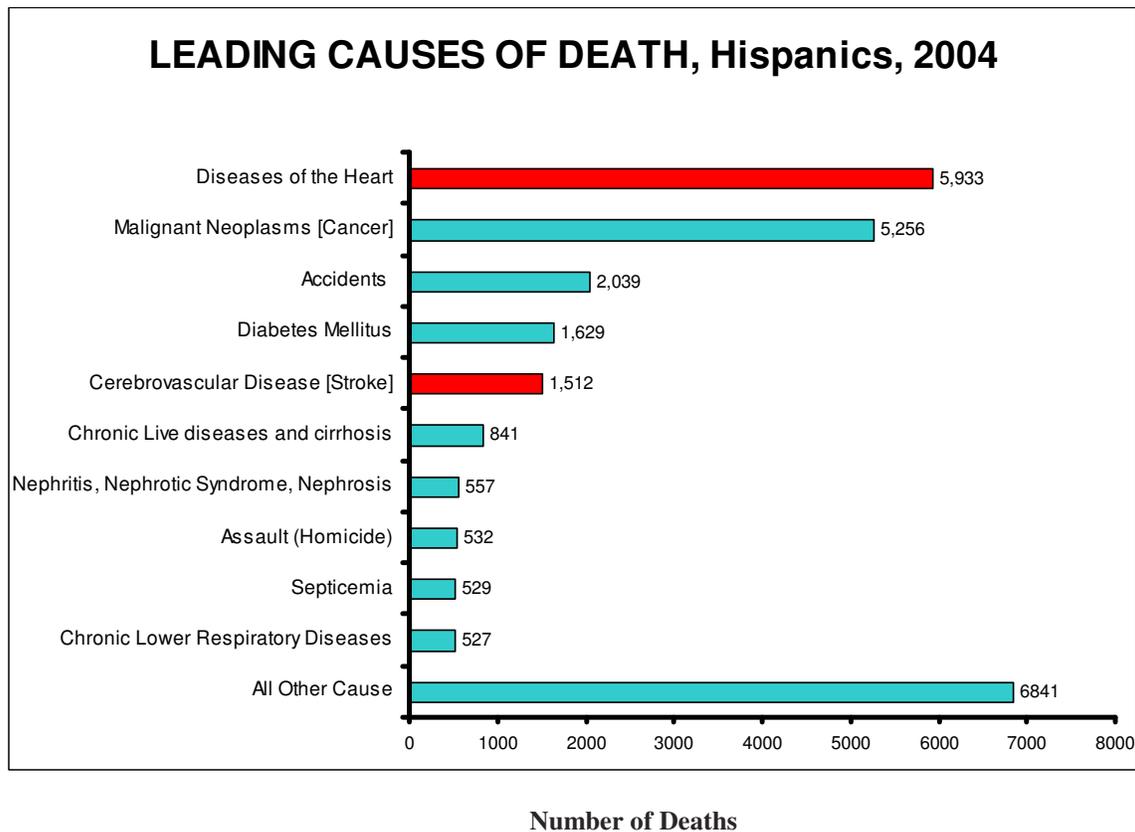
Figure 3. Leading Causes of Death in Texas African Americans, 2004



- A total of 19,047 African American residents died in 2004. The leading cause of death, diseases of the heart, was responsible for 26.2 percent of these deaths while malignant neoplasms, the second most common cause of death, accounted for 22.1 percent. Cerebrovascular diseases ranked third and accounted for seven percent of all deaths among Texas African American residents. Accidents and diabetes were the fourth & fifth leading causes of death accounting for five percent each of all deaths among African American residents in Texas. Together, the five leading causes of death accounted for 64 percent of deaths among African Americans in Texas in 2004.

Mortality - Leading Causes of Death

Figure 4. Leading Causes of Death in Texas Hispanics, 2004



-
- There were a total of 26,196 deaths among Hispanics in Texas in 2004. The leading cause of death, diseases of the heart, was responsible for 23 percent of all Hispanic deaths while malignant neoplasms (20 percent of all deaths) was the second most common cause of death among Hispanics. The third leading cause of deaths for Hispanics was deaths due to accidents, which accounted for eight percent of all deaths. Diabetes was the fourth leading cause of death (six percent of all deaths) and cerebrovascular diseases (six percent of all deaths) were the fifth leading cause of deaths. Together, these 5 leading causes of death represented 62 percent of all deaths among Hispanic residents in Texas in 2004.

MORTALITY - Texas/US Comparison

Heart disease is a form of cardiovascular disease; it includes all of the diseases of the heart, which include acute rheumatic fever, chronic rheumatic heart diseases, hypertensive diseases, ischemic heart diseases, as well as other forms of heart disease.

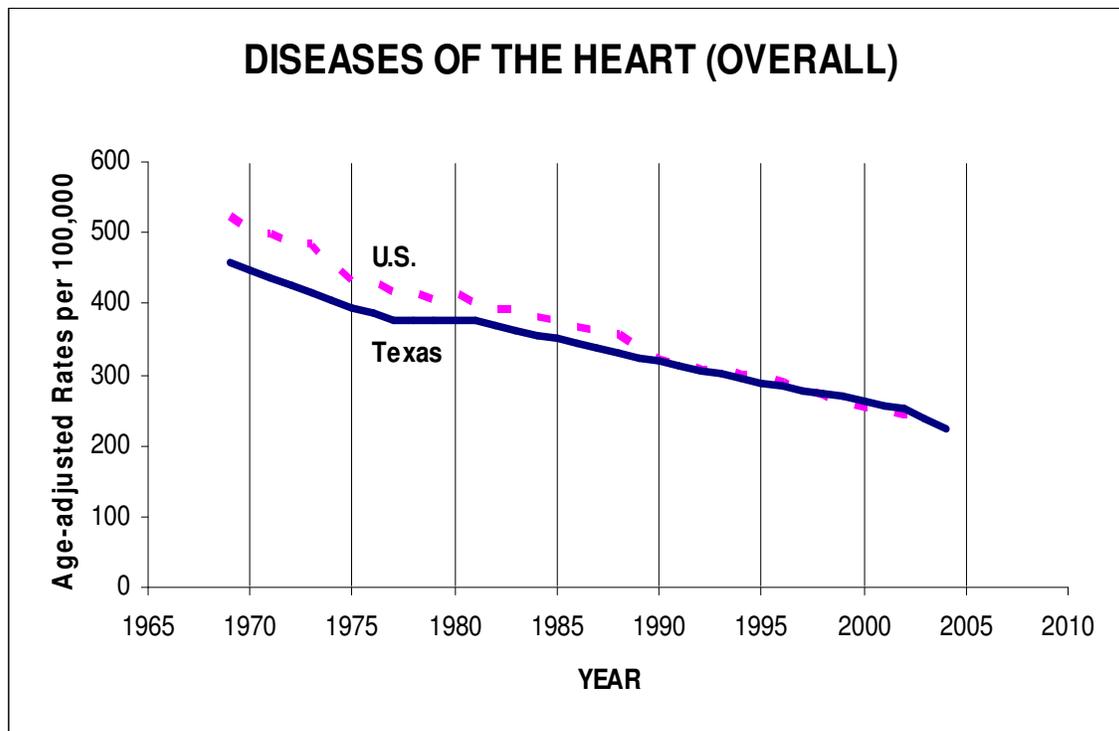
Codes used to define heart disease:

ICD-9 Codes (1969-1998) (390-398,402,404, and 420-429).

ICD-10 codes (1999-2004) (I00-I09, I11-I113, and I20-I25).

Texas/US Comparison

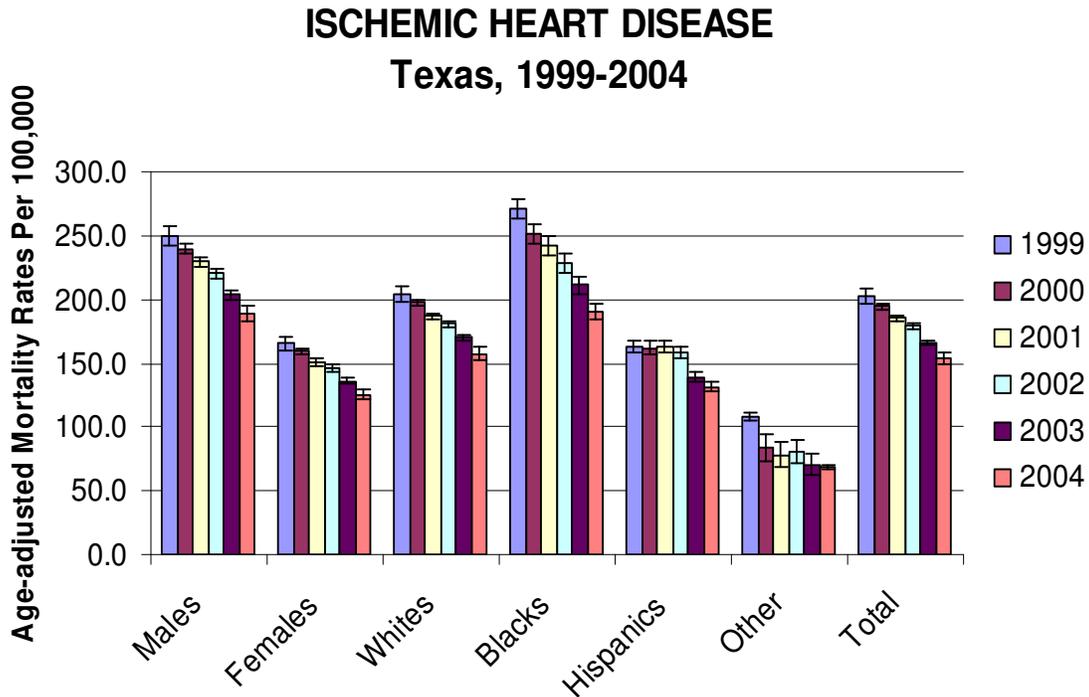
Figure 5. Age-Adjusted Mortality Rates for Heart Disease in Texas and US, 1965-2004



- Figure 5 shows that in Texas, the proportion of deaths due to heart disease has steadily decreased from 459.7 per 100,000 in 1969 to 223.6 per 100,000 in 2004. Nationally, mortality rates for heart disease have also decreased from 520.4 per 100,000 in 1969 to 235.6 per 100,000 in 2003.

MORTALITY - Ischemic Heart Disease

Figure 6. Age-Adjusted Mortality Rates for Ischemic Heart Disease by Gender & Race, Texas, 1999-2004

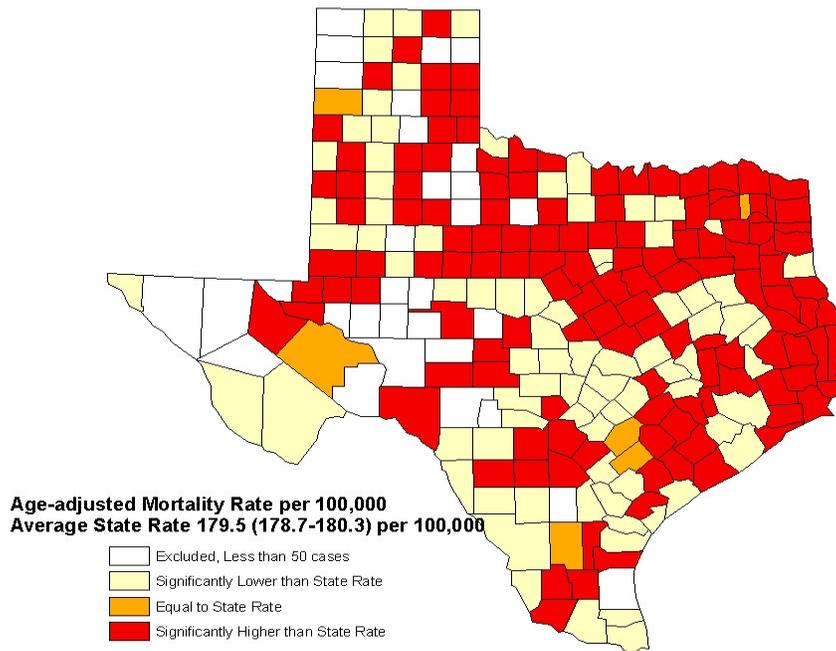


Data Source: Texas Vital Statistical Unit (VSU), Texas Department of State Health Services, 1999-2004

- The overall age-adjusted mortality rate (AAMR) for ischemic heart disease (IHD) declined from 202.4 per 100,000 in 1999 to 153.5 per 100,000 in 2004. The decrease was statistically significant. AAMR for males and females and for Whites and African Americans also showed significant decline during the same period. AAMR for Hispanics, however, stayed relatively level through 2002, and then showed a significant decline in 2004.
- While mortality rates due to IHD are declining, patterns of disease still show that Texas males have a significantly higher risk of dying from IHD than females.
- In addition, among the race/ethnicity groups, African Americans have a higher risk of dying from IHD than Whites, Hispanics and other races.

MORTALITY DATA – Ischemic Heart Disease

Figure 7. 6 Year Average Age-Adjusted Mortality Rates for Ischemic Heart Disease, 1999-2004



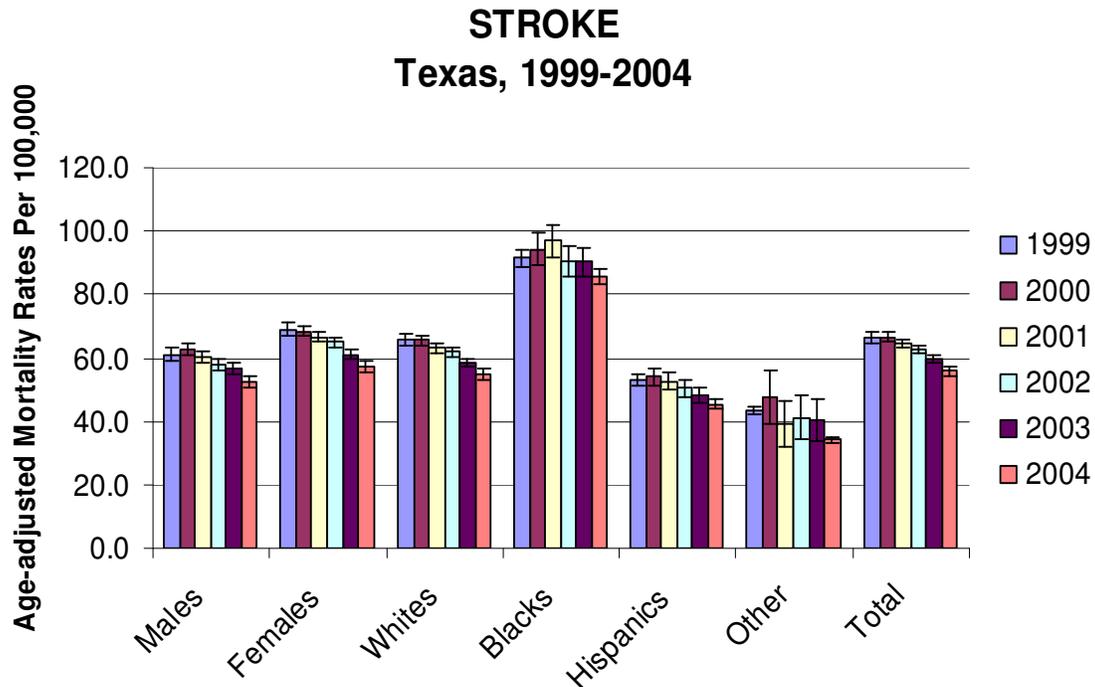
Data Source: Texas Vital Statistical Unit (VSU), Texas Department of State Health Services, 1999-2004

-
- The darkest color on the map represents Texas counties with the highest mortality rates for IHD while the lightest color represents counties with the lowest mortality rates. County-specific mortality rates were age-adjusted and represent data for 1999-2004.

NOTE: Although county rates provide a high degree of specificity, rates in counties with small populations and few deaths for a specific condition can be unstable. For each map, county-specific rates were ranked from highest to lowest and then categorized into quartiles.

MORTALITY - Stroke

Figure 8. Age-Adjusted Mortality Rates for Stroke by Gender & Race, Texas, 1999-2004

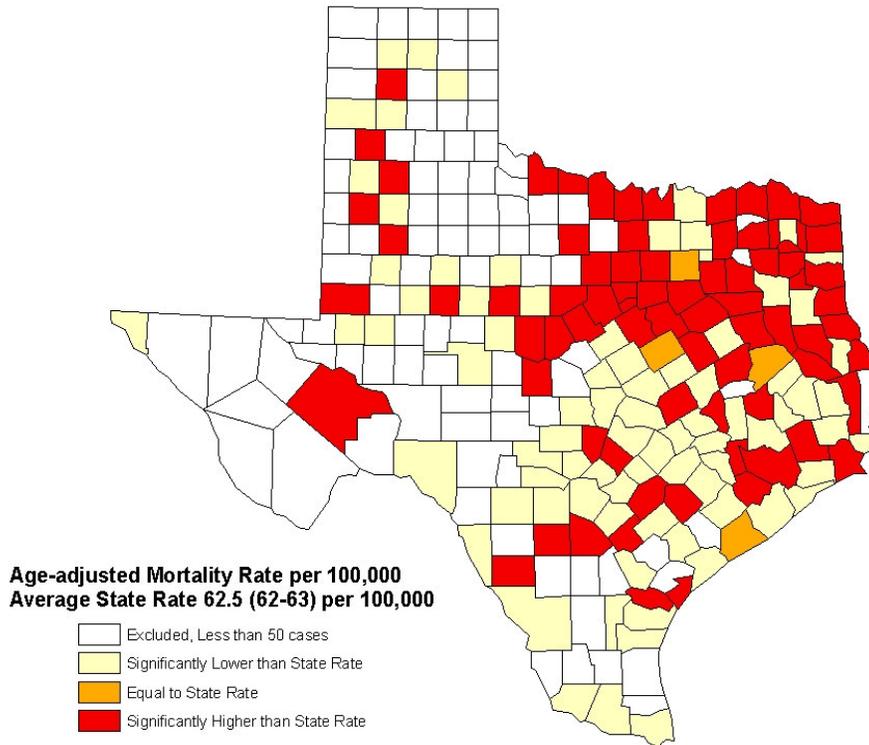


Data Source: Texas Vital Statistical Unit (VSU), Texas Department of State Health Services, 1999-2004

- The overall age-adjusted mortality rate (AAMR) for stroke declined from 66.3 per 100,000 in 1999 to 55.9 per 100,000 in 2004. The decrease was statistically significant.
- Texas females have significantly higher risk of dying from stroke than males.
- Among the race/ethnicity groups, African Americans have significantly higher stroke mortality rates compared to Whites, Hispanics and other races.
- Among the race/ethnicity groups, AAMR for whites showed a significant decrease from a high of 65.7 per 100,000 in 2001 to 54.8 per 100,000 in 2004.

MORTALITY - Stroke

Figure 9. 6 Year Average Age-Adjusted Mortality Rates for Stroke, 1999-2004



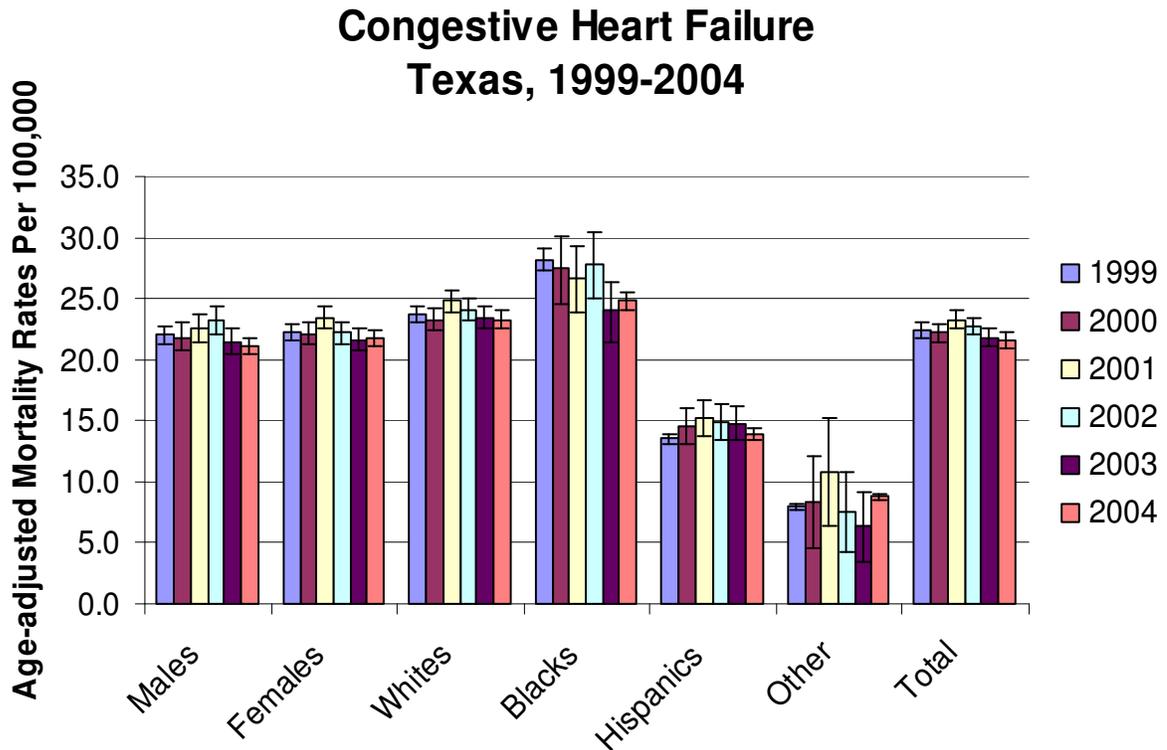
Data Source: Texas Vital Statistical Unit (VSU), Texas Department of State Health Services, 1999-2004

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- The darkest color on the map represents Texas counties with the highest mortality rates for stroke while the lightest color represents counties with the lowest mortality rates. County-specific mortality rates were age-adjusted and represent data for 1999-2004.

NOTE: Although county rates provide a high degree of specificity, rates in counties with small populations and few deaths for a specific condition can be unstable. For each map, county specific rates were ranked from highest to lowest and then categorized into quartiles.

MORTALITY - Congestive Heart Failure

Figure 10. Age-Adjusted Mortality Rates for Congestive Heart Failure by Gender & Race, Texas, 1999-2004



Data Source: Texas Vital Statistical Unit (VSU), Texas Department of State Health Services, 1999-2004

- The overall age-adjusted mortality rate (AAMR) for heart failure remained relatively unchanged between 1999 and 2004.
- Among the race/ethnicity groups, AAMR for African Americans decrease from a high of 28.2 per 100,000 in 1999 to 24.8 per 100,000 in 2004.
- There was not a significant difference between males and females.

PREVALENCE DATA

PREVALENCE – Cardiovascular Disease (CVD)

Figure 11. Prevalence of CVD 1999-2006, Adults 18+

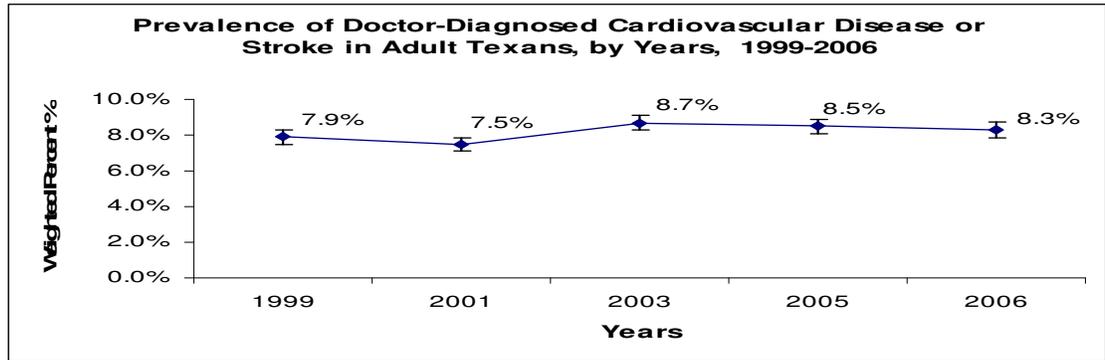
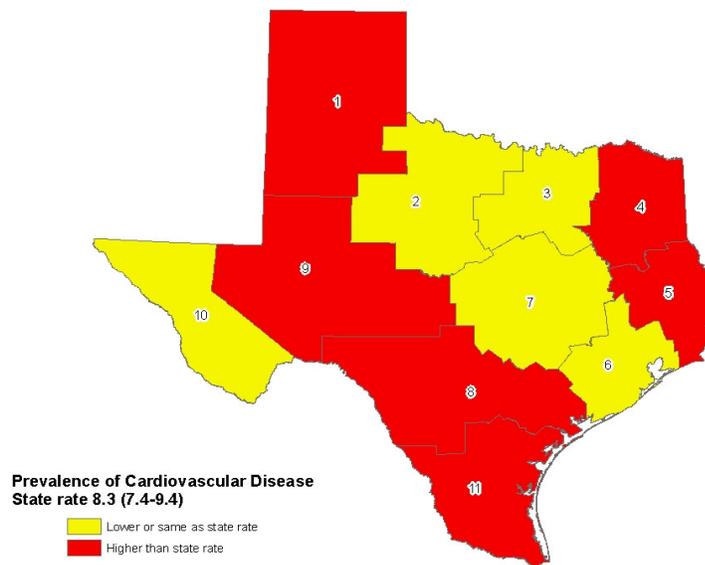


Figure 12. Prevalence of Cardiovascular Disease by Health Service Region, Texas, 2006



Data Source: Texas Behavioral Risk Factor Surveillance Survey (BRFSS), Department of State Health Services, 1999-2006

- The CVD prevalence rate in Texas decreased from 8.7% in 2003 to 8.3% in 2006 while the national average was 8.0% and 8.3% respectively.
- Public Health Service Region 1, 4, 5, 8, 9, and 11 had higher CVD prevalence rates than the state average. All other regions had lower CVD rates than the state average.

PREVALENCE – Cardiovascular Heart Disease (CVD)

Figure 13. Prevalence of CVD by Gender, Race, and Age 2006, Adults 18+

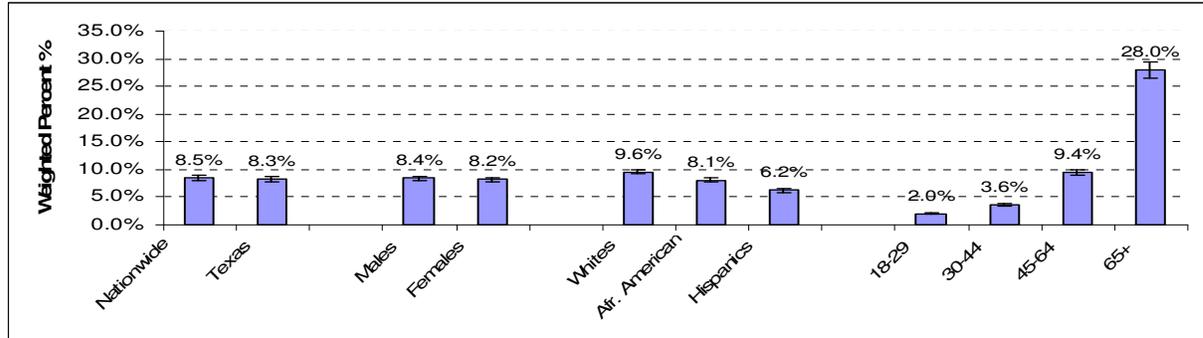
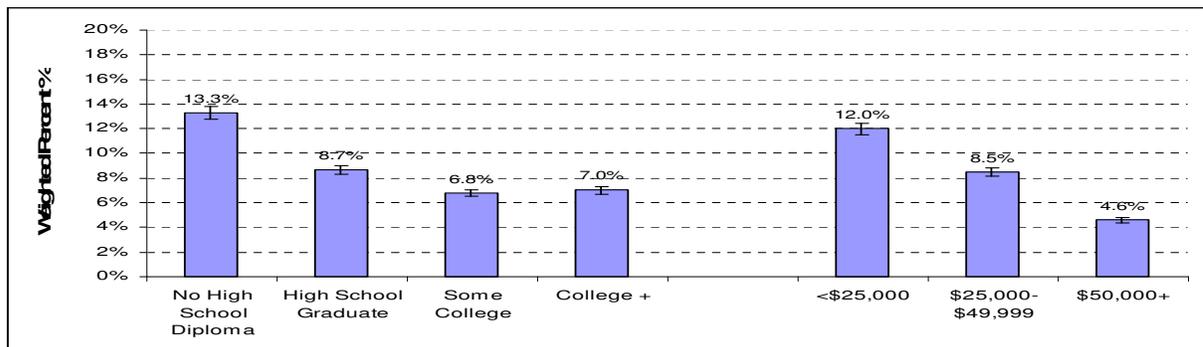


Figure 14. Prevalence of CVD by Education and Income 2006, Adults 18+



Data Source: Texas Behavioral Risk Factor Surveillance Survey (BRFSS), Department of State Health Services, 2006

- In 2006, the CVD prevalence rate in Texas was similar to the National Average.
- Males had a similar prevalence rate of CVD compared to females.
- Among the race/ethnic groups, Whites and African Americans had significantly higher prevalence rates of CVD compared to Hispanics.
- CVD prevalence increased significantly with increasing age.
- Overall, the higher the education and income levels, the lower the prevalence of cardiovascular disease.
- CVD prevalence was highest among those whose annual income was less than \$25,000 compared to all other income groups.

PREVALENCE - Heart Disease (HD)

Figure 15. Prevalence of Heart Disease 1999-2006, Adults 18+

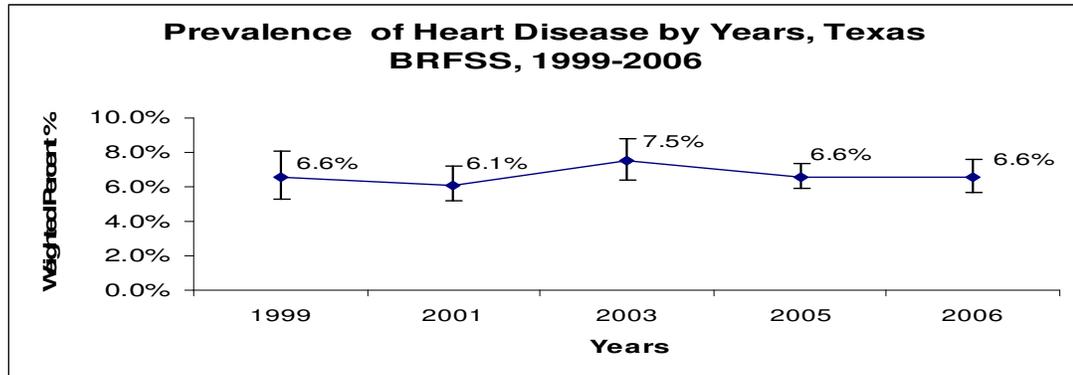
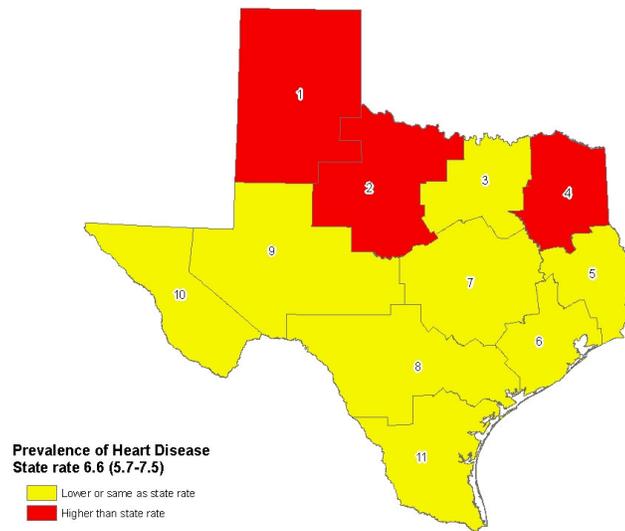


Figure 16. Prevalence of Heart Disease by Health Service Region, Texas, BRFSS, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1999-2006

- The prevalence of heart disease in Texas has been remained fairly consistent between 1999 and 2006.
- Public Health Service Region 1, 2, and 4 had higher heart disease prevalence rates than the state average. All other regions had lower heart disease rates than the state average.

PREVALENCE – Heart Disease (HD)

Figure 17. Prevalence of Heart Disease by Gender, Race, and Age 2006, Adults 18+

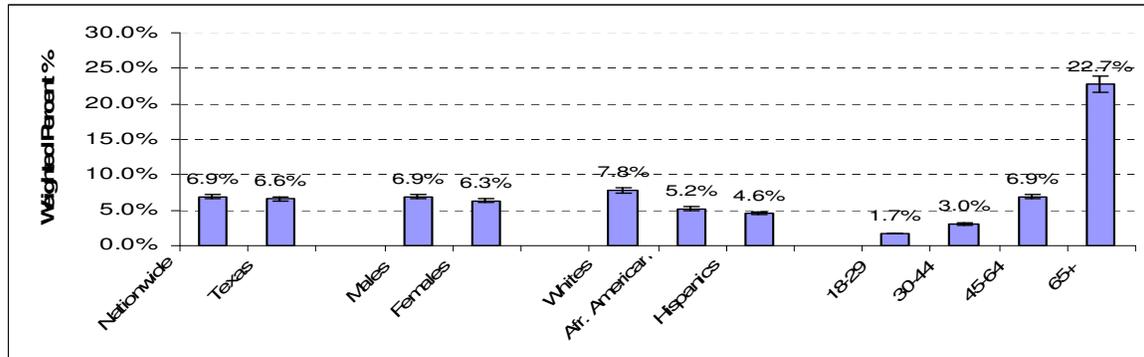
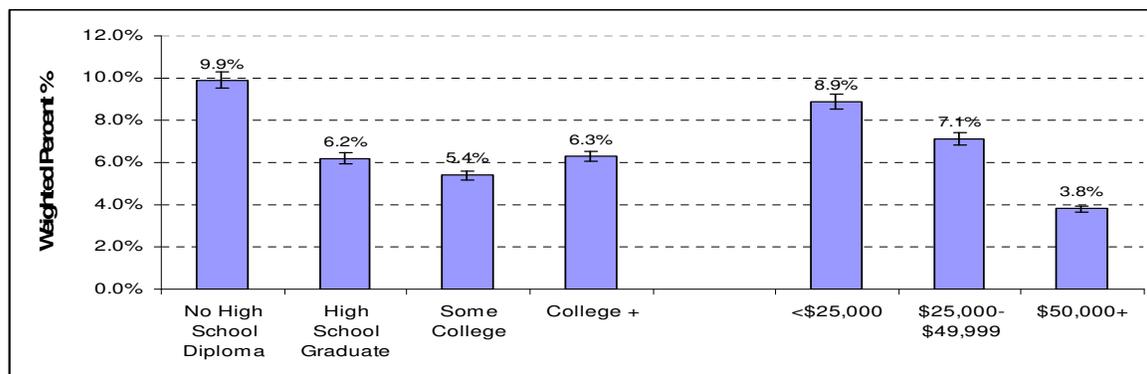


Figure 18. Prevalence of Heart Disease by Education & Income, Texas, BRFSS, 2006



Data Source: Texas Behavioral Risk Factor Surveillance Survey (BRFSS), Department of State Health Services, 2006

- In 2006, the prevalence of heart disease in Texas was similar to the National Average.
- Males had a similar prevalence rate of heart disease compared to females.
- Among the race/ethnic groups, Whites had significantly higher prevalence rates of heart disease compared to African Americans and Hispanics.
- Prevalence of heart disease increased significantly with increasing age, particularly after age 65.
- Lower education levels were associated with a higher prevalence of heart disease.
- Higher income levels were associated with a lower prevalence of heart disease.

PREVALENCE - Stroke

Figure 19. Prevalence of Stroke 1999-2006, Adults 18+

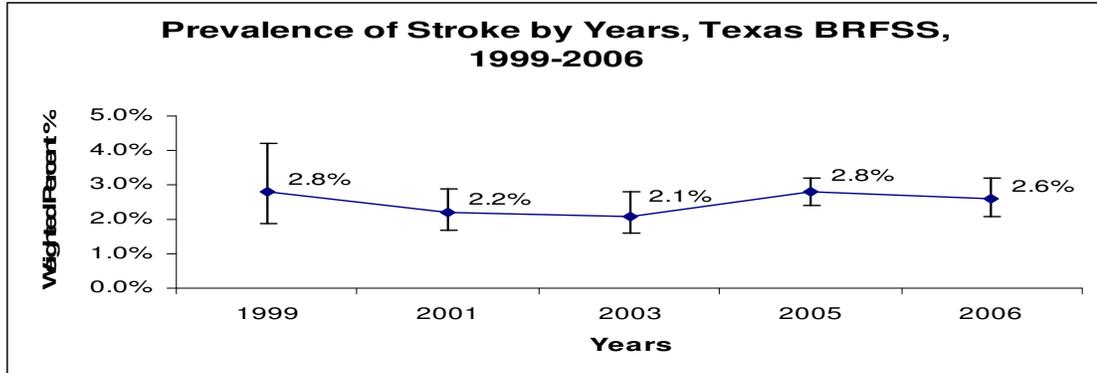
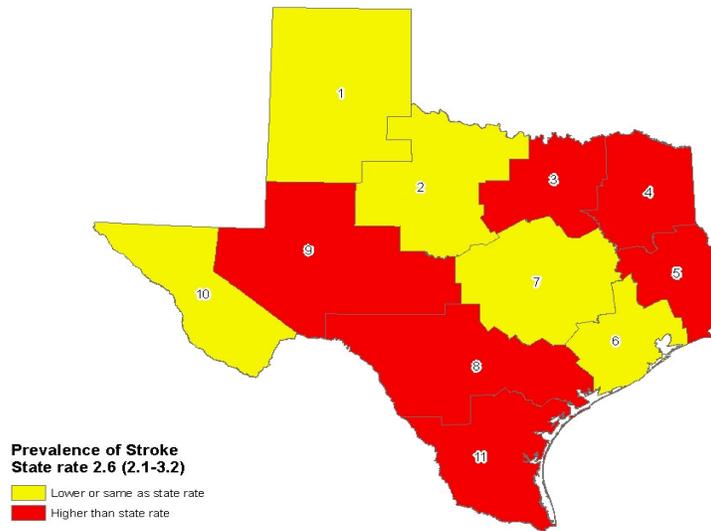


Figure 20. Prevalence of Stroke by Health Service Region, Texas, BRFSS, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1999-2006

- The prevalence of stroke in Texas has remained essentially unchanged between 1999 and 2006.
- Public Health Service Regions 3, 4, 5, 8, 9, and 11 had higher stroke prevalence rates than the state average. All other regions had lower stroke rates than the state average.

PREVALENCE - Stroke

Figure 21. Prevalence of Stroke by Gender, Race, and Age 2006, Adults 18+

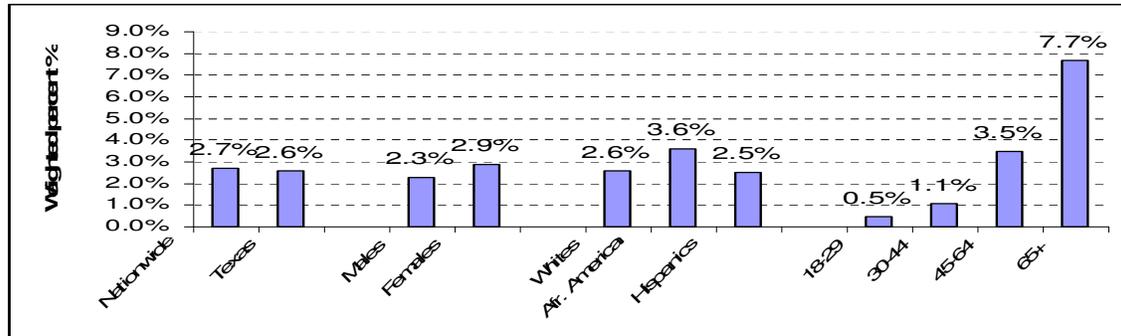
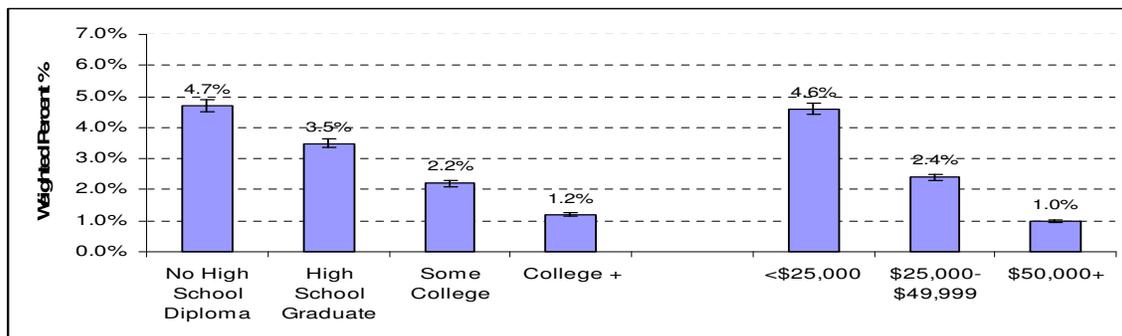


Figure 22. Prevalence of Stroke by Education & Income, Texas, BRFSS, 2006



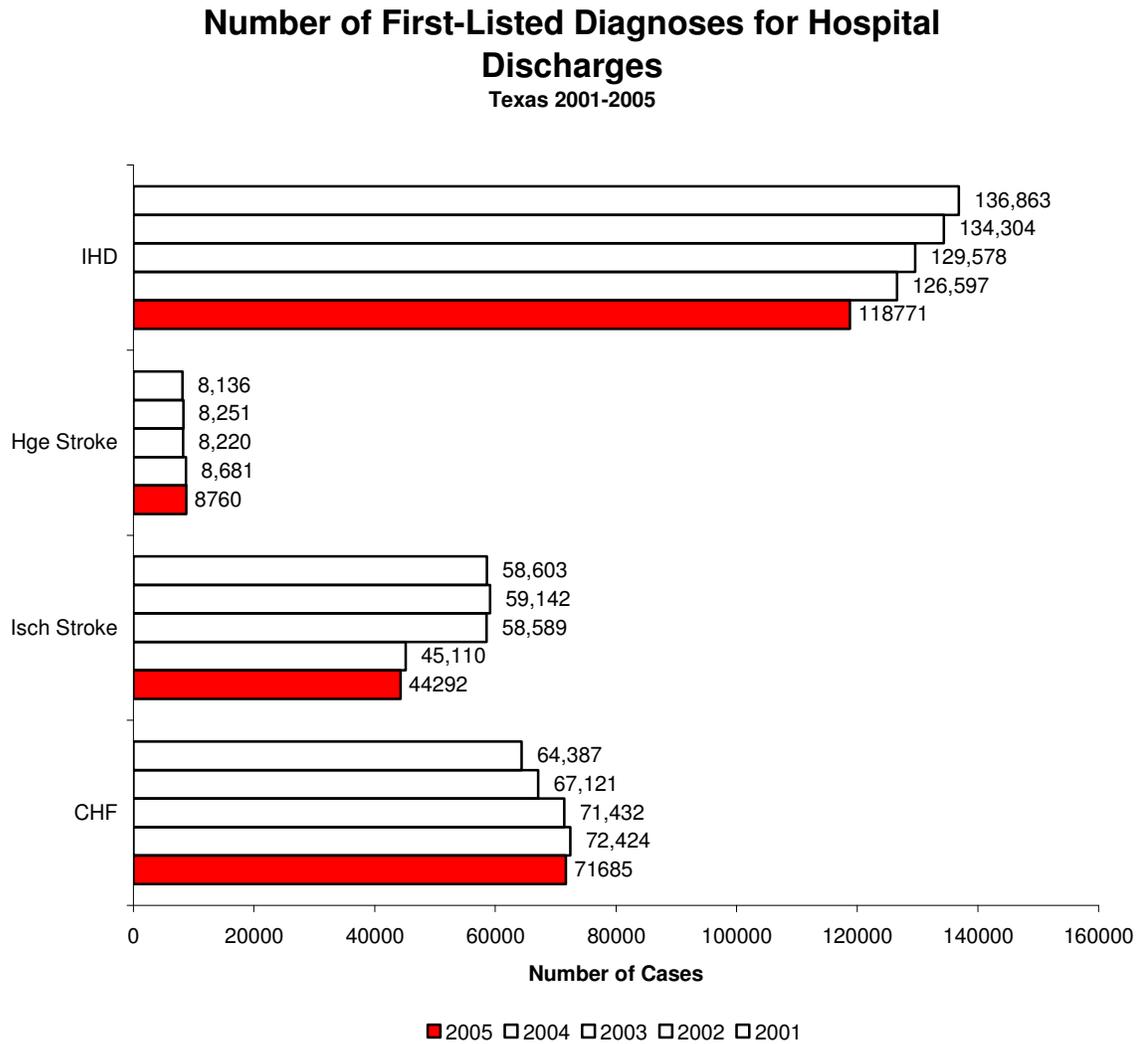
Data Source: Texas Behavioral Risk Factor Surveillance Survey (BRFSS), Department of State Health Services, 2006

- Prevalence of stroke in Texas was similar to the National Average in 2006.
- Females had a significantly higher prevalence rate compared to males.
- Among the race/ethnic groups, African Americans had significantly higher prevalence rates compared to Whites and Hispanics.
- Prevalence of stroke increased significantly with increasing age
- Higher education levels were associated with lower prevalence of stroke.
- Higher income levels were associated with lower prevalence of stroke.

HOSPITAL DISCHARGE DATA

HOSPITAL DISCHARGE DATA

Figure 23. Number of Heart Disease and Stroke First-Listed Hospital Discharge Diagnoses, Texas, THCIC, 2001-2005

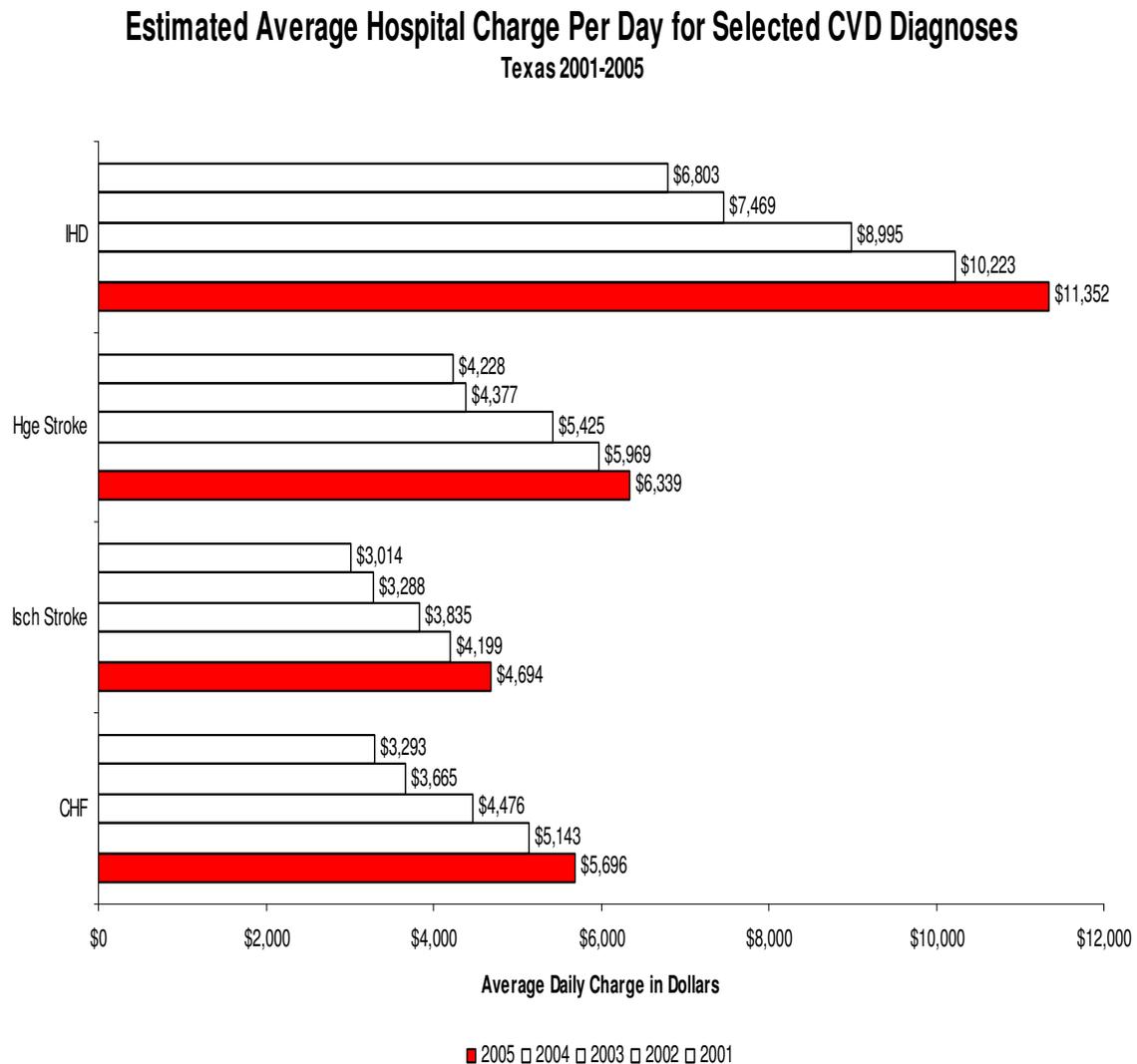


Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2001-2005

- Total hospitalizations were highest for ischemic heart disease followed by congestive heart failure, ischemic stroke and hemorrhagic stroke (See Figure 23).

HOSPITAL DISCHARGE DATA

Figure 24. Estimated Average Hospital Charge per Day for Selected CVD Diagnoses in Texas, THCIC, 2001-2005

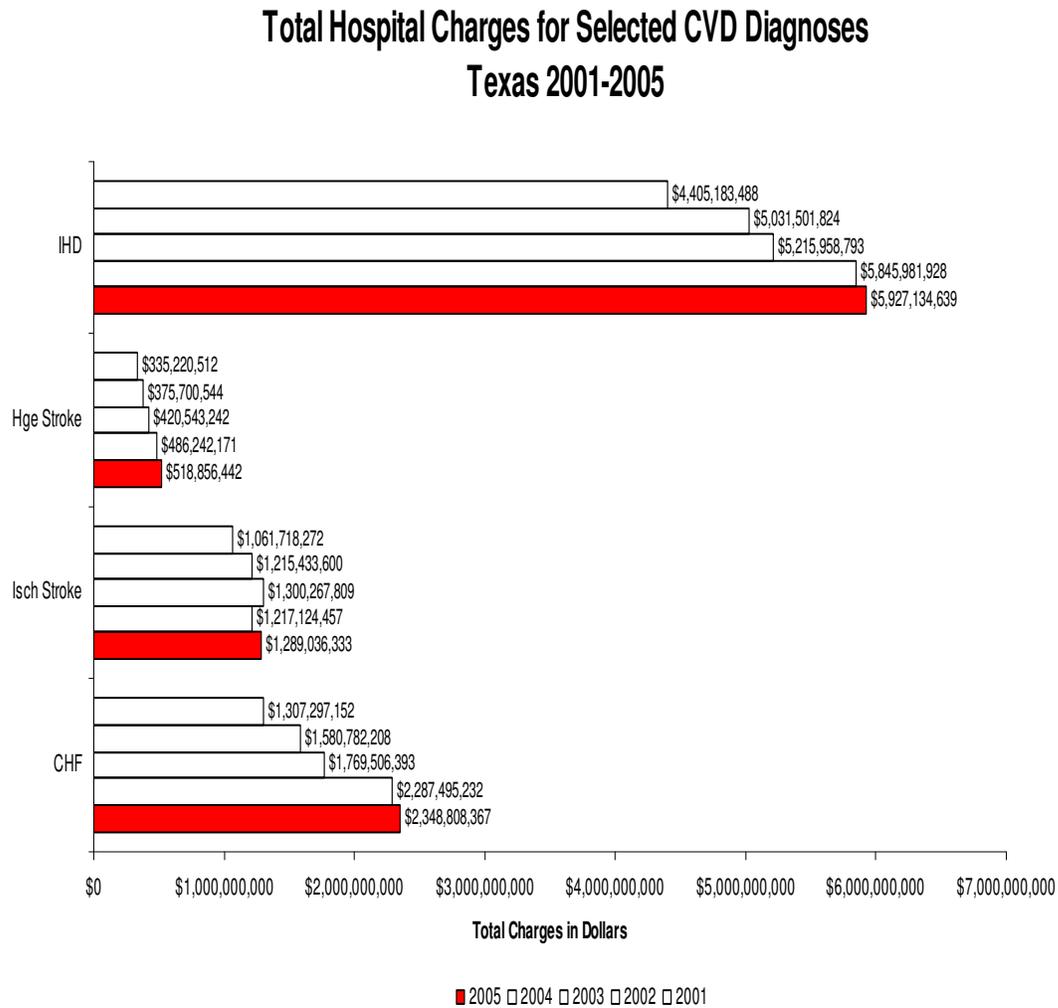


Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2001-2005

■ Estimated average hospital charges per day for selected CVD diagnoses have increased each year from 2001 to 2005. Among the specific CVD disease conditions, average hospital charges were highest for ischemic heart disease, followed by hemorrhagic stroke, congestive heart failure and ischemic stroke (Figure 24).

HOSPITAL DISCHARGE DATA

Figure 25. Total Hospital Charge for Selected CVD Diagnoses in Texas, THCIC, 2001-2005



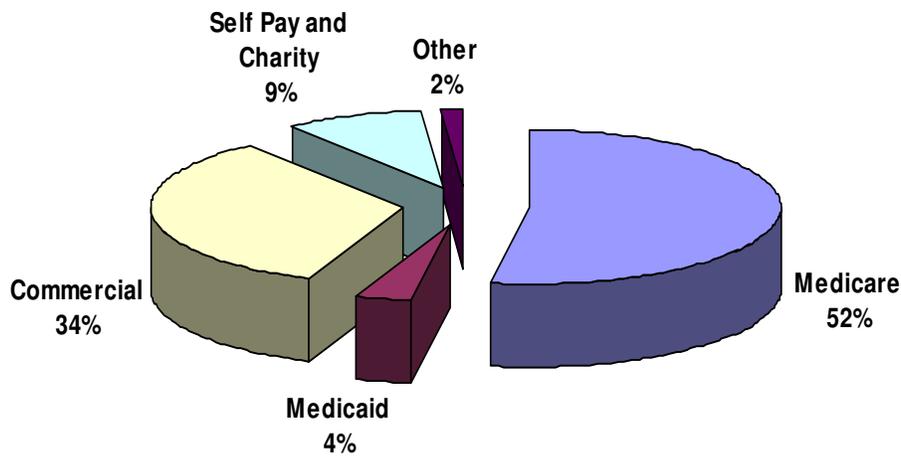
Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2001-2005

- The total hospital charges for CVD diagnoses have increased each year from 2001 to 2005. Among the specific CVD disease conditions, total hospital charges were highest for ischemic heart disease, followed by congestive heart failure, ischemic stroke, and hemorrhagic stroke (Figure 25).

HOSPITAL DISCHARGE DATA – Source of Payment

Figure 26. Standard Source of Primary Payment for Ischemic Heart Disease Discharges in Texas, THCIC, 2005

Primary Payment for Ischemic Heart Disease--2005



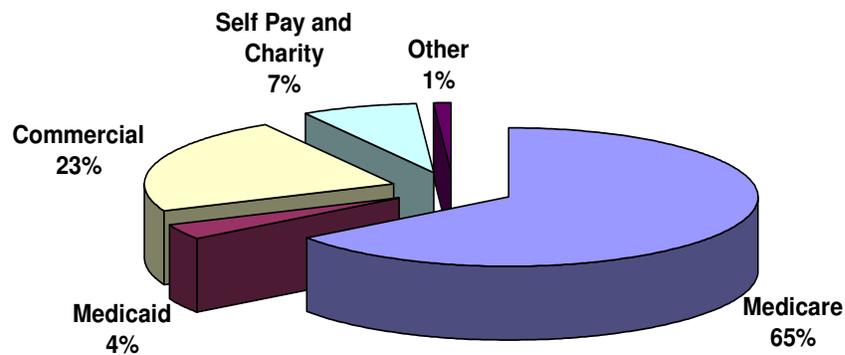
Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2005

-
- In 2005, primary sources of payment for ischemic heart disease hospital discharges include Medicare (52 percent), Commercial (34 percent), Medicaid (4 percent), Self-Pay and Charity (9 percent) and other sources (e.g., Title V, worker's compensation, Other Federal Program, Other Non- Federal Program, Veteran Administration plan (2 percent)).

HOSPITAL DISCHARGE DATA - Source of Payment

Figure 27. Standard Source of Primary Payment for Ischemic Stroke Discharges in Texas, THCIC, 2005

Primary Payment for Ischemic Stroke--2005



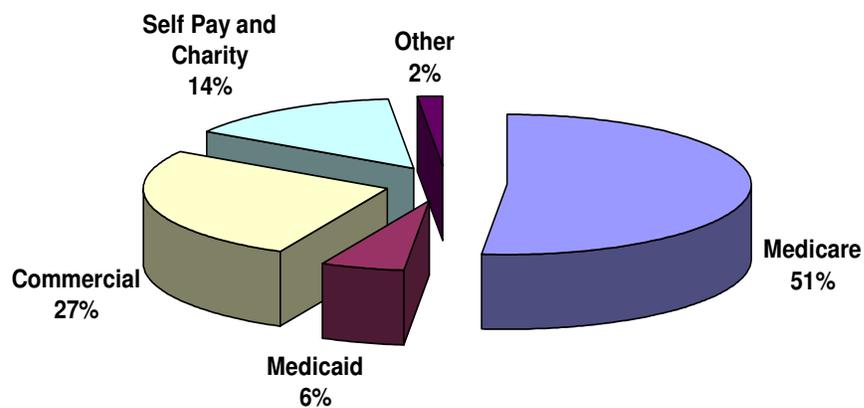
Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2005

-
- In 2005, primary sources of payment for ischemic stroke hospital discharges include Medicare (65 percent), Commercial (23 percent), Medicaid (4 percent), Self-Pay and Charity (7 percent) and other sources (e.g., Title V, worker's compensation, Other Federal Program, Other Non-Federal Program, Veteran Administration plan (1 percent)).

HOSPITAL DISCHARGE DATA – Source of Payment

Figure 28. Standard Source of Primary Payment for Hemorrhagic Stroke Discharges in Texas, THCIC, 2005

Primary Payment for Hemorrhagic Stroke--2005



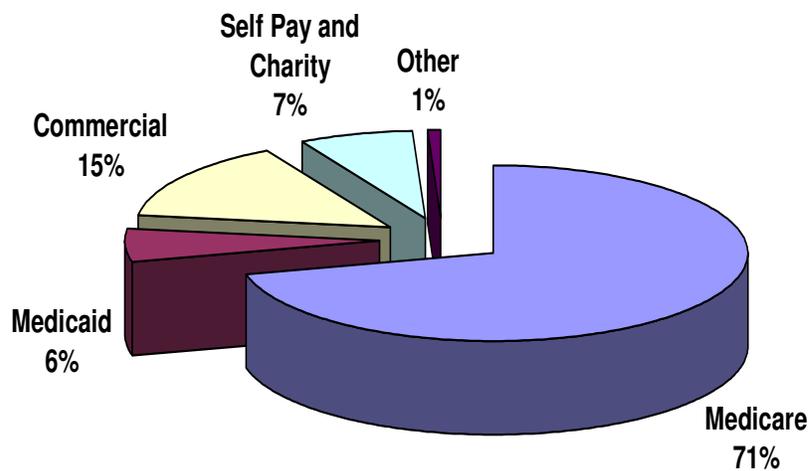
Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2005

-
- In 2005, primary sources of payment for hemorrhagic stroke hospital discharges include Medicare (52 percent), Commercial (27 percent), Medicaid (6 percent), Self-Pay and Charity (14 percent) and other sources (e.g., Title V, worker's compensation, Other Federal Program, Other Non- Federal Program, Veteran Administration plan (1.3 percent)).

HOSPITAL DISCHARGE DATA – Source of Payment

Figure 29. Standard Source of Primary Payment for Congestive Heart Failure Discharges in Texas, THCIC, 2005

Primary Payment for Congestive Heart Failure--2005



Data Source: Texas Health Care Information Collection (THCIC), Department of State Health Services, 2005

-
- In 2005, primary sources of payment for congestive heart failure hospital discharges include Medicare (71 percent), Commercial (15 percent), Medicaid (6 percent), Self-Pay and Charity (7 percent) and other sources (e.g., Title V, worker's compensation, Other Federal Program, Other Non- Federal Program, Veteran Administration plan (1 percent).

MEDICAID CLAIMS DATA

MEDICAID CLAIMS DATA – All Types of Care

Figure 30. Texas Medicaid Reimbursement Amounts for CVD 2003 and 2005

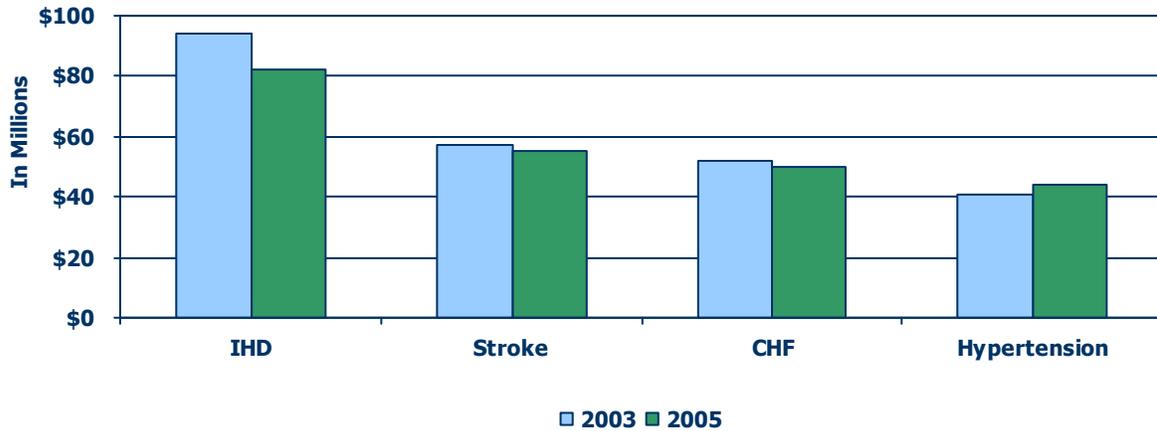
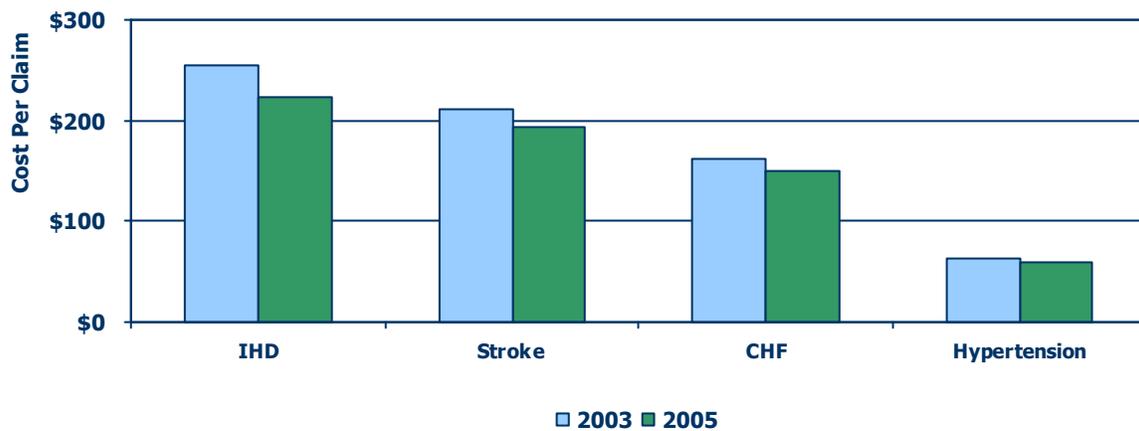


Figure 31. Average Reimbursement per Claim All Types of Care 2003 and 2005



Source: Fee for Service (FFS) and Patient Care Case Management (PCCM) clients, 2003 and 2005

- Total reimbursement amounts were lower in 2005 compared to 2003 for IHD, stroke and CHF. Total reimbursement rates were slightly higher for hypertension in 2005 compared to 2003.
- Ischemic heart disease also had a higher Average Reimbursement per claim followed by stroke, congestive heart failure, and hypertension.
- The Average Reimbursement per Claim for all types of care for CVD was lower in 2005 compared to 2003.

MEDICAID CLAIMS DATA - BY TYPE OF CARE - IHD

Figure 32. Ischemic Heart Disease Percent of Medicaid Reimbursements by Type of Care, 2003 and 2005

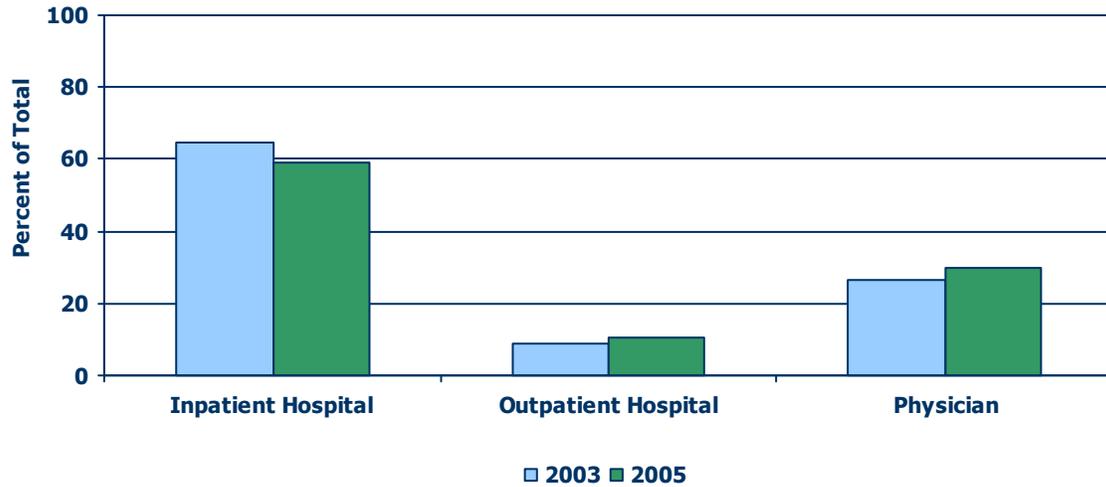
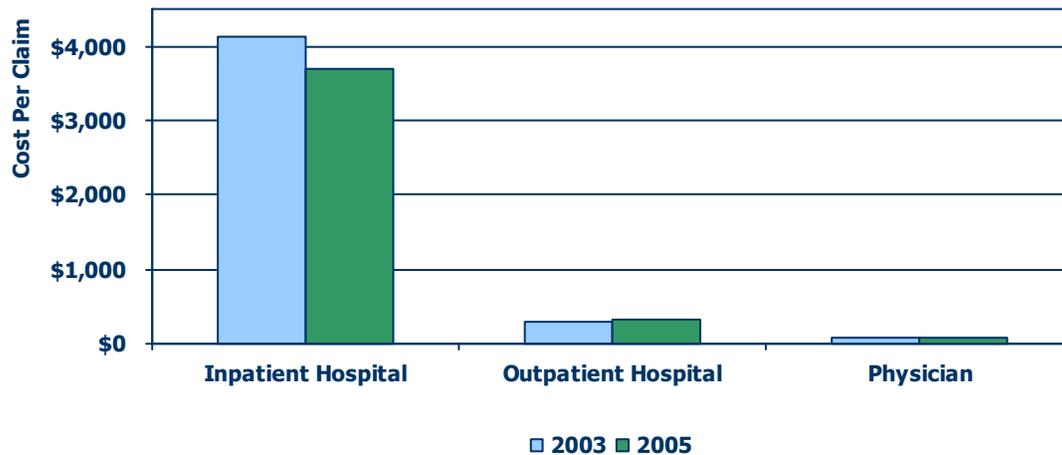


Figure 33. Ischemic Heart Disease Average Reimbursement per Claim 2003 and 2005



Source: Fee for Service (FFS) and Patient Care Case Management (PCCM) clients, 2005

- Ischemic Heart Disease had a higher percent and cost for inpatient hospital Medicaid reimbursements than physician and outpatient reimbursements, although the percent & average for inpatient dropped slightly in 2005 compared to 2003.

MEDICAID CLAIMS DATA - By Type of Care - Stroke

Figure 34. Stroke Percent of Medicaid Reimbursements by Type of Care 2003 and 2005

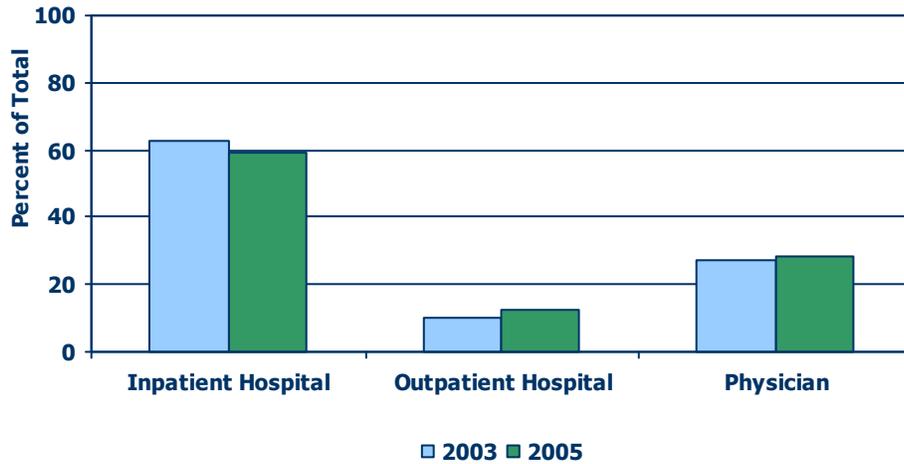
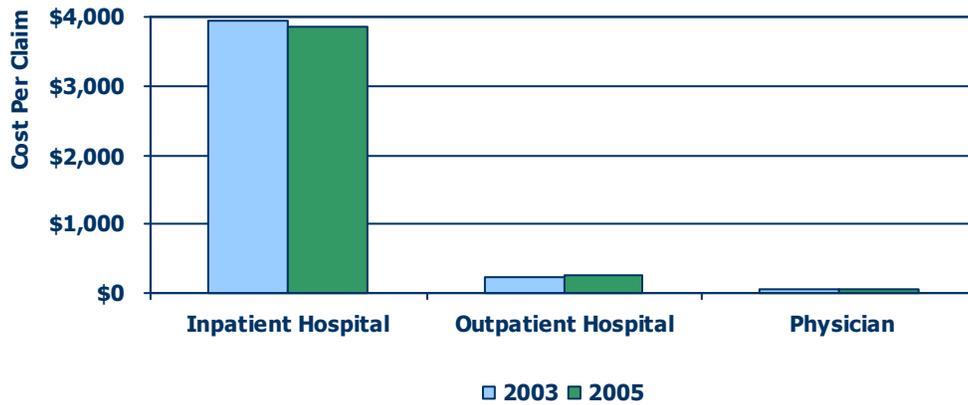


Figure 35. Stroke Average Reimbursement per Claim 2003 and 2005



Source: Fee for Service (FFS) and Patient Care Case Management (PCCM) clients

- Stroke had a higher percent and cost of inpatient hospital Medicaid reimbursements than physician and outpatient reimbursements, although the average reimbursement per claim for inpatient hospital decreased in 2005 compared to 2003

MEDICAID CLAIMS DATA – By Type of Care - CHF

Figure 36. Congestive Heart Failure Percent of Medicaid Reimbursements by Type of Care 2003 and 2005

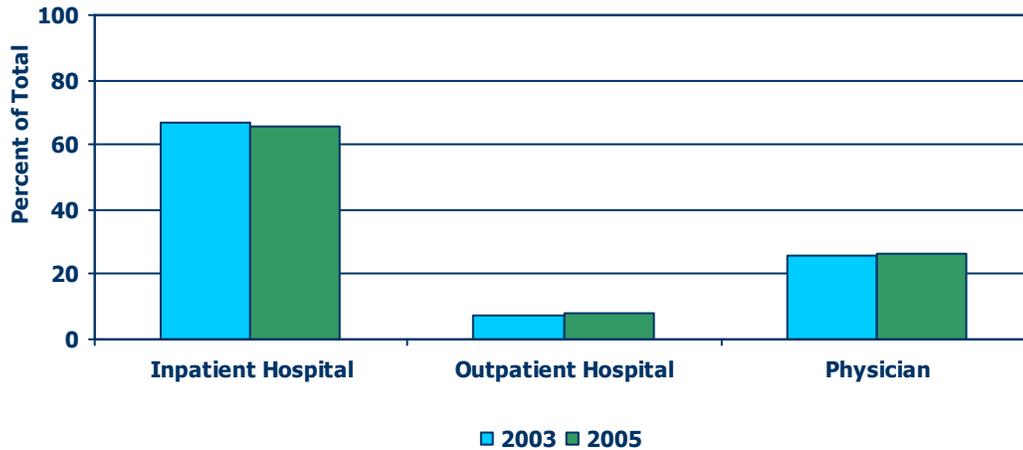
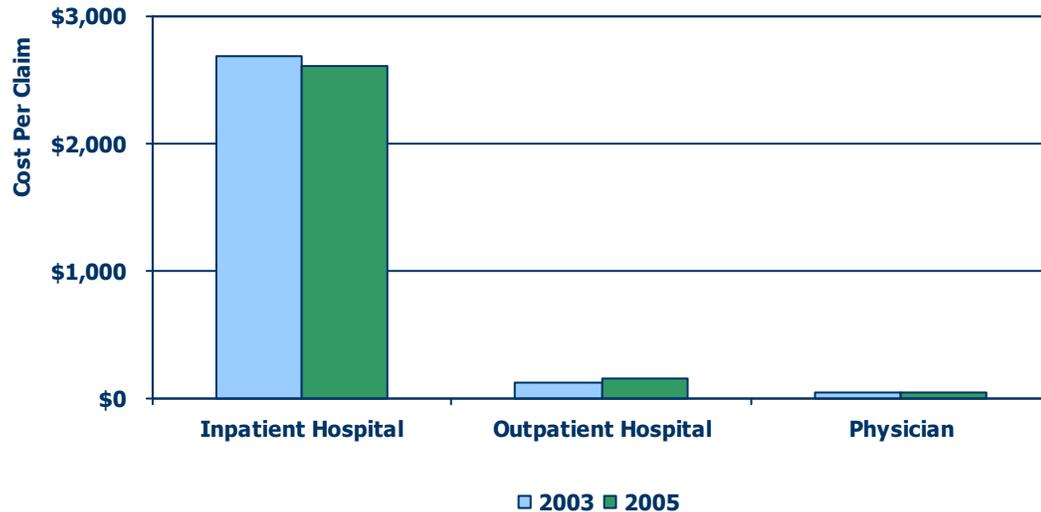


Figure 37. Congestive Heart Failure Average Reimbursement per Claim 2003 and 2005



Source: Fee for Service (FFS) and Patient Care Case Management (PCCM) clients 2003 & 2005

- Congestive Heart Failure had a higher percent and higher cost for inpatient hospital Medicaid reimbursements follow by physician and outpatient reimbursements, although the average reimbursement per claim for inpatient hospital dropped in 2005 compare to 2003.

MEDICAID CLAIMS DATA – Type of Care - Hypertension

Figure 38. Hypertension Percent of Medicaid Reimbursements by Type of Care 2003 and 2005

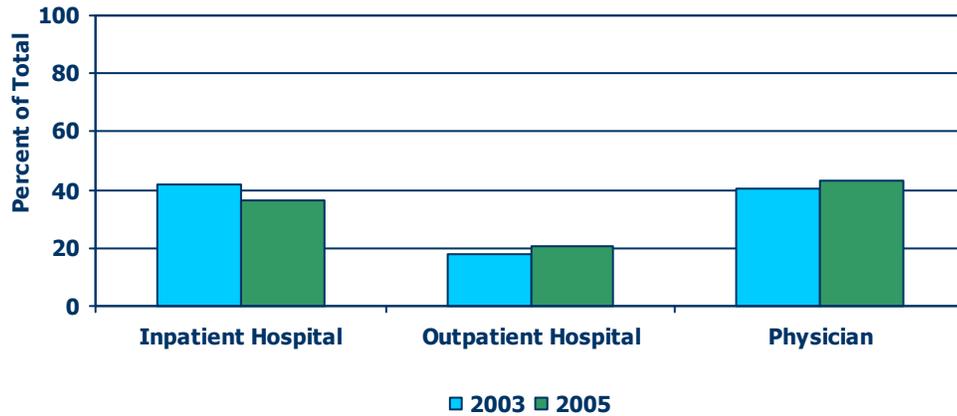
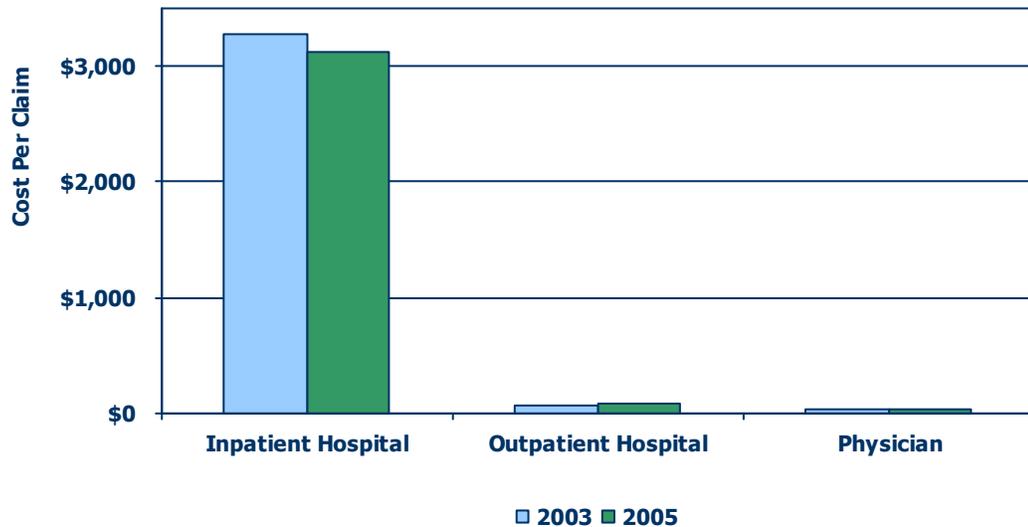


Figure 39. Hypertension Average Reimbursement per Claim 2003 and 2005



Source: Fee for Service (FFS) and Patient Care Case Management (PCCM) clients

- Hypertension had a similar percent of Medicaid reimbursements in inpatient hospital and average reimbursement per claim for hypertension dropped in 2005 compared to 2003.

ACCESS TO CVD CARE AND QUALITY OF LIFE

ACCESS TO CVD CARE

Figure 40. No Health Insurance, Texas and United States, BRFSS, 1995-2006

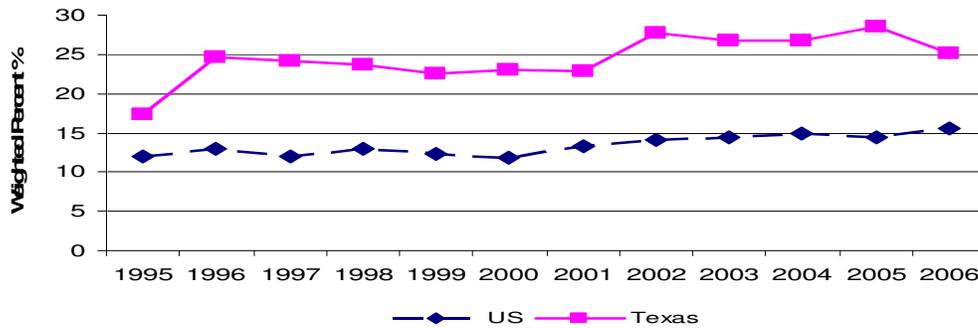
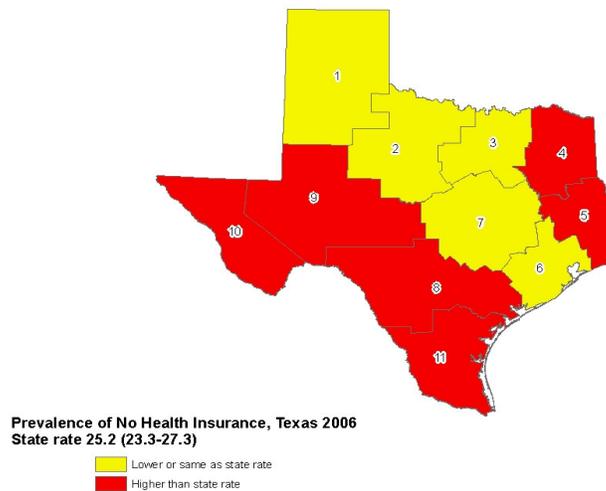


Figure 41. No Health Insurance by Health Service Region, BRFSS, 2006



*Respondents 18 years and older who report that they have no health insurance.

Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- Texas has consistently had a higher prevalence of adults with no health insurance compared to the US.
- Public Health Service Region 4, 5, 8, 9, 10, and 11 had higher prevalence of no health insurance than the state average.

ACCESS TO CVD CARE

Figure 42 . Prevalence of Lacking Health Care Coverage, 2006, Adults 18+

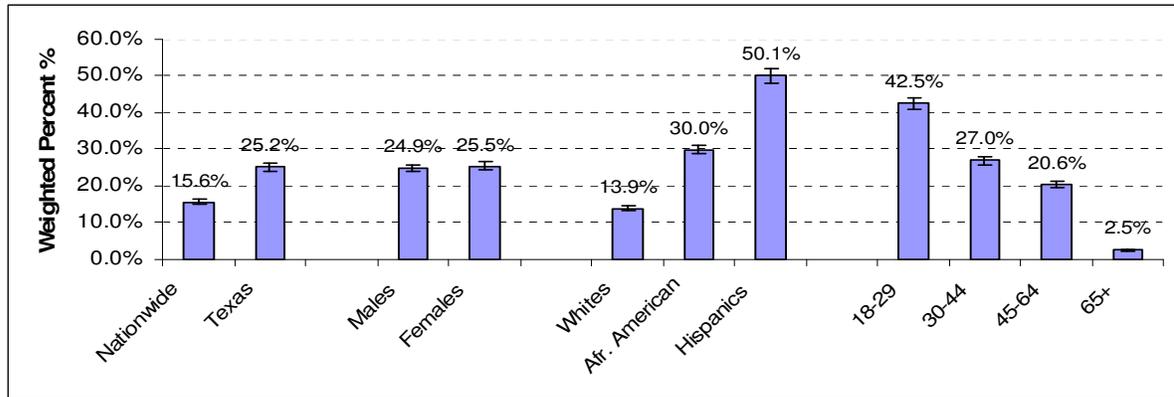
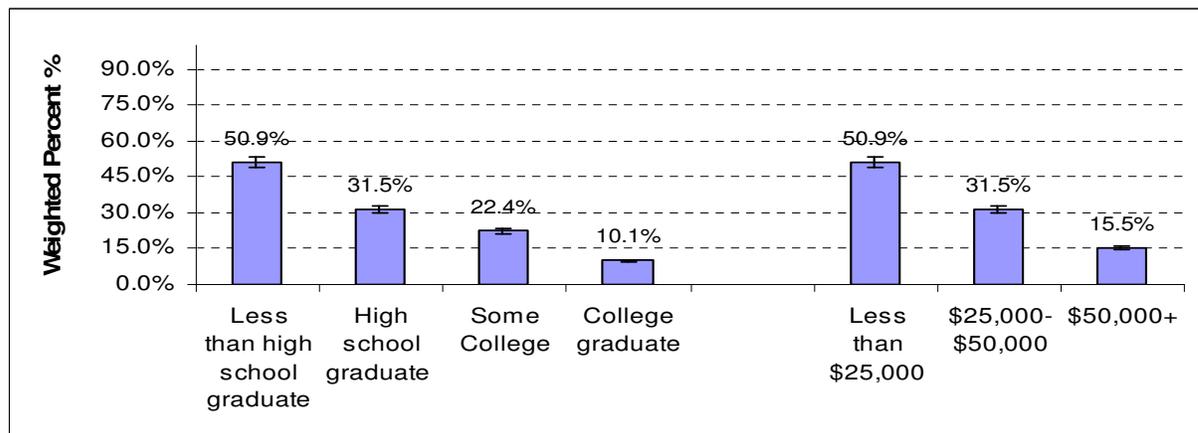


Figure 43 . Prevalence of Lacking Health Care Coverage by Education and Income, 2006, Adults 18+



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

- Texas had significantly higher rates of lack of health coverage than the National Average.
- Females and males had similar rates of no health insurance.
- Hispanics and African-Americans were more likely to lack health care coverage than Whites. Younger Texas adults were more likely to be uninsured than older Texans.
- The lower the education level, the greater the likelihood of having no health insurance. The prevalence of lack of health care coverage decreased with increasing annual income.

ACCESS TO CVD CARE

Figure 44. Prevalence of Could Not See a Doctor Because of Cost, 2006, Adults Ages 18+

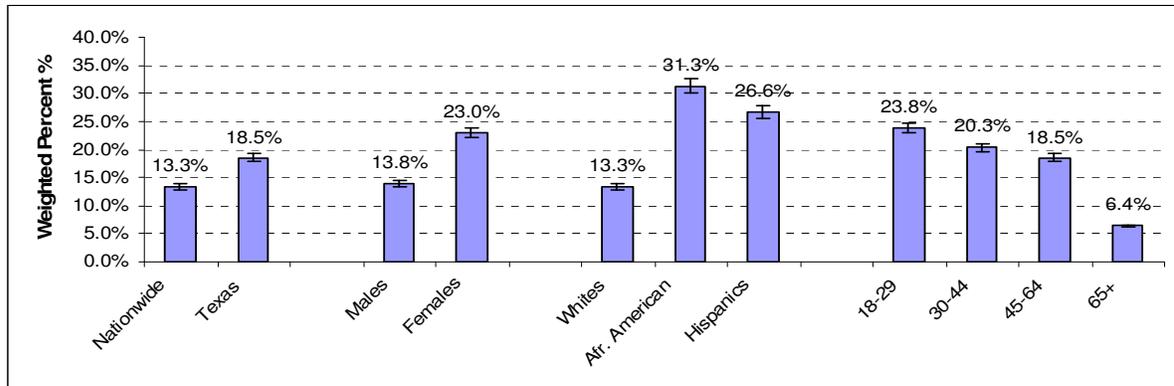
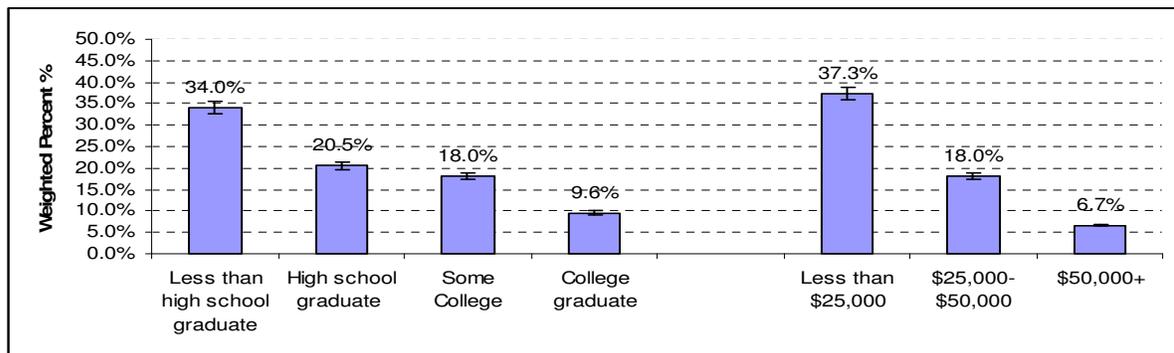


Figure 45. Prevalence of Could Not See a Doctor Because of Cost, 2006, Adults 18+



*Respondents 18 years and older who report that they could not see a doctor in the past 12 months

Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- Texas had significantly higher rates of adults who could not see a doctor due to cost compared the national average.
- Females had a significantly higher prevalence rate of inability to see a doctor due to cost compared to males.
- Among the race groups Hispanics and African-Americans had significantly higher prevalence of inability to see a doctor due to cost than Whites.
- Younger adults had significantly higher rates of inability to see a doctor due to cost.
- The lower the education level and income the more likely it was that individuals could not see a doctor due to cost.

ACCESS TO CVD CARE

Figure 46. Percentage of No Routine Health Checkup within Past Year, 2006, Adults 18+

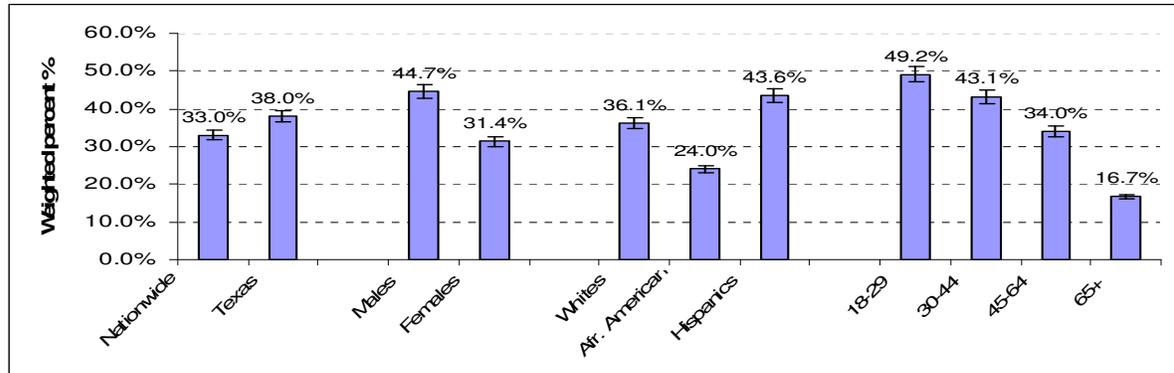
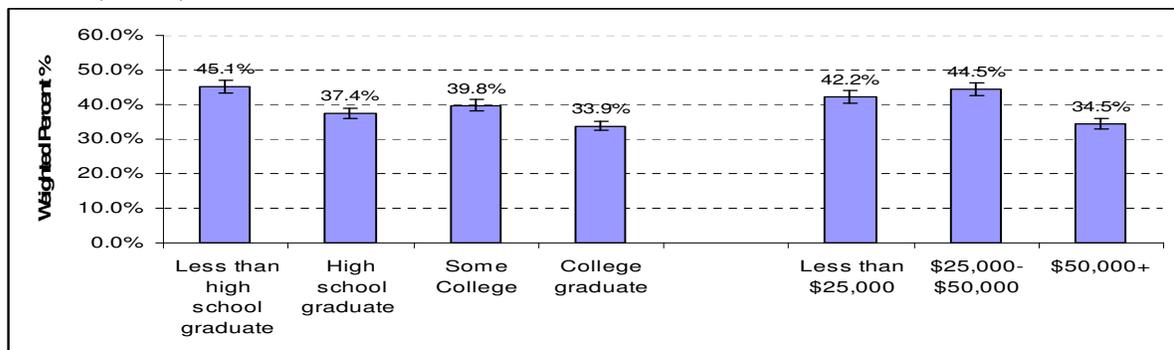


Figure 47. Percentage of No Routine Health Checkup within Past Year by Education and Income, 2006, Adults 18+



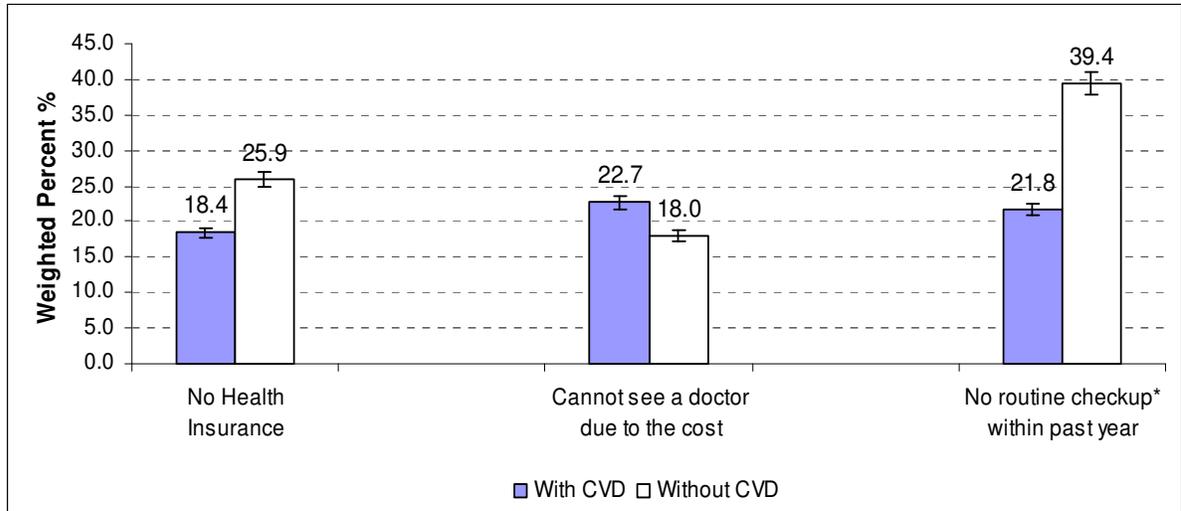
*Respondents 18 years and older who report that they did not have a Routine Checkup within Past Year.

Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

- Texas had significantly higher rates of adults who had not had a routine health checkup within the past year compared to the national average.
- Males had a significantly higher prevalence rate of no routine checkup within the past year compared to females.
- Among the race groups whites and Hispanics had significantly higher prevalence of no routine checkup within the past year compared to African Americans.
- Younger age was associated with higher rates of no routine check up within the past year.
- Lower education levels and lower income was associated with a higher rate of no routine health checkup.

ACCESS TO CVD CARE

Figure 48. Access to Health Care by CVD Status, Texas BRFSS, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

* Routine checkup is defined as having seen a health professional for a routine exam during the preceding year (“routine” being defined as that understood by the respondent).

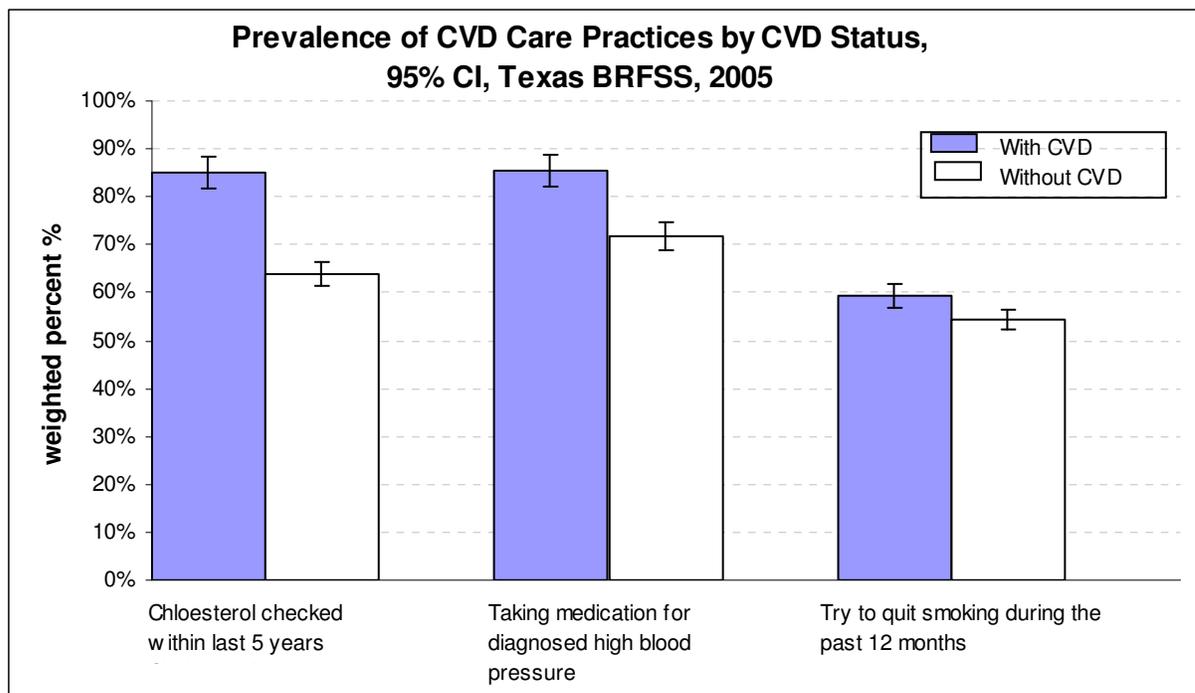
-
- Texas adults with CVD were more likely to have health insurance coverage than those who did not have CVD.
 - Texans with CVD had a higher prevalence rate of could not see a doctor due to the cost compared with those without CVD.
 - People with CVD are more likely to have routine health checkups than those without CVD.

CVD MANAGEMENT – Risk Factors

Each year, more than 57,000 Americans die needlessly because they do not receive appropriate health care.¹ Most die as a result of high blood pressure or high elevated cholesterol not being adequately monitored and controlled. Other deaths occur from failure to provide correct preventive or follow-up care.

Cholesterol is a fat like substance that serves many necessary functions in the body. Low-density lipoproteins (LDL) carry cholesterol where it is needed. High-density lipoproteins (HDL) carry leftover cholesterol back to the liver. When cholesterol levels are high, LDL can collect in the arteries, making them rigid and narrow. The result can be high blood pressure, blood clots, heart attack and stroke². Almost 85% of Texans with CVD had their cholesterol checked within the past year as compared to 64% of people without CVD. Nearly 85% of Texans with CVD are taking medication for their high blood pressure compared to 71% of people without CVD. About 59% of Texas adults who reported they had CVD and were current smokers, tried to quit smoking during the past 12 months (Figure 49).

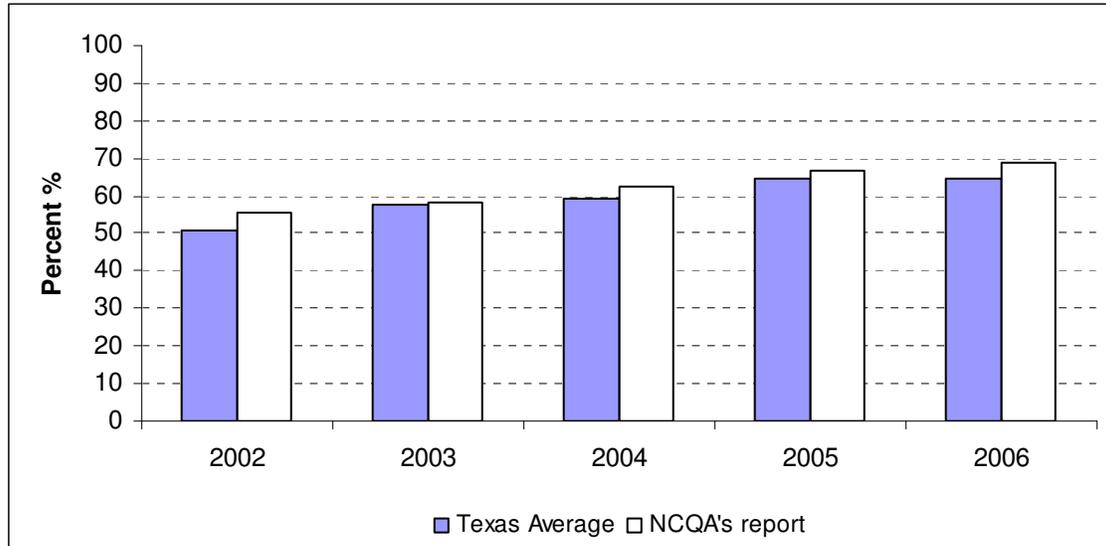
Figure 49. Prevalence of CVD Care Practice by CVD Status, Texas, BRFSS, 2005



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

CVD MANAGEMENT - HEDIS DATA

Figure 50. HEDIS results % of Blood Pressure Control Texas vs U.S



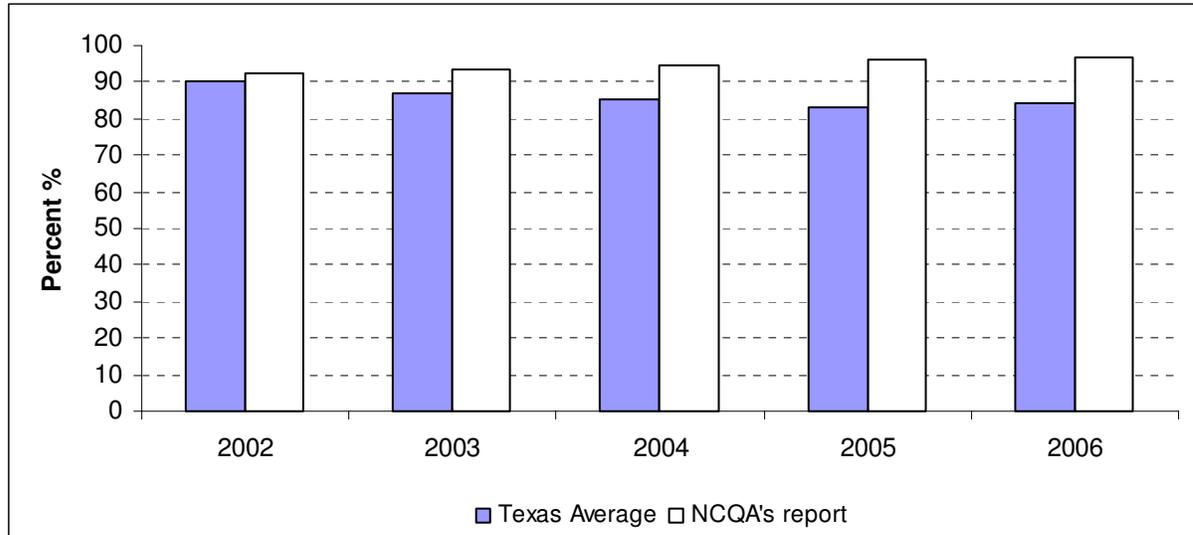
Data Source: Guide to Texas HMO Quality Report, 2006

* Blood Pressure Control is defined as the percentage of individual's age 46-85 years old diagnosed with high blood pressure whose blood pressure was reading below 140mmHg systolic and 90mmHg diastolic.

-
- Figure 50 shows the percent of Blood Pressure Control in Texas Compared with NCQA Goals in 2002- 2006.
 - The percentage of individuals in Texas whose blood pressure is controlled increased from 2002 to 2006, but the control rates were lower than NCQA goal each of the years.

CVD MANAGEMENT - HEDIS DATA

Figure 51. HEDIS results for Beta Blocker Treatment after a Heart Attack *



Data Source: Guide to Texas HMO Quality Report, 2006

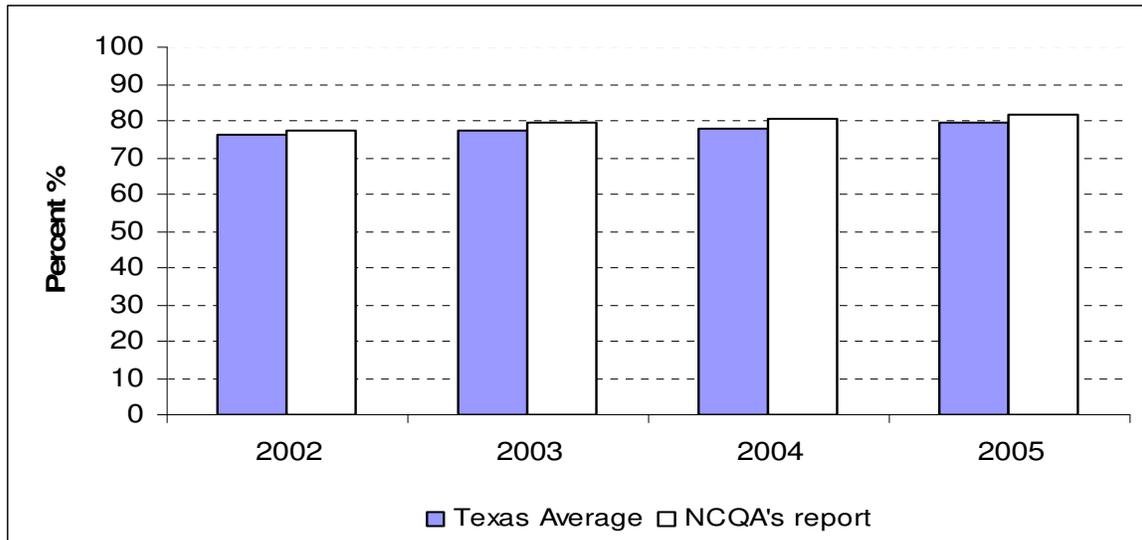
* Beta Blocker Treatment after heart attack defined as the percentage of individual's age 35 years old who was hospitalized during the measurement year with a diagnosis of acute myocardial infarction and who received an ambulatory prescription for beta-blockers upon discharge. Members who have a valid medical reason not to take the drug are excluded.

■ Figure 51 shows the percent of Beta Blocker Treatment after a Heart Attack in Texas Compared with the NCQA Goals in 2002-2006.

■ Beta Blocker Treatment after a Heart Attack in Texas had decreased from 90.3% to 84.3% in year 2002 to 2006, but in the national rate increased from 92.5% to 96.6% during 2002 to 2006.

CVD MANAGEMENT- HEDIS DATA

Figure 52. Cholesterol Management for Patients with Cardiovascular Condition: LDL-C Screening in Texas



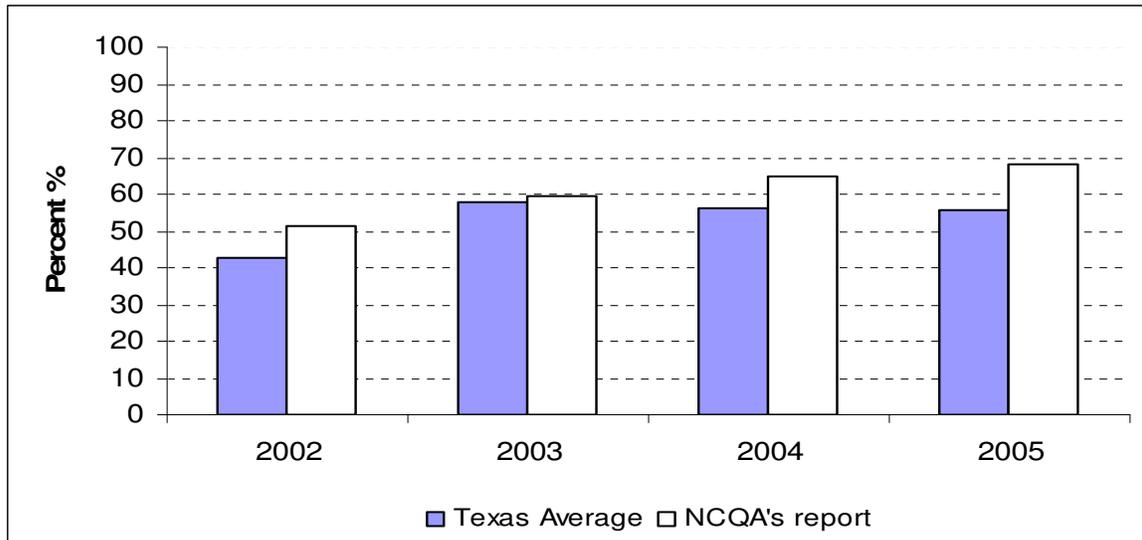
Data Source: Guide to Texas HMO Quality Report, 2006

Cholesterol Management was defined as the percentage of individual age 18-75 years old that had an LDL-C screening during the measurement year after discharge for an acute cardiovascular event.

-
- Figure 52 shows the percent of Cholesterol Management for Patients with Cardiovascular Condition: LDL-C Screening in Texas, Compared with NCQA Goals for 2002- 2005.
 - LDL-C screening increased from 76.2% to 79.4% between year 2002 and 2005.

CVD MANAGEMENT - HEDIS DATA

Figure 53. Cholesterol Management for Patients with Cardiovascular Condition: LDL-C level <130mg/dl in Texas



Data Source: Guide to Texas HMO Quality Report, 2006

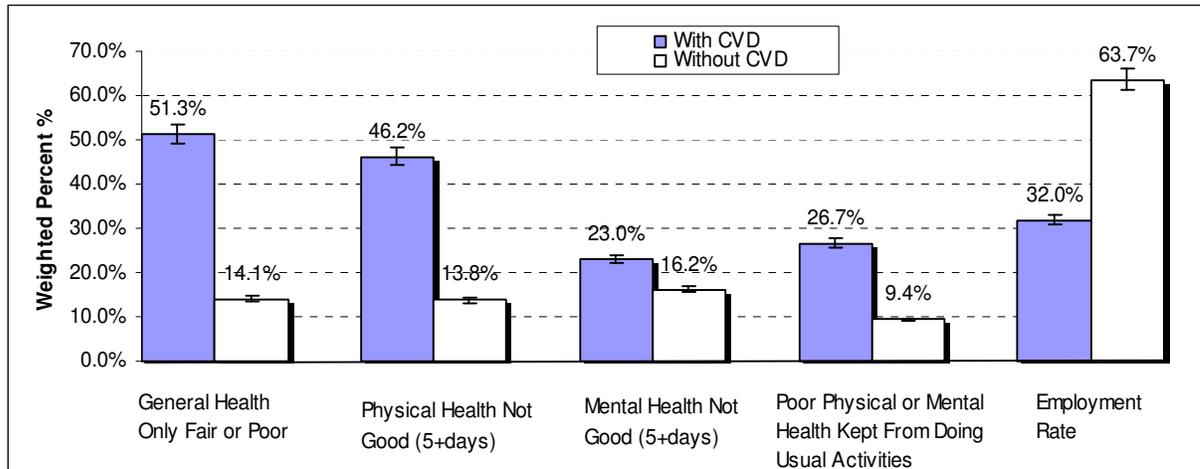
* The percentage of member age 18-75 years old that had an LDL-C (low density lipoprotein-cholesterol) level of less than 130mg/dl during the measurement year, after discharge for an acute cardiovascular event.

■ Figure 53 shows the percent of Cholesterol Management for Patients with Cardiovascular Condition: level <130mg/dl in Texas, Compared with NCQA Goals for 2002- 2005.

■ LDL-C screening increased from 42.6% to 55.8 % during 2002-2005 which was similar to national rates

QUALITY OF LIFE

Figure 54. Health Related Quality of Life Indicators by CVD Status: Texas BRFSS, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

- Adults with CVD were more likely to rate their health status as fair or poor than those without CVD (51.3% vs 14.1%).
- Over 46% of Texas adults with CVD reported that their physical health was poor for 5 or more days in the past month compared with 13.8% of those without CVD.
- A total of 23% of adults with CVD reported had at least 5 or more day in the past month in which mental health was not good, compare to 16.2% of those without CVD.
- More than 26.7% of individuals with CVD report that they cannot participate in their usual activities. Only 9.4% of those without CVD gave this response.
- Employment rate for people with CVD who are 18-64 years of age is 32%, compared with 63.7% for those adults without CVD.

KNOWLEDGE OF SIGNS AND SYMPTOMS OF HEART ATTACK AND STROKE

SIGNS AND SYMPTOMS

Table 2 lists the percentage of Texas adults who recognized the various symptoms for heart attack and stroke in 2005. Approximately 9 % of Texas adults could correctly identify all heart attack signs and symptoms, 17% could correctly identify all stroke signs and symptoms, and 85% recognized 911 as the first emergency response option for heart attack and stroke.

Table 2. Recognition of CVD Symptoms, and Emergency Response for Heart Attack and Stroke among Texas Adults, BRFSS 2005

Answered "Yes" to the following Questions	Prevalence (%)	95% CI	
		Lower	Upper
Heart Attack*			
Pain or discomfort in jaw, neck or back	39.3	37.6	41.0
Feeling weak, lightheaded, or faint	54.1	52.3	55.9
Chest pain or discomfort	86.5	85.1	87.8
Pain or discomfort in the arms or shoulders	78.4	76.8	79.9
Shortness of breath	79.0	77.5	80.5
<i>Recognizes all heart attack symptoms</i>	8.9	8.0	9.9
Stroke*			
Sudden confusion or trouble speaking	76.3	74.5	77.9
Sudden numbness or weakness of face, arms, legs (especially on one side)	86.5	85.1	87.9
Sudden trouble seeing in one or both eyes	61.6	59.8	63.3
Sudden trouble walking, dizziness, or loss of balance	78.2	76.6	79.7
Severe headache with no known cause	57.4	55.6	59.2
<i>Recognizes all stroke symptoms</i>	17.0	15.8	18.3
Would call 911 as a first response if Heart Attack OR Stroke is suspected	85.1	83.7	86.4

Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

SIGNS AND SYMPTOMS

Figure 55. Percentage of Texans those Recognition Heart Attack Symptoms by Gender, 2005, Adults 18+

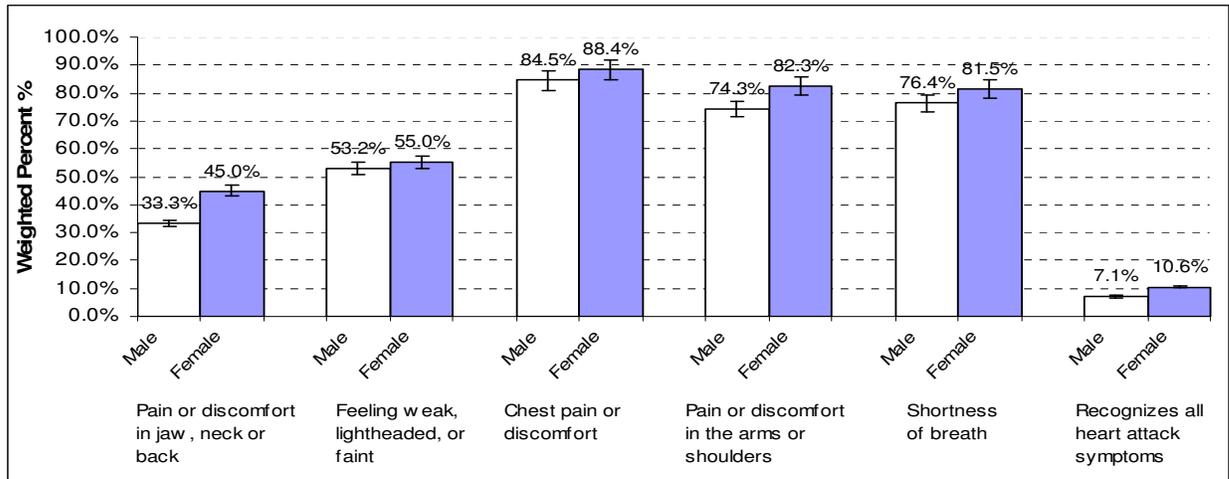
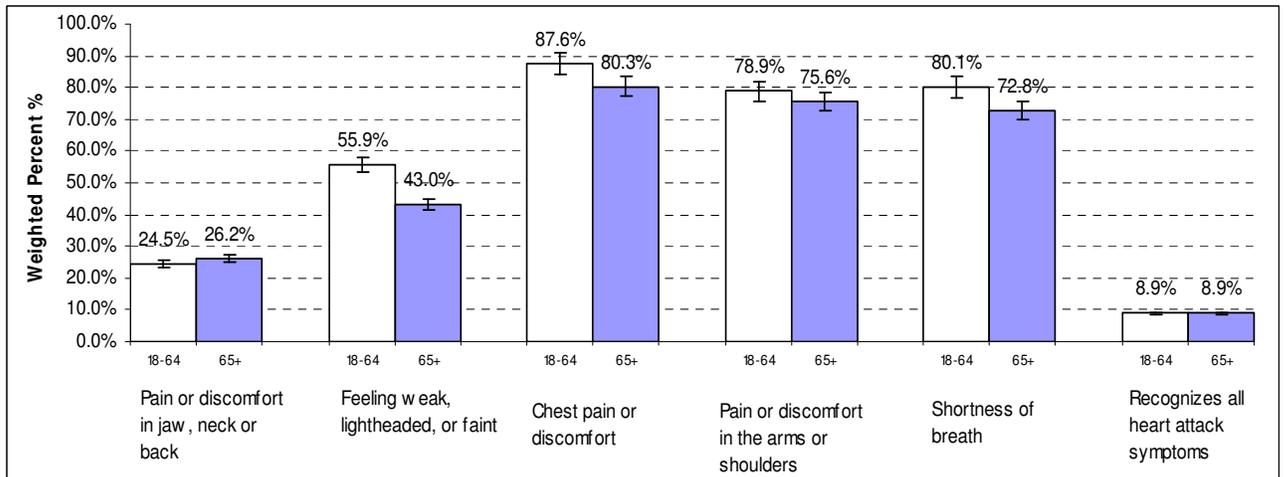


Figure 56. Percentage of Texans those Recognition Heart Attack Symptoms by Age, 2005, Adults 18+



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- There are no significant gender differences in correctly identifying each of the heart attack symptoms.
- Figure 56 shows that people aged 18-64 were more likely to correctly identify each of the heart attack signs and symptoms than those who aged 65 years and older.

SIGNS AND SYMPTOMS

Figure 57. Percentage of Texans Who Recognize Stroke Symptoms by Gender, 2005, Adults 18+

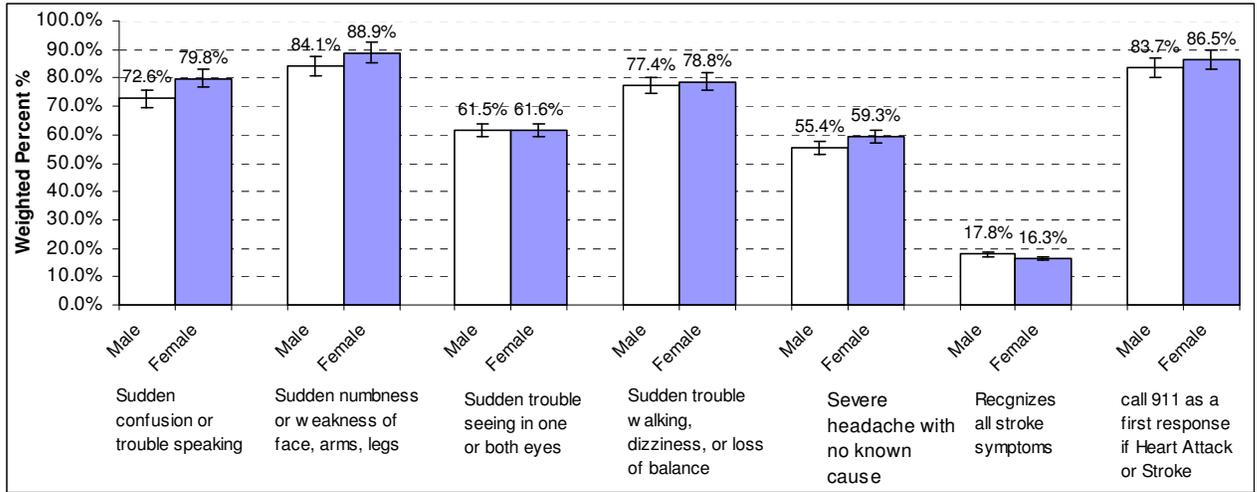
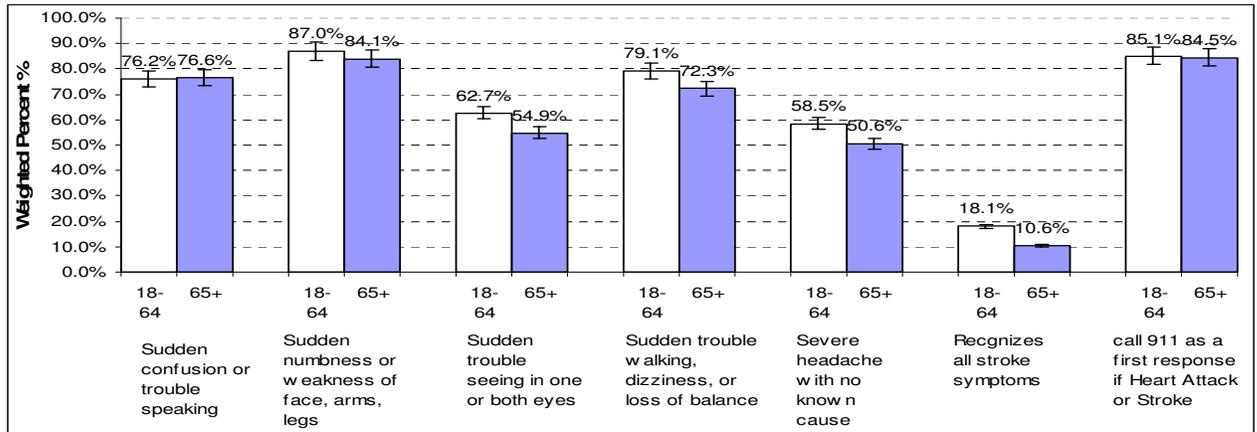


Figure 58. Percentage of Texans Who Recognize Stroke Symptoms by Age, 2005, Adults 18+



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- There was no significant difference between male and females for knowledge of the stroke signs and symptoms.
- Figure 58 shows the percentage of Texans that recognize stroke symptoms by age. People aged 18-64 were more likely to correctly identify each of the stroke signs and symptoms compared to those aged 65 years and older.

CVD RISK FACTORS

RISK FACTORS

Risk factors are the individual characteristics that increase the risk of developing CVD morbidity and mortality. Two of the major risk factors for CVD are high blood pressure and high blood cholesterol. Tobacco is also a major risk factor for CVD. Other risk factors for CVD include poor nutrition and physical inactivity ².

The annual BRFSS survey data provides important information on the key risk factors for CVD. The Technical Notes section provides background information on the BRFSS survey. Table 3 displays the National and Texas Year 2010 Health Objectives, as well as state and national prevalence as of 2005.

Table 3. CVD Risk Factors*, Texas vs US, 2005

Healthy People 2010 Objective**	2010 Target	U.S, 2005	Texas, 2005
Diabetes, Clinically Diagnosed (Objective #5.3)			
Ages ≥ 18	2.50%	7%	8%
Diagnosed High Cholesterol			
Ages ≥ 18	17%	36%	34%
Diagnosed High Blood Pressure			
Ages > 18	16%	26%	24%
Obese, BMI ≥ 30 (Objective #19.2)			
Ages ≥ 20	15%	28%	28%
Overweight or Obese, BMI ≥ 25			
Ages ≥ 20	NA	64%	65%
No Leisure Time Physical Activity (Objective #22.1)			
Ages ≥ 18	15%	24%	27%
Consume fruit or vegetable 5 or more times per day			
Ages > 18	NA	23%	23%
Cigarette Smoking (Objective #27.1a)			
Ages ≥ 18	12%	21%	20%

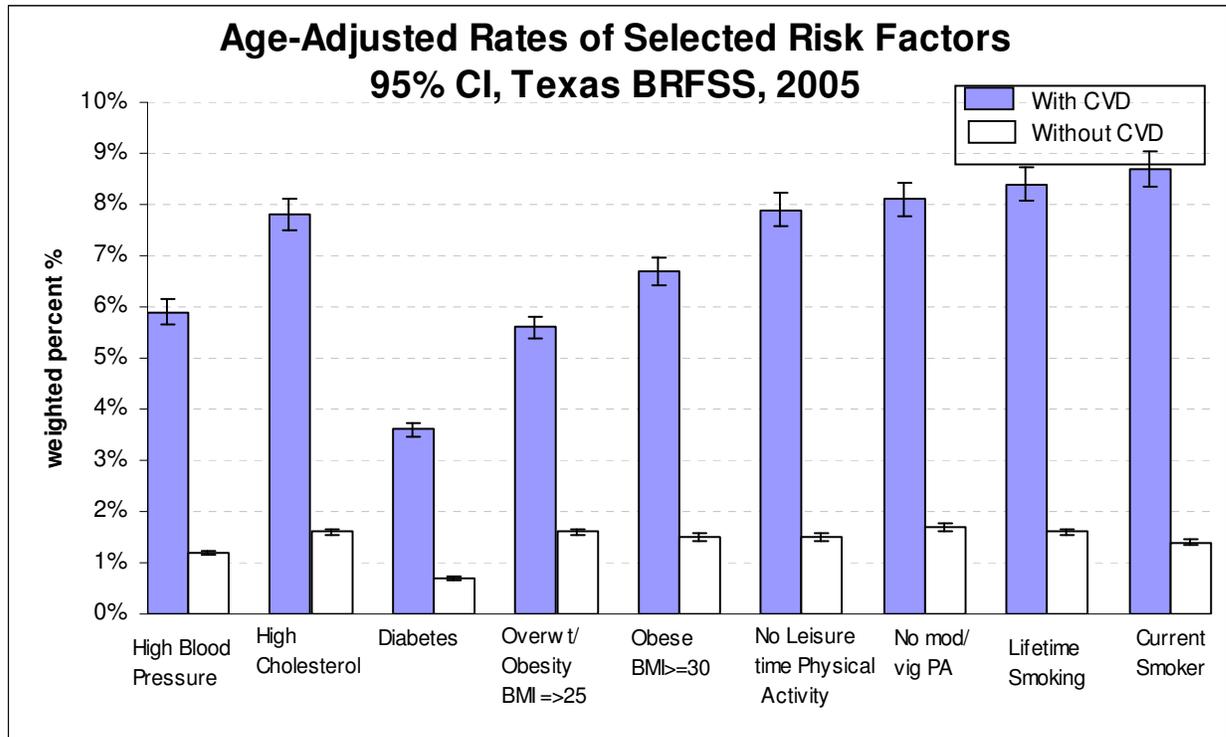
Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

* Behavioral Risk Factor Surveillance System

** Public Health Service. Healthy People 2010: National Health Promotion and Disease Prevention Objectives -- full report with commentary. Washington, DC: U.S. Department of Health and Human Services, 2000.

RISK FACTORS

Figure 59. Risk Factor Prevalence: With vs. Without CVD, Texas, BRFSS, 2005



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

■ Figure 59 displays Texas 2005 BRFSS data on selected physical and behavioral risk factors for CVD by CVD status. The major risk factors for CVD include high blood pressure, high blood cholesterol levels, diabetes and overweight or obesity.

RISK FACTORS—High Blood Pressure

High Blood Pressure (HBP) – High blood pressure increases the risk of stroke, heart attack, kidney failure, and congestive heart failure. About half of the people who have a first heart attack have blood pressures higher than 160/95 mm Hg. When high blood pressure exists and is combined with obesity, smoking, high blood cholesterol levels or diabetes, the risk of heart attack or stroke increases dramatically².

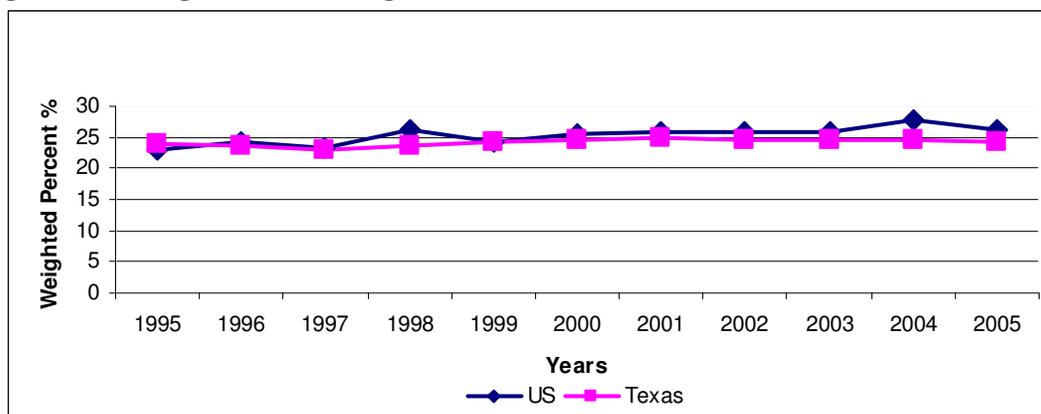
Table 4 shows blood pressure classification according to the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The classification is based on the average of two or more properly measured seated BP readings on each of two or more office visits.

Table 4. Classification of Blood Pressure for Adults

Classification	Systolic (mmHg)	Diastolic (mmHg)
Normal	<120	and <80
Prehypertension	120-139	or 80-89
Stage 1 Hypertension	140-159	or 90-99
Stage 2 Hypertension	\geq 160	or \geq 100

The data presented here are from the 2005 Texas BRFSS. Participants were asked the following question about hypertension: “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?” These data do not include females who were told they had hypertension only when they were pregnant.

Figure 60. Diagnosed with High Blood Pressure, Texas and US, 1995-2005



* Adults who were ever told by a doctor, nurse, or other health professional that they have high blood pressure
Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

High blood pressure is defined as $P \geq 140/90$ mm Hg. The BRFSS collects blood pressure data every other year. Between 1995 and 2005, the trend in diagnosed high blood pressure among Texas adults and US adults has remained unchanged at approximately 24% (Figure 60).

RISK FACTORS---High Blood Pressure

Figure 61. Prevalence of High Blood Pressure, 2005, Adults 18+

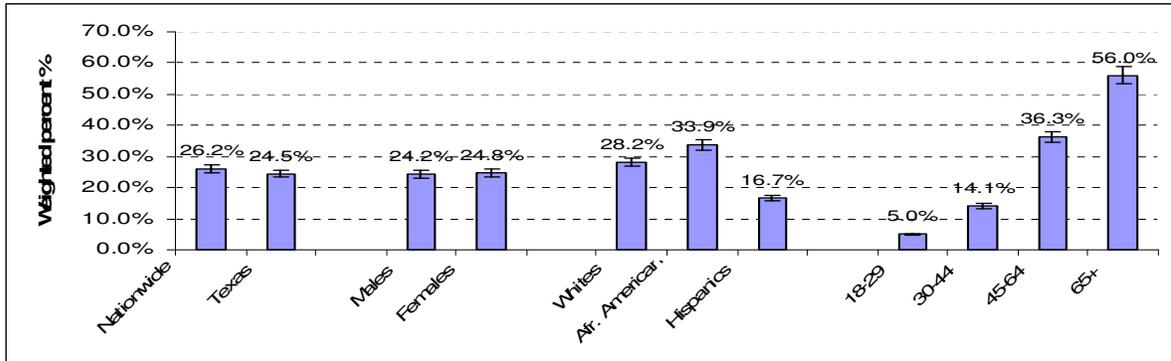
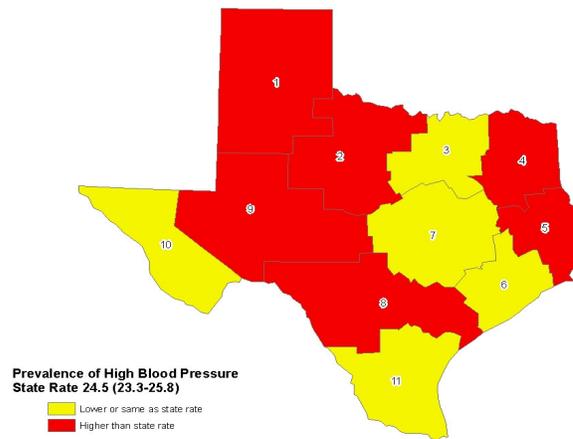


Figure 62. Prevalence of High Blood Pressure by Health Service Region, 2005



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- As of 2005, Texas prevalence rates of high blood pressure were similar to the National Average.
- Males had a similar prevalence rate of high blood pressure compared to females.
- Among the race/ethnic group, Whites and African Americans had significantly higher prevalence rates of high blood pressure compared to Hispanics
- High blood pressure prevalence increased significantly with increasing age
- Public Health Service Region 1, 2, 4, 5, 8, and 9 had a higher prevalence of high blood pressure rates than the state average.

RISK FACTORS --- High Blood Cholesterol (HBC)

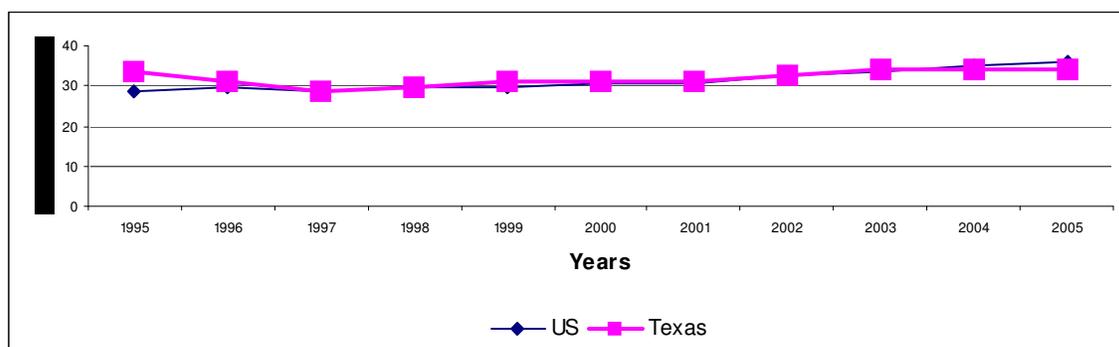
High Blood Cholesterol (HBC): Cholesterol is a fat like substance or lipid present in cells. It travels in the blood through distinct particles containing both lipids and proteins (lipoproteins). There are three major classes of lipoproteins high density lipoproteins (HDL), low density lipoproteins (LDL), and very low density lipoproteins (VLDL). Studies have demonstrated that LDL cholesterol plays a major role in heart disease. An important way to reduce CVD risk is to maintain healthful blood cholesterol levels, e.g., high density lipoproteins (HDL) ≥ 60 mg/dL; low density lipoproteins (LDL) < 130 mg/dL; and triglycerides < 150 mg/dL.

Table 5. Classification of LDL, Total, and HDL Cholesterol (mg/dl)

Classification	
LDL Cholesterol	
<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	High
≥ 190	Very high
Total Cholesterol	
<200	Desirable
200-239	Borderline high
≥ 240	High
HDL Cholesterol	
<40	Low
≥ 60	High

Data presented below are from the Texas 2005 BRFSS. The survey question was asked: "Have you ever been told by a health professional that your blood cholesterol is high?"

Figure 63. Prevalence of high blood cholesterol, Texas and US adults, 1995 - 2005.



RISK FACTORS --- High Blood Cholesterol (HBC)

Figure 64. Prevalence of High Blood Cholesterol, 2005, Adults 18+

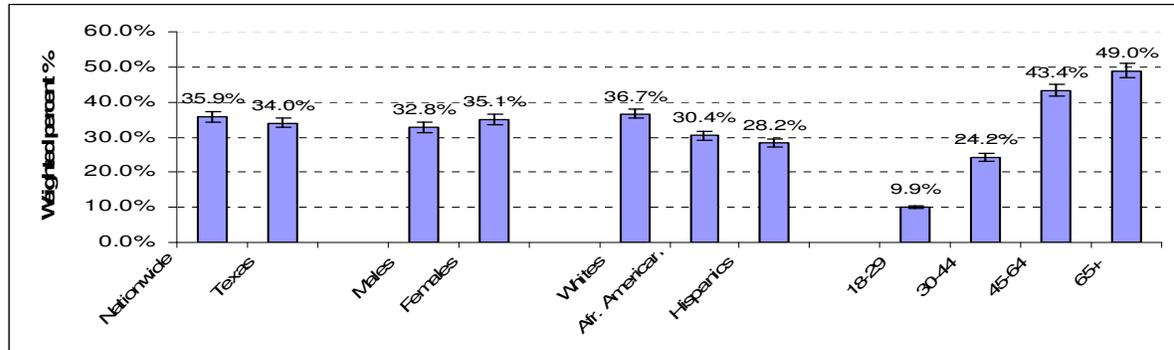
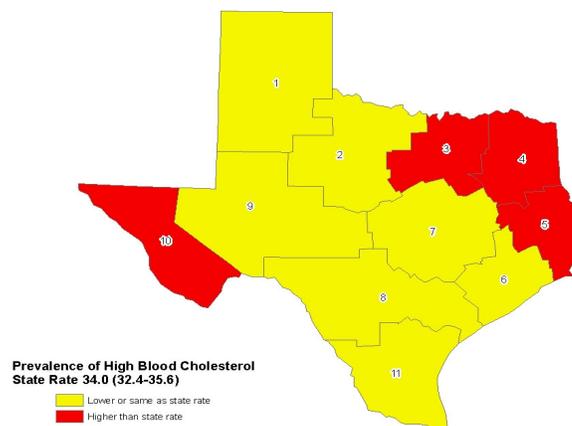


Figure 65. Prevalence of High Cholesterol by Health Service Region, 2005

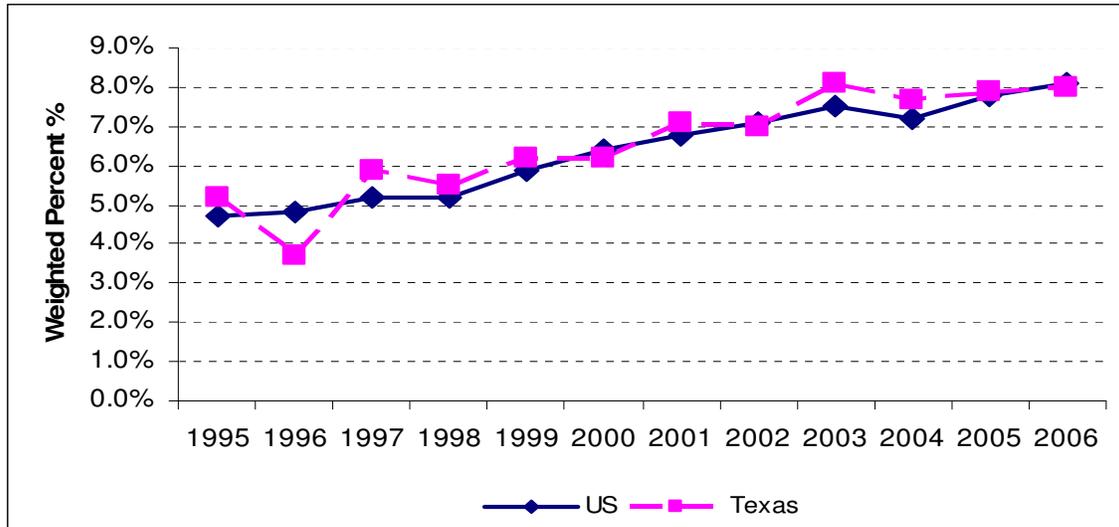


Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- Texas prevalence rates of high blood cholesterol in 2005 were similar to the National Average.
- Males had a similar prevalence rate of high blood cholesterol compared to females.
- Among the race/ethnic group, Whites had significantly higher prevalence rates of high blood cholesterol compared to African Americans and Hispanics
- High blood cholesterol prevalence increased significantly with increasing age
- Public Health Service Region 3, 4, 5, and 10 had a higher prevalence of high blood cholesterol than the state average.

RISK FACTORS - Diabetes

Figure 66. Percentage of Adults Diagnosed with Diabetes for Texas and US, 1995-2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1995-2006

-
- Diabetes prevalence rose steadily from 1995 through 2006, both in Texas and Nationally.

RISK FACTORS - Diabetes

Figure 67. Prevalence of Diabetes, 2006, Adults 18+

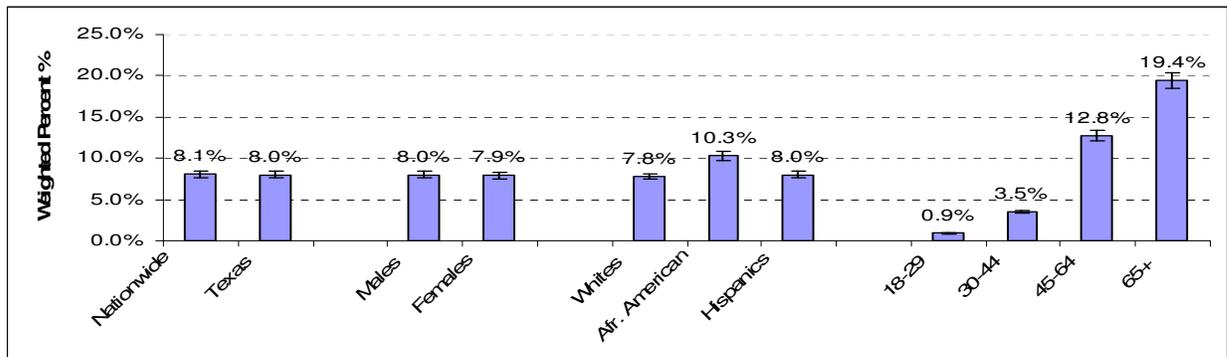
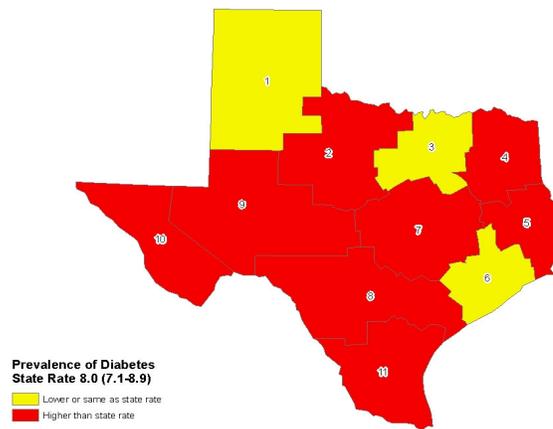


Figure 68. Diabetes Prevalence by Health Service Region, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

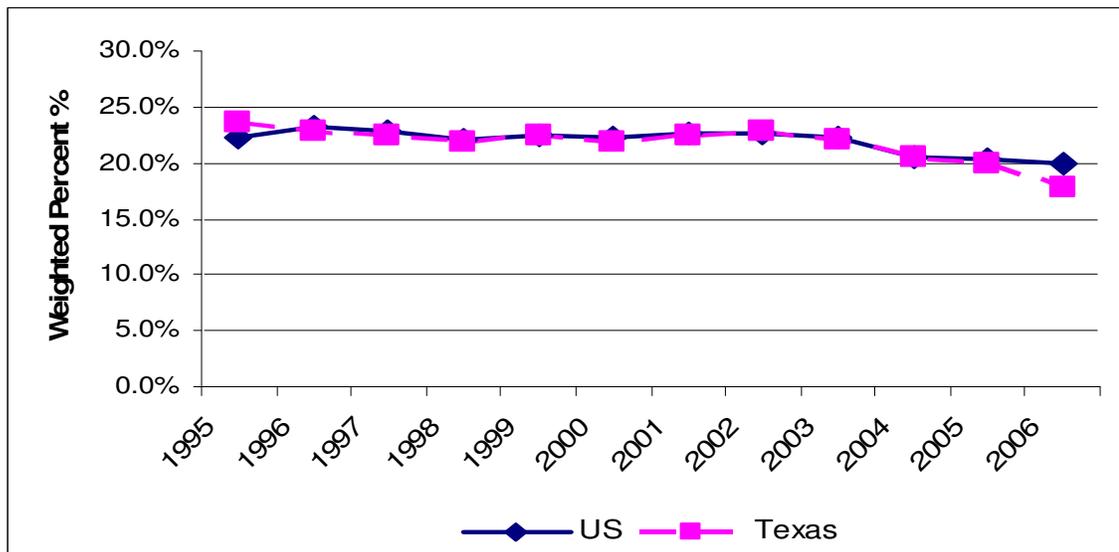
- Texas diabetes prevalence in 2006 was similar to the National Average.
- Males had a similar prevalence rate of diabetes compared to females.
- Among the race/ethnic groups, African Americans had significantly higher prevalence rates of diabetes compare to Whites and Hispanic
- Diabetes prevalence increased significantly with increasing age.
- Public Health Service Region 2, 4, 5, 7, 8, 9, 10 and 11 had higher diabetes prevalence than the state average.

RISK FACTORS - Tobacco Use

Tobacco use remains the single greatest preventable cause of disease and death in the United States today. In the U.S., Cigarette smoking is responsible for approximately 440,000 deaths annually about 20 percent of all deaths in this country.⁴ Tobacco use is a major risk factor for heart attacks and stroke.

The data presented in this section is from Texas 2006 BRFSS survey. Current Smokers were defined as: Persons who reported smoking at least 100 cigarettes in their lifetime, currently smokes, and has smoked for at least of the past 30 days.

Figure 69. Prevalence of Current Cigarette Smoking Among Texas and US Adults, 1995-2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1995-2005

- Prevalence of smoking remained fairly steady at approximately 22% between 1997 and 2002.
- The prevalence of smoking in Texas has steadily decreased from 23% in 2002 to 17.9% in 2006.
- Texas prevalence rates for smoking were slightly lower than the national average in 2006.

RISK FACTORS - Tobacco Use

Figure 70. Prevalence of Current Smoking, 2006, Adults 18+

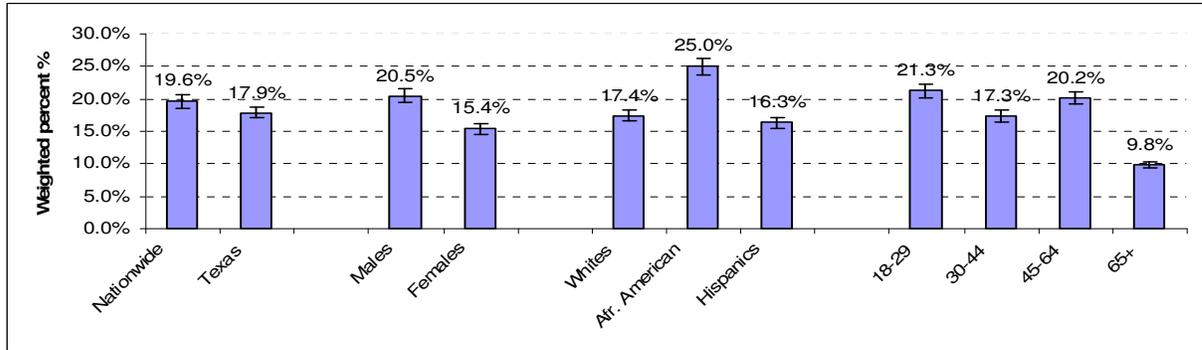
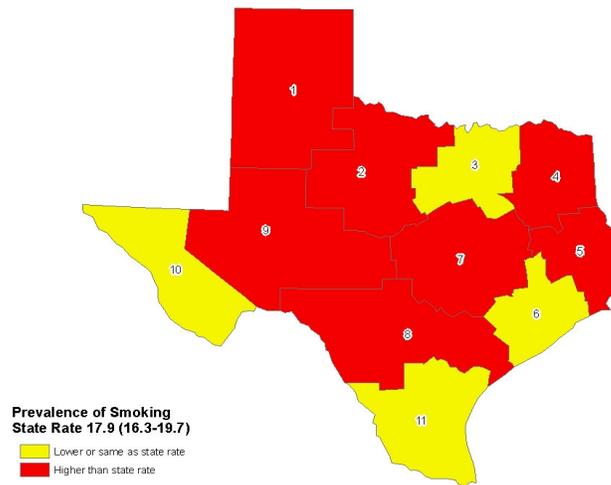


Figure 71. Prevalence of Current Smoking by Health Service Region, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

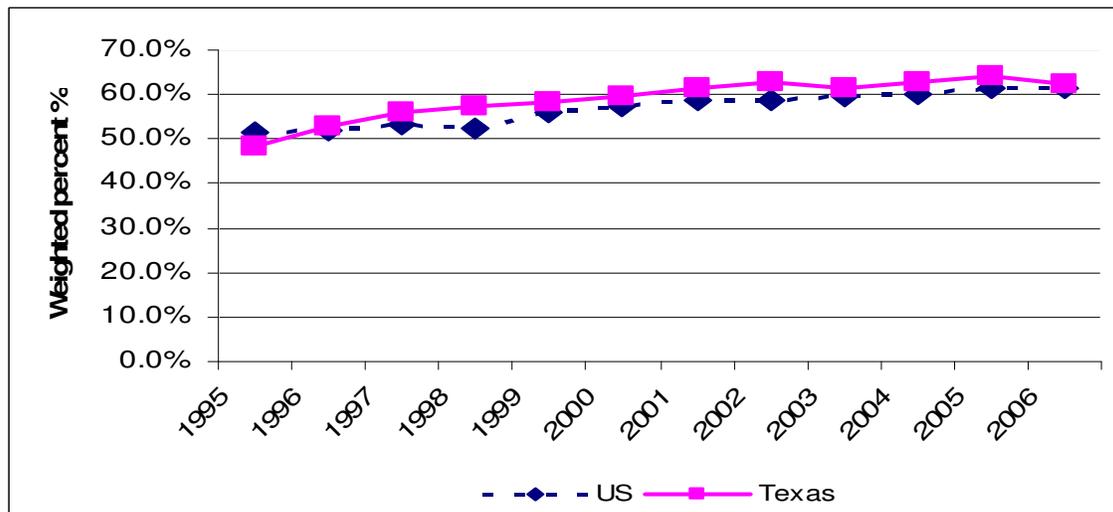
- Texas prevalence rates of cigarette smoking in 2006 were lower than the National Average.
- Males had significantly higher prevalence rates of smoking compared to females.
- Among the race/ethnic groups, African Americans had the highest prevalence rates, with Whites having significantly higher rates than Hispanics.
- Adults age 18-29 had the highest rates of smoking.
- Public Health Service Regions 3, 6, 10, and 11 had lower smoking prevalence rates than the state average. All other regions had higher smoking rates than the state average.

RISK FACTORS - Overweight and Obesity

The prevalence of Overweight and Obesity among adults and adolescents has increased considerably over the past two decades in the United States and in Texas. Being overweight or obese substantially raises the risk of heart disease and stroke, high blood pressure, high blood cholesterol, type 2 diabetes, other chronic diseases, and some cancers. Overweight and obese individuals also may suffer from social stigmatization, discrimination, and poor body image. According to the Centers for Disease Control and Prevention (CDC), there is currently an obesity epidemic occurring among both youth and adults in America.

Overweight or obesity classifications are determined by body mass index (BMI), which is based on an individual's weight-to-height ratio. **Overweight** is defined as a BMI between 25 and 29.9 and **obesity** as a BMI of 30 or higher.

Figure 72. Prevalence of Overweight or Obesity among Texas and US Adults, 1995-2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1995-2006

- The percentage of overweight or obese U.S. adults increased approximately 21% (51.5% to 62.3) between 1995 and 2006. (Figure 72)
- During the same period, the percentage of overweight or obese in Texas adults increased 29% (48.2% to 62.3%).
- Texas prevalence rates of overweight or obesity have been higher than the national average since 1996.

RISK FACTORS - Overweight and Obesity

Figure 73. Prevalence of Overweight or Obesity, 2006, Adults 18+

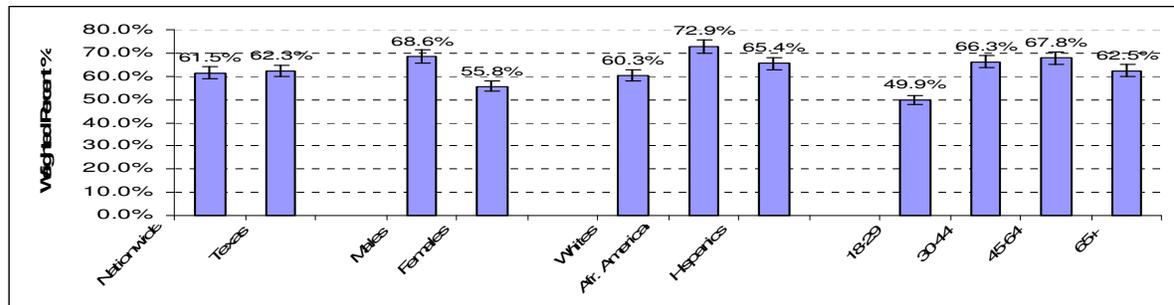
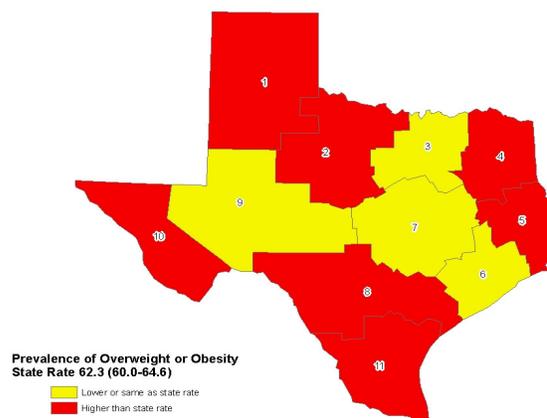


Figure 74. Prevalence of Overweight or Obesity by health service region, 2006



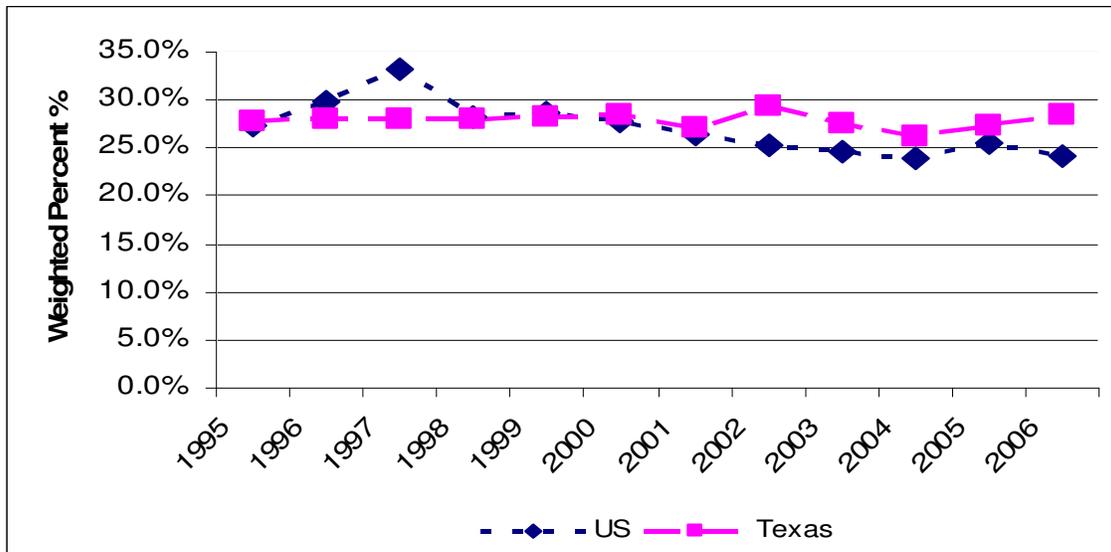
Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

- For 2006, Texas prevalence rates of overweight and obesity were similar to the National Average.
- Males had a significantly higher prevalence rate of overweight and obesity compared to females.
- Among the race/ethnic groups, African Americans and Hispanics had significantly higher prevalence of overweight and obesity compared to Whites.
- Persons age 30-64 had significantly higher rates of overweight and obesity compared to persons age 18-29 and 65+.
- Public Health Service Region only 3, 6, 7, and 9 has lower overweight or obesity rates than the state average. All other regions had higher overweight or obesity rates than the state average.

RISK FACTORS - Physical Activity

Regular physical activity can decrease the risk of CVD, control high blood pressure, high blood cholesterol and weight. It can also decrease the risk of diabetes, colon cancer and help maintain healthy bones, muscles, and joints.

Figure 75. Prevalence of No Leisure Time Physical Activity among Texas and US Adults, 1995-2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 1995-2006

- From 1995 to 2006, the percentage of individuals who participate in no leisure time physical activity rate remained relatively unchanged (Figure 75).
- Texas had a higher percentage of adults who participated in no leisure time physical activity compared to the U.S. average.

RISK FACTORS - Physical Activity

Figure 76. Prevalence of No Leisure Time Physical Activity, 2006, Adults 18+

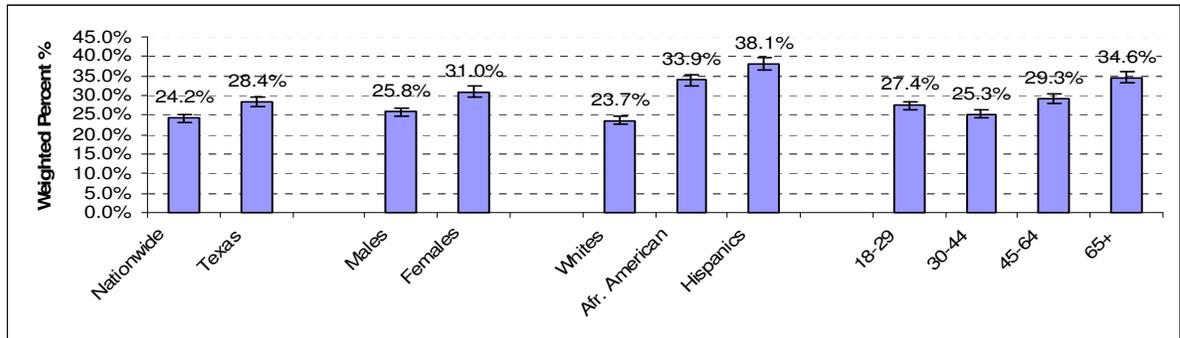
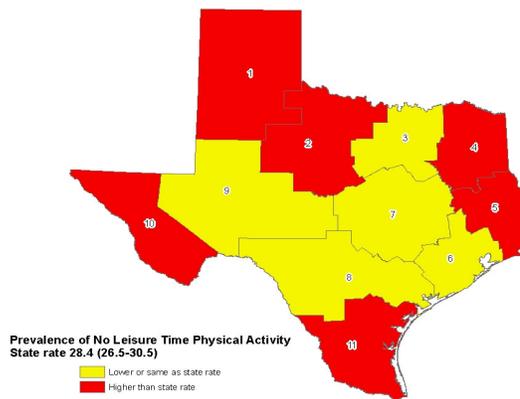


Figure 77. Prevalence of No Leisure Time Physical Activity by Health Service Region, 2006



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2006

- In 2006, Texas prevalence rates of no leisure time physical activity were significantly higher than National Average.
- Females were less likely to participate on leisure time physical activity compared to males.
- Among the race/ethnic groups, African Americans and Hispanics had significantly higher prevalence of no leisure time physical activity compared to Whites.
- Persons age 65 and older had significantly higher rates of no leisure time physical activity compared to other age groups
- Public Health Service Regions 1, 2, 4, 5, 10, and 11 had higher rates of no leisure time physical activity than the state average.

RISK FACTORS - Fruit & Vegetable Consumption

Figure 78. Prevalence of Poor Nutrition*, 2005, Adults 18+

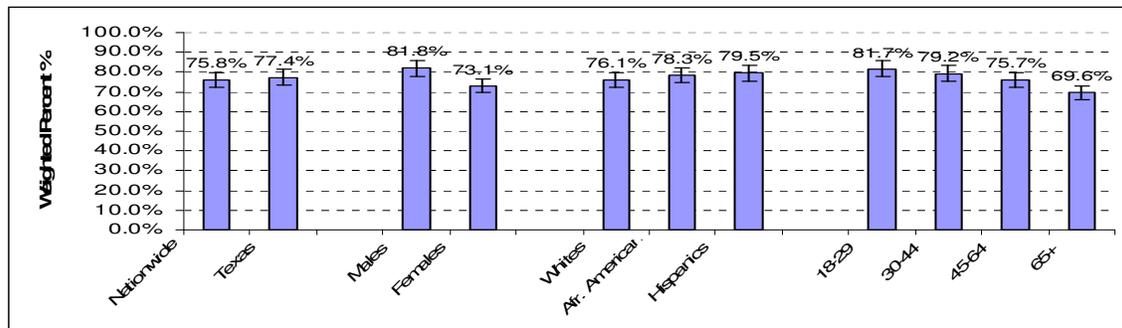
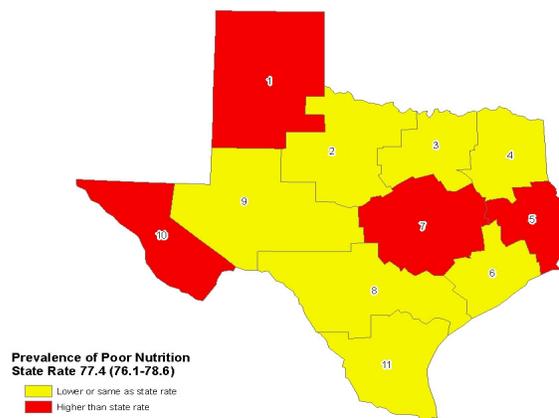


Figure 79. Poor Nutrition* by Health Service Region, 2005



Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005
*% of adults who reported eating fewer than 5 servings of fruits and vegetables per day

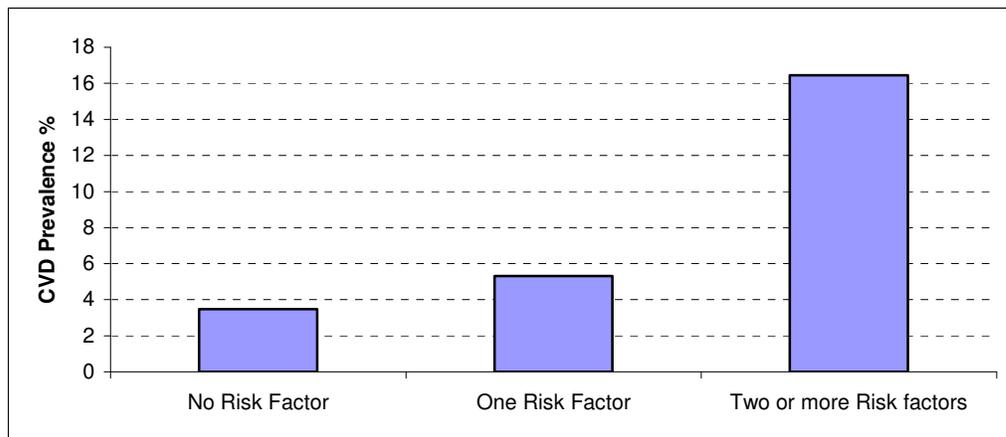
- Poor Nutrition is defined as eating fruits and vegetables less than 5 times per day. Texas prevalence rates of poor nutrition were similar to the National Average in 2005.
- Males had a significantly higher prevalence rate of poor nutrition compared to females.
- Among the race/ethnic groups, there was no statistically significant difference among the race groups
- Persons age 65 and older had significantly lower rates of poor nutrition compared to other age groups.
- Public Health Service Regions 1, 5, 7, and 10 have higher rates of poor nutrition than the state average.

RISK FACTORS - Multiple Risk Factors

Cardiovascular disease and all-cause mortality increases with each additional risk factor present (current smoking, overweight, hypertension, high blood cholesterol, and diabetes).⁴

Health care professionals are well aware that most patients have multiple cardiovascular risk factors. These risk factors, when combined together, can increase the risk for cardiovascular disease as well as other chronic diseases.

Figure 80. CVD Prevalence by Multiple Risk Factors*, Texas, 2005



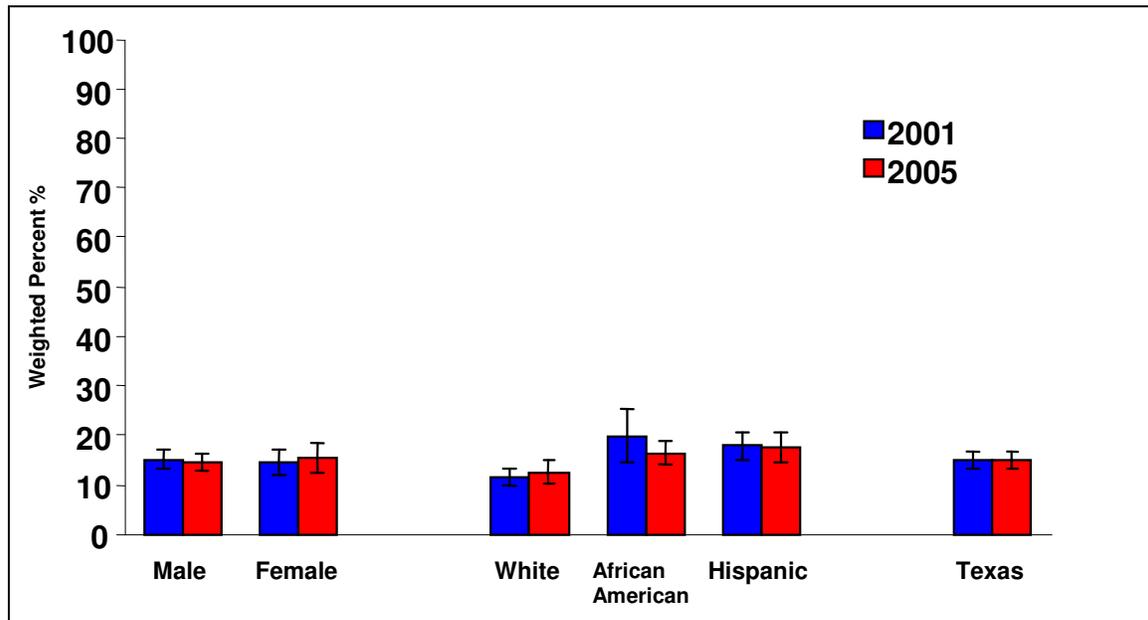
* From the following risk factors: high blood pressure, high cholesterol, diabetes, obesity, no leisure time physical activity, lifetime smoking, and current smoking

Data Source: Texas Behavioral Risk Factor Surveillance System, Texas Department of State Health Services, 2005

- The prevalence of CVD among persons with two or more CVD risk factors was more than four times higher than persons with no risk factors and almost three times higher than persons with only one risk factor.
- About 16% of people who had two or more risk factors had CVD.

RISK FACTORS - Youth Risk Behavior Survey

Figure 81. Percentage of students who were at risk for becoming overweight (i.e., at or above the 85th percentile but below the 95th percentile for body mass index), Texas, 2001 & 2005

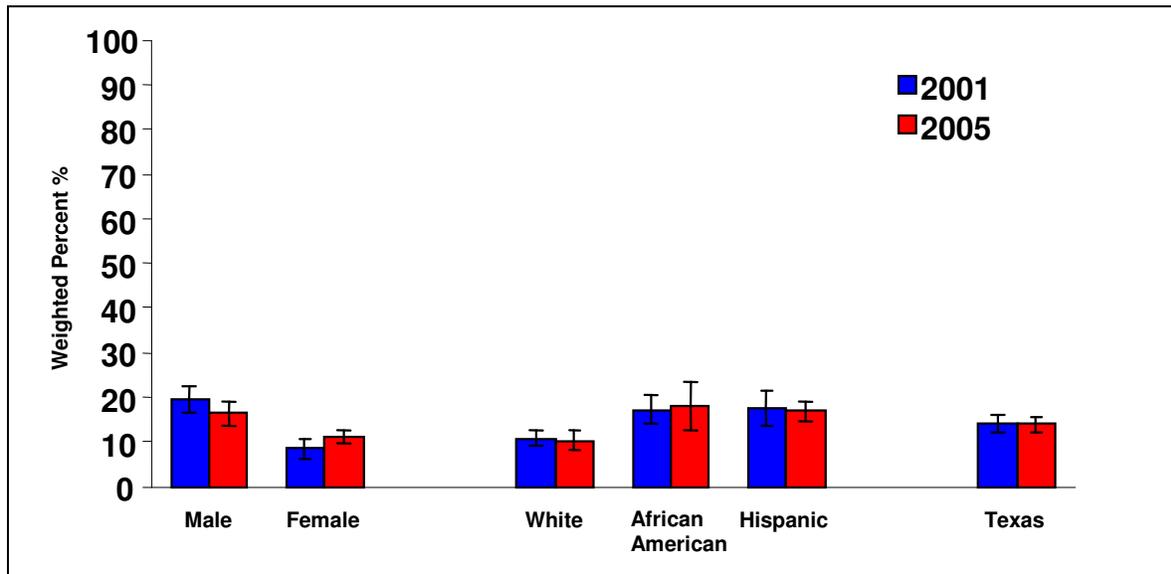


Source: Texas Young Risk Behavior Surveys (YRBS), Texas Department of State Health Services, 2001, 2005 (Excluding Houston ISD) High School Survey

- The percentage of students who are at risk for becoming overweight changed little from 2001 (14.8%) to 2005 (15.7%).
- The proportion of students who are at risk for becoming overweight is greater among African American and Hispanic students than among White students

RISK FACTORS -Youth Risk Behavior Survey

Figure 82. Percentage of students who were overweight (i.e., at or above the 95th percentile for body mass index), Texas, 2001 & 2005

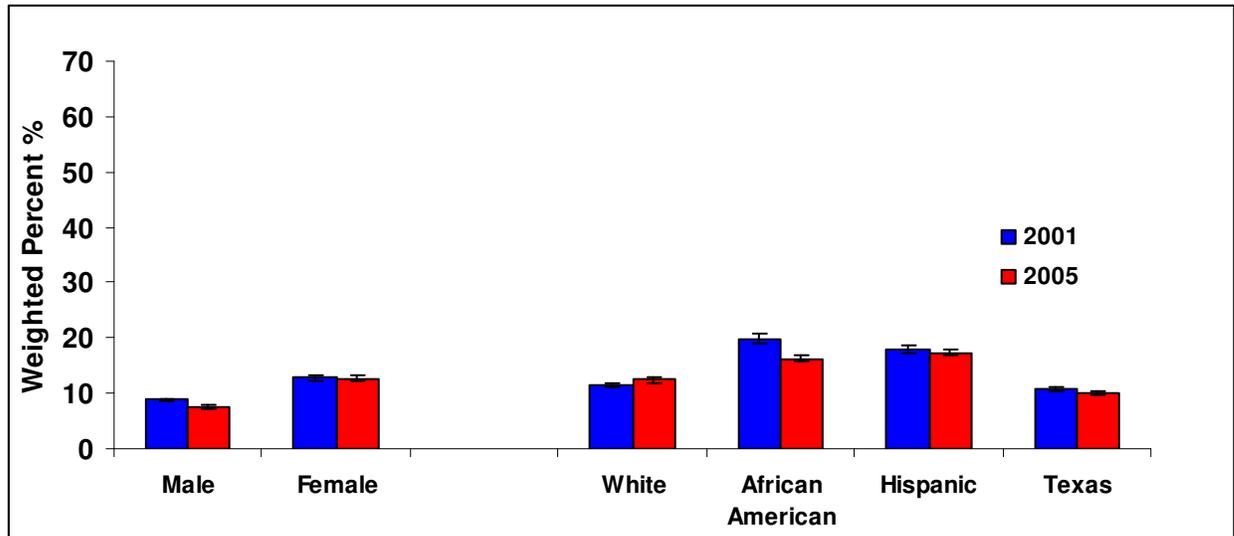


Data Source: Texas Young Risk Behavior Surveys (YRBS), Texas Department of State Health Services, 2001, 2005 (Excluding Houston ISD) High School Survey

-
- The percentage of students who are overweight did not change significantly between 2001 and 2005.
 - Male students (16.4%) are significantly more likely than female students (11.2%) to be overweight.
 - The proportion of students who are overweight is significantly higher for African American (18.0%) and Hispanic students (16.9%) than White students (10.2%).

RISK FACTORS - Youth Risk Behavior Survey

Figure 83. Percentage of students who had not participated in any vigorous or moderate physical activity during the past seven days, Texas, 2001 & 2005

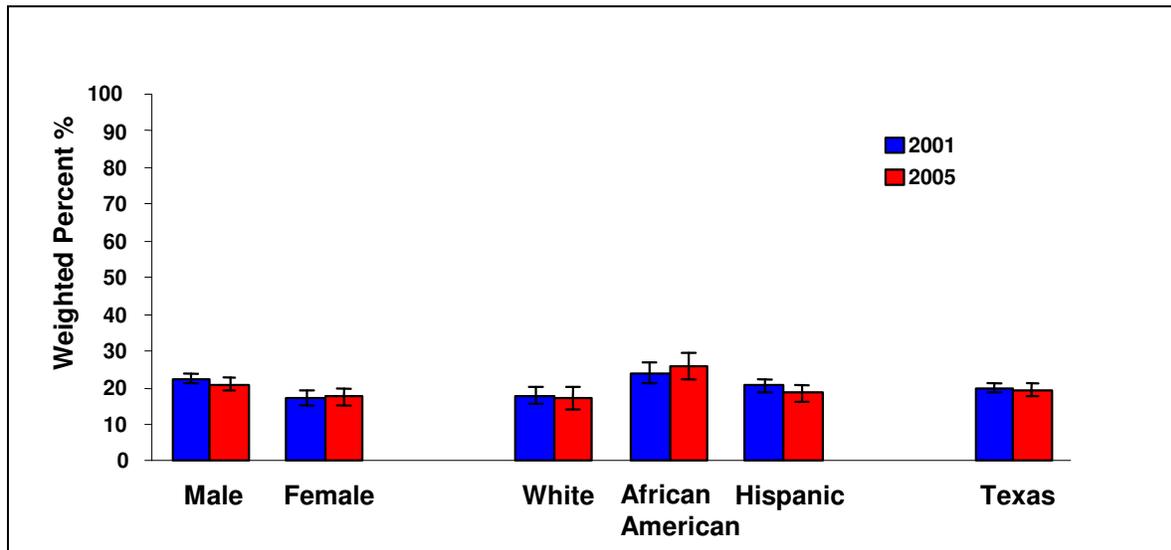


Data Source: Texas Young Risk Behavior Surveys (YRBS), Texas Department of State Health Services, 2001, 2005 (Excluding Houston ISD) High School Survey

- The percentage of students who did not participate in any vigorous or moderate physical activity during the past 7 days changed little from 2001 (10.8%) to 2005 (10.0%).
- Male students were more likely to participate in vigorous or moderate physical activity than female students. The difference was statistically significant.
- African American students were significantly less likely to report that they participated in vigorous or moderate physical activity compared to White students and Hispanic students.

RISK FACTORS -Youth Risk Behavior Survey

Figure 84. Percentage of students who ate five or more serving per day of fruit and vegetables during the past 7 days, Texas, 2001 & 2005

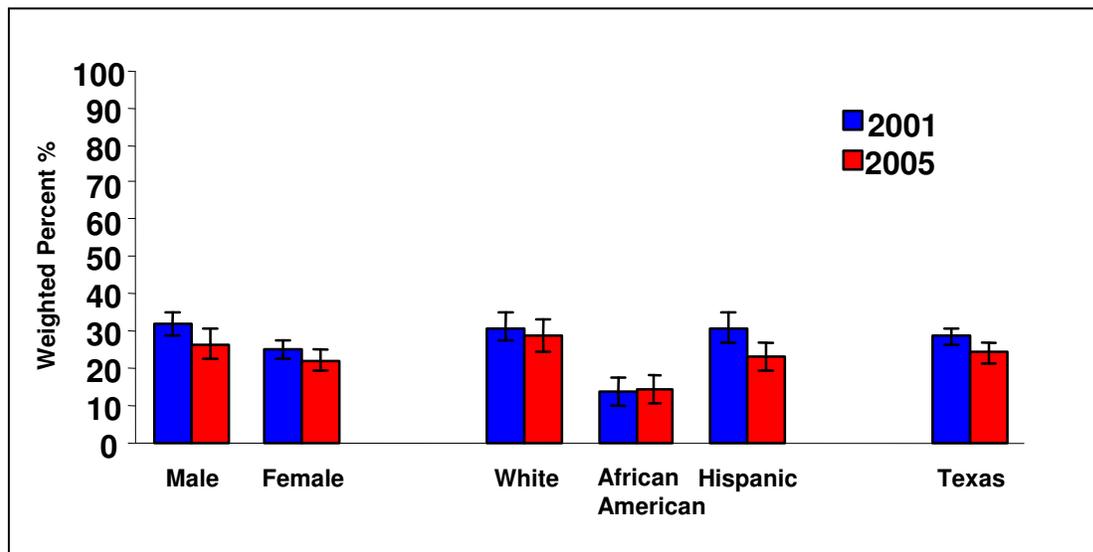


Data Source: Texas Young Risk Behavior Surveys (YRBS), Texas Department of State Health Services, 2001, 2005 (Excluding Houston ISD) High School Survey

- The percentage of students who reported that they ate five or more servings of fruits and vegetables per day during the past seven days changed little from 2001 (19.9%) to 2005 (19.4%).
- Male students were more likely to report that they ate five or more servings of fruits and vegetables per day during the past seven days than female students, although the difference was not statistically significant.
- African American students were significantly more likely to report that they ate five or more servings of fruits and vegetables per day than White students and Hispanic students.

RISK FACTORS - Youth Risk Behavior Survey

Figure 85. Percentage of students who smoked cigarettes on one or more of the past 30 days the Past 30 days, Texas, 2001 & 2005



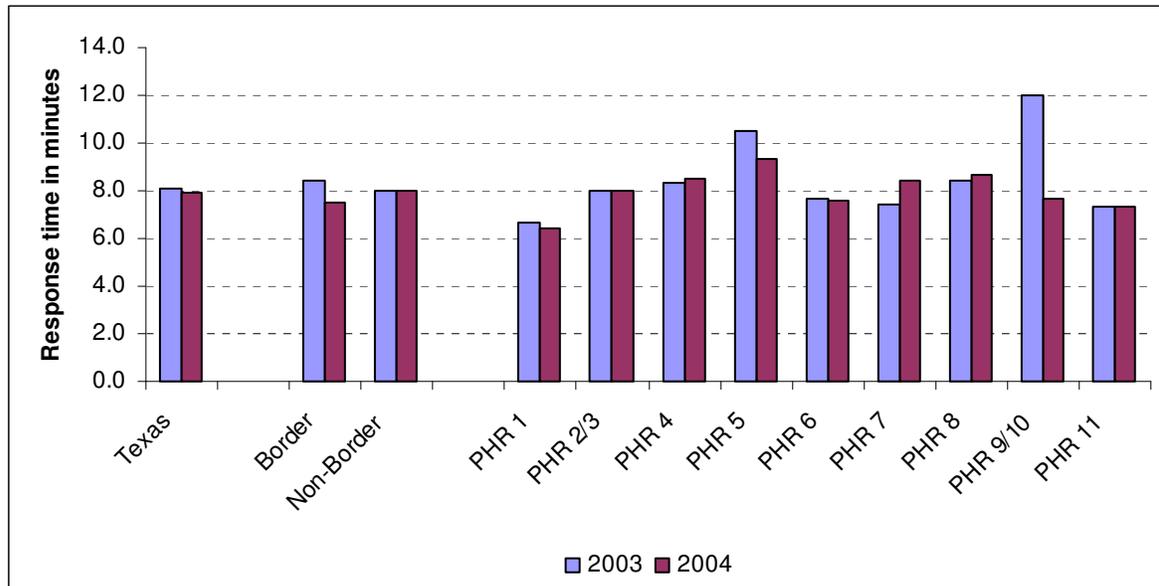
Data Source: Texas Young Risk Behavior Surveys (YRBS), Texas Department of State Health Services, 2001, 2005 (Excluding Houston ISD) High School Survey

- The prevalence of current cigarette use (i.e., smoked cigarettes on ≥ 1 of the 30 days preceding the survey) decreased from 28.4% in 2001 to 24.2% in 2005. The decrease, however, was not statistically significant.
- The prevalence of current cigarette use declined among both male and female students from 2001 to 2005. The decrease, however, was not statistically significant.
- Overall, African American students were less likely to report current cigarette use than Hispanic or White students.

**EMERGENCY
MEDICAL
SERVICES
RESPONSE TIME
DATA**

EMS RESPONSE TIME- CVD

Figure 86. EMS Response Time * in Minutes for CVD, Texas Residents, 2003 and 2004



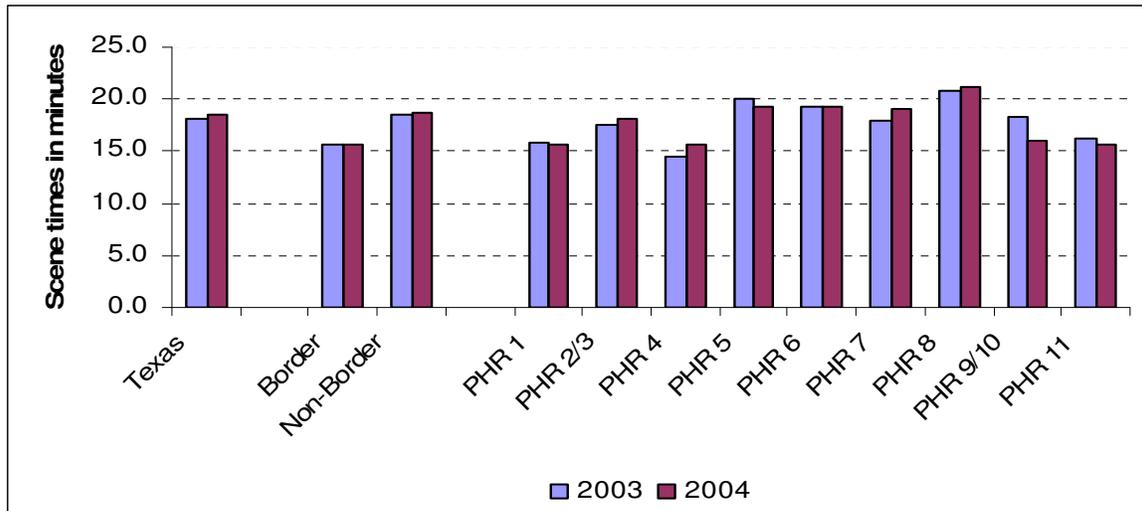
* Response Times are defined as follows: Response Time = (Call Received Time - Time EMS Arrived on Scene);

Data Source: Texas EMS/Trauma Registry, 2003, 2004

- Average EMS response time for a suspected cardiac event in Texas was around 8 minutes.
- There was not a significant difference between the border and non-border regions.
- Health Services Region 1 had the shortest response time among all Health Services Regions in 2003 and 2004.
- Health Services Regions 5 and 9/10 had the longest response times compared to the other regions in 2003. Region 9/10 maintained a much shorter response time in 2004.

EMS SCENE TIME- CVD

Figure 87. EMS Scene Time * in Minutes for CVD, Texas Residents, 2003 and 2004



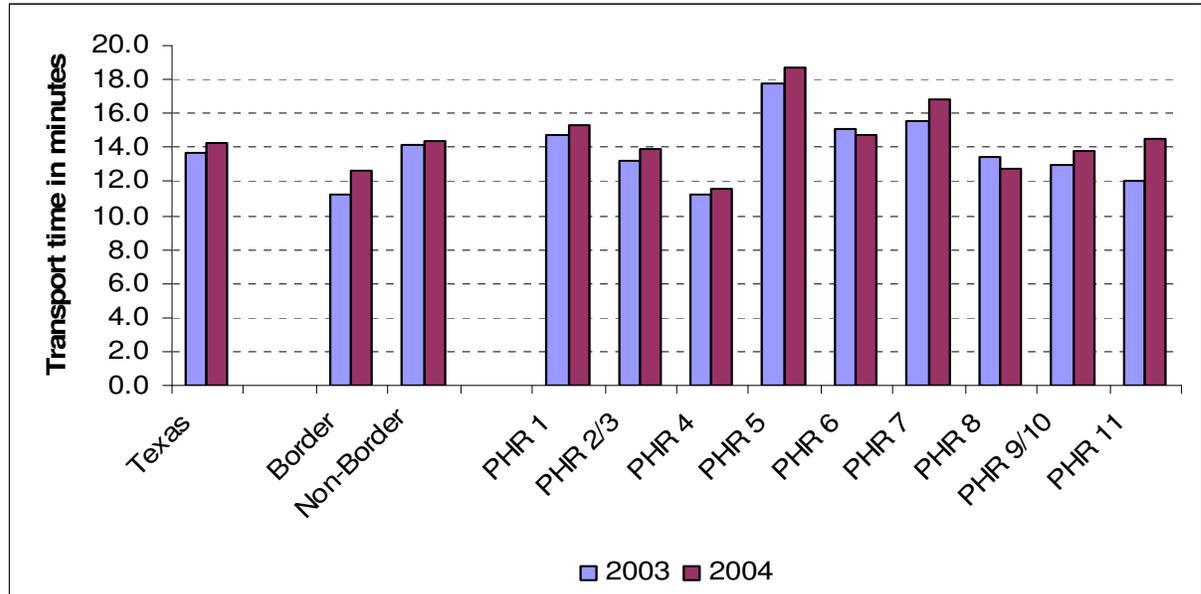
Scene Time = (Time EMS Arrived on Scene – Time EMS Departed Scene).

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

-
- Average EMS scene time for a suspected cardiac event in Texas was about 18 minutes.
 - The border region had shorter EMS scene times than non-border regions.
 - Health Services Region 4 had the shortest scene time among all the Health Services Regions at 14.5 minutes in 2003.
 - Health Services Regions 8 had the longest scene times compared to the other regions.

EMS TRANSPORT TIME- CVD

Figure 88. EMS Transport Time * in Minutes for CVD, Texas Residents, 2003 and 2004



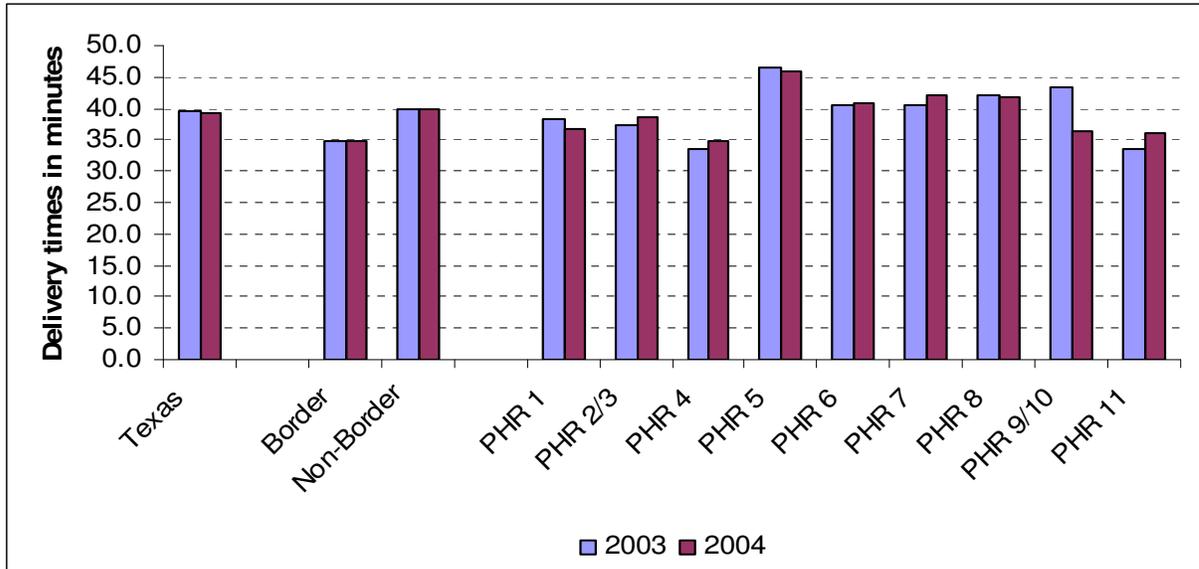
Transport Time = (Time EMS Departed Scene – Time EMS Arrived at Destination).

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

-
- Average EMS transport time for a suspected cardiac event in Texas was about 14 minutes.
 - Border regions had shorter EMS transport times than non-border regions.
 - Health Services Region 4 had the shortest transport time among all Health Services Regions.
 - Health Services Region 5 had the longest transport time among all Health Service Regions.

EMS DELIVERY TIME - CVD

Figure 89. EMS Delivery Time * in Minutes for CVD, Texas Residents, 2003 and 2004



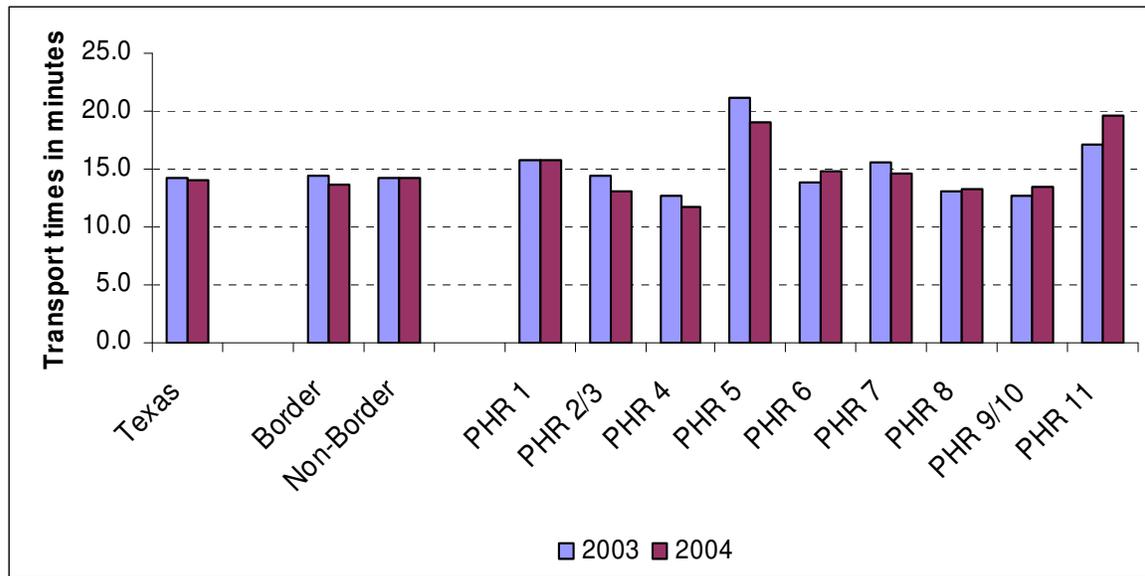
Delivery Time = (Call Received Time – Time EMS Arrived at Destination)

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

- Average EMS delivery time for a suspected cardiac event in Texas was around 40 minutes.
- The border region had shorter EMS delivery times than non border regions.
- Health Services Region 4 and 11 had the shortest delivery time compared to other Health Services Regions.
- Health Services Region 5 had the longest delivery time among all regions.
- Health Services Region 9/10 significantly reduced delivery time in 2004.

EMS RESPONSE TIME- Stroke

Figure 90. EMS Response Time * in Minutes for Stroke, Texas Residents, 2003 and 2004

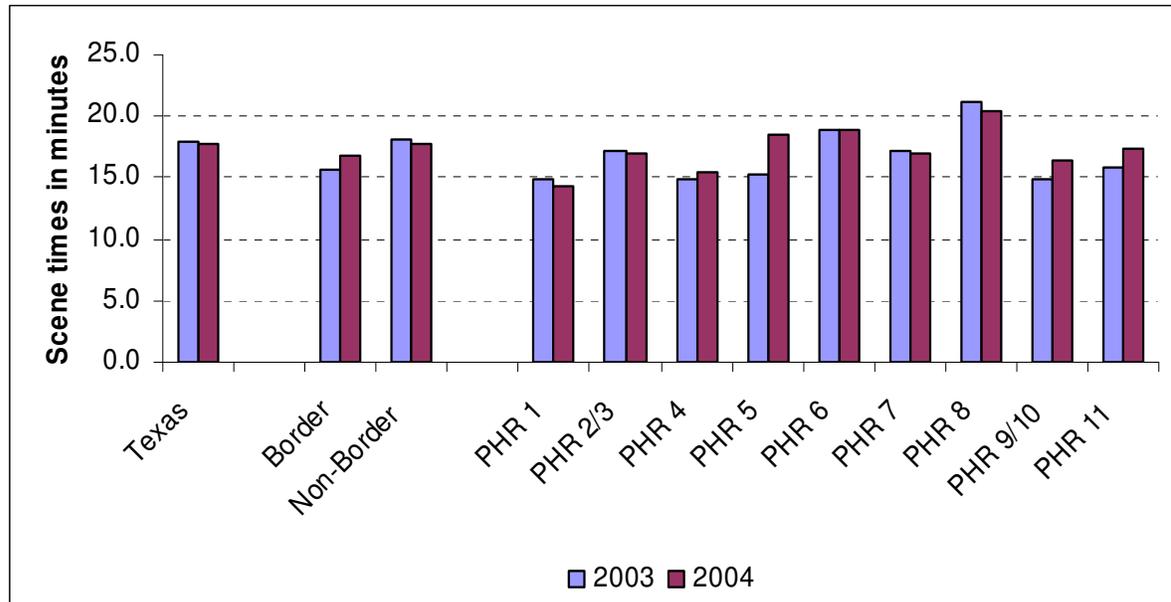


* Response Times are defined as follows: Response Time = (Call Received Time - Time EMS Arrived on Scene);
Data Source: Texas EMS/Trauma Registry, 2003, 2004

- Average EMS response time for a suspected stroke event in Texas was around 8 minutes.
- Border and non-border regions had similar EMS response times for stroke.
- Health Services Regions 4 had the shortest response times among all Public Health Regions.
- Health Services Regions 5 had longer response times than all other regions.

EMS SCENE TIME - Stroke

Figure 91. EMS Scene Time * in minutes for Stroke, Texas Residents, 2003 and 2004



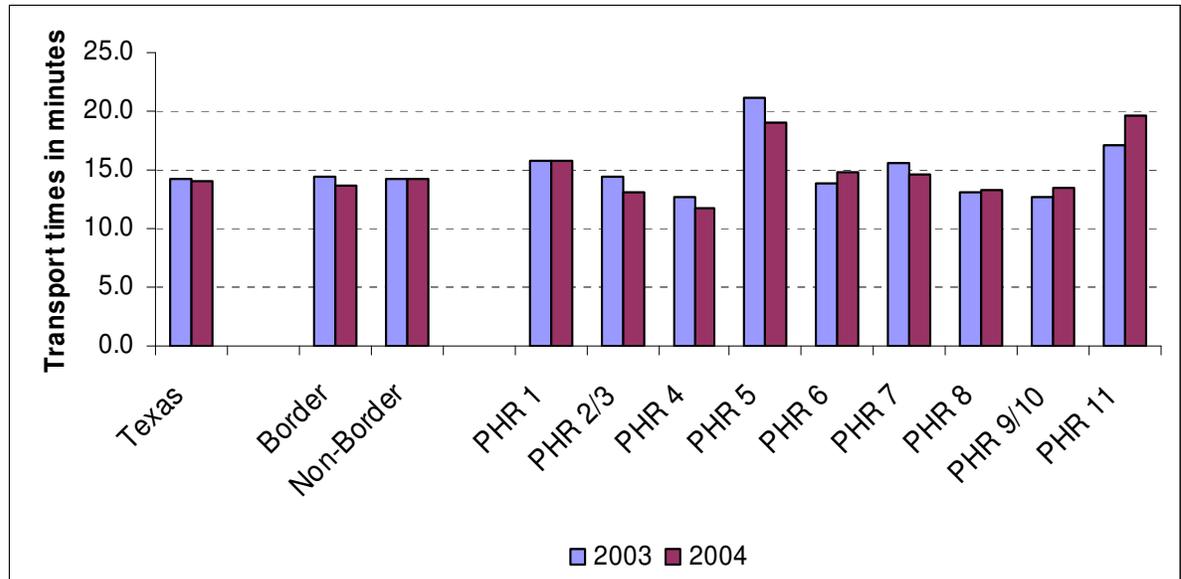
Scene Time = Time EMS Arrived on Scene – Time EMS Departed Scene.

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

-
- Average EMS scene time for a suspected stroke in Texas was about 18 minutes.
 - The Border Regions had shorter EMS scene times than non-border regions.
 - Health Services Regions 1, 4, and 9/10 had shorter scene times than other Health Services Regions.
 - Health Services Regions 6 and 8 had longer scene times than other regions.

EMS TRANSPORT TIME - Stroke

Figure 92. EMS Transport Time* in Minutes for Stroke, Texas Residents, 2003 and 2004



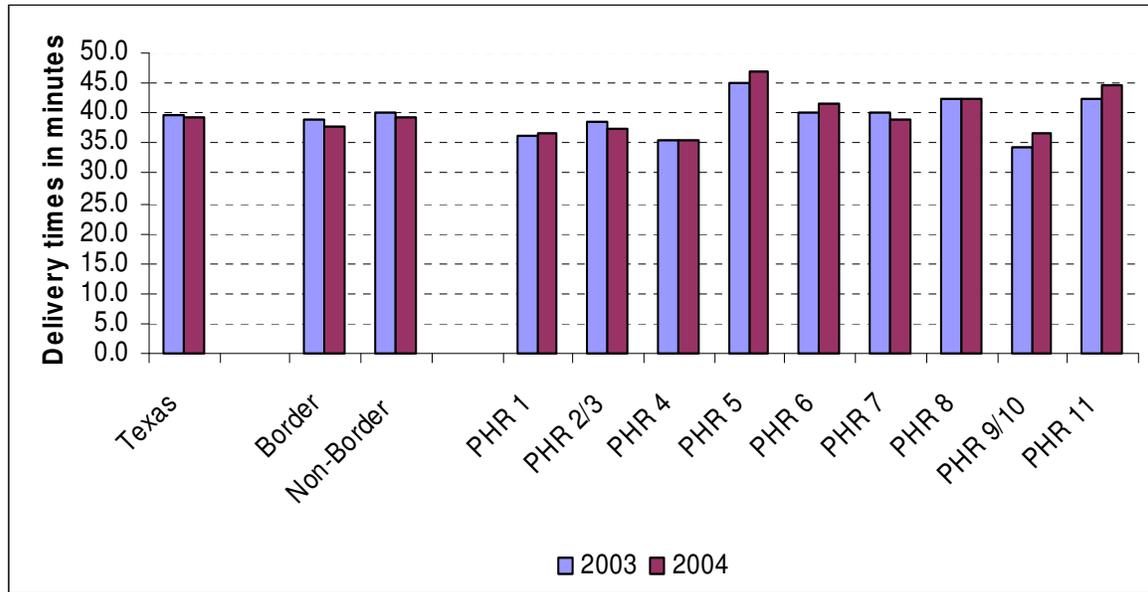
Transport Time = (Time EMS Departed Scene – Time EMS Arrived at Destination).

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

-
- Average EMS transport time for a suspected stroke in Texas was about 14 minutes.
 - Border and non-border regions had similar EMS transport times for stroke.
 - Health Services Regions 4 had the shortest transport times among Health Regions.
 - Health Services Region 5 had the longest transport time among the Regions in 2003.
 - Health Services Region 11 increased transport time in 2004.

EMS DELIVERY TIME - Stroke

Figure 93. EMS Delivery Time * in Minutes for Stroke, Texas Residents, 2003 and 2004



*Delivery Time = Call Received Time – Time EMS Arrived at Destination.

Data Source: Texas EMS/Trauma Registry, 2003, 2004.

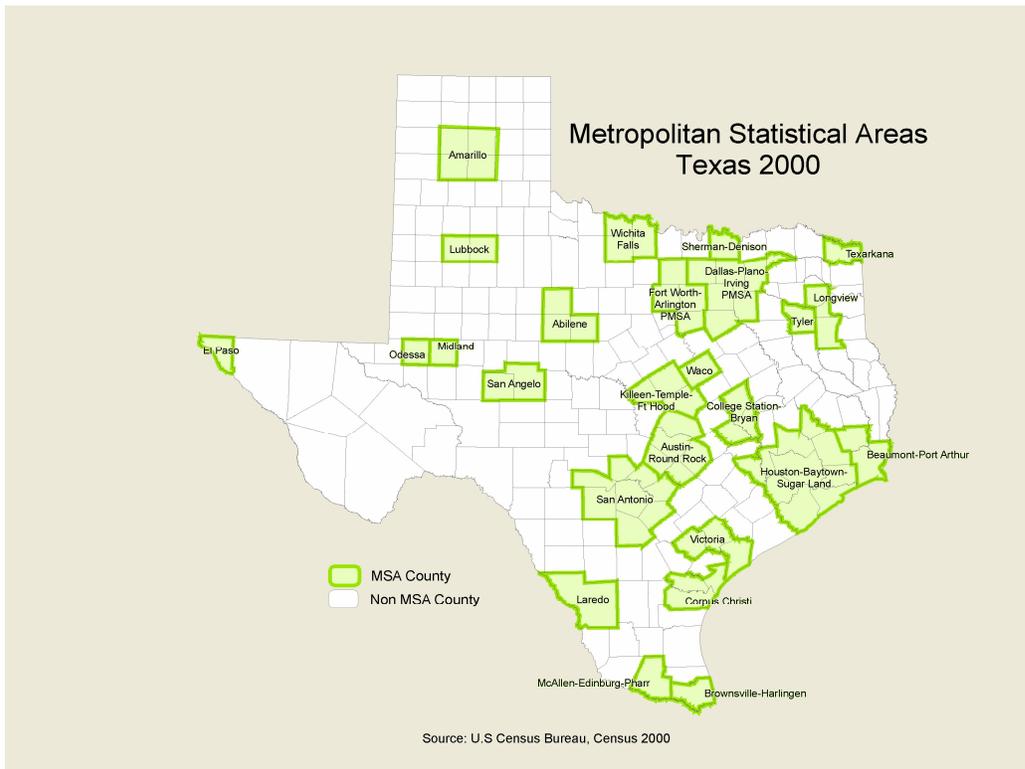
-
- Average EMS delivery time for a suspected stroke in Texas was around 40 minutes.
 - Border and non-border regions had similar EMS delivery times for stroke.
 - Health Services Regions 4 and 9/10 had the shortest delivery times of all Regions.
 - Health Services Region 5 had the longest delivery time among the Health Services Regions.

APPENDIX 1 - Geographical Area Defined

Texas Counties on the Border with Mexico (La Paz Agreement)

Brewster	Brooks	Cameron
Crockett	Culberson	Dimmit
Duval	Edwards	El Paso
Frio	Hidalgo	Hudspeth
Jeff Davis	Jim Hogg	Kenedy
Kinney	La Salle	McMullen
Maverick	Pecos	Presidio
Real	Reeves	Starr
Sutton	Terrell	Uvalde
Val Verde	Webb	Willacy
Zapata	Zavala	

Map 1. Metropolitan Statistical Areas: Texas 2000



APPENDIX 2 - Metropolitan Statistical Area of Texas with Counties

Metropolitan Statistical Areas of Texas with Counties			
Abilene MSA Callahan, Jones, Taylor	Amarillo MSA Armstrong, Carson, Potter, Randall	Austin-Round Rock MSA Bastrop, Caldwell, Hays, Travis, Williamson	Beaumont-Port Arthur MSA Hardin, Jefferson, Orange
Brownsville-Harlingen MSA Cameron	College Station-Bryan MSA Brazos, Burleson, Robertson	Corpus Christi MSA Aransas, Nueces, San Patricio	Dallas-Plano-Irving PMSA Collin, Dallas, Delta, Denton, Ellis, Hunt, Kaufman, Rockwall
El Paso MSA El Paso	Fort Worth-Arlington PMSA Johnson, Parker, Tarrant, Wise	Houston-Baytown-Sugar Land MSA Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, San Jacinto, Waller	Killeen-Temple-Fort Hood MSA Bell, Coryell, Lampasas
Laredo MSA Webb	Longview MSA Gregg, Rusk, Upshur	Lubbock MSA Crosby, Lubbock	McAllen-Edinburg-Pharr MSA Hidalgo
Midland MSA Midland	Odessa MSA Ector	San Angelo MSA Irion, Tom Green	San Antonio MSA Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, Wilson
Sherman-Denison MSA Grayson	Texarkana-TX PMSA Bowie	Tyler MSA Smith	Victoria MSA Calhoun, Goliad, Victoria
Waco MSA McLennan	Wichita Falls MSA Archer, Clay, Wichita		

APPENDIX 3 - Tables

Table 1. Cardiovascular Disease, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	352,635	8.5	8.3	8.7
Texas	6,792	8.3	7.4	9.4
Gender				
Male	2,439	8.4	7.1	10.1
Female	4,353	8.2	7.0	9.7
Race/Ethnicity				
White	4,216	9.6	8.2	11.1
Black	651	8.1	5.9	11.1
Hispanic	1,681	6.2	4.8	8.0
Age Group				
18-29 Years	698	2.0	1.1	3.6
30-44 Years	1,690	3.6	2.3	5.5
45-64 Years	2,584	9.4	7.6	11.6
65+ Years	1,734	28.0	24.7	31.6
Education				
No High School Diploma	1,155	13.3	10.0	17.3
H. S. Graduate	1,748	8.7	7.0	10.6
Some College	1,730	6.8	5.5	8.4
College +	2,131	7.0	5.5	9.0
Income?				
Less Than \$25,000	2,004	12.0	10.1	14.2
\$25,000 thru \$49,999	1,560	8.5	6.4	11.2
\$50,000 or more	2,137	4.6	3.4	6.2
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 2. Cardiovascular Disease for Males, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide Male	134,207	9.5	9.2	9.8
Texas Male	4,353	8.2	7.0	9.7
Race/Ethnicity				
White	1612	10.3	8.3	12.6
Black	198	7.8	4.7	12.6
Hispanic	527	4.7	2.9	7.0
Age Group				
18-29 Years	272	2.6	1.2	5.5
30-44 Years	605	2.2	1.2	3.9
45-64 Years	984	10.4	7.5	14.1
65+ Years	562	32.9	27.4	39.0
Education				
No High School Diploma	347	10.9	7.0	16.6
H. S. Graduate	588	8.2	5.8	11.3
Some College	612	6.8	4.8	9.4
College +	879	9.0	6.5	12.3
Income				
Less Than \$25,000	574	10.8	8.2	14.1
\$25,000 thru \$49,999	580	11.1	7.6	16.1
\$50,000 or more	970	5.5	4.0	7.5
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 3. Cardiovascular Disease for Females, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide Female	218,428	7.7	7.3	7.8
Texas Female	4,353	8.2	7.0	9.7
Race/Ethnicity				
White	2604	8.8	7.0	10.9
Black	453	8.4	5.5	12.6
Hispanic	1154	7.6	5.7	10.1
Age Group				
18-29 Years	426	1.3	0.6	3.1
30-44 Years	1085	4.9	2.9	8.4
45-64 Years	1600	8.4	6.4	11.0
65+ Years	1172	24.4	20.5	28.7
Education				
No High School Diploma	808	15.0	10.5	21.0
H. S. Graduate	1160	9.1	7.1	11.7
Some College	1118	6.8	5.2	8.9
College +	1252	4.8	3.3	6.8
Income				
Less Than \$25,000	1430	12.8	10.3	15.8
\$25,000 thru \$49,999	980	5.7	4.0	8.0
\$50,000 or more	1167	3.4	1.8	6.5
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 4. Heart Disease, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	352,751	6.9	6.7	7.0
Texas	6,790	6.6	5.7	7.5
Gender				
Male	2,440	6.9	5.7	8.3
Female	4,350	6.3	5.1	7.7
Race/Ethnicity				
White	4,218	7.8	6.5	9.2
Black	649	5.2	3.6	7.5
Hispanic	1,679	4.6	3.4	6.1
Age Group				
18-29 Years	699	1.7	0.9	3.2
30-44 Years	1,689	3.0	1.8	4.9
45-64 Years	2,581	6.9	5.3	8.8
65+ Years	1,735	22.7	19.6	26.1
Education				
No High School Diploma	1,153	9.9	7.1	13.7
H. S. Graduate	1,748	6.2	4.9	7.8
Some College	1,731	5.4	4.2	6.9
College +	2,130	6.3	4.8	8.2
Income				
Less Than \$25,000	2,004	8.9	7.3	10.9
\$25,000 thru \$49,999	1,561	7.1	5.1	9.7
\$50,000 or more	2,137	3.8	2.7	5.3
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, or Coronary Heart Disease.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 5. Heart Disease for Males, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide Male	134,255	8.1	7.8	8.4
Texas Male	2,440	6.9	5.7	8.3
Race/Ethnicity				
White	1613	8.5	6.8	10.6
Black	198	6.6	3.8	11.3
Hispanic	527	3.1	1.8	5.4
Age Group				
18-29 Years	272	2.0	0.9	4.7
30-44 Years	605	1.7	0.1	3.2
45-64 Years	983	7.6	5.2	10.9
65+ Years	564	29.0	23.7	34.9
Education				
No High School Diploma	347	7.0	4.5	10.5
H. S. Graduate	588	5.9	4.1	8.3
Some College	614	5.9	4.2	8.2
College +	878	8.3	5.8	11.6
Income				
Less Than \$25,000	576	7.9	5.9	10.5
\$25,000 thru \$49,999	580	10.7	7.1	15.5
\$50,000 or more	970	4.4	3.2	6.2
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, or Coronary Heart Disease.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

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Table 6. Heart Disease for Female, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide Female	218,496	5.7	5.5	5.9
Texas Female	4,350	6.3	5.1	7.7
Race/Ethnicity				
White	2605	6.9	5.3	9.0
Black	451	4.3	2.6	7.1
Hispanic	1152	5.9	4.1	8.3
Age Group				
18-29 Years	427	1.3	0.5	3.1
30-44 Years	1084	4.3	2.3	7.9
45-64 Years	1598	6.1	4.3	8.6
65+ Years	1171	18.0	14.6	22.1
Education				
No High School Diploma	806	12.1	7.8	18.3
H. S. Graduate	1160	6.5	4.8	8.8
Some College	1117	5.0	3.5	6.9
College +	1252	3.9	2.6	5.8
Income				
Less Than \$25,000	1428	9.7	7.3	12.6
\$25,000 thru \$49,999	981	3.3	2.2	4.9
\$50,000 or more	1167	3.0	1.4	6.2
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, or Coronary Heart Disease.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

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Table 7. Stroke, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	354,793	2.7	2.6	2.8
Texas	6,837	2.6	2.1	3.2
Gender				
Male	2,451	2.3	1.6	3.3
Female	4,386	2.9	2.3	3.5
Race/Ethnicity				
White	4,243	2.6	2.0	3.3
Black	657	3.6	2.2	5.9
Hispanic	1,690	2.5	1.7	3.6
Age Group				
18-29 Years	701	0.5	0.1	1.7
30-44 Years	1,696	1.1	0.6	1.9
45-64 Years	2,599	3.5	2.5	4.9
65+ Years	1,750	7.7	6.1	9.7
Education				
No High School Diploma	1,167	4.7	3.1	7.2
H. S. Graduate	1,763	3.5	2.5	4.9
Some College	1,738	2.2	1.5	3.2
College +	2,141	1.2	0.8	1.8
Income				
Less Than \$25,000	2,021	4.6	3.6	5.9
\$25,000 thru \$49,999	1,570	2.4	1.6	3.5
\$50,000 or more	2,142	1.0	0.6	1.8
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

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Table 8. Stroke for Male, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	135,011	2.6	2.5	2.8
Texas Male	2,451	2.3	1.6	3.3
Race/Ethnicity				
White	1621	2.4	1.5	3.9
Black	199	2.2	1.0	4.7
Hispanic	528	1.9	0.9	4.0
Age Group				
18-29 Years	274	0.7	0.2	3.2
30-44 Years	605	0.9	0.3	2.6
45-64 Years	991	3.4	1.8	6.1
65+ Years	564	7.0	4.6	10.4
Education				
No High School Diploma	347	4.8	2.1	10.7
H. S. Graduate	594	3.4	1.9	6.1
Some College	614	1.4	0.6	3.2
College +	883	1.3	0.8	2.0
Income				
Less Than \$25,000	577	4.6	2.8	7.3
\$25,000 thru \$49,999	582	1.8	1.0	3.4
\$50,000 or more	973	1.2	0.6	2.7
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

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Table 9. Stroke for Female, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide Female	219,782	2.7	2.6	2.9
Texas Female	4,386	2.9	2.3	3.5
Race/Ethnicity				
White	2622	2.7	2.1	3.5
Black	458	4.6	2.5	8.2
Hispanic	1162	2.9	1.9	4.5
Age Group				
18-29 Years	427	0.2	0.0	0.7
30-44 Years	1091	1.3	0.7	2.4
45-64 Years	1608	3.7	2.6	5.1
65+ Years	1186	8.3	6.2	10.9
Education				
No High School Diploma	820	4.7	3.2	7.1
H. S. Graduate	1169	3.6	2.5	5.1
Some College	1124	2.9	2.0	4.3
College +	1258	1.1	0.5	2.2
Income				
Less Than \$25,000	1444	4.6	3.5	6.0
\$25,000 thru \$49,999	988	3.0	1.8	4.9
\$50,000 or more	1169	0.8	0.4	1.7
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 10. Cardiovascular Disease, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	352,635	8.5	8.3	8.7
Texas	6,792	8.3	7.4	9.4
Public Health Administration Regions				
Public Health Administrative Region 1	812	8.6	6.3	11.8
Public Health Administrative Region 2/3	1,396	8.0	6.4	10.0
Public Health Administrative Region 4/5N	971	11.5	8.5	15.3
Public Health Administrative Region 6/5S	700	7.2	4.7	11.0
Public Health Administrative Region 7	860	7.5	5.8	9.6
Public Health Administrative Region 8	674	9.0	6.9	11.8
Public Health Administrative Region 9/10	694	8.1	5.6	11.5
Public Health Administrative Region 11	417	8.6	6.0	12.2
Metropolitan Statistical Areas				
Austin-Round Rock MSA	519	7.7	5.6	10.5
Dallas-Plano-Irving PMSA	531	7.2	5.1	10.1
Ft. Worth-Arlington PMSA	470	9.6	6.5	14.1
El Paso MSA	493	6.4	3.6	11.1
Houston-Baytown-Sugar Land MSA	532	7.8	4.9	12.2
San Antonio MSA	514	8.3	6.1	11.1
All Metropolitan Statistical Areas	5,094	8.0	6.9	9.3
Non Metropolitan Statistical Areas	1,430	9.6	8.0	11.6
Texas Border with Mexico				
Border Counties (32 La Paz Agreement)	856	8.8	6.4	12.1
Non Border Counties	5,668	8.3	7.2	9.4
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 11. Heart Disease, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	352,751	6.9	6.7	7.0
Texas	6,790	6.6	5.7	7.5
Public Health Administration Regions				
Public Health Administrative Region 1	813	7.8	5.6	10.8
Public Health Administrative Region 2/3	1,396	6.5	5.1	8.3
Public Health Administrative Region 4/5N	971	7.9	5.8	10.6
Public Health Administrative Region 6/5S	700	6.4	3.9	10.1
Public Health Administrative Region 7	860	6.3	4.7	8.3
Public Health Administrative Region 8	673	6.5	4.8	8.7
Public Health Administrative Region 9/10	692	6.2	4.0	9.6
Public Health Administrative Region 11	417	5.2	3.5	7.5
Metropolitan Statistical Areas				
Austin-Round Rock MSA	518	6.7	4.7	9.3
Dallas-Plano-Irving PMSA	531	6.0	4.1	8.7
Ft. Worth-Arlington PMSA	470	7.0	4.3	11.0
El Paso MSA	493	5.4	2.8	10.3
Houston-Baytown-Sugar Land MSA	532	6.4	3.8	10.6
San Antonio MSA	513	6.0	4.3	8.4
All Metropolitan Statistical Areas	5,093	6.3	5.3	7.5
Non Metropolitan Statistical Areas	1,429	7.5	6.0	9.2
Texas Border with Mexico				
Border Counties (32 La Paz Agreement)	855	5.8	4.0	8.3
Non Border Counties	5,667	6.6	5.7	7.7
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

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Table 12. Stroke, Texas BRFSS 2006

	Sample Size*	% at risk	95% CI	
			Lower	Upper
Nationwide	354,793	2.7	2.6	2.8
Texas	6,837	2.6	2.1	3.2
Public Health Administration Regions				
Public Health Administrative Region 1	816	2.1	1.2	3.5
Public Health Administrative Region 2/3	1,407	2.7	1.8	4.0
Public Health Administrative Region 4/5N	974	4.2	2.2	7.7
Public Health Administrative Region 6/5S	701	1.2	0.7	2.3
Public Health Administrative Region 7	869	2.1	1.4	3.1
Public Health Administrative Region 8	682	3.6	2.2	5.8
Public Health Administrative Region 9/10	696	2.3	1.4	3.8
Public Health Administrative Region 11	421	4.7	2.7	8.1
Metropolitan Statistical Areas				
Austin-Round Rock MSA	522	2.2	1.3	3.8
Dallas-Plano-Irving PMSA	533	2.4	1.3	4.5
Ft. Worth-Arlington PMSA	475	3.7	1.9	7.1
El Paso MSA	493	1.3	0.7	2.7
Houston-Baytown-Sugar Land MSA	534	1.7	0.7	4
San Antonio MSA	518	2.6	1.4	4.5
All Metropolitan Statistical Areas	5,122	2.5	1.9	3.2
Non Metropolitan Statistical Areas	1,444	3.2	2.3	4.4
Texas Border with Mexico				
Border Counties (32 La Paz Agreement)	861	4.3	2.5	7
Non Border Counties	5,705	2.5	2.0	3
Notes				
<p>Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.</p> <p>*The sample size includes all survey respondents except those with missing, "don't know", or "refused" answers.</p>				

APPENDIX 3 - Tables

Table 13. Number of Deaths and Death Rate per 100,000 Residents for Total CVDs and Four CVD Categorize, by Gender, Race/Ethnicity, and Age*: Texas, 2004

Characteristics	Total CVDs (ICD 10 I00-I99)		Disease of Heart (ICD-10 I00- I09,I11,I13,I20-I51)		Coronary Heart Disease (ICD-10 I11,I20-I25)		Acute Myocardial Infection (ICD-10 I21-I22)		Stroke (ICD-10 I60-I69)	
	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000
U.S Total										
Texas Total	53,450	237.7	40,091	178.3	29,987	133.3	12,048	53.6	9,831	43.7
Age-Adjusted										
U.S Total										
Texas Total	53,447	299.4	40,089	223.6	29,986	167.0	12,048	67.0	9,830	55.9
Male	25,817	335.3	20,371	262.5	15,867	203.8	6,476	83.1	3,899	52.5
Female	27,630	267.5	19,718	190.8	14,119	136.7	5,572	54.0	5,931	57.5
White	38,073	303.1	28,765	228.7	21,351	169.3	8,577	68.0	6,845	54.8
Afr. American	6,827	423.4	4,985	305.9	3,692	228.2	1,314	82.9	1,336	85.6
Hispanic	7,962	239.4	5,932	178.3	4,619	140.5	2,031	60.8	1,511	45.4
Other	585	141.4	407	97.2	324	75.7	126	29.6	138	34.2
Age-Specific										
0-34	549	4.6	416	3.5	126	1.1	46	0.4	87	0.7
35-44	1,255	37.3	997	29.6	660	19.6	216	6.4	198	5.9
45-54	3,441	115.4	2,737	91.8	2,134	71.6	871	29.2	495	16.6
55-64	5,862	298.9	4,755	242.4	3,869	197.3	1,573	80.2	771	39.3
65-74	8,894	741.3	6,871	572.7	5,401	450.2	2,326	193.9	1,416	118.0
75+	33,446	3,322.6	24,313	2,415.3	17,796	1,767.9	7,016	697.0	6,863	681.8
0-34	549	4.6	416	3.5	126	1.1	46	0.4	87	0.7
35-44	1,255	37.3	997	29.6	660	19.6	216	6.4	198	5.9
45-64	9,303	188.2	7,492	151.6	6,003	121.4	2,444	49.4	1,266	25.6
65+	42,340	1,919.0	31,184	1,413.4	23,197	1,051.4	9,342	423.4	8,279	375.2
0-34	549	4.6	416	3.5	126	1.1	46	0.4	87	0.7
35+	52,898	503.0	39,673	377.3	29,860	284.0	12,002	114.1	9,743	92.7

Note: International Classification of Disease Codes in Table 13, 14, and 15

Disease	CD-10	CD-9
Total CVDs	I00-I99	390-459
Disease of the Heart	I00-I09, I11, I13, I20-I51	390-398, 402, 404, 410-429
Acute Myocardial Infection	I21-I22	410
Coronary Heart Disease	I11, I20-I25	402, 410-414, 429.2
Stroke	I60-I69	430-434, 436-438
Heart Failure	I50	428

APPENDIX 3 - Tables

Table 14. Number of Deaths and Death Rate per 100,000 Residents for Total CVDs and Four CVD Categorize, by Male, Race/Ethnicity, and Age*: Texas, 2004

Characteristics	Total CVDs (ICD 10 I00-I99)		Disease of Heart (ICD-10 I00- I09,I11,I13,I20-I51)		Coronary Heart Disease (ICD-10 I11,I20-I25)		Acute Myocardial Infarction (ICD-10 I21-I22)		Stroke (ICD-10 I60-I69)	
	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000
U.S Total										
Texas Total	25,820	230.1	20,373	181.5	15,868	141.4	6,476	57.7	3,900	34.8
Age-Adjusted										
U.S Total										
Texas Total	25,817	335.3	20,371	262.5	15,867	203.8	6,476	83.1	3,899	52.5
Male	25,817	335.3	20,371	262.5	15,867	203.8	6,476	83.1	3,899	52.5
Female	-	-	-	-	-	-	-	-	-	-
White	17,997	337.4	14,380	267.8	11,196	207.2	4,589	84.6	2,565	49.8
Afr. American	3,264	478.6	2,478	358.5	1,862	270.1	629	94.9	559	85.9
Hispanic	4,248	283.5	3,290	219.1	2,618	177.9	1,184	78.4	712	47.9
Other	308	163.3	223	116.2	191	95.4	74	38.0	63	34.8
Age-Specific										
0-34	345	5.6	270	4.4	89	1.4	30	0.5	44	0.7
35-44	853	50.2	698	41.4	477	28.1	147	8.7	121	7.1
45-54	2,364	159.8	1,948	131.6	1,573	106.3	649	43.9	277	18.7
55-64	3,939	413.8	3,291	345.7	2,738	287.6	1,125	118.2	446	46.9
65-74	5,191	937.8	4,146	749.0	3,376	609.9	1,461	263.9	700	126.5
75+	13,125	3,394.4	10,018	2,590.9	7,614	1,969.1	3,064	792.4	2,311	597.7
0-34	345	5.6	270	4.4	89	1.4	30	0.5	44	0.7
35-44	853	50.2	698	41.1	477	28.1	147	8.7	121	7.1
45-64	6,303	259.2	5,239	215.4	4,311	177.3	1,774	73.0	723	29.7
65+	18,316	1,948.1	14,164	1,506.5	10,990	1,168.9	4,525	481.3	3,011	320.3
0-34	345	5.6	270	4.4	89	1.4	30	0.5	44	0.7
35+	25,472	502.4	20,101	396.5	15,778	311.2	6,446	127.1	3,855	76.0

APPENDIX 3 - Tables

Table 15. Number of Deaths and Death Rate per 100,000 Residents for Total CVDs and Four CVD Categorize, by Female, Race/Ethnicity, and Age*: Texas, 2004

Characteristics	Total CVDs (ICD 10 I00-I99)		Disease of Heart (ICD-10 I00- I09,I11,I13,I20-I51)		Coronary Heart Disease (ICD-10 I11,I20-I25)		Acute Myocardial Infarction (ICD-10 I21-I22)		Stroke (ICD-10 I60- I69)	
	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000	N	Per 100,000
U.S Total										
Texas Total	27,630	245.2	19,718	175.0	14,119	125.3	5,572	49.4	5,931	52.6
Age-Adjusted										
U.S Total										
Texas Total	27,630	267.5	19,718	190.8	14,119	136.7	5,572	54.0	5,931	57.5
Male	-	-	-	-	-	-	-	-	-	-
Female	27,630	267.5	19,718	190.8	14,119	136.7	5,572	54.0	5,931	57.5
White	20,076	271.5	14,385	194.9	10,155	137.5	3,988	54.2	4,280	57.6
Afr. American	3,563	379.5	2,507	265.5	1,830	195.4	685	73.8	777	84.0
Hispanic	3,714	203.8	2,642	145.7	2,001	111.2	847	46.8	799	43.2
Other	277	124.5	184	82.4	133	60.1	52	23.1	75	33.7
Age-Specific										
0-34	204	3.5	146	2.5	37	0.6	16	0.3	43	0.7
35-44	402	24.1	299	17.9	183	11.0	69	4.1	77	4.6
45-54	1,077	71.7	789	52.5	561	37.3	222	14.8	218	14.5
55-64	1,923	190.5	1,464	145.0	1,131	112.0	448	44.4	325	32.2
65-74	3,703	573.1	2,725	421.7	2,025	313.4	865	133.9	716	110.8
75+	20,321	3,277.8	14,295	2,305.8	10,182	1,642.0	3,952	637.5	4,552	734.2
0-34	204	3.5	146	2.5	37	0.6	16	0.3	43	0.7
35-44	402	24.1	299	17.9	183	11.0	69	4.1	77	4.6
45-64	3,000	119.4	2,253	89.7	1,692	67.4	670	26.7	543	21.6
65+	24,024	1897.4	17,020	1,344.2	12,207	964.1	4,817	380.4	5,268	416.1
0-34	204	3.5	146	2.5	37	0.6	16	0.3	43	0.7
35+	27,426	503.6	19,572	359.4	14,082	258.6	5,556	102.0	5,888	108.1

TECHNICAL NOTES

Definition:

Cardiovascular disease (CVD)

Cardiovascular disease (CVD) refers to a group of diseases including heart disease, stroke and congestive heart failure. Heart attack and stroke are caused in part by narrowed or blocked arteries resulting in decreased blood supply to the heart or brain.

Codes used to define CVD: ICD-10 codes I00-I99; ICD-9 codes 390-459

Heart Disease

Heart disease is a form of cardiovascular disease: It includes all diseases of the heart, which includes acute rheumatic fever and chronic rheumatic heart disease, hypertensive heart disease, hypertensive heart and renal disease, coronary heart disease, congestive heart failure, as well as other forms of heart disease.

In this report we used the ICD codes as follows:

Ischemic heart diseases

Codes used to define, Ischemic heart diseases ICD-9 410 – 414 and ICD-10 I20 - I25

Stroke⁵

Stroke is a type of cardiovascular disease. It affects the arteries leading to and within the brain.

Codes used to define: ICD-10 codes I60-I69 and ICD-9 430-432 (Hemorrhagic stroke), ICD-9 433, 434, and 436-438 (Ischemic stroke)

Heart Failure⁶

Congestive heart failure occurs when the heart loses its ability to pump enough blood through the body.

Codes used to define congestive heart failure: ICD-10 codes I50 and ICD-9 codes 428.

TECHNICAL NOTES

Mortality

CVD mortality data used for this report are from 1999 through 2004 that was obtained from Vital Statistics Unit (VSU) death certificates.

For this report, age-adjusted CVD mortality rates are calculated and presented per 100,000 populations. Rates were age adjusted to the 2000 US population so that valid comparisons can be made between populations of different age distributions.

Methods

Texas death certificate data were compiled and tabulated by the Statistical Services Division of the Texas Department of State Health Services' (DSHS) Vital Statistics Unit. Cause of death was coded according to the International Classification of Diseases, both Ninth and Tenth Editions (ICD-9 and ICD-10). The US 2000 population was used for age standardization (age adjustment) of death rates replacing the previous 1940 population standard. ICD-10 codes of I00-I99 were used to define major cardiovascular disease, I20-I25 for ischemic heart disease, I60-I69 for stroke, and I50 for congestive heart failure. Death trends by sex-, race-, and age-specific mortality data were computed for 1999 through 2004.

This publication also includes maps of selected chronic disease death rates for the state as a whole and at the county level. The maps allow the reader to identify areas in the state with significantly high or low rates of disease deaths. Although county rates provide a high degree of specificity, rates in counties with small populations and few deaths for a specific condition can be unreliable. For each map, county specific rates are ranked from highest to lowest and then categorized into quartiles. The maps also use a graded color scheme to differentiate each quartile, with the darkest color representing counties with the highest rates and the lightest color representing counties with the lowest rates.

Statewide Mortality

Cardiovascular diseases accounted for 33 percent of all deaths in Texas for the six year period of 1999-2004. Among the 49,922 total deaths from major CVD in 2004, 80% were due to ischemic heart disease (IHD) and 20% were due to stroke.

Data Limitations

Vital Statistics Unit (VSU) death certificates have CVD listed as an underlying cause of death. While the underlying cause of death has generally been used for charting temporal and geographic patterns of death, analyses based on underlying cause alone can fail to include significant conditions present at death. The mortality data from 1999 and later cannot be directly compared with the data from previous years due to the ICD-9 to ICD-10 coding change.

TECHNICAL NOTES

Prevalence and Risk Factors

Prevalence is the proportion of people in a population who have a specific disease at a point in time or a given time period. Prevalence estimates are often used to describe the burden of a disease for a given population. Texas cardiovascular disease prevalence estimates are based on self-reported data from behavioral risk factor surveillance system (BRFSS).

The Behavioral Risk Factor Surveillance System (BRFSS) is the source of self-reported prevalence data. The Texas BRFSS collects health status, risk, and behavioral data by means of a monthly telephone survey of randomly selected Texas residents.

The data are weighted to reflect the statewide age and sex distribution as well as the individual's probability of being selected and to provide estimates that represent the Texas population as a whole.

In this report, the definition for CVD prevalence and each of the risk factors are:

1. CVD defined as respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, Coronary Heart Disease, or Stroke.
2. Heart disease defined as Respondents 18 years and older who report that they have been diagnosed as having had a Heart Attack, Myocardial Infarction, Angina, or Coronary Heart Disease.
3. Stroke defined as Respondents 18 years and older who report that they have been diagnosed as having had a Stroke.
4. High blood pressure defined as respondents 18 years and older who report that they have been diagnosed with high Blood Pressure, but not during pregnancy.
5. High blood cholesterol defined as respondents 18 years and older who report that they have been diagnosed with high Blood Cholesterol.
6. Diabetes defined as Respondents 18 years and older who report that they have been diagnosed with Diabetes. It does not include gestational diabetes.
7. Current smoker defined as Respondents 18 years and older who have smoked 100 cigarettes in their lifetime and now smoke every day or some days.
8. Overweight or obesity defined as Respondents 18 years and older who reports that their Body Mass Index (BMI) is 25.0 or more. BMI is defined as weight in kilograms divided by height in meters squared (w/h^{**2}).

TECHNICAL NOTES

9. Physical activity defined as Respondents 18 years and older who report no leisure-time physical activity during the past month.

10. Fruit & Vegetable Consumption defined as calculated field of Respondents 18 years and older who report that they have < 5 servings of certain fruits, fruit juices, or vegetables per day.

Limitation

First, BRFSS survey does not include persons, who are under the age of 18 years, who live in institutions, have no telephone, or have only a mobile phone. Which may results in a biased survey population due to under-representation of certain segments of the population. Second, there is a potential for recall bias, as self-reported information regarding CVD and risk factors was used.

Hospital Discharge Data

Hospital discharge data are a rich resource of information about the patterns of care, the public health burden and the costs associated with chronic disease morbidity. The Texas Health Care Information Council (THCIC) is responsible for collecting hospital discharge data from all state licensed hospitals except those that are statutorily exempt from the reporting requirement. All reporting hospitals are required to submit discharged inpatient claims data on a quarterly basis, using the uniform bill (UB-92) format.

Hospital discharge data for CVD are obtained from the (THCIC) Inpatient Hospital Discharge Public Use data files. Hospital discharge data have been available in Texas Since 1999. The data represented in this report is for the period from 2001 to 2005.

- ICD Codes used for Hospital discharge data analysis are:
- Ischemic Heart Disease (IHD) ICD-9: 410-414
- Hemorrhagic Stroke (HS) ICD-9: 430-432
- Ischemic Stroke (IS) ICD-9: 436-438, 433, and 434
- Congestive Heart Failure (CHF) ICD-9: 428

Limitation of the data:

Valid hospital discharge data are only available since the third quarter of 2000. Earlier data were not reported correctly by some hospitals. Hospitals must submit data no later than 60 days after the close of a calendar quarter. Depending on the hospitals' collection and billing cycles, not all discharges may have been billed or reported. This can affect the accuracy of source of payment data, particularly self pay and charity that later qualify for Medicaid or other payment sources. TCHIC hospital discharge data represent the number of hospitalizations and not the number of individuals who had complications due to CVD. For CVD conditions, an individual can be hospitalized more than once for the same condition during the hospitalization period and multiple hospitalizations cannot be distinguished from the data source since the data has been de-identified.

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Health Plan Employer Data and Information Set (HEDIS®)

HEDIS is a tool used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service.

It is a set of standardized performance measures designed to provide purchasers and consumers with the information they need to reliably compare the performance of health care plans. The performance measures in HEDIS® are related to many significant public health issues such as cancer, heart disease, smoking, asthma and diabetes. HEDIS® is sponsored, supported and maintained by the National Committee on Quality Assurance (NCQA), a not for profit organization committed to assessing, reporting on and improving the quality of care provided by organized delivery systems.

For more information on HEDIS®, Quality Compass or NCQA please visit <http://web.ncqa.org/tabid/59/Default.aspx>.

Knowledge of Heart Attack and Stroke Signs/Symptoms Texas BRFSS

Recognition of heart attack and stroke signs and symptoms by the individual and/or their family/friends is the first and most crucial factor in timely emergency response for heart attack and stroke. There for, it is also important that more people learn to recognize symptoms of heart attack and stroke, and that they know to seek professional medical assistance immediately after recognizing these symptoms (e.g., call 911). Currently about 47% of heart attack and stroke victims die before medical personnel arrive⁴.

The 2005 Texas BRFSS contained questions that tested participant's knowledge of heart attack and stroke symptoms. The series of questions asked the participants if they thought each of the symptoms were a sign of a heart attack. Another series of questions asked the participants if they thought each of the symptoms were a sign of stroke. Participants could answer yes, no, don't know, or not sure. The results of these questions are summarized in the report and figures.

Heart attack warning signs BRFSS question include:

Do you think pain or discomfort in the jaw, neck, or back are symptoms of a heart attack?

Do you think feeling weak, lightheaded, or faint is symptoms of a heart attack?

Do you think chest pain or discomfort is symptoms of a heart attack?

Do you think sudden trouble seeing in one or both eyes is a symptom of a heart attack?

Do you think pain or discomfort in the arms or shoulder is symptoms of a heart attack?

Do you think shortness of breath is a symptom of a heart attack?

TECHNICAL NOTES

Stroke warning signs BRFSS question include:

Do you think sudden confusion or trouble speaking are symptoms of a stroke?

Do you think sudden numbness or weakness of face, arm, or leg, especially on one side are symptoms of a stroke?

Do you think sudden trouble seeing in one or both eyes is a symptom of a stroke?

Do you think sudden chest pain or discomfort is symptoms of a stroke?

Do you think sudden trouble walking, dizziness, or loss of balance is symptoms of a stroke?

Do you think severe headache with no known cause is a symptom of a stroke?

If you thought someone was having a heart attack or a stroke, what is the first thing you would do?

Emergency Medical Services Response (EMS) Time Data

Cardiovascular disease is a major cause for use of emergency medical services (EMS) in Texas. In 2003 or 2004 at least 25,000 EMS transports occurred among people in Texas for suspected cardiac events (cardiac Arrest, cardiac rhythm disturbance, and chest pain/discomfort), and stroke.

The data in this report are from the 2003 and 2004 Texas EMS/Trauma Registry, Department of State Health Services in Texas.

Data selection Criteria for use in this report are as follows:

- Calls received during 2003 and 2004
- Suspected illness types include cardiac arrest, cardiac rhythm disturbance, and chest pain/discomfort
- Suspected illness types defined as stroke/CVA.
- Medical-related calls only (i.e. calls exclusively related to trauma were excluded)
- 911 calls only (no inter-facility transfers)
- Texas residents only

Data Limitations:

- The Registry does not receive medical-related calls from all participating EMS providers. Any numbers presented in this report are likely underestimations and caution should be exercised when interpreting these data.
- Due to the quality of data submitted to the Registry, identification of all reported CVD-related runs was not possible. Several fields were used in the creation of this dataset (see above), so data quality in each of these fields determined if a case was appropriately selected.

TECHNICAL NOTES

- These numbers are in terms of CVD-related runs, not necessarily in terms of people.
- City of residence is not reported with enough consistency to be utilized in analysis.
- In the tables, total count refers to the total number of records in each geographic area being examined and valid values refers to the number of records within each geographic area that had the variables necessary to calculate the given indicator.

Counties designated as “Border” in the La Paz Agreement, utilized here, include Brewster, Brooks, Cameron, Crockett, Culberson, Dimmit, Duval, Edwards, El Paso, Frio, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Kenedy, Kinney, La Salle, Maverick, McMullen, Pecos, Presidio, Real, Reeves, Starr, Sutton, Terrell, Uvalde, Val Verde, Webb, Willacy, Zapata, and Zavala.

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