Most people are aware that health disparities disproportionately plague the residents of South Texas more so than the rest of Texas or the nation.

But now, for the first time ever, we have crafted a single document that compiles detailed statistics of dozens of health conditions to illustrate these disparities by age, sex, and race/ethnicity for South Texas’ 38 metropolitan or non-metropolitan counties, the rest of Texas and the nation.

Want to see how the prevalence of breast cancer among ethnicities or diabetes’ effects on different age groups in South Texas compare to the rest of Texas or the nation? This and more is in the following review, an easy-to-read manual that tells you about each health condition before breaking down and comparing statistics and demographics. This truly is the roadmap of health disparities in South Texas.

We hope this South Texas Health Status Review gives researchers a handle on what disparities exist among South Texas populations – information that could stimulate and shape research and interventions to counteract those very disparities and bring health parity to those who need it most.
The following people and institutions contributed to the development of this review. For their vital input, we would like to thank:

Regional Academic Health Center, UT Health Science Center at San Antonio

Leonel Vela, Dean, M.D., M.P.H.

School of Medicine, UT Health Science Center at San Antonio

William Henrich, Dean, M.D., M.A.C.P.

Institute for Health Promotion Research, UT Health Science Center at San Antonio

Amelie Ramirez, Director, Dr.P.H., Kip Gallion, Deputy Director, M.A., Patricia Chalela, Dr.P.H., Luis Velez, M.D., Ph.D., and Edgar Munoz

Cancer Therapy & Research Center, UT Health Science Center at San Antonio

Tyler Curiel, Director, M.D., M.P.H.
ACKNOWLEDGEMENTS

Texas Department of State Health Services
Natalie Archer, M.S., Lucina Suarez, Ph.D., and John Villanacci, Ph.D., NREMT-I

Center for Health Statistics

Texas Behavioral Risk Factor Surveillance System
Michelle Cook, M.P.H.

Office of Border Health
RJ Dutton, Ph.D.

Infectious Disease Surveillance Branch, Infectious Disease Control Unit
Maria Rodriguez and Carrie Grove, B.S.

Various branches of the Epidemiology and Disease Surveillance Unit
Cynthia Taylor, M.S., Ed Weckerly, M.S., Tammy Sajak, M.P.H., David Risser, Ph.D., M.P.H., Erin Fox, Ph.D., Melanie Williams, Ph.D., Peter Langlois, Ph.D., LJ Smith, M.S., Maribel Valls, B.S. R.T.(R), Brienne Brown, B.J. and Cristina Baker, M.P.H.
South Texas Health Status Review

Table of Contents

Executive Summary ...................................................................................................................... 6
Introduction ................................................................................................................................. 8
  Background/Overview .............................................................................................................. 8
  Study Goals ............................................................................................................................ 10
South Texas Population Characteristics ..................................................................................... 12
Access to Health Care in South Texas ......................................................................................... 15
  Lack of Health Insurance ...................................................................................................... 15
  Health professional shortage areas (HPSAs) .......................................................................... 17
Communicable Diseases .............................................................................................................. 20
  Tuberculosis .......................................................................................................................... 20
  HIV/AIDS .............................................................................................................................. 25
  Syphilis .................................................................................................................................... 28
  Chlamydia ............................................................................................................................. 30
  Gonorrhea .............................................................................................................................. 33
Cancer Incidence and Mortality .................................................................................................... 38
  Breast Cancer ........................................................................................................................ 38
  Cervical Cancer ...................................................................................................................... 42
  Colorectal Cancer .................................................................................................................. 45
  Prostate Cancer .................................................................................................................... 48
  Lung and Bronchus Cancer .................................................................................................... 53
  Liver and Intrahepatic Bile Duct Cancer .............................................................................. 56
  Stomach Cancer .................................................................................................................... 60
  Gallbladder Cancer ............................................................................................................... 63
  Childhood and Adolescent Leukemia ..................................................................................... 66
Maternal and Child Health ........................................................................................................... 71
  Birth Defects ........................................................................................................................ 71
  Inadequate Prenatal Care ..................................................................................................... 78
  Infant Mortality ...................................................................................................................... 81
Chronic Diseases .......................................................................................................................... 85
  Diabetes .................................................................................................................................. 85
  Cardiovascular Disease Mortality ........................................................................................ 91
  Asthma ................................................................................................................................... 96
Behavioral Risk Factors in Adults ................................................................................................. 99
  Obesity ................................................................................................................................. 99
  Physical Activity .................................................................................................................. 103
  Nutrition ............................................................................................................................... 106
  Cigarette Smoking Behaviors ............................................................................................... 107
  Alcohol Use ........................................................................................................................ 110
  Cancer Screening Activities ................................................................................................. 113
Environmental Health Issues ...................................................................................................... 120
Executive Summary

South Texas, the 38-county area encompassing the Texas-Mexico border counties from Cameron County to Val Verde County, as well as Bexar County (includes San Antonio), Webb County (includes Laredo), and the Lower Rio Grande Valley region (Cameron, Willacy, Hidalgo, and Starr counties), is home to a unique population – of the region’s four million residents, almost 20 percent of the entire state population in 2006, two-thirds are Hispanic. Compared to the rest of Texas, this population is less educated, has a considerably lower per capita personal income, and has less access to health care. One-third of South Texas adults are uninsured. This report focuses on the health of South Texas residents and explores whether there are health disparities among different populations within South Texas or between people who live there and people who live in the rest of Texas and nation. This study examines many health status indicators for disease incidence and mortality and behavioral factors that might put individuals at higher risk of disease or premature mortality.

For 12 of the health conditions studied, South Texas was at a disadvantage compared to the rest of Texas. For another 12 health conditions, incidence/mortality rates or prevalence in South Texas were lower than the rest of Texas. Four conditions had similar rates in South Texas and the rest of Texas. For many of the health conditions, there was a greater occurrence of disease in Hispanics than non-Hispanic whites, and Hispanics in South Texas often had higher rates than Hispanics in the rest of Texas.

The 12 conditions for which South Texas had a higher incidence or prevalence than the rest of Texas were:

- Tuberculosis
- Chlamydia
- Cervical Cancer
- Liver Cancer
- Stomach Cancer
- Gallbladder Cancer
- Child and Adolescent Leukemia

Some conditions in South Texas rival those of developing countries. This includes small towns called colonias, like the one pictured above, which typically have inadequate physical infrastructure and poverty-stricken living conditions.
- Neural Tube Defects
- Other Birth Defects (common truncus, reduction defects of the upper limb, pyloric stenosis)
- Adult Diabetes
- Adult Obesity
- Pesticide Poisoning

The 12 health conditions for which South Texas had lower incidence/mortality rates or prevalence than the rest of Texas were:
- HIV/AIDS
- Syphilis
- Gonorrhea
- Breast Cancer
- Colorectal Cancer
- Prostate Cancer
- Lung Cancer
- Infant Mortality
- Heart Disease Mortality
- Cerebrovascular Disease Mortality (Stroke)
- Motor Vehicle Crash Mortality
- Suicide

The modifiable factors that contribute to differences in mortality, incidence, or prevalence include nutrition, reproductive factors, access to health care, and other behavioral factors. For example, South Texas women were less likely to have had an up-to-date Pap test than women in the rest of Texas; this lack of screening likely contributes to the higher incidence of primary cervical cancer in South Texas. Many of the observed health disparities likely are exacerbated by the higher percentage of people in South Texas with no health insurance.

The prevalence of adult obesity and diabetes in South Texas was particularly noteworthy; South Texas had a higher prevalence of both adult obesity and diabetes than either the rest of Texas or the nation. Even among Hispanics who have the highest prevalence, those living in South Texas were at higher risk than Hispanics living elsewhere. Obesity, a causal risk factor for diabetes, can be directly linked to lifestyle behaviors such as inadequate physical activity and poor eating habits. Among all of the health conditions examined, obesity had the greatest impact on people living in South Texas, and diabetes had the second-greatest impact (persons affected per 100,000 population). Prevention research efforts directed at obesity and diabetes could significantly reduce the burden of disease in South Texas communities.
Introduction

The majority of individuals residing in South Texas are of Hispanic ethnicity (68% in 2006). Hispanics typically face a number of barriers to health care, including economic, cultural, and institutional barriers. Inadequate access to health care may lead to disparities in health outcomes. This report focuses on the health of South Texas residents. Health status indicators were analyzed to determine if disparities exist either between South Texans and those residing in the rest of Texas or among different populations within South Texas. The indicators in this document measure health status, mortality, and behavioral factors that might put individuals at an increased risk of disease or premature mortality.

Background/Overview

In this report, South Texas is defined as the 38-county area shown in Figure 1.1. It is a 45,970-square-mile area that encompasses a large portion of the Texas-Mexico border counties, from Cameron County (in southernmost Texas) to Val Verde County. Also shown in Figure 1.1 are Bexar County, Webb County, and the Lower Rio Grande Valley region, which were sometimes analyzed separately from the rest of South Texas.

Of the 38 counties covered in this report, 13 are considered metropolitan and 25 are considered non-metropolitan (Figure 1.2). A metropolitan county has a core urban area with a population of 50,000 or more. Any adjacent counties that have a high degree of economic and social integration with the core urban area are also designated as metropolitan counties. Counties not meeting these criteria are designated non-metropolitan.

In 2006, South Texas county populations ranged from 402 persons in Kenedy County to more than 1.5 million residents in Bexar County. In 2003, the average population density for South Texas metropolitan counties was 232.1 persons per square mile. The population density for non-metropolitan counties was considerably less, with an average of 15.8 persons per square mile.

The Regional Academic Health Center, part of The University of Texas Health Science Center at San Antonio, is headquartered at the above campus in Harlingen. The facility is a medical education and research program serving many South Texas counties.
Figure 1.1. Map of the 38-county South Texas study area.
Study Goals

The goal of this study is to examine a number of health status indicators to determine if disparities exist either between the South Texas population and the population in the rest of Texas or among South Texas subpopulations. This study identifies possible health disparities and makes recommendations about where to focus public health efforts. The health status indicators analyzed in this report are listed in Figure 1.3. These health status
Indicators were chosen because of potential disparities between the South Texas area and the rest of Texas, and, more importantly, because prevention strategies exist for most of these indicators.

**Figure 1.3.** List of health status indicators analyzed in this document.

<table>
<thead>
<tr>
<th>Health Status Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicable Diseases</strong></td>
</tr>
<tr>
<td>Tuberculosis</td>
</tr>
<tr>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>Syphilis</td>
</tr>
<tr>
<td>Gonorrhea</td>
</tr>
<tr>
<td>Chlamydia</td>
</tr>
<tr>
<td><strong>Behavioral Risk Factors</strong></td>
</tr>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Nutrition</td>
</tr>
<tr>
<td>Physical Activity</td>
</tr>
<tr>
<td>Smoking Behaviors</td>
</tr>
<tr>
<td>Alcohol Use</td>
</tr>
<tr>
<td>Cancer Screening</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**References**


South Texas Population Characteristics

More than four million people resided in South Texas in 2006, almost 20% of the entire Texas population. From 2000 to 2006, South Texas grew at the same rate as the rest of Texas. However, the population growth rates among specific race/ethnicities differ between South Texas and the rest of Texas (Table 2.1). Metropolitan counties in South Texas experienced more population growth between 2000 and 2006 than did non-metropolitan counties; an average of 13.6% population growth was seen in metropolitan areas, whereas non-metropolitan areas only grew by an average of 8%. The five fastest-growing counties in South Texas from 2000 to 2006 were Comal, Kendall, Hidalgo, Guadalupe, and Webb.¹

Table 2.1. Estimated percentage of population growth between 2000 and 2006 in South Texas and the rest of Texas, by race/ethnicity.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Texas</td>
<td>All Races</td>
<td>3,669,885</td>
<td>4,142,063</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>1,114,742</td>
<td>1,122,647</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>African-Amer.</td>
<td>135,438</td>
<td>145,060</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2,369,796</td>
<td>2,805,195</td>
<td>18.4</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>49,909</td>
<td>69,161</td>
<td>38.6</td>
</tr>
<tr>
<td>Rest of Texas</td>
<td>All Races</td>
<td>17,181,935</td>
<td>19,322,764</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>9,959,974</td>
<td>10,282,377</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>African-Amer.</td>
<td>2,286,215</td>
<td>2,517,482</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>4,299,870</td>
<td>5,666,152</td>
<td>31.8</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>635,876</td>
<td>856,753</td>
<td>34.7</td>
</tr>
</tbody>
</table>

Source: Texas Health Data (http://soupfin.tdh.state.tx.us/people.htm)

In 2006, 67.7% of the South Texas population was Hispanic, 27.1% was non-Hispanic white, and 3.5% was African American. In the rest of Texas, Hispanics comprised only 29.3% of the population and non-Hispanic whites were the clear majority – 53.2% of the population. Also, a much larger percentage of the rest of Texas population (13%) was African-American (Table 2.2).
Table 2.2. Race/ethnic breakdown of projected South Texas and rest of Texas populations, 2006.

<table>
<thead>
<tr>
<th>Race</th>
<th>South Texas (%)</th>
<th>Rest of Texas (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>27.1</td>
<td>53.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>67.7</td>
<td>29.3</td>
</tr>
<tr>
<td>African-American</td>
<td>3.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Other</td>
<td>1.7</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Source: Texas Health Data (http://soupfin.tdh.state.tx.us/people.htm)

The South Texas population as a whole was slightly younger than the rest of Texas in 2006 (Figure 2.1). Almost 41% of the individuals in South Texas are age 24 or younger (Figure 2.1).

Figure 2.1. Population age trends in South Texas, 2006.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/people.htm)

Overall, the adult South Texas population is slightly less educated than the total Texas population. In South Texas in 2000, 68% of the population age 25 or older were high school graduates, and 18% had a bachelor’s degree or higher. In comparison, 76% of the total Texas population age 25 or older were high school graduates, and 23% had a bachelor’s degree or higher.²
South Texas residents’ per capita personal income in 2003 was considerably lower than for all of Texas. The unemployment rate and poverty rate in South Texas were also higher in South Texas than in Texas as a whole (Table 2.3). In 2003, 7.4% of the South Texas population was unemployed and 22% of the population lived below the poverty level. During this same time period, the overall Texas unemployment rate was 6.7% and the poverty rate was 16%. The top-11 counties with the highest poverty rates in Texas in 2004 were all South Texas counties, with poverty rates ranging from 26.8% (Webb County) to 34.8% (Starr County).

Table 2.3. Socioeconomic statistics for South Texas and all of Texas.

<table>
<thead>
<tr>
<th>Socioeconomic Indicator</th>
<th>South Texas</th>
<th>All of Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent high school graduate or higher, 2000</td>
<td>67.7</td>
<td>78.8</td>
</tr>
<tr>
<td>Percent bachelor’s degree or higher, 2000</td>
<td>18.0</td>
<td>25.1</td>
</tr>
<tr>
<td>Per Capita Personal Income, 2003</td>
<td>$22,491</td>
<td>$29,074</td>
</tr>
<tr>
<td>Unemployment rate, 2003</td>
<td>7.4%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Poverty rate, 2003</td>
<td>22.1%</td>
<td>16.2%</td>
</tr>
</tbody>
</table>


An estimated 86% of South Texans are on public water systems, slightly less than the 93% estimate for the rest of Texas. Approximately 70% of South Texas residents are on fluoridated water systems.

References


Adequate access to health care services, including preventive services and treatment for illnesses, is critical to achieving positive health outcomes. Two major limitations of adequate access to care are a lack of health insurance and a shortage of health care providers in certain areas.¹

Lack of Health Insurance

Lack of health insurance coverage is a significant barrier to seeking and receiving health care.²,³ Nationwide, Hispanics and young adults ages 18-24 are more likely to be uninsured than other demographic groups.¹,²

Using Texas Behavioral Risk Factor Surveillance System (BRFSS) survey data, an estimated 33% of South Texas adults were uninsured during 2002-2005. South Texas had a higher percentage of uninsured residents than the rest of Texas. Both South Texas and the rest of Texas had a higher percentage of uninsured residents than the nationwide BRFSS estimate of about 16% (Figure 3.1). The estimated South Texas uninsured rate was twice as high as the national rate.

Figure 3.1. Estimated percent of the adult population (age 18 or older) with no health insurance by location, 2002-2005.
Source: Estimated Prevalence using the Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005
In South Texas during 2002-2005, Hispanics and African-Americans had much higher percentages of uninsured individuals than did non-Hispanic whites. Hispanics had the highest uninsured rate of all race/ethnic groups; an estimated 46% of the Hispanic South Texas population had no health insurance. The percentage of Hispanics with no health care was three times as high as for non-Hispanic whites, and the percentage of uninsured African-Americans was twice as high as for non-Hispanic whites (Figure 3.2).

Figure 3.2. Estimated percent of the adult (age 18 or older) South Texas population with no health insurance by race/ethnicity, 2002-2005.

Source: Estimated Prevalence using the Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005

It was estimated that, in 2002-2005, a little more than half of all adults ages 18-29 in South Texas had no health insurance (Figure 3.3). This youngest adult age group had the highest rate of uninsured individuals. The percentage of individuals with no health insurance dropped steadily with age (Figure 3.3).
Another major barrier to receiving adequate health care is a shortage of health care providers in certain locations. Twenty-one of the 38 South Texas counties are currently designated by the U.S. Department of Health and Human Services as (whole county service area) primary care health professional shortage areas (HPSAs).

The counties designated as primary care HPSAs in South Texas are shown in Figure 3.4. The HPSAs in this list are mostly non-metropolitan counties. However, a few metropolitan counties (such as Atascosa, Bandera, Medina, and Wilson) are designated as HPSAs, so a shortage of health professionals is also a problem in some South Texas metropolitan areas.
Figure 3.4. Map of currently designated whole county primary care health professional shortage areas in South Texas.
References


Communicable Diseases

Communicable diseases are ones that can be transmitted or spread from one person or species to another.\(^1\) A multitude of different communicable diseases are currently reportable in Texas, including tuberculosis and many types of sexually transmitted diseases. Incidence rates for communicable diseases in this section are presented as crude rates, without age-adjustment.

Tuberculosis

Tuberculosis (TB) is a chronic infection caused by the *Mycobacterium tuberculosis* bacterium. Although most people infected with *M. tuberculosis* harbor the bacterium with no symptoms (latent TB), some people do eventually develop active TB disease. TB is spread from person to person through the air. Only people with active TB disease can spread the bacteria to others.\(^2\) TB usually affects the lungs, although it sometimes can affect other body parts, such as the brain, kidneys, or spine. Untreated TB disease can cause serious health problems, including death.\(^2\)

A total of 13,767 active TB cases were reported in the U.S. in 2006.\(^3\) In addition to these active TB cases, an estimated 10-15 million people in the U.S. currently have latent TB infection.\(^2\) TB incidence in the U.S. was much higher among African-Americans (10.1/100,000), Asians (25.6/100,000), and Hispanics (9.2/100,000) than among non-Hispanic whites (1.2/100,000) in 2006.\(^3\) Nationwide, males have a higher risk of TB disease than females, and older people, especially those over 65, are more at risk for TB than younger people.\(^4\) Foreign-born people are also disproportionately affected by TB, as the incidence of TB disease was nearly 10 times higher among foreign-born persons in the U.S. than among U.S. natives.\(^3\)

A TB infection can develop into active TB disease as a result of conditions or exposures that can reduce a person’s immunity, such as HIV infection, diabetes, or chemotherapy treatment. Other risk factors for TB include low income, long-term drug or alcohol use, and living or working in prisons or nursing homes.\(^5\)

Tuberculosis in South Texas

---

**Key Point:** South Texas had a higher incidence of TB than the rest of Texas and the nation. Also, South Texas Hispanics had a slightly higher incidence of TB than Hispanics in the rest of Texas.
The incidence of active TB disease in South Texas during 2001-2005 was 8.6/100,000. South Texas residents had a higher incidence of TB than individuals living in the rest of Texas and nationwide (Figure 4.1). The 2001-2005 average annual incidence of TB in South Texas was nearly two times higher than the national TB rate reported in 2005.

Hispanics in South Texas had a slightly higher incidence of TB (11.3/100,000) than did Hispanics in the rest of Texas (10/100,000) in 2001-2005. In both South Texas and the rest of Texas, the TB incidence among Hispanics was more than four times higher than the incidence among non-Hispanic whites (Figure 4.2).
TB incidence increased sharply with age among Hispanics, compared to gradual rise in non-Hispanic whites (Figure 4.3). Hispanics ages 75 or older had the highest incidence.
South Texas males had a TB incidence more than twice as high as the incidence in females. When stratifying by sex and race/ethnicity, TB incidence estimates ranged from 15.4/100,000 in Hispanic males to 1.1/100,000 in non-Hispanic white females (Figure 4.4).

![Figure 4.4](image)

**Figure 4.4.** Incidence of tuberculosis in South Texas by sex and race/ethnicity, 2001-2005. Source: Infectious Disease Surveillance and Epidemiology Branch, Infectious Disease Control Unit, Texas Department of State Health Services

In 2001-2005, the incidence of TB in Bexar County (5.3/100,000) was lower than the incidence in South Texas as a whole (8.6/100,000). However, TB estimates in Webb County (19/100,000) and the Lower Rio Grande Valley region (14.2/100,000) were at least one-and-a-half times higher than in all of South Texas (Figure 4.5).
**Figure 4.5.** Incidence of tuberculosis in selected South Texas locations, 2001-2005.

Source: Infectious Disease Surveillance and Epidemiology Branch, Infectious Disease Control Unit, Texas Department of State Health Services

**References**


HIV/AIDS

HIV (human immunodeficiency virus) is a human retrovirus that infects and slowly depletes a type of white blood cells known as T-lymphocytes or CD4+ T-lymphocytes. These white blood cells are essential to maintaining an effective immune response. HIV gradually destroys the body’s ability to fight infections and certain cancers by damaging or killing immune system cells. Some of these people will develop AIDS (acquired immunodeficiency syndrome) as a result of their HIV infection. HIV is most commonly transmitted by having unprotected sex with a partner who is infected. HIV also can be spread through contact with infected blood, such as sharing drug needles or syringes or through contaminated blood transfusions. Women infected with HIV can transmit the virus to their babies during pregnancy or birth or through breast milk.

Many people do not have any symptoms when they first become infected with HIV. This “asymptomatic” infection period can differ greatly among individuals. Some people may begin to experience symptoms within just a few months, while others may remain symptom-free for more than 10 years. AIDS refers to the most advanced stages of HIV infection. People with AIDS often contract opportunistic infections that do not usually affect healthy people. In AIDS patients, these infections are frequently severe and are sometimes fatal because the immune system has been so damaged by HIV that it can no longer resist bacteria, viruses, parasites, or other microbes. People with AIDS also are particularly susceptible to certain cancers. There is no cure for HIV or AIDS. However, a number of drugs currently exist that fight HIV infection and associated cancers and infections.

In 2003, more than one million individuals in the U.S. were estimated to be living with either HIV or AIDS, of which an estimated 24-27% were undiagnosed and unaware that they had HIV. There were approximately 17,000 AIDS deaths in the U.S in 2005. The HIV/AIDS epidemic in the U.S. is growing most rapidly among minority populations and is a leading killer of African-American males ages 25 to 44. The risk of HIV/AIDS is nearly seven times higher in African Americans and almost three times higher in Hispanics than in non-Hispanic whites. In 2001-2005, 74% of newly diagnosed HIV/AIDS cases in the U.S. were male, and persons aged 35-39 years were at the highest risk for HIV/AIDS. Major risk factors for HIV/AIDS includes having unprotected sex with multiple partners or with someone who is HIV-positive, sharing needles during drug use, or already having hepatitis, tuberculosis (TB), or another sexually transmitted disease (STD) such as syphilis, herpes, or chlamydia.
HIV/AIDS in South Texas

In 2001-2005, the average annual incidence of HIV/AIDS in South Texas (16.4/100,000) was more than one-and-a-half-times lower than the incidence in the rest of Texas (25.6/100,000). South Texas Hispanics had a higher incidence of HIV/AIDS (16.5/100,000) than non-Hispanic whites (12.7/100,000) (Figure 4.6).

![Figure 4.6](image)

**Figure 4.6.** Incidence of HIV/AIDS by location and race/ethnicity, 2001-2005.
Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

In South Texas, the incidence of HIV/AIDS was more than four times higher in males (27/100,000) than in females (6.1/100,000). As observed nationwide, the highest incidence was seen in individuals ages 35-39 (44.8/100,000). The incidence of HIV/AIDS was approximately three times higher in South Texas metropolitan counties (17.9/100,000) than in non-metropolitan counties (5.8/100,000). Bexar County had a higher incidence of HIV/AIDS (25.4/100,000) than South Texas as a whole (16.4/100,000), and Webb County and the Lower Rio Grande Valley region both had lower incidences of HIV/AIDS (11.3/100,000 and 13.9/100,000, respectively) than all of South Texas (Figure 4.7).
Figure 4.7. Incidence of HIV/AIDS in selected South Texas locations, 2001-2005. Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

References


Syphilis

Syphilis is a sexually transmitted disease that is caused by the *Treponema pallidum* bacterium. Syphilis has been called “the great imitator” because many possible symptoms are associated with the disease, and these symptoms often mirror ones seen in many other diseases.\(^1,2\) Syphilis is most commonly spread by sexual contact with an infected individual.\(^1\) The syphilis bacterium is transmitted by direct contact with a syphilis sore; sores usually occur on the genitals or anus, but can also occur on the lips or in the mouth.\(^2\) Syphilis can also be transmitted from an infected mother to her baby during pregnancy. The primary stage of syphilis is characterized by one or more small, round sores, called chancres, that are located where the bacterium entered the body. Because chancres are usually not painful, can occur inside the body, and heal without treatment, symptoms of primary syphilis may go unnoticed. If left untreated, the syphilis infection progresses to the secondary stage, which is usually marked by a skin rash. Symptoms of secondary syphilis may be mild and will also go away without treatment. However, without treatment, syphilis infection is still present in the body. Although there may be no outward signs or symptoms for many years after secondary syphilis, untreated syphilis infection may damage internal organs such as the heart, brain, nervous system, eyes, bones, and joints. Late-stage syphilis infection can cause blindness, deafness, mental illness, paralysis, heart disease, and even death.\(^1,2\) Untreated syphilis in pregnant women is associated with a high risk of adverse pregnancy outcomes such as miscarriage, stillbirth, preterm birth, and infant mortality.\(^1,2\) Syphilis is curable with antibiotics, but treatment cannot repair damage already done to the body by syphilis infection.\(^2\)

In 2005, 33,278 new cases of syphilis (at all stages) were reported in the U.S., including 8,724 cases of primary and secondary syphilis. Nationally, the incidence of primary and secondary syphilis was almost six times higher among men than among women in 2005. The incidence of primary and secondary syphilis in the U.S. was more than five times higher among African-Americans and nearly two times higher among Hispanics than among non-Hispanic whites.\(^3\) The age-specific incidence of syphilis in the U.S. varied depending on race/ethnicity and sex, although among both Hispanics and non-Hispanic whites, women ages 20-24 and men ages 35-39 had the highest incidence of primary and secondary syphilis.\(^3\) Men who have unprotected sex with other men have a higher risk of syphilis infection than the general population.\(^4\) Other risk factors for syphilis include having unprotected sex and having sex with multiple partners.\(^2,5\)

Syphilis in South Texas

The average annual incidence of syphilis (all stages) during 2001 to 2005 was lower in South Texas (15.3/100,000) than in the rest of Texas (19.1/100,000). This lower
incidence in South Texas was observed among both Hispanics and non-Hispanic whites (Figure 4.8). In South Texas, the incidence of syphilis among Hispanics was almost four times higher than the incidence among non-Hispanic whites (Figure 4.8).

![Incidence of Syphilis by Location and Race/Ethnicity, 2001-2005](image)

**Figure 4.8.** Incidence of syphilis by location and race/ethnicity, 2001-2005. Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

South Texas females had a slightly lower incidence of syphilis (12.2/100,000) than males (18.5/100,000). The incidence of syphilis in South Texas was highest among individuals 20-39 years of age (over 30/100,000). Syphilis incidence was higher in South Texas metropolitan counties (16.2/100,000) than in non-metropolitan counties (9/100,000) in 2001-2005. The incidence of syphilis was also higher in Bexar County (22.8/100,000) than in South Texas as a whole (15.3/100,000).

**References**


Chlamydia

Chlamydia is a sexually transmitted disease caused by the *Chlamydia trachomatis* bacterium. Chlamydia bacteria live in vaginal fluid and semen and can be transmitted to a partner during vaginal, anal, or oral sex. Chlamydia can also be transmitted from an infected mother to her infant during a vaginal childbirth. Chlamydia can infect the cervix, uterus, and fallopian tubes in women, and can infect the urethra (urinary tract), rectum, and eyes in both sexes. Individuals frequently do not know that they are infected with chlamydia because its symptoms often are mild or completely absent. This is problematic, because, if left untreated, chlamydia infection can cause irreversible reproductive and other health problems, particularly in women.¹ Chlamydia is the most often reported bacterial sexually transmitted disease in America, with more than 976,000 cases reported in 2005.¹,² However, because most individuals are unaware that they have chlamydia and thus do not get tested, under-reporting of this disease is considerable. An estimated 2.8 million persons in the U.S. are actually infected with chlamydia every year.¹

In 2005, the reported incidence of chlamydia infection among women in the U.S. was more than three times higher than the incidence among men, most likely because a greater number of women are screened for chlamydia than men. Among women in the U.S., the highest age-specific chlamydia incidence was observed among those ages 15-24, while age-specific incidence of chlamydia in men was highest among those ages 20-24.² If sexually active, teenage girls and young women are at higher risk of chlamydia infection than older women, because the cervix has not yet fully matured.¹

Nationally, the incidence of chlamydia among African-Americans is more than eight times higher than the incidence among non-Hispanic whites. Chlamydia incidence is also five times higher among Native Americans and three times higher among Hispanics than among non-Hispanic whites.² Other risk factors for chlamydia include having unprotected sex and having multiple sex partners.¹
Chlamydia in South Texas

The average annual incidence of chlamydia in South Texas was 344.6/100,000 in 2001-2005. This was higher than the incidence of chlamydia in the rest of Texas (310.7/100,000). Although Hispanics also had a higher incidence of chlamydia in South Texas than in the rest of Texas, for non-Hispanic whites, incidence in South Texas was very similar to the incidence in the rest of Texas (Figure 4.9). Chlamydia incidence was three-and-a-half times higher among Hispanics than among non-Hispanic whites in South Texas (Figure 4.9).

![Incidence of Chlamydia by Location and Race/Ethnicity, 2001-2005](image)

**Figure 4.9.** Incidence of chlamydia by location and race/ethnicity, 2001-2005. Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

The incidence of chlamydia among South Texas females (572.8/100,000) was more than five times higher than the incidence among males (107.3/100,000). As observed nationwide, individuals ages 15-24 had a much higher incidence of chlamydia than any other age groups. In South Texas, individuals ages 20-24 had an incidence of 1,615.5/100,000.

Overall, chlamydia incidence was significantly higher in South Texas metropolitan counties (352.7/100,000) than in non-metropolitan counties (288/100,000). However, for non-Hispanic whites, the incidence of chlamydia was similar in metropolitan and non-metropolitan counties (Figure 4.10).
In 2001-2005, the incidence of chlamydia was higher in Bexar County (445/100,000) than in South Texas as a whole (344.6/100,000). However, chlamydia incidence estimates were lower in Webb County (244/100,000) and the Lower Rio Grande Valley region (282.5/100,000) than in South Texas (Figure 4.11).
Figure 4.11. Incidence of chlamydia in selected South Texas locations, 2001-2005.
Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

References


Gonorrhea

Gonorrhea is a sexually transmitted disease caused by the *Neisseria gonorrhoeae* bacterium. This bacterium grows easily in many parts of the reproductive tract, including the cervix, uterus, and fallopian tubes in women and the urethra in both women and men. Gonorrhea can also grow in the throat, mouth, eyes, and anus. Gonorrhea bacteria can be transmitted by contact with the penis, mouth, vagina, or anus of an infected individual; ejaculation is not necessary for the disease to be spread. Gonorrhea can also be transmitted from an infected mother to her baby during childbirth. If left untreated,
Gonorrhea can cause permanent health problems, including infertility, in both sexes. Gonorrhea infection also can spread to the blood or joints, which can be life-threatening. Gonorrhea can usually be successfully treated and cured with antibiotics; however, drug-resistant gonorrhea infections are becoming more common in the U.S., complicating treatment.

Gonorrhea is the second-most frequently reported notifiable disease in America, with 339,593 reported cases in the U.S. in 2005. However, because many people with gonorrhea are asymptomatic and thus do not get tested, this disease is often under-reported. The U.S. Centers for Disease Control and Prevention estimates that more than 700,000 new gonorrhea infections occur each year. In 2005, the Southern region of the U.S., which includes Texas, had a higher incidence of gonorrhea than the other regions. Nationwide, the incidence of gonorrhea is currently slightly higher among women than men and higher among 20-24 year-olds than among any other age group. The incidence of gonorrhea is 18 times higher among African-Americans, more than three times higher among Native Americans, and two times higher among Hispanics than among non-Hispanic whites. Like most sexually transmitted diseases, the major risk factors for gonorrhea include having unprotected sex and having sex with multiple partners.

**Gonorrhea in South Texas**

Overall, the average annual incidence of gonorrhea in South Texas (81.5/100,000) was much lower than the incidence of gonorrhea in the rest of Texas (127.4/100,000). This geographic differential was not seen among either Hispanics or non-Hispanic whites. Non-Hispanic whites in South Texas had a slightly lower incidence of gonorrhea than non-Hispanic whites in the rest of Texas, and Hispanics in South Texas had a slightly higher incidence than Hispanics in the rest of Texas (Figure 4.12). The high overall incidence of gonorrhea observed in the rest of Texas is possibly due to a higher percentage of African-Americans residing in the rest of Texas than in South Texas (as African-Americans have a higher incidence of gonorrhea than any other racial/ethnic group in the U.S.).

Hispanics had a higher incidence of gonorrhea than non-Hispanic whites in both South Texas and the rest of Texas. In 2001-2005, the average annual incidence of gonorrhea among Hispanics in South Texas (71.8/100,000) was more than two times higher than among non-Hispanic whites (29.4/100,000) (Figure 4.12).
In South Texas, the incidence of gonorrhea was higher for females (84/100,000) than for males (78.8/100,000). Individuals ages 20-24 had a higher risk of gonorrhea (346.7/100,000) than all other age groups in South Texas. The incidence of gonorrhea was more than two-and-a-half times higher in South Texas metropolitan counties (88.3/100,000) than in non-metropolitan counties (34.6/100,000). Bexar County had a much higher incidence of gonorrhea (144.3/100,000) than all of South Texas (81.5/100,000); however, the gonorrhea incidence estimates for Webb County (14.1/100,000) and the Lower Rio Grande Valley region (22.9/100,000) were much lower than for South Texas as a whole (Figure 4.13). The incidence of gonorrhea in Webb County was five times lower than the incidence of gonorrhea in South Texas.
Figure 4.13. Incidence of gonorrhea in selected South Texas locations, 2001-2005. Source: HIV/STD Epidemiology and Surveillance Branch, Texas Department of State Health Services

References


Summary – Communicable Diseases

Table 4.1. Summary table of crude incidence rates in South Texas, the rest of Texas, and nationwide* for each of the communicable diseases analyzed.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Incidence per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>South Texas, 2001-2005</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>8.6</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>16.4</td>
</tr>
<tr>
<td>Syphilis</td>
<td>15.3</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>344.6</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>81.5</td>
</tr>
</tbody>
</table>

*Nationwide estimates are not available for all health indicators in the table. “----” signifies that no nationwide incidence of the health indicator could be found.
Cancer Incidence and Mortality

Cancer is a vital health issue in Texas. Thousands of Texas residents are affected by cancer each year, and it is the second-leading cause of death in the state and the nation, accounting for one of every four deaths. More than 1.4 million Americans are expected to be diagnosed with cancer and more than 500,000 are expected to die from cancer-related causes in 2007.¹ In Texas, more than 95,000 residents are expected to be diagnosed with cancer and more than 37,000 cancer-related deaths are expected in 2007.²

Cancer begins when certain cells in the body change and start to grow abnormally and uncontrollably. Cancer cells can also invade other organs and tissues and be spread by the bloodstream and lymphatic system in a process called metastasis. This uncontrolled growth and spread of cancer can result in serious health problems and death. Currently, doctors cannot determine what causes cancer in an individual person, but there are several risk factors that may play a role in cancer development, including aging, tobacco, alcohol consumption, sunlight, ionizing radiation, certain viruses and bacteria, poor nutrition, lack of physical activity, being overweight, and certain hormones and chemicals.³ Many of these risk factors can be avoided, thus lowering a person’s risk of developing cancer. Other risk factors cannot be avoided, but many cancers can be cured if detected and treated early. Incidence and mortality rates for each cancer are presented as age-adjusted rates or age-specific rates.

Breast Cancer

Breast cancer usually develops in cells that line the ducts that carry milk to the nipples (ductal cancer) or in cells of the glands which make milk (lobular cancer). Ductal cancer is more common than lobular cancer, and, although more rare, cancer also can occur in other tissues of the breast.⁴ Breast cancer is the most common cancer diagnosis in Texas and U.S. women.¹ It is estimated that, in 2007, approximately 15,122 Texas women will be diagnosed with invasive breast cancer and 2,843 women will die of the disease.² Breast cancer occurs most frequently in women, but men can also develop breast cancer. Hispanic women have a lower risk of developing breast cancer than non-Hispanic women, and white women are at greater risk of breast cancer than African-American women.⁵

Key Point: South Texas women had a lower breast cancer incidence rate than the rest of Texas and the nation. However, the region’s Hispanic women had a higher incidence of breast cancer than Hispanics in the rest of Texas.
Increasing age is the most important risk factor for breast cancer.\textsuperscript{1,6} Other risk factors include a personal or family history of breast cancer, genetic mutations in the BRCA1 or BRCA2 genes, certain breast changes such as atypical hyperplasia, high breast tissue density, high dose radiation to the chest, and certain reproductive factors such as never having children, having a first child after age 30, or having menstrual periods start early or end late in life. Modifiable risk factors for breast cancer include lack of physical activity, alcohol use, being overweight after menopause, and oral contraceptive use.\textsuperscript{1,7} Screening tests for breast cancer include the breast self-exam, clinical breast exam, and screening mammography.\textsuperscript{7}

Breast Cancer in South Texas

Overall, women in South Texas had a lower average annual age-adjusted incidence of breast cancer (104.1 cases of breast cancer per 100,000 women) than women in the rest of Texas (120.3/100,000) or nationwide (129.1/100,000). However, Hispanic women in South Texas had a higher incidence of breast cancer (83.5/100,000) compared to Hispanics in the rest of Texas (74.8/100,000), although they did not have a higher breast cancer incidence compared to Hispanic women nationwide (Figure 5.1). Hispanic women overall, including those in South Texas, had a much lower incidence of breast cancer (83.5/100,000) than non-Hispanic white women (129.2/100,000) (Figure 5.1).

\textbf{Figure 5.1.} Age-adjusted incidence of breast cancer in females by location.
\textit{Source of Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2000-2004 data. National: National Cancer Institute, 17-region SEER data, 2000-2003}

Similar age trends for breast cancer incidence were seen for both Hispanic and non-Hispanic white women in South Texas. Similar to what was observed nationwide, the risk
of breast cancer in South Texas increased with age. Among women ages 30 and older, the incidence of breast cancer in non-Hispanic whites was higher than in Hispanics (Figure 5.2).

![Incidence of Breast Cancer by Age Group](image_url)

**Figure 5.2.** Incidence of breast cancer in South Texas females by age group and race/ethnicity, 2000-2004. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

In 2000-2004, a higher average annual age-adjusted incidence of breast cancer was seen in South Texas metropolitan counties (105.7/100,000) than in non-metropolitan counties (94.7/100,000). Overall, Bexar County had a higher incidence of breast cancer (119.9/100,000) than South Texas as a whole (104.1/100,000). Webb County and the Lower Rio Grande Valley region had lower breast cancer incidence compared to South Texas (Figure 5.3).
**Figure 5.3.** Age-adjusted incidence of female breast cancer in selected South Texas locations, 2000-2004.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

The overall breast cancer mortality rate among females in South Texas was 22/100,000. Breast cancer mortality rate patterns in South Texas were similar to incidence patterns.

**References**


Cervical Cancer

Cervical cancer typically begins in the lining of the cervix, which is the lower section of the uterus that connects the upper section of the uterus to the vagina. There are two main types of cervical cancer. By far, the most common type is squamous cell carcinoma, which develops from the cells that line the outer surface of the cervix near the top of the vagina. The other type is adenocarcinoma, which develops from the glandular cells that line the cervix. There are usually no symptoms of pre-cancerous changes to the cervix. Therefore, regular screening tests such as Pap tests, which can detect abnormal cervical cells before cancer develops, are of great importance.2

Although regular screening makes cervical cancer one of the most detectable and preventable cancers, it remains a serious threat to the lives of Texas women. It is estimated that, in 2007, approximately 1,115 Texas women will be diagnosed with invasive cervical cancer and 395 women will die of the disease.3 In the U.S., Hispanic women are at greater risk of developing cervical cancer than non-Hispanic women, and African-American women are at greater risk of cervical cancer than are white women.4 Women over the age of 40 are at higher risk of cervical cancer than younger women.2

Certain human papillomaviruses (HPVs) are the most important risk factor for cervical cancer, and early changes in cervical cells caused by HPV infections can be detected by
An HPV vaccine is currently available for girls and women 9-26 years of age that may help protect against as much as 70% of cervical cancer. Women with HIV or other conditions that result in a weakened immune system are also at higher risk of cervical cancer. Other modifiable risk factors include smoking, sexual history, and long-term use of oral contraceptives.

Cervical Cancer in South Texas

Overall, cervical cancer incidence was slightly higher among women in South Texas (11.5 cases of cervical cancer per 100,000 women) than in the rest of Texas (10.1/100,000) in 2000-2004 (Figure 5.4). The overall incidence of cervical cancer in both South Texas and rest of Texas were higher than the nationwide incidence of 8.8/100,000. In South Texas, Hispanic women had a higher incidence of cervical cancer than non-Hispanic whites (Figure 5.4). This ethnic difference in incidence was not as large in South Texas as in the rest of Texas, however.

Age-specific trends in cervical cancer incidence differed between Hispanics and non-Hispanic whites. Incidence peaked in non-Hispanic white women at ages 30-44, but continued to rise with age in Hispanic women (Figure 5.5). This observation is of particular concern for Hispanics because research suggests that women diagnosed with cervical cancer at ages 50 or older are more likely than younger women to have an advanced stage of the disease. The incidence of cervical cancer in Hispanics was significantly higher than in non-Hispanic whites for ages 50 and older (Figure 5.5).
The overall cervical cancer mortality rate among females in South Texas was 3.8/100,000. Cervical cancer mortality rate patterns were similar to those for cervical cancer incidence.

References


**Colorectal Cancer**

Colorectal cancer begins in the colon (the first 4-5 feet of the large intestine) or the rectum (the last few inches of the large intestine before the anus). Colorectal cancer is generally slow to develop and usually begins in a non-cancerous polyp, which can be removed during a colonoscopy, thus preventing invasive colorectal cancer. The most common type of colorectal cancer is adenocarcinoma, which begins in glandular tissue in the internal lining of the colon or rectum. Screening tests include the fecal occult blood test, sigmoidoscopy, colonoscopy, double contrast barium enema, and digital rectal exams.

Colorectal cancer is the third-most common cancer diagnosis in both men and women in Texas and the U.S. It is also the third-most common cause of cancer death in both genders. It is estimated that, in 2007, approximately 9,844 Texas residents will be diagnosed with colorectal cancer and 3,826 will die of the disease. In the U.S., men have a higher risk of colorectal cancer than women. Hispanics are at lower risk of developing colorectal cancer than non-Hispanics, and African-Americans are at greater risk than whites. The incidence of colorectal cancer increases with age. In the U.S., more than 90% of all colorectal cancers are diagnosed in persons ages 50 or older.

Risk factors for colorectal cancer include having colorectal polyps, a personal or family history of colorectal cancer, or certain diseases that cause inflammation of the large intestine, such as Crohn’s disease or ulcerative colitis. Modifiable risk factors include obesity, lack of physical activity, diet (a high intake of red or processed meat and a low intake of fruits and vegetables), smoking, and heavy alcohol consumption.

**Colorectal Cancer in South Texas**

Colorectal cancer incidence was lower in South Texas (44.1 cases of colon cancer per 100,000 population) than in the rest of Texas (50.4/100,000) or nationwide (52.4/100,000). However, the incidence of colorectal cancer among Hispanics in South Texas was slightly higher than the incidence among Hispanics in the rest of Texas.
Non-Hispanic whites had a higher incidence of colorectal cancer (46.8/100,000) than Hispanics (40.4/100,000) in South Texas in 2000-2004 (Figure 5.6).

**Figure 5.6.** Age-adjusted incidence of colorectal cancer by location.

Sex and age patterns of colorectal cancer incidence were the same in South Texas as the nation. In South Texas, males had a much higher incidence of colorectal cancer (55.6/100,000) than females (35.1/100,000), and the risk of colorectal cancer increased with age. Webb County and the Lower Rio Grande Valley region both had lower incidences of colorectal cancer than all of South Texas (Figure 5.7). In these locations, both the Hispanic and non-Hispanic white populations had lower colorectal cancer incidences than their counterparts in South Texas as a whole.
The overall colorectal cancer mortality rate in South Texas was 15.8/100,000. Unlike incidence, the colorectal cancer mortality rates among Hispanics in South Texas and the rest of Texas were very similar, and not much difference in mortality rates was observed between Hispanics and non-Hispanic whites. For all other comparisons, colorectal cancer mortality rate patterns were the same as those for colorectal cancer incidence.

References


**Prostate Cancer**

Prostate cancer develops in the prostate gland, which is a male reproductive system gland located beneath the bladder, in front of the rectum, and surrounding the urethra. The prostate gland makes some of the fluid in semen.\(^1,5\) Prostate cancer is generally very slow to grow, and most men will develop prostate cancer if they reach advanced age.\(^1\) Screening tests include the digital rectal exam and the blood test for prostate-specific antigen (PSA test).\(^3\)

Prostate cancer is the most common cancer diagnosis and the second-leading cause of cancer death in men in both Texas and the nation.\(^4\) It is estimated that, in 2007, approximately 15,011 Texas men will be diagnosed with invasive prostate cancer and 2,061 will die of the disease.\(^5\) Hispanic men are at lower risk of developing colorectal cancer than non-Hispanics, and African-American men are at greater risk than whites.\(^6\) The risk of prostate cancer increases with age. Besides age and race/ethnicity, the only other well-known risk factor for prostate cancer is a family history of the disease.\(^3,4\)

**Prostate Cancer Incidence in South Texas**

Prostate cancer incidence in South Texas (137.1 cases of prostate cancer per 100,000 men) was lower than in the rest of Texas (150.8/100,000) or nationwide (170.3/100,000). When compared to Hispanic men in the rest of Texas or nationwide, Hispanic men in South Texas had a significantly lower incidence of prostate cancer. However, non-Hispanic whites in South Texas had a slightly higher prostate cancer incidence (153/100,000) when compared to non-Hispanic whites in the rest of Texas (148/100,000), although they still had a lower incidence than among non-Hispanic whites nationwide (166.8/100,000) (Figure 5.8). Non-Hispanic white men had a much higher incidence of prostate cancer than Hispanic men in South Texas (Figure 5.8).
Prostate cancer incidence increased with age for both Hispanic and non-Hispanic white men in South Texas up to ages 70-74, but, at ages 75 and older, declined among non-Hispanic whites and leveled off among Hispanics (Figure 5.9). Non-Hispanic whites had a higher risk of prostate cancer than Hispanics in all age groups except ages 85 and older.

**Figure 5.8.** Age-adjusted incidence of prostate cancer among males, by location.

Prostate cancer incidence increased with age for both Hispanic and non-Hispanic white men in South Texas up to ages 70-74, but, at ages 75 and older, declined among non-Hispanic whites and leveled off among Hispanics (Figure 5.9). Non-Hispanic whites had a higher risk of prostate cancer than Hispanics in all age groups except ages 85 and older.

**Figure 5.9.** Incidence of prostate cancer among South Texas males, by age group and race/ethnicity, 2000-2004.
Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
In South Texas, men living in metropolitan counties had a higher incidence of prostate cancer (138.6/100,000) than those living in non-metropolitan counties (127.8/100,000). Bexar County had a higher incidence of prostate cancer than observed in South Texas among both Hispanic and non-Hispanic white men. Webb County also had a higher, though not a statistically significantly higher, incidence of prostate cancer than South Texas for Hispanics and non-Hispanic whites. The Lower Rio Grande Valley region had a lower incidence of prostate cancer than South Texas as a whole for both Hispanics and non-Hispanic whites (Figure 5.10).

![Prostate Cancer Incidence by Location](Figure 5.10. Age-adjusted incidence of prostate cancer among South Texas males in selected South Texas locations, by race/ethnicity, 2000-2004. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services)

The overall prostate cancer mortality rate in South Texas was 23.7 deaths per 100,000 persons. Like incidence, prostate cancer mortality rates were lower in South Texas than in the rest of Texas or nationwide. However, mortality rates among non-Hispanic whites were lower in South Texas than in the rest of Texas, and virtually no difference in prostate cancer mortality rates was seen between Hispanic and non-Hispanic white men in South Texas (Figure 5.11).
The trend in age-specific prostate cancer mortality for South Texas also was different from the trend seen in prostate cancer incidence; mortality rates continued to increase among the oldest age groups (Figure 5.12). Also, unlike prostate cancer incidence, no difference was observed in metropolitan and non-metropolitan counties’ prostate cancer mortality rates.
Figure 5.12. Prostate cancer mortality among South Texas males by age group, 2000-2004.
Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

References


**Lung and Bronchus Cancer**

Lung and bronchus cancers impact the respiratory system. The bronchi are tubes that connect the trachea (windpipe) with smaller tubes in the lungs called bronchioles.\(^1,2\) Most lung cancers begin in cells that line the bronchi, but also can begin in other parts of the lung such as the trachea, bronchioles, or alveoli (tiny air sacs attached to the bronchioles).\(^2\)

For treatment purposes, lung and bronchus cancers are grouped into small cell cancers and non-small cell cancers, which account for 10-15% and 85-90% of all lung and bronchus cancers, respectively.\(^2,3\) Small cell lung cancer grows more quickly than non-small cell lung cancer and is more likely to metastasize; however, it is less common than non-small cell lung cancer.\(^3\) There are no recommended screening tests for lung and bronchus cancer for asymptomatic people.\(^4\)

Lung and bronchus cancer is the second-most common cancer diagnosis and the leading cause of cancer death among both men and women in the U.S. and Texas.\(^4\) It is estimated that, in 2007, approximately 12,016 Texas men and women will be diagnosed with lung and bronchus cancer and 10,974 will die of the disease.\(^5\) In the U.S., males have a higher risk of lung and bronchus cancer than females.\(^4\) Hispanic men and women are at lower risk of developing lung and bronchus cancer compared to non-Hispanics. African-American men are at greater risk of lung and bronchus cancer than white men, while white women have a higher risk than African-American women.\(^6\) Like most cancers, increasing age is a risk factor for lung and bronchus cancer, but the most important risk factor is cigarette smoking.\(^4\) Other risk factors include exposure to secondhand cigarette smoke, radon, asbestos, certain metals and organic chemicals, air pollution, and a history of tuberculosis.\(^4,7\)

**Lung and Bronchus Cancer in South Texas**

The incidence of lung and bronchus cancer in South Texas was 51.5 cases per 100,000 persons in 2000-2004. South Texas had a lower incidence of lung and bronchus cancer than the rest of Texas (72/100,000) and nationwide (64.8/100,000). Hispanics in South Texas had a similar incidence of lung and bronchus cancer as Hispanics in the rest of Texas; however, non-Hispanic whites in South Texas had a lower incidence (69/100,000) when compared to non-Hispanic whites in the rest of Texas (78/100,000). As seen nationwide, Hispanics had a lower incidence of lung and bronchus cancer than non-Hispanic whites in South Texas. Non-Hispanic whites in South Texas had twice the risk of lung cancer as Hispanics (Figure 5.13).
The incidence of lung and bronchus cancer is rare until ages 30-44, and then rises until ages 75-79 for Hispanics and ages 80-85 for non-Hispanic whites. Incidence declines among non-Hispanic whites at ages 85 and older, but levels off for Hispanics at ages 75 and older (Figure 5.14). Among those age 40 and older in South Texas, non-Hispanic whites have a statistically significantly higher incidence than Hispanics.

Figure 5.13. Age-adjusted incidence of lung and bronchus cancer by location.
Figure 5.14. Incidence of lung and bronchus cancer in South Texas by age group and race/ethnicity, 2000-2004.
Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

As seen nationwide, South Texas males had a higher incidence of lung and bronchus cancer than females. The incidence of lung and bronchus cancer was nearly two times higher among non-Hispanic white males than non-Hispanic white females, and was nearly three times higher among Hispanic males than Hispanic females (Figure 5.15).

Figure 5.15. Age-adjusted incidence of lung and bronchus cancer in South Texas by sex and race/ethnicity, 2000-2004.
Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

The lung and bronchus cancer mortality rate in South Texas was 40.2 deaths per 100,000 persons. Lung cancer mortality rate patterns were very similar to those for lung cancer incidence.

References


Liver and Intrahepatic Bile Duct Cancer

Liver and intrahepatic bile duct cancer occurs either in the liver, an organ which metabolizes nutrients, makes bile, and detoxifies chemicals, or in the intrahepatic bile duct, a tube within the liver that carries bile to the gallbladder. There are no recommended screening tests for liver and intrahepatic bile duct cancer for asymptomatic people.

Liver and intrahepatic bile duct cancer is relatively rare in both Texas and the U.S. It is the 13th most common cancer diagnosis in U.S. men and the 18th in women. It is estimated that, in 2007, approximately 1,398 Texas residents will be diagnosed with liver and intrahepatic bile duct cancer and 1,353 residents will die of the disease. The incidence of liver and intrahepatic bile duct cancer increases with age, and men are twice as likely as women to develop liver cancer. Hispanic men and women have a much higher risk of developing liver and intrahepatic bile duct cancer than non-Hispanics. Asian and Pacific Islanders have the highest risk of liver and intrahepatic bile duct cancer.

Key Point: South Texas had a higher incidence of liver cancer than the rest of Texas or nation. South Texas Hispanics had a higher incidence than those in the rest of Texas, and a higher incidence than non-Hispanic whites in South Texas.

http://www.cancer.org/docroot/CRI/content/CRI_2_4_1x_What_Is_Non-Small_Cell_Lung_Cancer.asp?sitearea.


cancer include cirrhosis of the liver, chronic liver infections such as hepatitis B and C, and a family history of liver cancer.4

Liver and Intrahepatic Bile Duct Cancer in South Texas

The South Texas incidence of liver and intrahepatic bile duct cancer was 10.2 cases per 100,000 persons in 2000-2004. This incidence was about one-and-a-half times higher than the incidence of liver cancer in the rest of Texas and nationwide (Figure 5.16). In South Texas, the incidence of liver and intrahepatic bile duct cancer among Hispanics was more than twice as high as the incidence among non-Hispanic whites (Figure 5.16).

![Liver Cancer Incidence, 2000-2004](image)

**Figure 5.16.** Age-adjusted incidence of liver and intrahepatic bile duct cancer by location. Source of Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2000-2004 data. National: National Cancer Institute, 17-region SEER data, 2000-2003

The incidence of liver and intrahepatic bile duct cancer was nearly three times greater in South Texas males than females (15.5/100,000 vs. 5.8/100,000). As seen nationwide, liver and intrahepatic bile duct cancer incidence in South Texas increased with age. The incidence of liver cancer was very low until ages 45-49. Among older age groups, Hispanics had a higher rate of liver and intrahepatic bile duct cancer than non-Hispanic whites, and this rate differential increased as age increased (Figure 5.17).
In South Texas, the incidence of liver and intrahepatic bile duct cancer was slightly higher in metropolitan counties (10.4/100,000) than in non-metropolitan counties (8.7/100,000). Liver and intrahepatic bile duct cancer incidence in the Lower Rio Grande Valley region (8.8/100,000) was slightly lower than the incidence for South Texas as a whole (10.2/100,000). However, the incidence of liver and intrahepatic bile duct cancer in Webb County (16.3/100,000) was nearly two times higher than the incidence in South Texas (Figure 5.18).
The overall liver and intrahepatic bile duct cancer mortality rate in South Texas was 8.6/100,000. For the most part, patterns of liver cancer mortality rate in South Texas were similar to those for liver cancer incidence. However, unlike liver cancer incidence, not much difference in mortality rates was seen between metropolitan and non-metropolitan counties.

References


Stomach Cancer

Stomach cancer, also called gastric cancer, usually develops in the cells that line the inside of the stomach. There are no recommended screening tests for stomach cancer in asymptomatic people.¹

Stomach cancer is a relatively rare cancer in both Texas and the U.S. It is the 11th most common cancer diagnosis in U.S. men and the 16th most common in women.² It is estimated that, in 2007, approximately 1,724 Texas residents will be diagnosed with stomach cancer and 1,020 will die of the disease.³ The U.S. average annual age-adjusted incidence rate for 1999-2003 was 10.7 cases of stomach cancer per 100,000 men and 5.1 cases per 100,000 women.² Hispanic men and women have a higher risk of developing stomach cancer than non-Hispanics, and Asian and Pacific Islanders have a higher risk than whites or African-Americans.² The incidence of stomach cancer increases with age. Other risk factors for stomach cancer include *Helicobacter pylori* infection, certain health conditions such as pernicious anemia or chronic gastritis, and a family history of stomach cancer. Modifiable risk factors include smoking and a diet high in smoked, salted, or pickled foods.⁴

Stomach Cancer in South Texas

South Texas had a slightly higher incidence of stomach cancer (8.6 cases of stomach cancer per 100,000 persons) than the rest of Texas (7/100,000). However, this incidence was very similar to the nationwide stomach cancer incidence (8.1/100,000). In South Texas, stomach cancer incidence in Hispanics (11.7/100,000) was more than two times higher than the incidence in non-Hispanic whites (5.3/100,000) (Figure 5.19).
Figure 5.19. Age-adjusted incidence of stomach cancer by location.
Source of Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2000-2004 data; National: National Cancer Institute, 17-region SEER data, 2000-2003

South Texas’ stomach cancer incidence increased with age, as it did nationally. Hispanics had a higher incidence than non-Hispanic whites ages 45 and older (Figure 5.20).

Figure 5.20. Incidence of stomach cancer in South Texas by age group and race/ethnicity, 2000-2004.
Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
In South Texas, the incidence of stomach cancer was two times higher in Hispanic males than in Hispanic females, and stomach cancer incidence was two-and-a-half times higher in non-Hispanic white males than in non-Hispanic white females (Figure 5.21).

Figure 5.21. Age-adjusted incidence of stomach cancer in South Texas by sex and race/ethnicity, 2000-2004. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

The overall stomach cancer mortality rate in South Texas was 5.8 deaths per 100,000 persons. Stomach cancer mortality rate patterns were very similar to those for stomach cancer incidence.

References


Gallbladder Cancer

Gallbladder cancer usually develops in cells that line the inside of the gallbladder, a small pear-shaped organ that stores bile and is located below the right lobe of the liver. Gallbladder cancer is a relatively rare cancer in both the U.S and Texas. It is estimated that, in the nation in 2007, 9,250 new cases of gallbladder and other biliary cancer are expected, as well as 3,250 deaths. In the U.S., gallbladder cancer is most common in Native American and Hispanic populations. Women are twice as likely as men to develop gallbladder cancer. Incidence of gallbladder cancer increases with age, and three of every four people in the U.S. who are diagnosed with it are older than age 65. Other risk factors for gallbladder cancer include having gallstones and inflammation of the gallbladder, typhoid, a family history of gallbladder cancer, and exposure to certain industrial chemicals. Modifiable risk factors include obesity and a diet high in carbohydrates and low in fiber.

Key Point: South Texas had a higher incidence of gallbladder cancer than the rest of Texas and the nation. The incidence rate among South Texas Hispanics was more than two times higher than that of non-Hispanic whites.

Gallbladder Cancer in South Texas

Overall, South Texas had a higher incidence of gallbladder cancer (1.5 cases of gallbladder cancer per 100,000 persons) than the rest of Texas (1/100,000) and the nation (1.2/100,000). Among Hispanic and non-Hispanics, the nationwide gallbladder cancer incidence for these race/ethnic groups was slightly higher than that of South Texas (Figure 5.22). A greater difference in incidence was seen between Hispanic and non-Hispanic white race/ethnic groups than between residents in South Texas and the rest of Texas. In South Texas, the incidence of gallbladder cancer in Hispanics (2.2/100,000) was more than two times higher than the incidence in non-Hispanic whites (0.9/100,000) (Figure 5.22).
For the most part, the incidence of gallbladder cancer in South Texas increased with age. The difference in gallbladder cancer incidence between Hispanics and non-Hispanic whites grew with age as well (Figure 5.23), although the incidence difference between Hispanics and non-Hispanic whites was not significant at any of the age groups.
In South Texas, gallbladder cancer incidence was higher in females (2/100,000) than in males (0.9/100,000). Among Hispanics, females had twice the risk of gallbladder cancer as males, and among non-Hispanic whites, females had a risk of gallbladder cancer that was more than two times higher than males (Figure 5.24).

The overall gallbladder cancer mortality rate in South Texas was 0.9 deaths per 100,000 persons. Gallbladder cancer mortality rate patterns mirrored those for gallbladder cancer incidence.

References


Childhood and Adolescent Leukemia

Leukemia is a cancer that develops in bone marrow cells that eventually circulate in the blood or lymphatic system. Leukemia can be classified by the type of cell where the cancer began. For most children with leukemia, cancer begins in immature lymphocytes and is called lymphocytic leukemia. Leukemias that start in other types of immature cells found in the blood, such as red blood cells, myeloid white blood cells, and platelets, are called myeloid, myelocytic, or myelogenous leukemias. Leukemias can also be divided into two additional groups, chronic or acute. Most leukemia in children is acute.1

Leukemia is the most common cancer in children and adolescents in both the U.S. and Texas.1 Thirty percent of all childhood cancers are leukemia.2 Among children with leukemia, slightly more than 70% will be diagnosed with acute lymphocytic leukemia (ALL). Most of the remaining cases of childhood leukemia will be acute myelogenous leukemia (AML).1 There are no recommended screening tests for leukemia in asymptomatic children or adolescents.1,3

Cancer in children and adolescents is relatively rare.3 Over nine years (1995-2003), there were 2,293 cases of leukemia, myeloproliferative or myelodysplastic disease in Texas children ages 0-14 and another 437 cases in adolescents ages 15-19.4 Hispanic children and adolescents are at a slightly higher risk of developing leukemia, myeloproliferative or myelodysplastic disease compared to non-Hispanic children and adolescents, while African-American children and adolescents have the lowest risk.5 In general, rates of leukemia and myeloproliferative or myelodysplastic disease are slightly higher in boys than girls.1,5 Little is known about the risk factors for childhood and adolescent leukemia. The few known risk factors are prenatal exposure to X-rays and certain genetic conditions, such as Down’s syndrome and Li-Fraumeni syndrome.1,3

Childhood and Adolescent Leukemia in South Texas

Incidence of childhood and adolescent leukemia in South Texas from 2000-2004 (56.3 cases of leukemia per million children or adolescents) was higher than the incidence observed either in the rest of Texas (47/million) or nationwide (43.2/million). Hispanics and non-Hispanic whites in South Texas had very slightly higher, but not statistically significantly higher, incidences of childhood and adolescent leukemia than their counterparts in the rest of Texas and nationwide (Figure 5.25). In South Texas, the incidence of childhood and adolescent leukemia was slightly higher, but not statistically
significantly higher, for Hispanics (59/million) than for non-Hispanic whites (48.7/million) (Figure 5.25).

Figure 5.25. Age-adjusted incidence of child and adolescent leukemia by location.

The incidence of childhood leukemia (62.8/million) was nearly two times higher than the incidence of adolescent leukemia (37.1/million) in South Texas during 2000-2004. The incidence of leukemia in South Texas decreased with age. Incidence was highest among children 0-4 years old (Figure 5.26).
As observed nationwide, incidence of childhood and adolescent leukemia in South Texas was higher for males (67.2/million) than for females (45.1/million).

The overall child and adolescent leukemia mortality rate in South Texas was 13.8/million. The trend in age-specific child and adolescent leukemia was quite different than the trend in incidence; the highest mortality rate was seen among the adolescent (15-19) age group (Figure 5.27). However, none of the age groups’ mortality rates were statistically significantly different from any of the others. Except for the age trend, all other leukemia mortality rate patterns were similar to those for leukemia incidence.
Figure 5.27. Child and adolescent leukemia mortality in South Texas by age group, 2000-2004. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

References


Summary – Cancer Incidence and Mortality

**Table 5.1.** Summary table of age-adjusted incidence rates in South Texas, the rest of Texas, and nationwide for each of the cancer types analyzed.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Incidence per 100,000 population*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>104.1</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>11.5</td>
</tr>
<tr>
<td>Colorectal Cancer</td>
<td>44.1</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>137.1</td>
</tr>
<tr>
<td>Lung and Bronchus Cancer</td>
<td>51.5</td>
</tr>
<tr>
<td>Liver and Intrahepatic Bile Duct Cancer</td>
<td>10.2</td>
</tr>
<tr>
<td>Stomach Cancer</td>
<td>8.6</td>
</tr>
<tr>
<td>Gallbladder Cancer</td>
<td>1.5</td>
</tr>
<tr>
<td>Childhood and Adolescent Leukemia</td>
<td>56.3 per million</td>
</tr>
</tbody>
</table>

*All estimates except child and adolescent leukemia are expressed in terms of incidence per 100,000 population. Child and adolescent leukemia, however, is expressed in terms of incidence per million population.

**Table 5.2.** Summary table of age-adjusted mortality rates in South Texas, the rest of Texas, and nationwide for each of the cancer types analyzed.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Mortality per 100,000 population*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>22.0</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>3.8</td>
</tr>
<tr>
<td>Colorectal Cancer</td>
<td>15.8</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>23.7</td>
</tr>
<tr>
<td>Lung and Bronchus Cancer</td>
<td>40.2</td>
</tr>
<tr>
<td>Liver and Intrahepatic Bile Duct Cancer</td>
<td>8.6</td>
</tr>
<tr>
<td>Stomach Cancer</td>
<td>5.8</td>
</tr>
<tr>
<td>Gallbladder Cancer</td>
<td>0.9</td>
</tr>
<tr>
<td>Childhood and Adolescent Leukemia</td>
<td>13.8 per million</td>
</tr>
</tbody>
</table>

*All estimates except child and adolescent leukemia are expressed in terms of mortality per 100,000 population. Child and adolescent leukemia is expressed in terms of mortality per million population.
Maternal and Child Health

The health of pregnant mothers, infants, children, and adolescents is an important public health issue. Maternal and child health services such as prenatal care, primary and preventive care, immunizations, and medical treatment are vital because they have the potential to make a difference in health status and health costs over a lifetime. The maternal and child health status indicators in this report include birth defects, inadequate prenatal care, and infant mortality.

Birth Defects

A birth defect is a problem in structure, function, or metabolism that occurs during fetal development and can result in physical disabilities, mental disabilities, or death. In the U.S., approximately 3% of babies are born with birth defects (about 120,000 babies annually). Birth defects are currently the leading cause of infant deaths in the U.S., and babies with birth defects are at greater risk of illness and disability than babies without defects. Most birth defects occur during the first three months of pregnancy when the baby’s organs are forming.

Both genetic and environmental factors can play a role in the development of birth defects. Some common non-genetic risk factors include not getting enough folic acid, cigarette smoking, drinking alcohol, and maternal chronic health conditions like obesity or diabetes. However, about 70% of all birth defects currently have unknown causes. The birth defects mentioned in this section were evaluated because they are potentially preventable – studies have found associations between these birth defects and preventable factors such as low folic acid consumption, smoking, or obesity.

Neural Tube Defects

Neural tube defects (NTDs) are a group of birth defects that have a common origin in the failure of the neural tube to develop properly during the first month of pregnancy. The three main types of NTDs are anencephaly, spina bifida, and encephalocele. Anencephaly is the most severe, involving absence of the skull and missing or reduced brain hemispheres, and is always fatal. Spina bifida, the most commonly occurring NTD, is an incomplete closure of the spinal cord and is not usually fatal. Encephalocele, the rarest
NTD, is protrusion of part or all of the brain through a defect in the skull and may be fatal. 6

NTDs affect an estimated 1 of every 1,000 pregnancies in the U.S. 2 The prevalence of reported NTDs in the U.S. is highest among Hispanics, followed by non-Hispanic whites, Native Americans, African-Americans, and then Asians. 6 Studies have found that maternal periconceptional use of folic acid reduces the risk of NTDs. However, folic acid may not decrease NTD risk the same amount in all racial/ethnic groups, which suggests that genetic factors may be involved. Obesity has been associated with increased NTD prevalence, and studies also suggest that women with diabetes are at increased risk of having an infant with a neural tube defect. 6

Neural Tube Defects in South Texas

The prevalence of NTDs in South Texas was 9.8 cases per 10,000 live births in 1999-2003. This was higher than the prevalence of NTDs in the rest of Texas (6.6/10,000). A higher NTD prevalence was observed among Hispanics in South Texas (10.7/10,000) than among Hispanics in the rest of Texas (7.8/10,000) (Figure 6.1). Within South Texas, the risk of having a child with an NTD was almost two times higher for Hispanic mothers than for non-Hispanic white mothers (Figure 6.1). Older maternal age groups (35 or older) had slightly but not statistically significantly higher NTD prevalences than younger maternal age groups.

Figure 6.1. Prevalence of neural tube defects (NTDs) by location and race/ethnicity, 1999-2003. Source: Texas Birth Defects Registry, 1999-2003 data
**Oral Clefts**

Oral clefts are birth defects in which the lip or mouth tissues do not grow together properly during fetal development. There are two types of oral clefts, cleft lip and cleft palate. Cleft lip is a groove or separation in the upper lip caused by the failure of the maxillary and median nasal processes to join together. Cleft palate is a grooved depression or opening in the roof of the mouth that occurs when the two sides of the palate do not fuse properly. Cleft lip and cleft palate can occur together, separately, or along with other defects. Cleft lip is more common than cleft palate. Oral clefts often occur together with many different chromosomal abnormalities and syndromes. 

In the U.S., the prevalence of cleft lip with or without cleft palate ranges from 4.8 to 17.5 per 10,000 live births, and prevalence of cleft palate without cleft lip ranges from 2.8 to 13.5. Oral clefts are more prevalent in male infants than in female infants. In the U.S., Asians have the highest risk of oral clefts. In Texas, however, Hispanics have the highest risk for cleft lip with/without cleft palate and non-Hispanic whites for cleft palate, while African Americans are at lowest risk of each. Environmental factors are considered to be less important than genetic factors in the etiology of oral clefts. However, maternal smoking and intake of anticonvulsant medications and vasoactive drugs have been associated with oral clefts in offspring, and studies have found that alcohol might increase the risk of oral clefts. Maternal use of multivitamins has been found to reduce the risk of oral clefts, and several studies have observed a decreased risk of oral clefts with folic acid use.

**Oral Clefts in South Texas**

The prevalence of oral clefts in South Texas (16.5/10,000) was almost identical to the prevalence in the rest of Texas (16.4/10,000) in 1999-2003. Race/ethnicity and sex patterns of oral cleft prevalence in South Texas mirrored what was seen in Texas as a whole and nationwide. In South Texas, Hispanic mothers had a slightly higher, but not statistically significantly higher, prevalence of oral clefts in offspring (16.9/10,000) than did non-Hispanic white mothers (14.6/10,000), and the prevalence of oral clefts was higher in male infants (19/10,000) than in female infants (13.7/10,000). The prevalence of oral clefts in offspring was higher among mothers residing in South Texas non-metropolitan counties (20.5/10,000) than among those who lived in metropolitan counties (16/10,000).

**Other Selected Birth Defects**

Studies have suggested that a reduced risk of several other birth defects may be associated with multivitamin and folic acid supplement intake, including some heart defects, limb reduction defects, pyloric stenosis, and omphalocele. In addition to NTDs and oral clefts, Canfield et al. (2005) observed decreases in birth prevalence for
transposition of the great arteries, upper limb reduction defects, pyloric stenosis, and omphalocele after U.S. grain fortification with folic acid. A decrease in prevalence of common truncus among Hispanics was also seen.\textsuperscript{17}

Omphalocele is an abdominal wall defect in which an infant’s bowels and other abdominal organs herniate into the umbilical cord, causing the intestines to stick out of the belly button.\textsuperscript{18,19} Male infants have a higher risk of omphalocele than female infants.\textsuperscript{18} Omphalocele is also associated with low birth weight, preterm birth, multiple gestation pregnancies, and intrauterine growth retardation. Mothers who are obese might be at increased risk of having an infant with omphalocele.\textsuperscript{18}

Common truncus and transposition of the great arteries are both conotruncal heart defects, or outflow tract defects. With common truncus, also called truncus arteriosus, only a single blood vessel exists to carry blood both to the body and the lungs, instead of a separate aorta and pulmonary artery.\textsuperscript{20,21} With transposition of the great arteries, the aorta and pulmonary artery get reversed so that the aorta carries oxygen-poor blood from the right ventricle to the rest of the body, while the pulmonary artery carries oxygen-rich blood from the left ventricle to the lungs.\textsuperscript{22} Surgery is necessary for infants with either of these birth defects to survive. Male infants have a higher risk of transposition of the great arteries than females, while truncus arteriosus is either more common among females or shows no difference in prevalence between the sexes. Maternal diabetes has been associated with an increased risk of conotruncal defects, and obesity has been linked to an elevated risk of defects of the great vessels.\textsuperscript{20}

Reduction defects of the upper limb involve the congenital absence of any part of the hands or arms. The severity of these defects can vary from missing fingers to the total absence of one or both arms.\textsuperscript{11,23} Two general types of limb reduction defects are transverse and longitudinal defects. Transverse defects look like amputations or missing limb parts (e.g., a missing forearm). Longitudinal defects are missing limb rays (e.g., a missing radius and thumb).\textsuperscript{11} In Texas, there is no significant difference in prevalence between male and female infants.\textsuperscript{11} Limb reduction defects have been associated with maternal diabetes, exposure to pesticides, and maternal intake of a handful of medications such as thalidomide and antiseizure medicines.\textsuperscript{23}

Pyloric stenosis results from the enlargement of the pylorus muscle, which blocks the passage of food from the stomach into the small intestine. Pyloric stenosis can cause severe vomiting, weight loss, and dehydration in infants.\textsuperscript{24} The prevalence of pyloric stenosis is highest for non-Hispanic whites, intermediate for Hispanics, and lowest for African-Americans and Asians. The risk of pyloric stenosis is three to six-and-a-half times higher in male infants than in female infants. One of the major risk factors for pyloric stenosis is a family history of the same defect.\textsuperscript{25}
Other Selected Birth Defects in South Texas

Figure 6.2 shows the prevalence of selected birth defects (omphalocele, common truncus, transposition of the great arteries, reduction defects of the upper limb, and pyloric stenosis) in South Texas, the rest of Texas, and nationwide. Overall, the prevalences of each of these birth defects were higher in South Texas in 1999-2003 than in the rest of Texas during the same time period or nationwide from 1999-2001 (Figure 6.2). However, the prevalence of common truncus, reduction defects of the upper limb, and pyloric stenosis were statistically significantly higher in South Texas than in the rest of Texas, whereas prevalence of omphalocele and transposition of the great arteries were not statistically significantly higher. The prevalence of having a child with omphalocele, common truncus, or pyloric stenosis was statistically significantly higher for Hispanic mothers living in South Texas than for Hispanic mothers who resided in the rest of Texas, and the prevalence of reduction defects of the upper limb was higher for non-Hispanic whites in South Texas than non-Hispanic whites in the rest of Texas. No statistically significant differences between Hispanics and non-Hispanic whites were observed for any of these birth defects in South Texas.

Figure 6.2. Prevalence of selected birth defects by location. 
Source: Texas Birth Defects Registry, 1999-2003 data, 1999-2001 nationwide prevalence based on data from 11 U.S. states with active birth defects surveillance systems, obtained from Canfield et al., 2006. No nationwide estimate could be found for pyloric stenosis.
References


Inadequate Prenatal Care

Prenatal care is vitally important to the health of pregnant women and their babies. Inadequate prenatal care has been associated with an increased risk of low birth weight, preterm births, infant mortality, and maternal mortality.¹ Most policies and programs that attempt to improve pregnancy outcomes focus on improving the utilization of prenatal care services.² The major components of prenatal care include counseling about diet, avoidance of drugs, smoking cessation, and the diagnosis and treatment of any health complications.³

African-American and Hispanic mothers are far more likely than non-Hispanic white mothers to obtain prenatal care late or not at all.¹,⁴ Adolescent mothers are also at a higher risk of obtaining either late or no prenatal care than mothers of other ages. Low income has been shown to be a major predictor of insufficient prenatal care.¹

Key Point: An estimated 25% of South Texas mothers receive inadequate prenatal care, a statistic similar to mothers in the rest of Texas. In South Texas, Hispanic mothers were at a much higher risk of having inadequate prenatal care than non-Hispanic whites.

Inadequate Prenatal Care in South Texas

An estimated 25% of mothers in South Texas received inadequate prenatal care in 1999-2003. This estimate was very similar to the percentage of inadequate prenatal care seen in the rest of Texas (Figure 6.3). Even though the percentage of both Hispanic and non-Hispanic white mothers receiving inadequate prenatal care in South Texas was less than their counterparts in the rest of Texas, Hispanic mothers were still at a much higher risk of having inadequate prenatal care when compared to non-Hispanic whites (Figure 6.3). In South Texas, the percentage of inadequate prenatal care among Hispanic mothers (28.4%) was more than two times higher than the percentage of inadequate prenatal care among non-Hispanic white mothers (11.7%).
Figure 6.3. Percent of mothers with inadequate prenatal care by location and race/ethnicity, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/birth.htm)

In South Texas, a higher percentage of inadequate prenatal care was seen among younger maternal age groups than among older maternal age groups. More than 35% of the mothers in the two youngest maternal age groups (ages 10-17) had inadequate prenatal care, whereas approximately 20% of mothers age 35 and older had inadequate prenatal care (Figure 6.4).

Figure 6.4. Percent of mothers with inadequate prenatal care by age group, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/birth.htm)
Bexar County had a lower percentage of mothers with inadequate prenatal care (14%) than all of South Texas (25%). However, Webb County and the Lower Rio Grande Valley area had higher percentages of inadequate prenatal care than did South Texas; about 35% of mothers in each of these locations had inadequate prenatal care. Figure 6.5 illustrates the differences in percentages among Hispanic and non-Hispanic white mothers in each of these locations. It also shows the percent of inadequate prenatal care for African-American mothers in Bexar County, where there were sufficient numbers to calculate an estimate for this racial group.

**Figure 6.5.** Percent of mothers with inadequate prenatal care in selected South Texas locations by race/ethnicity, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/birth.htm)

**References**


2. Frick KD, Lantz PM. How Well Do We Understand the Relationship Between Prenatal Care and Birth Weight? Health Serv Res 1999; 35:1063-1073.
Infant Mortality

Infant mortality is the death of any liveborn infant within the first year of life. The infant mortality rate is an important measure of overall community health, as high infant mortality rates could indicate poor maternal health, inadequate access to health care, or infant malnutrition. In the U.S., the infant mortality rate has greatly declined over the past few decades, from 20 infant deaths per 1,000 live births in 1970 to about seven deaths per 1,000 live births in 2002. However, the U.S. still ranked 27th among industrialized nations in low infant mortality in 2000. This is mostly because of disparities that continue to exist among different race/ethnic groups in the US. The infant mortality rate in Texas has been lower than the nationwide rate since 1979. In 2002, the infant mortality rate for Texas was 6.4 deaths per 1,000 live births, which was slightly higher than the previous few years.

In the U.S., the mortality rate for African-American infants in 2002 was 13.9 per 1,000 live births, which was higher than the mortality rate for Hispanics (5.6/1,000) or non-Hispanic whites (5.8/1,000). Teenage mothers and mothers ages 40 or older have higher infant mortality rates than other maternal ages. The mortality rate is also higher for male infants than for female infants. The leading causes of infant mortality in the U.S. are birth defects, disorders related to preterm birth and low birthweight, sudden infant death syndrome, and maternal complications. Risk factors for infant mortality include no prenatal care, smoking, inadequate weight gain during pregnancy, and having a repeat pregnancy within six months or less.

Infant Mortality in South Texas

The infant mortality rate in South Texas from 1999-2003 was 5.6 deaths per 1,000 live births. The South Texas infant mortality rate was lower than the mortality rate in the rest of Texas (6.3/1,000). Infant mortality rates were similar between Hispanics and non-Hispanic whites, both in South Texas and the rest of Texas (Figure 6.6).
For both Hispanic and non-Hispanic whites, the gender pattern for infant mortality in South Texas was the same as that seen nationwide – male infants had a higher mortality rate (6.3/1,000) than females (4.9/1,000). The Lower Rio Grande Valley region had a lower infant mortality rate than all of South Texas, while Webb County’s infant mortality rate was similar (Figure 6.7). The rate for Bexar County was higher than the South Texas rate, perhaps because this county has a relatively high percentage of African-Americans residents, compared to other South Texas areas, and African-Americans have a higher infant mortality rate than Hispanics and non-Hispanic whites.
Figure 6.7. Infant mortality rate in selected South Texas locations, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/birth.htm)

References


Summary – Maternal and Child Health

Table 6.1. Summary table of birth defect prevalence, percentage of inadequate prenatal care, and infant mortality rates in South Texas, the rest of Texas, and nationwide.*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Neural Tube Defects</td>
<td>9.8 per 10,000</td>
<td>6.6 per 10,000</td>
<td>----</td>
</tr>
<tr>
<td>Oral Clefts</td>
<td>16.5 per 10,000</td>
<td>16.4 per 10,000</td>
<td>----</td>
</tr>
<tr>
<td>Omphalocele</td>
<td>2.5 per 10,000</td>
<td>2.1 per 10,000</td>
<td>2.1 per 10,000</td>
</tr>
<tr>
<td>Common Truncus</td>
<td>1.3 per 10,000</td>
<td>0.8 per 10,000</td>
<td>0.8 per 10,000</td>
</tr>
<tr>
<td>Transposition of the Great Arteries</td>
<td>5.3 per 10,000</td>
<td>4.8 per 10,000</td>
<td>4.7 per 10,000</td>
</tr>
<tr>
<td>Reduction Defects of the Upper Limb</td>
<td>4.9 per 10,000</td>
<td>3.9 per 10,000</td>
<td>3.8 per 10,000</td>
</tr>
<tr>
<td>Pyloric Stenosis</td>
<td>22.1 per 10,000</td>
<td>17.3 per 10,000</td>
<td>----</td>
</tr>
<tr>
<td>Inadequate Prenatal Care</td>
<td>24.9%</td>
<td>24.6%</td>
<td>----</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>5.6 per 1,000</td>
<td>6.3 per 1,000</td>
<td>----</td>
</tr>
</tbody>
</table>

*Nationwide estimates were not available for all health indicators in the table. “----” signifies that no nationwide incidence/mortality rate or prevalence of the health indicator could be found.
Chronic Diseases

Chronic diseases, such as diabetes, heart disease, stroke, and cancer, are currently the leading causes of both death and disability in the U.S. It is estimated that 70% of all deaths nationwide are due to chronic illnesses, and more than 90 million Americans currently live with chronic diseases. Although chronic diseases are some of the most prevalent and costly health problems in the U.S., they are also largely preventable. Healthy behaviors such as getting enough exercise, eating right, and avoiding tobacco can help to prevent many chronic diseases. Chronic disease mortality rates are presented as age-adjusted rates; prevalence of chronic diseases are presented as crude estimates.

Diabetes

Diabetes is a group of diseases that result from the body’s inability to produce or correctly use insulin, a hormone that regulates sugar metabolism. Type 2 diabetes is the most common form of diabetes, accounting for 90 to 95% of all diagnosed cases. Type 2 diabetes usually results from insulin resistance, a disorder in which the body does not properly use insulin, as well as problems with insulin production. Diabetes is associated with numerous serious health complications, such as cardiovascular disease, blindness, kidney failure, nervous system damage, and amputations. African-Americans, Hispanics, Native Americans, and Asian Americans are at higher risk for Type 2 diabetes than are non-Hispanic whites. Risk factors for Type 2 diabetes include obesity, physical inactivity, a history of gestational diabetes, and a family history of diabetes.

Diabetes Prevalence

An estimated 20.8 million people in the U.S., about 7% of the total population, had diabetes in 2005. Unfortunately, more than six million of these individuals, more than one-third, were undiagnosed. In Texas, approximately 1.3 million adults (age 18 or older) were diagnosed with diabetes in 2005. The prevalence of diabetes increases with age. While still rare, the prevalence of Type 2 diabetes in children and adolescents is reported to be increasing, especially among African-Americans, Native Americans, and Hispanics. Approximately 176,500 people age 20 or younger in the U.S. had diabetes in 2005.
Diabetes Prevalence in South Texas

An estimated 9% of adults who live in South Texas have been diagnosed with diabetes. The percentage of adults with diabetes in South Texas was higher than the percentage with diabetes in the rest of Texas, and was also higher than the nationwide BRFSS 2002-2005 diabetes estimate (nearly 8%). Hispanics in South Texas had a higher prevalence of diabetes than did Hispanics in the rest of Texas (Figure 7.1). Hispanics had a slightly higher, but not statistically significantly higher, prevalence of diabetes than non-Hispanic whites in South Texas (Figure 7.1).

Figure 7.1. Estimated percent of the adult population with diabetes by location and race/ethnicity, 2002-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005

Age patterns for diabetes prevalence in South Texas were the same as seen nationwide; the prevalence of diabetes in South Texas increased with age. For individuals 45 years old and older, the prevalence of diabetes was statistically significantly higher among Hispanics than among non-Hispanic whites. It was estimated that 31% of Hispanic adults ages 65 and older in South Texas were diagnosed with diabetes in 2002-2005 (Figure 7.2).
Overall, diabetes prevalence was higher in South Texas non-metropolitan counties (12.1%) than in metropolitan counties (8.7%). This difference was statistically significantly greater among Hispanics, but not among non-Hispanic whites (Figure 7.3).
Diabetes Mortality

Diabetes was the sixth-leading cause of death in both Texas and the nation in 2002-2004. This ranking was based on death certificates which listed diabetes as the underlying cause of death. Mortality from diabetes is believed to be underreported; it is listed as a contributing factor more often than it is listed as an underlying factor, and diabetes is often not listed at all on the death certificate.\textsuperscript{2,4}

Diabetes Mortality in South Texas

The 1999-2003 age-adjusted diabetes mortality rate in South Texas (with diabetes reported either as an underlying or contributing cause of death), was 104.3 deaths per 100,000 persons. The diabetes mortality rate in South Texas was higher than the age-adjusted diabetes mortality rate in the rest of Texas (87.9/100,000). Hispanics had a higher diabetes mortality rate than non-Hispanic whites, both in South Texas and the rest of Texas. The age-adjusted mortality rate for Hispanics in South Texas (142.3/100,000) was slightly higher than that for Hispanics in the rest of Texas (133.4/100,000); this pattern was reversed for non-Hispanic whites (Figure 7.4).

\textbf{Figure 7.4.} Age-adjusted mortality rates for diabetes as an underlying or contributing cause, by location and race/ethnicity, 1999-2003. 
Source: Center for Health Statistics

As with diabetes prevalence, the diabetes mortality rate in South Texas increased with age, and diabetes mortality rates were higher for Hispanics than for non-Hispanic whites.
at the older age groups (age 45 and older). South Texas Hispanics ages 75 or older had a diabetes mortality rate of 1,246.7/100,000 (Figure 7.5).

Figure 7.5. South Texas age-adjusted mortality rates for diabetes as an underlying or contributing cause, by age group and race/ethnicity, 1999-2003.
Source: Center for Health Statistics

In South Texas, males had a higher diabetes mortality rate (114.9/100,000) than females (95.7/100,000). Residents of South Texas metropolitan counties had a slightly higher diabetes mortality rate (105.3/100,000) than did residents of non-metropolitan counties (98.8/100,000).

Bexar County and Webb County both had higher diabetes mortality rates than South Texas, whereas the Lower Rio Grande Valley region had a lower mortality rate than South Texas (Figure 7.6).
Figure 7.6. Age-adjusted mortality rates for diabetes as an underlying or contributing cause in selected South Texas locations, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/birth.htm)

References


Cardiovascular Disease Mortality

Cardiovascular disease (CVD) is a general term given to any disease affecting the heart or blood vessels. CVD is the leading cause of death in the U.S. (Nabel, 2003). The American Heart Association estimated that 79.4 million Americans (one in three) had one or more forms of CVD in 2004. Approximately 36% of all deaths in the U.S. (871,500) were attributable to CVD that same year. Heart disease and cerebrovascular disease (stroke) are the two main causes of CVD death.

Heart Disease Mortality

Heart disease is the leading cause of death in the U.S., accounting for 28% of all deaths in 2003. It is the leading cause of death for both men and women, as well as for African-Americans, Hispanics, and whites. U.S. African-Americans have the highest age-adjusted heart disease death rate (300/100,000), followed by whites (228/100,000) and then Hispanics (173/100,000). Coronary heart disease, which can lead to heart attacks, is the most common form of heart disease in the U.S.; however, several other heart conditions also fall under the term heart disease.

The risk of heart disease, and subsequently heart disease mortality, increases with age. Approximately 83% of coronary heart disease deaths occur among persons 65 or older. Men have a greater risk of heart disease than women, especially at younger ages. The major risk factors for heart disease include high blood pressure, high blood cholesterol levels, cigarette smoking, and diabetes. About 75% of diabetics die of some form of heart or blood vessel disease. In addition, poor diet and physical inactivity have been linked to heart disease, probably because they are related to the major risk factors listed above. Similarly, obesity is an indirect risk factor for heart disease, because obesity is associated with high cholesterol, high blood pressure, and diabetes.

Heart Disease Mortality in South Texas

Overall, South Texas had a lower age-adjusted heart disease mortality rate (229.8/100,000) than did the rest of Texas (262.4/100,000). As shown in Figure 7.7, non-Hispanic whites in South Texas had a lower heart disease mortality rate than non-Hispanic whites in the rest of Texas, but the opposite was seen for Hispanics. South Texas Hispanics had a higher mortality rate than Hispanics in the rest of Texas. Unlike the rest of Texas and nationwide, where Hispanics die less frequently from heart disease and stroke than non-Hispanic whites, South Texas Hispanics and non-Hispanic whites had very similar rates.
Gender and age patterns for heart disease mortality in South Texas were the same as the nation. Interesting results were seen when looking at heart disease mortality rates in metropolitan and non-metropolitan counties. For all races combined, non-metropolitan counties in South Texas had a slightly higher heart disease mortality rate than the metropolitan counties (Figure 7.8). Hispanics in non-metropolitan counties also had a higher mortality rate (254.6/100,000) than did Hispanics in metropolitan counties (220/100,000), and this difference in rates was larger than for all races combined. However, the mortality rate among non-Hispanic whites was slightly lower, but not statistically significantly lower, in non-metropolitan counties than in metropolitan counties (Figure 7.8).
Figure 7.8. Heart disease mortality rates in South Texas, by county designation and race/ethnicity, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)

Bexar County’s average annual age-adjusted heart disease mortality rate (251.1/100,000) was slightly higher than the mortality rate for South Texas as a whole (225.7/100,000). The Lower Rio Grande Valley area’s rate (197.8/100,000) was slightly lower than all of South Texas (Figure 7.9). Webb County’s mortality rate was similar to South Texas’ rate.

Figure 7.9. Heart disease mortality rates in selected South Texas locations, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)
Cerebrovascular Disease Mortality

Cerebrovascular disease, more commonly known as stroke, is the third leading cause of death in the U.S. A stroke is characterized by neurological damage that occurs either when the brain’s blood supply is blocked or when a blood vessel in the brain bursts. About 500,000 new strokes occur each year in the U.S. Stokes not only cause more than 160,000 deaths in the U.S. each year, it also is the leading cause of long-term disability. Individuals who have had strokes can sustain major disabilities such as paralysis or speech problems. Almost 75% of all strokes occur among individuals aged 65 or older. Stroke incidence in men is greater than incidence in women at younger ages, but not at older ages.

Major risk factors for stroke include high blood pressure, heart disease, diabetes, and cigarette smoking. Diabetics have a stroke risk two to four times higher than individuals without diabetes. Smoking doubles the risk of cerebrovascular disease. Other risk factors for stroke include pregnancy and physical inactivity.

Cerebrovascular Disease Mortality in South Texas

Overall, South Texas had a lower annual age-adjusted cerebrovascular disease mortality rate (53.9/100,000) than did the rest of Texas (66.3/100,000) from 1999-2003. The non-Hispanic white population in South Texas also had a lower mortality rate than non-Hispanic whites in the rest of Texas. No difference in rates was seen in the Hispanic population with regards to location (South Texas vs. the rest of Texas). As with heart disease mortality, Hispanics and non-Hispanic whites in South Texas had very similar stroke mortality rates (Figure 7.10).

Figure 7.10. Stroke mortality rates in South Texas and the rest of Texas by race/ethnicity, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)
The cerebrovascular mortality age trend in South Texas was similar to the age trend observed nationally. Even though stroke mortality rates in South Texas were very similar between males and females for all races combined, among Hispanics, males had a higher mortality rate than females, and among non-Hispanic whites, females had a higher mortality rate than males (Figure 7.11).

Figure 7.11. Stroke mortality rates in South Texas by sex and race/ethnicity, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)

As seen with heart disease mortality rates, Bexar County had a higher mortality rate (61/100,000) than did South Texas as a whole (53.9/100,000), and the Lower Rio Grande Valley region had a lower mortality rate (38.4/100,000) than all of South Texas.

References


Asthma

Asthma is a chronic disease of the respiratory system characterized by episodes of airway inflammation, usually in response to one or more triggers.\(^1\) If not properly managed, asthma can be life-threatening. While the overall prevalence of asthma has increased in the U.S. over the past two decades, it has stabilized in recent years.\(^1,2\) An estimated 20.5 million Americans, including 6.2 million children, had asthma in 2004.\(^1\) Asthma is the most common chronic disease among children and is the third-leading cause of hospitalization in children younger than age 15.\(^3\)

Nationally, asthma prevalence decreases with age. The highest prevalence of asthma in 2004 was seen in people ages 5-17 (almost 10%). Among adults, asthma prevalence is higher in women than in men. This trend is reversed for children; however; among those less than age 18, boys have a higher prevalence of asthma than girls. In 2004, prevalence of asthma in the U.S. was highest in African-Americans (9%), followed by non-Hispanic whites (almost 7%) and then Hispanics (5%).\(^1\)

Current Asthma in South Texas

Nearly 7% of adult South Texas residents were estimated to currently have asthma in 2002-2005. This percentage was similar to the estimates of current asthma in the rest of Texas (7%) and nationwide (8%). In South Texas, a slightly higher, but not significantly higher, percentage of non-Hispanic whites (almost 8%) currently have asthma than Hispanics (5%). The prevalence of current asthma was more than twice as high in females (9%) than in males (4%).

The current asthma prevalence age trends for Hispanic and non-Hispanic white adults differed. A slightly higher percentage of Hispanics were estimated to currently have
asthma in the youngest adult age group, 18-29. For all other older adult age groups, non-Hispanic whites had a higher prevalence of current asthma than Hispanics (Figure 7.12). There was no significant difference in asthma prevalence between Hispanics and non-Hispanic whites for any of the age groups, however.

**Figure 7.12.** Estimated prevalence of current asthma among South Texas adults by age group and race/ethnicity, 2002-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005

**References**


Summary – Chronic Diseases

**Table 7.1.** Summary table of crude prevalence or age-adjusted mortality rates in South Texas, the rest of Texas, and nationwide* for each of the chronic disease indicators analyzed.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>South Texas</th>
<th>Rest of Texas</th>
<th>Nationwide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Prevalence, 2002-2005</td>
<td>9.1%</td>
<td>7.4%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Diabetes Mortality, 1999-2003</td>
<td>104.3 per 100,000</td>
<td>87.9 per 100,000</td>
<td>----</td>
</tr>
<tr>
<td>Heart Disease Mortality, 1999-2003</td>
<td>229.8 per 100,000</td>
<td>262.4 per 100,000</td>
<td>----</td>
</tr>
<tr>
<td>Cerebrovascular Disease Mortality, 1999-2003</td>
<td>53.9 per 100,000</td>
<td>66.3 per 100,000</td>
<td>----</td>
</tr>
<tr>
<td>Asthma Prevalence, 2002-2005</td>
<td>6.5%</td>
<td>7.2%</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

* Nationwide estimates were not available for all health indicators in the table. “----” signifies that no nationwide mortality rate could be found for the health indicator.
Behavioral Risk Factors in Adults

Behavioral risk factors are behaviors that increase the possibility of disease, such as smoking, alcohol use, bad eating habits, and not getting enough exercise. Because they are behaviors, it is possible for individuals to modify these risk factors to help prevent many types of chronic diseases and premature death.

Obesity

The rising prevalence of overweight and obesity among both adults and children are of serious concern nationwide. Nearly two-thirds of U.S. adults are estimated to be either overweight or obese.\(^1\) Nationwide, the prevalence of overweight has doubled for children and tripled for adolescents since 1980.\(^2\) In Texas, 27% of adults are estimated to be obese. The prevalence of adult obesity in Texas has doubled since 1990, and is expected to increase to 35% by 2040.\(^2,3\) Texas is one of only 13 states in the U.S. with a percentage of obese adults exceeding 25%.\(^3\) More than one-third of Texas school children are overweight. This is alarming because overweight children have a 25 to 50 percent chance of becoming obese adults.\(^3\)

The amount of body fat in an individual is usually estimated by calculating body mass index (BMI), which accounts for both weight and height. Adults with a BMI of 30 or greater are considered obese.\(^3\) Obesity is associated with increased risk of a host of health problems, including heart disease, stroke, hypertension, hypercholesterolemia, diabetes, osteoarthritis, and several different types of cancer.\(^3,4\) Since overweight and obesity are usually caused by an energy imbalance (consuming more calories than are used) over a long period of time, poor eating habits and not getting enough physical exercise are two major contributing factors for these conditions.\(^5\)

African-American and Hispanic adults in the U.S. have higher obesity prevalences than non-Hispanic white adults. Both overweight and obesity increase with age; adolescents have a higher prevalence of overweight than do children,
and older adults tend to have a higher prevalence of obesity than do younger adults. In 2004, the nationwide prevalence of obesity was slightly higher in women than in men.\(^6\)

**Obesity in South Texas**

In 2002-2005, almost 30% of adults who lived in South Texas were obese. The prevalence of obesity in South Texas was higher than the prevalence of obesity in the rest of Texas or nationwide (Figure 8.1).

![Figure 8.1](image)

**Figure 8.1.** Estimated percent of the adult (age 18 or older) population with obesity by location, 2002-2005.


In South Texas, a higher prevalence of obesity was seen in Hispanic adults (34%) than in non-Hispanic whites (22%). Hispanics in South Texas had a higher prevalence of obesity (34%) than did Hispanics in the rest of Texas (27%). This pattern was not seen among non-Hispanic whites (Figure 8.2).
Age and gender obesity prevalence patterns in South Texas were similar to national trends. The highest age-specific obesity prevalence was observed among adults ages 45-64 (37%). For all races combined, the prevalence of obesity was almost identical in South Texas metropolitan and non-metropolitan counties. However, the percentage of Hispanics who were obese in non-metropolitan counties was higher than the percentage of obese Hispanics in metropolitan counties. The opposite was seen among non-Hispanic whites – the prevalence of obesity was higher in metropolitan counties than in non-metropolitan ones (Figure 8.3).
Figure 8.3. Estimated percent of the adult population with obesity in South Texas by county designation and race/ethnicity, 2002-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005

References


Physical Activity

Engaging in regular physical activity can help prevent conditions such as obesity, heart disease, diabetes, hypertension, colon cancer, and premature mortality.\(^1\) Regular, moderate levels of exercise each day can lead to improved health and well-being. The CDC recommends that adults either engage in moderate-intensity physical activity for at least 30 minutes five or more days per week or engage in vigorous-intensity physical activity for at least 20 minutes three or more days per week.\(^2\)

Even though the benefits of physical activity are well known, more than 50% of all adults in the U.S. get less than the recommended amount of physical activity, and 24% are not active at all during their leisure time. Nationally, fewer women than men get sufficient physical activity. Activity also decreases with age; older individuals are less likely to get adequate physical activity. Inadequate physical activity is more common among adults with lower incomes and less education.\(^3\) Inadequate physical activity is not only a problem for adults. An estimated two-thirds of high-school-aged youth are not engaged in recommended physical activity levels.\(^3\)

Inadequate Physical Activity in South Texas

An estimated 54% of adults in South Texas got inadequate physical activity (did not meet weekly recommendations for moderate or vigorous physical activity) during 2003-2005. This percentage was similar to the estimated prevalence of inadequate physical activity in the rest of Texas (Figure 8.4). Adults in South Texas also had a prevalence of inadequate physical activity similar to the nationwide 2002-2005 BRFSS estimate (53%).

Hispanics in South Texas had a lower prevalence of inadequate physical activity (56%) than Hispanics in the rest of Texas (61%). In South Texas, the percentage of Hispanics who did not engage in sufficient physical activity was slightly higher, but not statistically significantly higher, than the percentage for non-Hispanic whites (Figure 8.4).
Inadequate physical activity gender and age patterns among South Texas adults were the same as those reported nationwide. In South Texas, inadequate physical activity increased with age among both Hispanic and non-Hispanic white adults. However, Hispanics ages 45 and older had a higher prevalence of inadequate physical activity than did non-Hispanic whites of the same age group (Figure 8.5).
Figure 8.5. Estimated prevalence of inadequate physical activity among South Texas adults by age group and race/ethnicity, 2003-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2003-2005

References


Nutrition

Good nutrition can help lower the risk of chronic diseases such as stroke, heart disease, osteoporosis, and diabetes.\(^1\) Adequate fruit and vegetable consumption is a key component of good nutrition. Fruits and vegetables contain vitamins, minerals, and fiber that are critical to good health. It is likely that people who consume more generous amounts of fruits and vegetables have a reduced risk of cardiovascular disease and certain cancers than people who eat only small amounts of fruits and vegetables.\(^2\) The U.S. Department of Health and Human Services and the U.S. Department of Agriculture recommend that adults with a 2,000-calorie intake eat 2 cups of fruit and 2 ½ cups of vegetables every day.\(^3\)

Less than one-fourth of U.S. adults had adequate fruit and vegetable consumption (five or more servings of fruits and vegetables each day) in 2005. Nationally, a higher percentage of women had adequate fruit and vegetable consumption than men. Inadequate fruit and vegetable consumption was higher for Hispanic adults than for any other racial/ethnic group. Younger adult age groups (ages 18-44) were more likely to consume inadequate amounts of fruits and vegetables than older adults (ages 45 or older).\(^4\)

Inadequate Fruit and Vegetable Consumption in South Texas

An estimated 77% of adults in South Texas had inadequate fruit and vegetable consumption (less than five servings of fruits and vegetables per day) during 2002, 2003, and 2005. This percentage was very similar to the percent of adults with inadequate fruit and vegetable consumption in the rest of Texas and nationwide.

Sex, age, and race/ethnicity patterns of inadequate fruit and vegetable consumption in South Texas were the same as seen nationwide. Hispanic adults had a slightly higher, but not statistically significantly higher, prevalence of inadequate fruit and vegetable consumption (78%) than non-Hispanic whites (75%); adults in older age groups had a lower prevalence of inadequate fruit and vegetable consumption; and men had a higher percentage of inadequate fruit and vegetable consumption (83%) than women (71%).

**Key Point:** About 77% of adults in South Texas don’t eat enough fruits and vegetables, a rate similar to the rest of Texas and nation.
References


Cigarette Smoking Behaviors

Smoking cigarettes harms nearly every organ in the body and can cause many adverse health effects, including cancer, cardiovascular disease, and respiratory diseases.\(^1\) Cigarette smoking is currently the leading cause of preventable death in the U.S. During 1997-2001, cigarette smoking and exposure to tobacco smoke resulted in one of every five deaths (438,000) annually.\(^2,3\)

In 2005, approximately 21% of U.S. adults were smokers. Nationally, a higher percentage of men are smokers than women. Hispanics had a lower prevalence of cigarette smoking than did non-Hispanic whites and African-Americans in the U.S. in 2005. Among adults, the prevalence of cigarette smoking decreases with age.\(^2\)

In both the U.S. and Texas, approximately 23% of all high-school students currently smoke cigarettes. An estimated 8% of middle-school students nationwide and 11% of middle-school students in Texas currently smoke cigarettes.\(^4,5\) In 2006, an estimated 35% of all secondary students reported having used a tobacco product in their lifetime. Even though public health activities have lowered the rate of underage cigarette smoking and tobacco use in Texas considerably since 1990, much still remains to be done.\(^5\) Some factors related to youth tobacco use include low socioeconomic status, parents, guardians, siblings, or peers smoking or approving of tobacco use, accessibility, lack of parental support/involvement, and lower self-image or self-esteem.\(^4\)
Cigarette Smoking in South Texas

Approximately 19% of adults in South Texas during 2002-2005 were smokers. The prevalence of adults who were current smokers in South Texas was lower than in the rest of Texas or nationwide (Figure 8.6).


Sex, age, and race/ethnicity patterns for smoking prevalence in South Texas during 2002-2005 were the same as reported nationwide. A slightly higher, but not statistically significantly higher, prevalence of current smokers was seen for non-Hispanic white adults (21%) than for Hispanics (18%). Overall, males in South Texas were nearly two times more likely to be a current smoker than females, and among Hispanics, males were more than two times more likely than females to be current smokers (Figure 8.7).
Figure 8.7. Estimated prevalence of current smoking among South Texas adults by sex and race/ethnicity, 2002-2005. Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005

The Lower Rio Grande Valley region had a lower percentage of adults who were current smokers (14%) than South Texas as a whole (19%).

References


Alcohol Use

Alcohol is a nervous-system depressant that is rapidly absorbed into the bloodstream after consumption. It affects all organs in the body. Excessive alcohol use has both immediate and long-term associated health risks. Possible immediate effects of excessive alcohol use (usually the result of binge drinking) include unintentional injuries, violence, damage to a fetus if pregnant, and alcohol poisoning. Long-term health risks include neurological problems, cardiovascular disease, depression, liver disease, and some cancers. Excessive alcohol use is the third-leading lifestyle-related cause of death in the U.S., with approximately 75,000 deaths per year. In 2003, more than two million hospitalizations and more than four million emergency room visits were alcohol-related.

When consumed in moderation, alcohol has been shown to have beneficial effects. The lowest coronary heart disease mortality and all-cause mortality rates occur among adults who consume one to two drinks per day. However, the highest morbidity and mortality rates are seen among those who drink large amounts of alcohol.

Alcohol use and abuse is more common among males than females, and among younger adults than older ones. Underage drinking is a major public health problem in the U.S. Even though alcohol use is illegal for persons under age 21, youth ages 12-20 drink almost 20% of all alcohol consumed in the U.S. It is estimated that one of every two high-school students in the U.S. drink some amount of alcohol. In 2004, more than 142,000 emergency room visits by people ages 12-20 could be attributed to injuries and other conditions related to alcohol.

Key Point: The prevalence of heavy alcohol consumption and binge drinking among adults in South Texas was similar to the prevalence in the rest of Texas and nation.

Heavy Alcohol Consumption

The U.S. Department of Health and Human Services and the U.S. Department of Agriculture’s Dietary Guidelines for Americans (2005) define moderate drinking as the consumption of up to one drink a day for women and the consumption of up to two drinks a day for men. Consuming, on average, more than one drink per day for women or more than two drinks per day for men is considered heavy alcohol consumption.
Heavy Alcohol Consumption in South Texas

The prevalence of heavy alcohol consumption among adults in South Texas was an estimated 6% in 2002-2005. This prevalence was similar to the percent of heavy alcohol consumption among adults in the rest of Texas (6%) and nationwide (7%). In South Texas, the prevalence of heavy alcohol consumption was slightly higher, but not statistically significantly higher, for non-Hispanic whites (almost 8%) than for Hispanics (6%).

Sex and age patterns for heavy alcohol consumption prevalence in South Texas were the same as observed nationally. The highest rate of adult heavy alcohol consumption was seen in adults 18-29 years of age (Figure 8.8), and the prevalence of heavy alcohol consumption was almost twice as high in South Texas males as in females (9% versus 5%). The prevalence of heavy alcohol consumption was higher, although not statistically significantly higher, in South Texas’s metropolitan counties (7%) than in the non-metropolitan counties (4%).

**Figure 8.8.** Estimated prevalence of heavy alcohol consumption among South Texas adults by age group, 2002-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005
Binge Drinking

A common pattern of excessive alcohol use in the U.S. is binge drinking. Binge drinking is defined by the National Institute of Alcohol Abuse and Alcoholism as a pattern of alcohol consumption that brings an individual’s blood alcohol concentration (BAC) to 0.08 grams percent or above. For adults, this BAC typically corresponds to drinking five or more drinks in two hours for males and drinking four or more drinks in two hours for females (NIAAA Newsletter, 2004).  

Nationwide, binge drinking is about three times more common among men than women. Binge drinking among underage persons is a problem in the U.S. The prevalence of binge drinking in the U.S. is highest among young adults ages 18-20 (52%). An estimated one of every four high-school students in the U.S. binge drink, and more than 90% of the alcohol consumed by people ages 12-20 is in the form of binge drinks.  

Binge Drinking in South Texas

In 2002-2005, the prevalence of binge drinking among adults in South Texas was approximately 18%, which was similar to the prevalence for the rest of Texas (16%) and the nation (17%). In South Texas, the prevalence of binge drinking was similar for Hispanics and non-Hispanics. The prevalence of binge drinking was much higher for adults ages 18-44 than for adults ages 45 and older. In 2002-2005, more than one-fourth of all adults ages 18-29 in South Texas binge drank (Figure 8.9).

Figure 8.9. Estimated prevalence of binge drinking among South Texas adults by age group, 2002-2005.
Source: Texas Behavioral Risk Factor Surveillance System Combined Year Dataset, Statewide BRFSS Survey, 2002-2005
The prevalence of binge drinking among South Texas males (30%) was more than four times higher than the prevalence among females (7%). As with heavy alcohol consumption, the prevalence of binge drinking was slightly higher, but not statistically significantly higher, for South Texas metropolitan county residents (18%) than for residents of non-metropolitan counties (14%).

References


Cancer Screening Activities

Cancer screening is a means of detecting early signs of cancer in people who do not yet have any symptoms. The goal of screening is not to prevent cancer, but rather to find it as early as possible. Positive results obtained from screening tests are not usually diagnostic, but can help to identify individuals in whom cancer might be present and thus should be examined further. For some cancers, screening has the potential to reduce deaths and morbidity, because treatment of early-stage cancers often has a better prognosis and can be less aggressive than treatment of advanced-stage cancers. In order for cancer screening to be effective, the test must have the ability to detect cancers earlier than they could be detected as a result of symptoms, and there must be evidence that earlier detection through screening decreases the risk of dying from the disease.
Currently, screening tests exist for a number of cancers, including breast cancer, cervical cancer, prostate cancer, and colorectal cancer.

**Breast Cancer Screening (Mammogram)**

Although the breast self-exam and clinical breast exam are also screening methods, the mammogram is currently thought to be the best way to screen for breast cancer. A mammogram is an X-ray of the breast that can detect tumors that are too small to feel. The capability of a mammogram to detect breast cancer depends on tumor size, breast tissue density, and the skill of the radiologist. Since the incidence of breast cancer increases with age, the CDC recommends that women ages 40 or older have a mammogram every one or two years.

In 2002 and 2004, an estimated 32% of South Texas women ages 40 or older had not had a mammogram in the past two years. This estimate was very similar to the percentage among women in the rest of Texas (31%) during the same time period. However, both South Texas and the rest of Texas had higher percentages of women who had no mammogram in the past two years than was seen nationwide (25%). A higher, but not a significantly higher, percentage of Hispanic women in South Texas (36%) had not had a mammogram in the past two years than non-Hispanic whites (29%).

**Cervical Cancer Screening (Pap Test)**

The Papanicolaou (Pap) test, also called a Pap smear, is the most common screening procedure for cervical cancer. Cells are lightly scraped from the cervix and vagina using a small wooden stick, a brush, or a piece of cotton. The collected cells are then viewed under a microscope to determine if they are normal or abnormal. A Pap test can find the earliest signs of cervical cancer. Because the chance of curing cervical cancer is very high if the cancer is detected early, studies estimate that regular Pap test screening can decrease incidence and mortality of cervical cancer by 80% or more. Doctors recommend Pap tests for women ages 21 or older, or for women under age 21 who have been sexually active for three years or more. National guidelines suggest that a woman should get a Pap test annually for three years. If results have been normal for three-straight years, the woman can get tested every 2-3 years.

An estimated 19% of South Texas women ages 18 or older had not had a Pap test in the past three years during 2002 and 2004. This percentage was slightly higher, but not significantly higher, than the percentage of no Pap test in the past three years among women in the rest of Texas (17%), and was significantly higher than the percentage among women nationwide.
(14%). In South Texas, the percentages of Hispanic women and non-Hispanic white women who did not have a Pap test in the past three years were similar.

Prostate Cancer Screening

Two screening tests for prostate cancer exist: the digital rectal examination (DRE) and the prostate-specific antigen (PSA) test. However, no standard or routine screening is currently recommended for prostate cancer. This is because, although these screening tests are able to find prostate cancer at an early stage, there currently is not enough evidence to determine whether early detection and treatment makes any difference in the outcome of the disease.\(^9\) Studies to determine the efficacy of prostate cancer screening are currently underway.\(^10\)

Prostate-Specific Antigen (PSA) Test

A prostate-specific antigen (PSA) test measures the amount of PSA in the blood. PSA is a protein made by the prostate gland. Although it is common for men to have low levels of PSA in their blood, prostate cancer or other conditions can increase PSA levels. Doctors cannot distinguish between prostate cancer and benign prostate conditions, such as inflammation or enlargement of the prostate, based on PSA levels alone. However, the PSA test result is taken into account when a doctor makes a decision about whether to do additional tests for prostate cancer. Some doctors encourage PSA tests yearly to screen for prostate cancer, starting anywhere from 40 to 50 years of age.\(^11\)

In 2002 and 2004, an estimated 56% of men ages 40 or older in South Texas had not had a PSA test in the past two years. This was higher than the prevalence of men ages 40 or older who did not have a PSA test in the past two years in the rest of Texas (49%) and nationwide (47%) (Figure 8.10).
Figure 8.10. Estimated prevalence of men ages 40 or older who have not had a prostate-specific antigen (PSA) test in the past two years by location.


In South Texas, Hispanic men were nearly two times more likely to not have had a PSA test in the past two years (72%) than were non-Hispanic white men (43%).

Digital Rectal Exam (DRE)

A digital rectal exam (DRE) is frequently part of a standard physical examination in males. However, it is also another way to screen for prostate cancer, and is often performed together with the PSA test to improve the odds of detecting prostate cancer. A doctor performs a digital rectal exam by inserting a lubricated, gloved finger into the rectum to feel the prostate gland through the rectal wall for bumps or anything else abnormal.\textsuperscript{10,11}

An estimated 42% of men in South Texas have not had a DRE within the last five years. This prevalence was slightly higher, but not statistically significantly higher, than the prevalence of no DRE within the last five years among men in the rest of Texas (38%), and was significantly higher than the prevalence nationwide (33%). As with PSA testing, Hispanic males in South Texas were more likely to have not had a DRE exam in the past five years (52%) than were non-Hispanic white males (30%).

Colorectal Cancer Screening

Several tests are regularly used to screen for colorectal cancer, including the fetal occult blood test (FOBT), sigmoidoscopy, colonoscopy, the double-contrast barium enema
(DCBE), and newer techniques such as virtual colonoscopy. Based on several studies, the U.S. Preventive Services Task Force (USPSTF) found evidence that the FOBT and sigmoidoscopy screening methods are effective in reducing colorectal cancer mortality.

**Fecal Occult Blood Testing**

The fetal occult blood test (FOBT) is a frequently used non-invasive colorectal cancer screening option that checks for hidden blood in the stool. Stool samples are collected at home and placed on special cards that are then given back to a doctor or lab for testing. Blood in the stool can be indicative of polyps or cancer. Studies have found that, for persons ages 50-80, having an annual or biennial FOBT may reduce colorectal cancer mortality by as much as 30 percent. One of the recommended American Cancer Society colorectal cancer testing options is an annual FOBT for persons ages 50 or older.

An estimated 79% of individuals ages 50 or older in South Texas have not had a FOBT in the last two years. This South Texas prevalence was slightly higher, but not statistically significantly higher, than the prevalence of no FOBT in the rest of Texas (76%), and was significantly higher than the prevalence seen nationwide (71%). In South Texas, Hispanics had a higher prevalence of not having a FOBT within the past two years (90%) than non-Hispanic whites (69%).

**Sigmoidoscopy/Colonoscopy**

Sigmoidoscopy and colonoscopy are two other common colon cancer screening procedures. Sigmoidoscopy checks the rectum and lower colon by inserting a thin, flexible, lighted instrument into the rectum. A colonoscopy is an examination of the rectum and whole colon for polyps, cancer, or other abnormalities using a similar thin, lighted instrument. Both sigmoidoscopy and colonoscopy procedures have higher sensitivity than FOBT, and colonoscopy is the most sensitive and specific colorectal cancer test. However, unlike FOBT, sigmoidoscopy and colonoscopy are both invasive procedures, and colonoscopy in particular has associated risks such as bleeding or perforation of the colon. Recommended American Cancer Society colorectal cancer testing options include either a sigmoidoscopy every five years, a yearly FOBT plus a sigmoidoscopy every five years, or a colonoscopy every 10 years.

In South Texas, an estimated 53% of individuals over age 50 had never had a sigmoidoscopy or colonoscopy in 2002 and 2004. This prevalence was similar to the prevalence seen in the rest of Texas (53%), but was higher than the prevalence of no sigmoidoscopy or colonoscopy observed nationwide (48%). As with the prevalence of no FOBT screening, a higher percentage of Hispanics over age 50 in South Texas had never had a sigmoidoscopy or colonoscopy (65%) than non-Hispanic whites (43%).

**References**


Summary – Behavioral Risk Factors in Adults

Table 8.1. Summary table of adult behavioral risk factor prevalences in South Texas, the rest of Texas, and nationwide.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Prevalence (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>South Texas</td>
</tr>
<tr>
<td>Obesity</td>
<td>29.5</td>
</tr>
<tr>
<td>Inadequate Physical Activity</td>
<td>54.4</td>
</tr>
<tr>
<td>Inadequate Fruit and Vegetable Consumption</td>
<td>76.7</td>
</tr>
<tr>
<td>Current Cigarette Smoking</td>
<td>19.3</td>
</tr>
<tr>
<td>Heavy Alcohol Consumption</td>
<td>6.4</td>
</tr>
<tr>
<td>Binge Drinking</td>
<td>17.7</td>
</tr>
<tr>
<td>Had no Mammogram in Past 2 Years (Women)</td>
<td>31.9</td>
</tr>
<tr>
<td>Had no Pap Test in Past 2 Years (Women)</td>
<td>19.0</td>
</tr>
<tr>
<td>Had no PSA Test in Past 2 Years (Men)</td>
<td>56.0</td>
</tr>
<tr>
<td>Had no Digital Rectal Exam in Past 2 Years (Men)</td>
<td>41.6</td>
</tr>
<tr>
<td>Had no Blood Stool Test in Past 2 Years</td>
<td>78.5</td>
</tr>
<tr>
<td>Never had a Sigmoidoscopy/Colonoscopy</td>
<td>53.4</td>
</tr>
</tbody>
</table>

*Texas data was obtained from a Texas Behavioral Risk Factor Surveillance System (BRFSS) Combined Year Dataset of the statewide BRFSS survey. Obesity, current cigarette smoking, heavy alcohol consumption, and binge drinking prevalence estimates were calculated using 2002-2005 survey data, all cancer screening test prevalences were calculated using 2002 and 2004 survey data, inadequate physical activity used 2003-2005 survey data, and inadequate fruit and vegetable consumption used 2002, 2003, and 2005 survey data. All nationwide estimates were calculated using 2002-2005 national BRFSS survey data except for inadequate fruit and vegetable consumption, which used 2002, 2003, and 2005 national survey data.
Environmental Health Issues

Broad ranges of different environmental exposures can cause health problems, including air and water pollution, lead and other heavy metals, chemicals and pesticides, and many more. The environmental exposure health status indicators included in this report are elevated child blood lead levels and pesticide exposures.

Childhood Lead Poisoning

Lead is a significant and widespread environmental hazard for all Texas children. Exposure to lead can lead to a number of medical conditions, including long-term neurological damage that is often associated with learning and behavioral problems. Blood lead levels ≥10µg/dL are considered to be elevated, although a child may often present asymptomatic, even at higher levels. Very elevated lead levels can result in death. Lead is a ubiquitous toxin with varied exposure sources, including dust or chips from lead-based paints, contaminated soil, crafts/hobbies, and home remedy/folk medicines.

With increased awareness and efforts to reduce exposure, childhood lead poisoning has decreased in recent years. In 1997, 130,512 U.S. children under age 6 tested with confirmed elevated blood lead levels, compared to 74,887 children in 2001, a decrease of more than 42% in five years.1 Children younger than age 6 are at greater risk of lead poisoning than older children due to increased absorption, predominant hand-to-mouth behavior, and developing neurological systems. Among U.S. children younger than age 6 who were tested in 2001, African-American children had the highest percentage of confirmed elevated blood lead levels (almost 9%), followed by Hispanic children (almost 6%), and then non-Hispanic white children (2%).1 Children who live or spend a significant amount of time in pre-1950s housing are at increased risk of childhood lead poisoning. Poverty and living in an area of existing high childhood lead prevalence are also considered surrogate markers for a child’s potential lead exposure risk.
Childhood Lead Poisoning in South Texas

In terms of sheer numbers, Bexar County, the Lower Rio Grande Valley region, and Webb County had the most children ages 0-14 with elevated blood lead levels (>10 μg/dL) in South Texas (Figure 9.1). Numbers are most likely greater in these areas because of relatively large population sizes or because of a large percentage of people with low socioeconomic status.

Figure 9.1. Texas children ages 0-14 with elevated blood lead levels (≥10 μg/dL) by location of residence, 2004.
Source: Texas Childhood Lead Poisoning Prevention Program

Overall, the percentage of children ages 0-14 with elevated blood lead levels among those tested in South Texas was 2.7%. This was the same percentage of elevated blood lead levels seen among those tested in the rest of Texas (Figure 9.2). However, for non-Hispanic white children, the percentage with elevated blood lead levels of those tested was lower in South Texas (1.8%) than in the rest of Texas (2.6%). In South Texas, among Hispanic children tested, 2.8% had elevated blood lead levels, whereas among non-Hispanic white children tested, only 1.8% had elevated blood lead levels (Figure 9.2).
For both Hispanic and non-Hispanic children, the youngest age group (ages 0-2) had the highest percentage of elevated blood lead levels among those tested. A difference in percentages for the two youngest age groups (ages 0-5) was seen between Hispanics and non-Hispanic whites. For these ages, Hispanic children had higher percentages of elevated lead levels among those tested than non-Hispanic whites (Figure 9.3).
Figure 9.3. Percent of South Texas children ages 0-14 with elevated blood lead levels (≥10 μg/dL) among children tested, by age group and race/ethnicity, 2000-2004.
Source: Texas Childhood Lead Poisoning Prevention Program

In South Texas, the percentage of boys with elevated blood lead levels among those tested (3%) was slightly higher than the percentage of girls with elevated blood lead levels (2.5%). The percentage of children with elevated blood lead levels (of those tested) was slightly higher in non-metropolitan South Texas counties (3.1%) than in metropolitan counties (2.7%).

The percentage of elevated blood lead levels among children tested was slightly higher in Bexar County and Webb County (about 3.2%) than in South Texas as a whole (2.7%). However, the percentage of children with elevated blood lead levels was slightly lower in the Lower Rio Grande Valley region (2.4%) than in South Texas (Figure 9.4).
Figure 9.4. Percent of children ages 0-14 with elevated blood lead levels (≥10 μg/dL) among children tested in selected South Texas locations, 2000-2004.
Source: Texas Childhood Lead Poisoning Prevention Program

References


Pesticide Poisoning

A pesticide is any substance or combination of substances that is used for preventing, controlling, or destroying any type of pest. Types of pesticides include not only insecticides, but also herbicides, fungicides, rodenticides, and sanitizers. In the U.S., more than one billion pounds of pesticides are used each year, and more than 16,000 different pesticide products are currently sold nationwide. Although pesticides are useful to society, they also have the potential to cause great harm to humans because they are designed to kill or damage living organisms. Health effects vary depending on the type of pesticide.
involved and the level of exposure. Acute, high-level pesticide exposures can cause nausea and vomiting, skin or eye irritation, difficulty breathing, seizures, or even death.² Long-term pesticide exposure effects have been associated with changes in neurobehavioral performance, neurological damage and diseases,³,⁴ and certain types of cancers.⁵ Children are particularly susceptible to pesticides.⁶

Acute pesticide exposures are most commonly occupational exposures. Each year, about one pesticide-related illness occurs for every 100,000 U.S. workers.⁷ Agricultural workers are at especially high risk of pesticide poisoning. The annual incidence of pesticide-related illness among agricultural workers is approximately 18/100,000.⁷ This high incidence among persons employed in agriculture is of particular concern for Hispanics, since 88% of all farm workers in the U.S. are Hispanic. Because of pesticide drift, people who live in agricultural areas have a higher risk of pesticide exposure than people who live in non-agricultural areas.⁶ Among workers, those ages 20-24 had the highest incidence of pesticide-related illnesses in the U.S. in 1998-1999, and incidence decreased as age increased. For all occupations combined, males have a slightly higher risk of pesticide-related illness than do females; however, among agricultural workers, the incidence of pesticide-related illness in females is higher than the incidence in males.⁷

**Pesticide-Related Illnesses in South Texas**

Overall, the South Texas population had a slightly higher incidence of pesticide-related illness (1.2 cases per 100,000 persons) than the rest of Texas (1.0/100,000). Hispanics in South Texas had an incidence of pesticide-related illness that was nearly two times higher than the incidence for Hispanics in the rest of Texas (Figure 9.5). In South Texas, the incidence of pesticide-related illness was similar between Hispanics and non-Hispanic whites; however, in the rest of Texas, incidence was higher for non-Hispanic whites than for Hispanics (Figure 9.5).
In South Texas, the incidence of pesticide-related illness in the general population was higher in males (1.4/100,000) than in females (0.9/100,000). Residents of non-metropolitan counties in South Texas had a higher incidence of pesticide-related illnesses (1.8/100,000) than did those who resided in metropolitan counties (1.1/100,000). Children under age 10 and adults ages 20-59 had higher incidences of pesticide-related illness than other age groups (Figure 9.6).
Figure 9.6. Incidence of pesticide-related illness in South Texas by age group, 2001-2005. Source: Pesticides Exposure Surveillance in Texas (PEST) program

Lower incidences of pesticide-related illness were observed in Bexar County (0.6/100,000) and Webb County (0.4/100,000) than in South Texas as a whole (1.2/100,000). The Lower Rio Grande Valley region, however, had a higher incidence of pesticide-related illness (1.8/100,000) than South Texas (Figure 9.7).

Figure 9.7. Incidence of pesticide-related illness in selected South Texas locations, 2001-2005. Source: Pesticides Exposure Surveillance in Texas (PEST) program
References


Summary – Environmental Health Issues

**Table 9.1.** Summary table of estimates in South Texas, the rest of Texas, and nationwide* for each of the environmental health indicators analyzed.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Incidence/Prevalence Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood Lead Poisoning, 2000-2004</td>
<td>2.7% of those tested</td>
</tr>
<tr>
<td>Pesticide Poisoning, 2001-2005</td>
<td>1.2 per 100,000</td>
</tr>
<tr>
<td></td>
<td>2.7% of those tested</td>
</tr>
<tr>
<td></td>
<td>1.0 per 100,000</td>
</tr>
<tr>
<td></td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>----</td>
</tr>
</tbody>
</table>

*Nationwide estimates were not available for all health indicators in the table. “----” signifies that no nationwide estimate could be found for the health indicator.
Injury

Injury is a significant public health problem in the U.S., causing disability and premature death regardless of race, sex, or economic status, and creating a tremendous burden on our national health care system. Injury is the leading cause of both disability and death in American children and young adults, and is the fifth-leading cause of death overall in the U.S. An estimated 161,000 individuals in the U.S. died from injuries in 2002. In 2004, more than 29 million people were treated for injuries in hospital emergency departments in America, and almost two million of these injuries were so severe that they required hospitalization. Even though there are many types of injuries that contribute to injury mortality, three of the leading causes of death by injury in the U.S. are motor vehicle crashes, suicide, and homicide. Mortality due to injuries are presented as age-adjusted rates.

Motor Vehicle Crash Mortality

A motor vehicle crash is any collision involving one or more ground-transportation motor vehicles. MVCs are the leading cause of injury death in the U.S., and are the leading cause of death overall among individuals ages 1-34. MVCs accounted for more than 40,000 deaths in 1999. It is estimated that an additional three-and-a-half million individuals suffer from nonfatal injuries associated with MVCs each year.

Nationwide, men have a higher MVC mortality rate than women. The risk of MVC mortality is higher among teen drivers (individuals ages 16-19) and drivers ages 80 and older than among the other age groups in the U.S. MVC mortality rates are similar among African-Americans, Hispanics, and non-Hispanic whites in the U.S. Other risk factors for motor vehicle-related fatalities include alcohol or other drug use and not wearing a seat belt. In 2005, 39% of all MVC-related fatalities occurring in the U.S. involved alcohol.

Motor Vehicle Crash (MVC) Mortality in South Texas

In 1999-2003, South Texas had a lower age-adjusted motor vehicle crash mortality rate (15/100,000) than the rest of Texas (18.5/100,000). MVC mortality rates for both Hispanics and non-Hispanic whites were lower in South Texas than in the rest of Texas (Figure 10.1). In South Texas, non-Hispanic whites had a slightly higher MVC mortality rate (16.6/100,000) than Hispanics (14.7/100,000) (Figure 10.1).
The highest MVC mortality rate in South Texas was observed among individuals ages 15-24 (25.5/100,000), with individuals ages 75 and older coming in a close second (24.5/100,000). The MVC mortality rate for South Texas males (21.5/100,000) was nearly two-and-a-half times higher than the mortality rate for females (8.9/100,000). Residents of non-metropolitan counties in South Texas had a higher MVC mortality rate (21.4/100,000) than did residents of metropolitan counties (14.1/100,000). Lower MVC mortality rates were observed in Bexar County (11.6/100,000) and Webb County (9.5/100,000) than in South Texas as a whole (15/100,000).

References


Homicide

A homicide is any intentional injury inflicted by another person with the intent to kill.\(^1\) Homicide, especially among young people, is a serious public health issue in the U.S.\(^2\) Homicide is currently the second-leading cause of death nationwide in young adults ages 15-24, and is the third-leading cause of death among adults ages 25-34.\(^3,^4\) In 2003, a total of 17,732 homicide deaths were reported in the U.S., and 5,570 of these homicide victims were ages 10-24.\(^4,^5\)

**Key Point:** The homicide rate in South Texas was very similar to rates in the rest of Texas and the nation. In South Texas, Hispanics had a higher homicide rate than non-Hispanic whites.

Nationally, males are almost four times more likely to die from homicide than females.\(^6\) African-Americans were more than seven times more likely to be murdered than non-Hispanic whites in 2002, and Hispanics also had a higher homicide rate than non-Hispanic whites.\(^7\) In the U.S., homicide rates are highest among young adults ages 18-25, with a peak at age 21. However, among individuals less than age 18, a “U-shaped” trend in homicide is seen, with infants having almost as high of a homicide rate (7.5/100,000)
as 17-year-olds (8.7/100,000). Other risk factors associated with homicide include living in urban areas, low socioeconomic status, and access to firearms.

**Homicide in South Texas**

Overall, the age-adjusted homicide rate in South Texas (6.2/100,000) was very similar to homicide rates in the rest of Texas (6.4/100,000) and nationwide (6.0/100,000). In South Texas, a higher rate of homicide was observed among Hispanics (6.7/100,000) than among non-Hispanic whites (4.1/100,000) (Figure 10.2). Among Hispanics, homicide rates in South Texas (6.7/100,000) were slightly lower than in the rest of Texas (7.7/100,000) (Figure 10.2).

![Figure 10.2. Homicide rates by location and race/ethnicity, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)](image)

In South Texas, homicide rates were highest among infants less than age 1 (9.8/100,000) and individuals ages 15-34 (10.1/100,000 – 10.6/100,000). The average annual age-adjusted homicide rate for South Texas infants in 1999-2003 (9.8/100,000) was higher than the age-adjusted homicide rate among infants nationwide in 2002 (7.5/100,000). Overall, males in South Texas were three times more likely to be murdered than females, and among Hispanics, males were four times more likely to be murdered. The homicide rate difference between the two sexes was much smaller for non-Hispanic whites, however (Figure 10.3).
A slightly higher homicide rate was seen in Bexar County than in South Texas as a whole, while the Lower Rio Grande Valley area had a lower homicide rate than all of South Texas (Figure 10.4).

Figure 10.3. Homicide rates in South Texas by sex and race/ethnicity, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)

Figure 10.4. Homicide rates in selected South Texas locations, 1999-2003.
Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)
There were enough homicide cases within Bexar County to stratify these cases by race/ethnicity. In Bexar County, the homicide rate was four times higher among African-Americans (17.1/100,000) and two times higher among Hispanics (8.8/100,000) than among non-Hispanic whites (4.3/100,000) (Figure 10.5).

**Figure 10.5.** Homicide rates in Bexar County by race/ethnicity, 1999-2003. Source: Texas Health Data ([http://soupfin.tdh.state.tx.us/death10.htm](http://soupfin.tdh.state.tx.us/death10.htm))

**References**


Suicide

Suicide is the intentional act of taking one’s own life. Suicide is the 11th-leading cause of death overall in the U.S., the second-leading cause of death among adults ages 25-34, and the third-leading cause of death among individuals ages 10-24.1,2 Suicide is responsible for more than 30,000 deaths in the U.S. each year.2,3 In 2001, 3,971 young adults ages 15-24 committed suicide.4 However, suicide numbers only indicate a small portion of the amount of suicidal behaviors taking place in the U.S. In 2003, more than 175,000 individuals were hospitalized after attempting suicide, and another 130,000 were seen in emergency departments and released.5 Firearms are used in the majority of suicide deaths in the U.S.4,5

While females are more likely to think about and to attempt suicide, males are at least four times more likely to die from suicide.4,5 In fact, suicide is the eighth-leading cause of death among U.S. males, and 80% of all suicide deaths occur in males. Suicide rates in the U.S. increase with age, and are highest among individuals ages 65 or older.4,5 Nationally, non-Hispanic whites have higher suicide rates than all other race/ethnic groups.4,6 Risk factors for suicide include previous suicide attempts, a history of depression, having easy access to lethal methods, alcohol or drug abuse, physical illness, and feelings of isolation.4,5

Key Point: South Texas had a lower suicide rate than observed in the rest of Texas and nationwide. Suicide rates were over two times higher among non-Hispanic whites than among Hispanics.
Suicide in South Texas

Overall, South Texas had a lower age-adjusted suicide rate (9/100,000) than observed in the rest of Texas (11.1/100,000) or nationwide (10.8/100,000). However, both Hispanics and non-Hispanic whites in South Texas had suicide rates that were very similar to their Hispanic and non-Hispanic white counterparts in the rest of Texas (Figure 10.6). In both South Texas and the rest of Texas, suicide rates were approximately two-and-a-half times higher among non-Hispanic whites than among Hispanics (Figure 10.6).

![Figure 10.6. Suicide rates by location and race/ethnicity, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)](image)

As observed nationwide, suicide rates increased with age in South Texas. Suicide rates were higher for non-Hispanic whites than for Hispanics among individuals ages 15 and older. For both Hispanics and non-Hispanic whites in South Texas, suicide rates declined among individuals ages 55-74, but increased again among those ages 75 and older (Figure 10.7).
Overall, the suicide rate among South Texas males was almost five times higher than among females. Among Hispanics, the risk of suicide death was more than seven times higher in males than in females, and among non-Hispanic whites, males were almost four times more likely to die of suicide (Figure 10.8). As seen nationwide, non-Hispanic white males in South Texas are at the highest risk for suicide. The age-adjusted suicide rate among non-Hispanic white males in South Texas was 23.8/100,000 (Figure 10.8).
Bexar County’s suicide rate (10.4/100,000) was slightly higher than South Texas as a whole (9/100,000). However, Webb County (5.5/100,000) and the Lower Rio Grande Valley (5.3/100,000) had significantly lower rates than South Texas’ rate (Figure 10.9).

**Figure 10.9.** Suicide rates in selected South Texas locations, 1999-2003. Source: Texas Health Data (http://soupfin.tdh.state.tx.us/death10.htm)
References


Summary – Injury

Table 10.1. Summary table of age-adjusted mortality rates in South Texas, the rest of Texas, and nationwide* for each of the injury health indicators analyzed.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Mortality Rate per 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Vehicle Crash Mortality</td>
<td>15.0</td>
</tr>
<tr>
<td>Homicide</td>
<td>6.2</td>
</tr>
<tr>
<td>Suicide</td>
<td>9.0</td>
</tr>
</tbody>
</table>

*Nationwide estimates were not available for all health indicators in the table. “----” signifies that no nationwide mortality rate could be found for the health indicator.
Conclusions and Recommendations

South Texas was at a disadvantage compared to the rest of Texas for 12 of the health conditions studied. However, for the remaining 16 health conditions, incidence/mortality rates or prevalence of conditions in South Texas were lower than or the same as in the rest of Texas (Table 11.1). For many health conditions, there was a greater occurrence of disease in Hispanics compared to non-Hispanic whites (Table 11.1). For 11 health conditions, Hispanics in South Texas had higher rates than Hispanics in the rest of Texas (Table 11.1).

Health Conditions with Lower Rates in South Texas

The following health conditions had lower incidence/mortality rates or prevalence in South Texas than in the rest of Texas:

- HIV/AIDS
- Syphilis
- Gonorrhea
- Breast Cancer
- Colorectal Cancer
- Prostate Cancer
- Lung Cancer
- Infant Mortality
- Heart Disease Mortality
- Cerebrovascular Disease Mortality (Stroke)
- Motor Vehicle Crash Mortality
- Suicide

Even though most of the sexually transmitted diseases (HIV/AIDS, syphilis, and gonorrhea) had a lower incidence in South Texas than seen in the rest of Texas, incidence rates of HIV/AIDS, syphilis, and gonorrhea were higher among Hispanics compared to non-Hispanic whites. The highest rates of these sexually transmitted diseases are seen among African-Americans who generally reside in the rest of Texas.\(^1,2\)

Historically, the incidence rates of breast, colorectal, prostate, and lung cancer are low in Hispanics compared to other population groups.\(^3\) Not surprisingly, South Texas, with its predominantly Mexican-American population, had lower rates of these cancers than the rest of Texas. Known factors which may contribute to the lower breast cancer risk in South Texas Hispanics include reproductive factors such as early age at first birth, multiple births, and breast feeding.\(^4\) A diet high in fats, especially animal fats, is a risk factor for breast, colorectal, and prostate cancer.\(^5\) The lower incidence of colorectal and prostate cancer seen in South Texas may be attributable to dietary factors (i.e., a less “western” diet).\(^6,7\) Lower lung cancer incidence rates in South Texas likely reflect the
lower cigarette smoking levels of Hispanics in the past.\textsuperscript{8} Overall, lower mortality rates were seen in South Texas for heart disease and cerebrovascular disease. Mortality for these diseases is usually lower among Hispanics than non-Hispanic whites.\textsuperscript{9,10} However, in South Texas, cardiovascular disease mortality rates between these two ethnicities were very similar. A high prevalence of obesity and diabetes in South Texas, especially among Hispanics, might contribute to the higher heart disease mortality seen among Hispanics in South Texas compared to Hispanics in the rest of Texas. Mortality due to motor vehicle crashes and suicide was also lower in South Texas than the rest of the state. And notably, the rate of infant mortality was lower in South Texas.

Table 11.1. Comparison of whether South Texas has a higher or lower rate than the rest of Texas or nationwide as well as whether Hispanics have a higher or lower rate than non-Hispanic whites in South Texas for each health indicator.\textsuperscript{8}

<table>
<thead>
<tr>
<th>Health Status Indicator</th>
<th>South Texas, compared with the Rest of Texas</th>
<th>South Texas, compared with the Nation</th>
<th>South Texas Hispanics, compared with non-Hispanic Whites in South Texas</th>
<th>South Texas Hispanics, compared with Hispanics in the Rest of Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Lower</td>
<td>----</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Lower</td>
<td>----</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Higher</td>
<td>----</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>Lower</td>
<td>----</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
<td>Higher</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Colorectal Cancer</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
</tr>
<tr>
<td>Liver Cancer</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Stomach Cancer</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Gallbladder Cancer</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Leukemia</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Neural Tube Defects</td>
<td>Higher</td>
<td>----</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Oral Clefts</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Other birth defects</td>
<td>Higher</td>
<td>Higher</td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>Lower</td>
<td>----</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Higher</td>
<td>Higher</td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Heart Disease Mortality</td>
<td>Lower</td>
<td>----</td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Cerebrovascular Disease Mortality</td>
<td>Lower</td>
<td>----</td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Asthma (adult)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity (adult)</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Childhood Lead Poisoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticide Poisoning</td>
<td>Higher</td>
<td>----</td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Motor Vehicle Crash Mortality</td>
<td>Lower</td>
<td>----</td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Homicide</td>
<td></td>
<td></td>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Suicide</td>
<td>Lower</td>
<td>Lower</td>
<td></td>
<td>Lower</td>
</tr>
</tbody>
</table>
Health Conditions with Higher Rates in South Texas

Several serious conditions had a higher incidence or prevalence in South Texas than in the rest of Texas:

- Tuberculosis
- Chlamydia
- Cervical Cancer
- Liver Cancer
- Stomach Cancer
- Gallbladder Cancer
- Child and Adolescent Leukemia
- Neural Tube Defects
- Other Birth Defects (common truncus, reduction defects of the upper limb, pyloric stenosis)
- Adult Diabetes
- Adult Obesity
- Pesticide Poisoning

Tuberculosis incidence was higher in South Texas than in the rest of Texas or nationwide. The higher incidence of tuberculosis in South Texas is likely due to the higher numbers of foreign-born persons in South Texas, who are more likely to be carriers.\(^{11}\) Also, South Texas has a larger percentage of individuals with no health insurance than does the rest of Texas, which may contribute to the higher incidence.\(^{12}\)

Several cancers also had a higher incidence in South Texas than in the rest of Texas, including cervical, liver, stomach, and gallbladder cancers and child and adolescent leukemia. South Texas women were less likely to have had an up-to-date Pap test than women in the rest of Texas; this lack of screening likely contributes to the higher incidence of primary cervical cancer in South Texas. Liver cancer, as well as having a higher incidence in South Texas than the rest of Texas, is higher among Hispanics compared to non-Hispanic whites in South Texas, and also higher among Hispanics in South Texas compared to other Hispanics in the rest of the state. Risk factors that may play a role in the increased liver cancer incidence in South Texas include hepatitis B and C infection, aflatoxin-contaminated foods, alcohol consumption or cirrhosis, or genetic factors.\(^{13}\) Stomach cancer risk is generally associated with lower economic levels and has recently been definitely linked to a chronic bacterial infection with Helicobacter pylori.\(^{14}\) The prevalence of H. pylori is high among Hispanics in Texas.\(^{15}\) The higher prevalence of obesity in South Texas may contribute to the higher incidence of gallbladder cancer, because obesity is a strong risk factor for gallbladder cancer.\(^{16}\)

Some birth defects in this study, such as neural tube defects, common truncus, reduction defects of the upper limb, and pyloric stenosis, also had higher prevalences in South Texas than in the rest of Texas. The higher prevalence of these birth defects could be

*Table cells left blank denote similar rates between the two groups being compared. “----” means that nationwide data was not available to make the comparison between South Texas and the nation.
associated with inadequate folic acid intake or a higher prevalence of maternal diabetes in South Texas than in the rest of Texas.

The incidence of pesticide poisoning was slightly higher in South Texas than in the rest of Texas. Exposures to pesticides are more likely in the large agricultural industry of South Texas, especially in the Lower Rio Grande Valley region.\textsuperscript{17}

One sexually transmitted disease, chlamydia, also had a higher incidence in South Texas than in the rest of Texas. In South Texas, Hispanic individuals and persons living in metropolitan counties had higher incidences of chlamydia than did non-Hispanic whites and non-metropolitan county residents, possibly due to lifestyle factors such as engaging in more risky sexual behaviors.

Lastly, and perhaps most significantly, South Texas had a higher prevalence of both adult obesity and diabetes than did the rest of Texas or the nation. A significantly higher prevalence of adult diabetes and adult obesity also was observed among Hispanics in South Texas compared to Hispanics in the rest of Texas. These two health conditions go hand in hand; obesity is a risk factor for diabetes. The high prevalence of obesity in South Texas is most likely due to lifestyle behaviors such as inadequate physical activity and poor eating habits.\textsuperscript{18}

Many of the health disparities in South Texas may be associated with or exacerbated by the higher percentage of persons with no health insurance in South Texas compared to the rest of Texas. An estimated one-third of the South Texas population has no health insurance – a barrier in receiving preventive care or treatment for health conditions.\textsuperscript{19}

**Recommendations**

In terms of number of persons affected per 100,000 population, obesity has the greatest impact on South Texans of all the health conditions examined (Table 11.2). Diabetes has the second-greatest estimated burden of disease in South Texas, followed distantly by chlamydia. The differences in rates between South Texas and the rest of Texas were also greatest for obesity and diabetes (Table 11.2). Because these health conditions affect the most people, prevention research efforts in South Texas should focus on obesity and diabetes. Obesity prevention is of special importance, because obesity increases the risk for diabetes and is also associated with some cancers, cardiovascular disease, and some birth defects. Moreover, since the two modifiable behaviors affecting obesity levels are insufficient physical activity and poor nutrition, these should also be the focus of strategies and intervention research in South Texas.
Insufficient data were available on behavioral risk factor prevalences for South Texas children and adolescents. We recommend that youth behavioral risk factor surveys and studies that focus on the South Texas area be conducted to ascertain behaviors and conditions related to cigarette smoking, alcohol use, asthma, and obesity.

Of epidemiologic interest is the consistently high rate of liver cancer among Hispanics in South Texas. Research on the prevalence and differences with regard to liver cancer risk factors (Hepatitis B and C, aflatoxin exposures, genetic factors) may be informative in this population.

References


Appendix 1 – Data Sources

**Tuberculosis (TB):** Statewide TB data is collected by the Infectious Disease Surveillance and Epidemiology Branch of the Infectious Disease Control Unit at the Texas Department of State Health Services (DSHS). TB is a reportable condition in Texas. Statewide TB surveillance gathers information on individuals with latent TB infection, suspected or active disease, and their contacts; however, only confirmed active disease cases were used in this study’s analyses. The Infectious Disease Surveillance and Epidemiology Branch uses passive, active, and sentinel surveillance methods. Crude incidence of TB was calculated for this study.

**HIV/AIDS:** All confirmed HIV and AIDS cases reported to the State of Texas are contained in the HIV/AIDS Reporting System (HARS) database, which is maintained by the HIV/STD Epidemiology and Surveillance Branch of the Texas Department of State Health Services. When an individual tests positive for HIV, has a detectable viral load, or a CD4 test with values below 200 or 14%, the laboratory that runs the test and the health care provider diagnosing the infection are required to report the case to the Texas Department of State Health Services (DSHS). Because HIV infection is a reportable condition, HARS has relatively complete information on persons with HIV in Texas that have tested confidentially for HIV or have sought medical care for their HIV disease. However, the HARS data does not contain information on people living with HIV who are not aware of their infections or persons who know they are infected but have only tested anonymously. As a result, the number of cases provided in DSHS data is an underestimate of all HIV infections in Texas. Active and passive surveillance methods are used to collect HIV/AIDS data. Both confirmed HIV and AIDS cases diagnosed in 2001-2005 were used in this study. HIV and AIDS cases were de-duplicated, so that a person diagnosed with both HIV and AIDS during this time period was only counted once. Crude incidence of HIV/AIDS was calculated for this study.

**Syphilis, Gonorrhea, and Chlamydia:** These sexually transmitted diseases are reportable conditions in Texas and are collected by the HIV/STD Epidemiology and Surveillance Branch of DSHS. The majority of syphilis, chlamydia and gonorrhea cases are collected using passive surveillance methods such as laboratory and provider reporting. However, active surveillance methods are used to investigate primary and secondary syphilis, and approximately 25% of early syphilis cases in Texas are found by partner elicitation and notification. Gonorrhea and chlamydia cases often have less complete data than syphilis cases, because most chlamydia and gonorrhea cases are discovered through lab reporting, and the sheer volume of these cases makes it hard to follow up on every report that has missing information. Also, because there are 20 local installations of the chlamydia and gonorrhea database rather than one centralized statewide database, there has been little intrastate de-duplication of case reports for both chlamydia and gonorrhea. Crude incidence of syphilis, gonorrhea, and chlamydia were calculated for this study.
Cancer: The Cancer Epidemiology and Surveillance Branch of the Texas Department of State Health Services collects information on all cases of cancer diagnosed or treated in the state of Texas. This information is contained within the Texas Cancer Registry (TCR), a legislatively mandated, statewide, population-based cancer registry. Cancer incidence data are primarily reported to the TCR by approximately 450 health care facilities. Cancer mortality data are based on information collected by the Bureau of Vital Statistics and compiled by the TCR. Risk of cancer increases with age, and age-adjustment is a statistical procedure that eliminates the effects of differences in the age structure between populations and allows direct comparison of incidence and mortality rates for these populations. All cancer incidence and mortality rates were age-adjusted to the 2000 standard U.S. population (19 age groups – Census P25-1130). Because childhood and adolescent leukemia is so rare, incidence and mortality rates for this type of cancer were expressed per million population at risk, rather than per 100,000, which is how the other cancer rates were expressed.

Birth Defects: Data for measuring birth defect occurrence come from two programs at DSHS, the Texas Birth Defects Registry run by the Birth Defects Epidemiology and Surveillance Branch and the birth certificate data compiled by the Vital Statistics Unit. Active surveillance is used to gather data for the Texas Birth Defects Registry. Birth defects data are gathered by DSHS staff who routinely visit every Texas hospital, birthing center, or midwife where affected children are born or treated. There, the staff search through log books and hospital discharge lists to look for potential cases. All children with a birth defect have their health data entered into the registry. This process misses children who have birth defects diagnosed after age 1 and some pregnancies with birth defects that are terminated in doctors’ offices. Aside from those limitations, the data are thought to be very complete. Live birth data are derived from birth certificates which must by law be completed by the facility delivering the child and sent into DSHS soon after the child’s birth. These data are thought to be virtually 100% complete. The number of cases of each birth defect is divided by the number of live births and multiplied by 10,000 to yield birth prevalence, expressed as cases per 10,000 live births. By doing this, one can compare birth defect occurrence between different population groups or areas of Texas with different numbers of people. For this study, infants or fetuses with more than one type of birth defect were counted in each relevant category. Crude birth defect prevalence was calculated for this study.

Inadequate Prenatal Care: Prenatal care data was obtained from the Vital Statistics Unit, part of the Center for Health Statistics at DSHS. The data are based on information received from Texas birth certificates. The Kessner Index was used to determine whether a mother received adequate or inadequate prenatal care during pregnancy. The Kessner Index is one method of assessing the adequacy of prenatal care based on the month of pregnancy that care began, the total number of visits, and the length of gestation. This index adjusts for the fact that women with short gestations have less time in which to make prenatal care visits.
Mortality Data: In this report, mortality data for all health indicators except cancer were obtained from Vital Statistics Unit, part of the Center for Health Statistics at DSHS. Data provided were for Texas residents only. The vital statistics data are based on information received from Texas death certificates. Codes of the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), were used to establish cause of death. Underlying cause of death for mortality data is determined through the use of a computer algorithm developed by the National Center for Health Statistics, called Automated Classification of Medical Entities (ACME). Both underlying and contributing causes of death were taken into account for the diabetes mortality rates shown in this document. For all other mortality indicators except diabetes, only the underlying cause of death was used in the calculation of mortality rates. All mortality measures in this study were age-adjusted to the 2000 Standard Population.

Behavioral Risk Factor Data: The Texas Behavioral Risk Factor Surveillance System (BRFSS) collected data for many health indicators in this document, including those that measured diabetes prevalence, asthma, obesity, no health insurance, physical activity, nutrition, cigarette smoking, alcohol use, and cancer screening behaviors. The Texas BRFSS is an annual, statewide telephone survey of Texas adults ages 18 and older that is conducted through a collaborative effort among the federal Centers for Disease Control and Prevention (CDC) and the Texas Department of State Health Services. It is the only state-based surveillance system in Texas that monitors chronic conditions, preventive health practices, and health behaviors. Although some health indicators on the BRFSS survey are part of the core questionnaire and questions are asked about them each year, others are part of the rotating core and asked only every other year. Annual Texas BRFSS data are weighted to adjust for the probabilities of selection (based on the probability of telephone number selection, the number of adults in the household, and the number of residential phone lines) and a post-stratification weighting factor that adjusts for sex and age. For this study, BRFSS data from 2002-2005 were aggregated and were not re-weighted. All prevalence rates and relative risks should be seen as averaged estimates over the data collection years listed in the tables. Calculations of the prevalence estimates, relative risks, and confidence interval limits were performed using SPSS (version 13) with the Complex Samples Module, a statistical computing program designed for analyzing data from multistage sample surveys. National data on the behavioral risk factor health indicators listed above were obtained from 2002-2005 nationwide BRFSS survey data.

Although the Texas BRFSS provides estimates of many risk factors and health practices that cannot be found in any other data source, there are some limitations to the surveillance system. BRFSS data are based on self-reported information and, for some indicators, the estimates might be subject to recall bias. BRFSS does not include persons living in nursing homes, prisons, college dormitories, military bases, or other institutions. The BRFSS survey also is currently only conducted by landline telephone and thus excludes those who do not have telephone service. This limitation has been an increasing problem since many households are now cellular phone-only households. Lastly, the BRFSS response rate is low and estimates assume that adults who refuse to do the survey are like those who complete the survey.
BRFSS Health Indicator Prevalence Definitions:

- **No Health Insurance**: The proportion of respondents who reported to have no health insurance of any kind.

- **Diabetes**: The proportion of survey respondents who had ever been told by a doctor, nurse, or other health professional that they have diabetes. Those who were told that they had diabetes only during pregnancy were considered not to have diabetes.

- **Obesity**: The proportion of respondents with a body mass index (BMI) of 30 or greater. BMI was calculated using reported body weight and height information.

- **Inadequate Physical Activity**: The proportion of respondents who reported not meeting recommendations for moderate physical activity (at least 30 minutes five or more days per week) or vigorous physical activity (at least 20 minutes three of more days per week).

- **Inadequate Fruit and Vegetable Consumption**: The proportion of respondents who reported eating less than five servings of fruits and vegetables per day.

- **Current Smoking**: The proportion of respondents who reported having smoked 100 or more cigarettes in their lifetime and who reported still smoking some days or every day.

- **Heavy Alcohol Consumption**: The proportion of respondents who reported drinking, on average, more than two drinks per day for men or more than one drink per day for women in the past 30 days.

- **Binge Drinking**: The proportion of respondents who reported drinking five or more drinks for men, or four or more drinks for women, one or more times in the past 30 days.

- **Current Asthma**: The proportion of respondents who reported having ever been diagnosed with asthma by a doctor, nurse, or other health professional, and who still have asthma symptoms.

- **No Mammogram**: The proportion of female respondents ages 40 and older who reported not having a mammogram within the past two years.

- **No Pap Test**: The proportion of adult female respondents with an intact uterine cervix who reported not having a Pap test within the past three years.

- **No PSA Test**: The proportion of male respondents ages 40 and older who reported not having a PSA test within the past two years.

- **No Digital Rectal Exam (DRE)**: The proportion of male respondents ages 40 and older who reported not having a DRE within the past five years.

- **No Fetal Occult Blood Test (FOBT)**: The proportion of respondents ages 50 and older who reported not having a FOBT within the past two years.

- **No Sigmoidoscopy/Colonoscopy**: The proportion of respondents ages 50 and older who reported never having a sigmoidoscopy or colonoscopy test.
**Childhood Lead Poisoning:** Statewide blood lead testing results for children ages 0-14 are collected by the Childhood Lead Poisoning Prevention Program (CLPPP) of the Texas Department of State Health Services. Reporting data on Texas children who are tested for lead, along with associated test-related and patient demographic information, is required from all health care providers and laboratories. For the purposes of this analysis, a child was considered to have an elevated blood lead level if ≥10 μg/dL of lead was found in the blood through one or more blood tests during the study timeframe (2000-2004). Most childhood lead poisoning surveillance data are not collected to calculate prevalence or incidence of lead poisoning, because lead screening data are not collected by a random or a complete census, screening rates are low, and provider screening practices may change over time. Typically childhood morbidity data is expressed as a percentage of elevated children among those tested, as was done in this study.

**Pesticide Poisoning:** Pesticide poisoning data is collected by the Pesticide Exposure Surveillance in Texas (PEST) Program of the Texas Department of State Health Services. PEST collects a majority of its data from physicians, laboratory directors, and health professionals who are required to report acute occupational pesticide poisoning, but also gathers additional case reports from other state agencies and departments such as the Texas Structural Pest Control Board, the Texas Department of Agriculture, and the Texas Department of Insurance. Even though only occupational pesticide poisoning is required to be reported, the PEST program does collect data on both occupational and non-occupational cases. However, since reporting is not required for non-occupational pesticide poisoning cases, these numbers are likely underreported. Both active and passive surveillance methods are used to gather pesticide poisoning data. PEST staff begin the surveillance process within 24 hours of receiving a report, attempting to locate the individual for an interview and requesting related medical records. Occasionally, medical records provide the only source of data for a case. To determine a confirmed case, reports must specify the pesticide, health effects, and a consistent association between health effects and the known toxicology of the pesticide. Only confirmed cases were used in this report’s incidence analyses. Crude prevalence of pesticide poisoning was calculated for this study.

**Denominator Data:** The Texas population estimates and projections used to generate the incidence, prevalence, and mortality rates in this report were provided by the Population Estimates and Projections Program of the Texas State Data Center.
Appendix 2 – Data Analysis Methods

For each health indicator, overall incidence/mortality rates or prevalence was obtained, both for the 38-county South Texas area as well as for the rest of Texas. Crude incidence or prevalence estimates were used for some health indicators, while age-adjusted estimates were used for others (e.g., all mortality data, cancer data). Race/ethnicity-stratified rates were also obtained for both South Texas and the rest of Texas. For each health indicator, rates for South Texas and the rest of Texas were compared by calculating a rate ratio (South Texas rate/rest of Texas rate). A 95% confidence interval (CI) was calculated for the rate ratio, and was used to determine if the South Texas estimate was statistically significantly different from the rest of Texas estimate (we stated that the incidence/mortality rate or prevalence was different in South Texas than in the rest of Texas if the rate ratio’s 95% confidence interval did not include 1.0).

For the South Texas area, age- and sex-stratified rates were also calculated for each health indicator, as well as separate rates for metropolitan and non-metropolitan counties, Bexar and Webb counties, and the Lower Rio Grande Valley region, if the number of cases permitted. For all incidence/mortality rates or prevalence estimates, a 95% confidence interval was calculated. This confidence interval was used to determine whether or not different groups within South Texas (e.g., male vs. female) had statistically significantly different rates. If the groups’ 95% CIs did not overlap, we stated that there was a difference in incidence, prevalence, or mortality between the groups.
### Appendix 3 – South Texas County Demographics, 2004*

<table>
<thead>
<tr>
<th>County Name</th>
<th>Estimated Population</th>
<th>Percent Hispanic</th>
<th>Percent of Persons Living Below Poverty Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atascosa County</td>
<td>42,632</td>
<td>59.9</td>
<td>18.9</td>
</tr>
<tr>
<td>Bandera County</td>
<td>19,519</td>
<td>13.5</td>
<td>12.3</td>
</tr>
<tr>
<td>Bee County</td>
<td>33,210</td>
<td>55.7</td>
<td>24.9</td>
</tr>
<tr>
<td>Bexar County</td>
<td>1,487,088</td>
<td>56.6</td>
<td>17.3</td>
</tr>
<tr>
<td>Brooks County</td>
<td>7,872</td>
<td>91.9</td>
<td>28.8</td>
</tr>
<tr>
<td>Cameron County</td>
<td>372,046</td>
<td>85.8</td>
<td>29.4</td>
</tr>
<tr>
<td>Comal County</td>
<td>90,884</td>
<td>22.8</td>
<td>9.3</td>
</tr>
<tr>
<td>Dimmit County</td>
<td>10,166</td>
<td>85.6</td>
<td>28.2</td>
</tr>
<tr>
<td>Duval County</td>
<td>13,014</td>
<td>88.1</td>
<td>25.3</td>
</tr>
<tr>
<td>Edwards County</td>
<td>2,059</td>
<td>46.6</td>
<td>21.9</td>
</tr>
<tr>
<td>Frio County</td>
<td>16,156</td>
<td>74.9</td>
<td>28.0</td>
</tr>
<tr>
<td>Gillespie County</td>
<td>22,655</td>
<td>17.0</td>
<td>10.2</td>
</tr>
<tr>
<td>Guadalupe County</td>
<td>102,530</td>
<td>35.1</td>
<td>11.4</td>
</tr>
<tr>
<td>Hidalgo County</td>
<td>658,029</td>
<td>89.9</td>
<td>30.5</td>
</tr>
<tr>
<td>Jim Hogg County</td>
<td>5,253</td>
<td>90.2</td>
<td>22.0</td>
</tr>
<tr>
<td>Jim Wells County</td>
<td>40,350</td>
<td>76.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Karnes County</td>
<td>15,408</td>
<td>49.0</td>
<td>24.9</td>
</tr>
<tr>
<td>Kendall County</td>
<td>27,880</td>
<td>18.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Kenedy County</td>
<td>370</td>
<td>78.4</td>
<td>14.2</td>
</tr>
<tr>
<td>Kerr County</td>
<td>45,999</td>
<td>20.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Kinney County</td>
<td>3,336</td>
<td>52.5</td>
<td>18.8</td>
</tr>
<tr>
<td>Kleberg County</td>
<td>31,761</td>
<td>66.3</td>
<td>22.7</td>
</tr>
<tr>
<td>La Salle County</td>
<td>5,948</td>
<td>78.5</td>
<td>26.3</td>
</tr>
<tr>
<td>Live Oak County</td>
<td>12,242</td>
<td>39.2</td>
<td>18.0</td>
</tr>
<tr>
<td>McMullen County</td>
<td>867</td>
<td>33.3</td>
<td>11.2</td>
</tr>
<tr>
<td>Maverick County</td>
<td>50,634</td>
<td>95.3</td>
<td>27.9</td>
</tr>
<tr>
<td>Medina County</td>
<td>42,271</td>
<td>46.5</td>
<td>15.9</td>
</tr>
<tr>
<td>Nueces County</td>
<td>316,074</td>
<td>59.0</td>
<td>19.4</td>
</tr>
<tr>
<td>Real County</td>
<td>3,166</td>
<td>23.3</td>
<td>20.9</td>
</tr>
<tr>
<td>San Patricio County</td>
<td>69,269</td>
<td>50.8</td>
<td>18.6</td>
</tr>
<tr>
<td>Starr County</td>
<td>59,805</td>
<td>97.7</td>
<td>34.8</td>
</tr>
<tr>
<td>Uvalde County</td>
<td>26,587</td>
<td>67.8</td>
<td>22.2</td>
</tr>
<tr>
<td>Val Verde County</td>
<td>47,294</td>
<td>76.4</td>
<td>22.1</td>
</tr>
<tr>
<td>Webb County</td>
<td>221,694</td>
<td>94.7</td>
<td>26.8</td>
</tr>
<tr>
<td>Willacy County</td>
<td>20,755</td>
<td>86.8</td>
<td>29.6</td>
</tr>
<tr>
<td>Wilson County</td>
<td>37,662</td>
<td>37.5</td>
<td>11.9</td>
</tr>
<tr>
<td>Zapata County</td>
<td>13,949</td>
<td>86.8</td>
<td>27.2</td>
</tr>
<tr>
<td>Zavala County</td>
<td>11,701</td>
<td>91.5</td>
<td>31.6</td>
</tr>
</tbody>
</table>

*Source: Texas Health Data ([http://soupfin.tdh.state.tx.us/people.htm](http://soupfin.tdh.state.tx.us/people.htm)), 2004 County-Level Poverty Rates for Texas, USDA Economic Research Service