



UT Health
San Antonio

Mays Cancer Center

CANCER INCIDENCE AND MORTALITY

2018 UPDATE

Amelie G. Ramirez
Ian M. Thompson
Leonel Vela
Editors

The South Texas Health Status Review

A Health Disparities Roadmap



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 Springer Open

Cancer Incidence and Mortality

Cancer is a significant public health issue in Texas. Cancer is the second leading cause of death in Texas¹ and the U.S.,² accounting for nearly one of every four deaths. In 2018, an estimated 1.74 million Americans are expected to be diagnosed with cancer and an estimated 609,640 Americans are expected to die from cancer.² In Texas, 121,463 residents are expected to be diagnosed with cancer in 2018, and 44,713 residents are expected to die from cancer.³

Cancer is not a single disease, but rather a group of related diseases characterized by uncontrolled growth and spread of abnormal cells.² Cancer can arise in many different sites in the body. If the spread of abnormal cells is not controlled, cancer can invade other organs and tissues. Some cancer cells can spread to distant places in the body through the blood or the lymph system and form new tumors in a process called metastasis. This uncontrolled growth and spread of cancer can result in serious health problems and death. It is typically not possible to know exactly what causes cancer in one individual but not another.⁴ However, research has identified certain risk factors that may increase the chance of developing cancer, including aging, family history, tobacco use, alcohol consumption, poor nutrition, excess body weight, physical inactivity, certain hormones, exposure to sunlight, ionizing radiation, and certain chemicals. Some of these risk factors cannot be controlled, but many others can be avoided, thus lowering a person's risk of developing cancer. In addition, 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.

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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).¹ Ductal cancer is more common than lobular cancer.¹ Although more rare, cancer can also occur in other tissues of the breast.¹ Breast cancer is the most common diagnosis of cancer in Texas and U.S. women.^{2,3} It is estimated that in 2018, approximately 17,407 Texas women will be diagnosed with invasive breast cancer and 3,143 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.⁴

Increasing age is the most important risk factor for breast cancer.^{3,5} 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.⁵ Modifiable risk factors for breast cancer include lack of physical activity, alcohol use, being overweight after menopause, and oral contraceptive use.^{3,5} Screening tests for breast cancer include the breast self-exam, clinical breast exam, and screening mammography.³

Breast Cancer in South Texas

As of January 1, 2015 (the most recent date for which data exists), an estimated 65,261 Texas women, and 10,620 South Texas women, who were diagnosed with breast cancer in the last 5 years, are alive today.⁶ Nationwide, an estimated 1,067,300 women who were diagnosed with breast cancer in the last 5 years are alive today.⁷ Overall, women in South Texas had a lower average annual age-adjusted incidence rate of breast cancer (104.0 cases of breast cancer per 100,000 women) than women in the rest of Texas (113.4/100,000) or nationwide (124.9/100,000).⁶ However, Hispanic women in South Texas had a higher incidence of breast cancer (93.9/100,000) when compared to Hispanics in the rest of Texas (86.5/100,000), although their incidence rates were comparable to Hispanic women nationwide (93.1/100,000; Figure 5.1). Hispanic women in Texas, including those in South Texas, had a much lower incidence of breast cancer (89.3/100,000) than non-Hispanic white women (122.6/100,000).

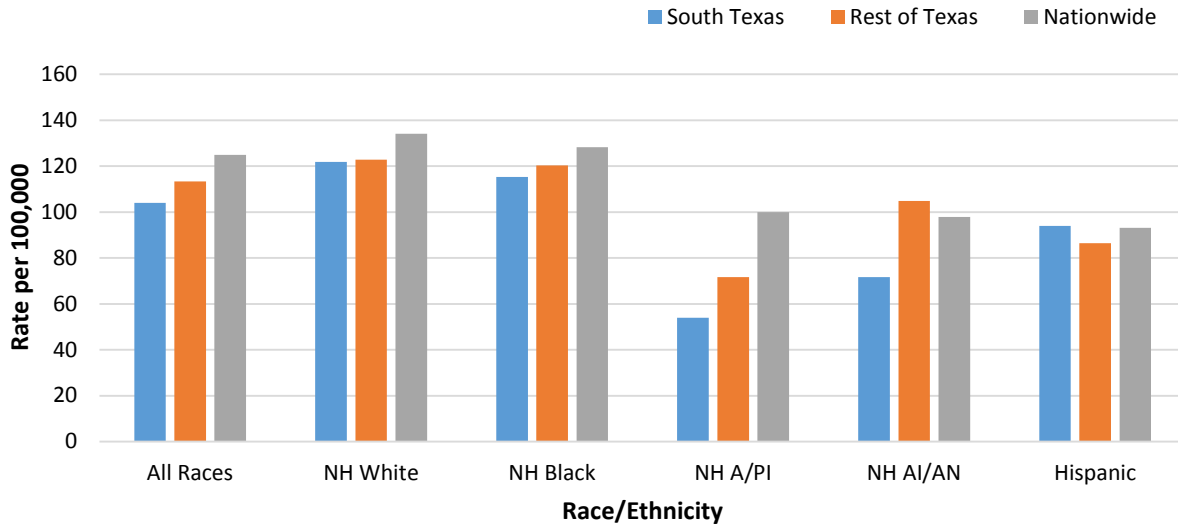


Figure 5.1. Age-adjusted incidence rate of breast cancer in females by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014.

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

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

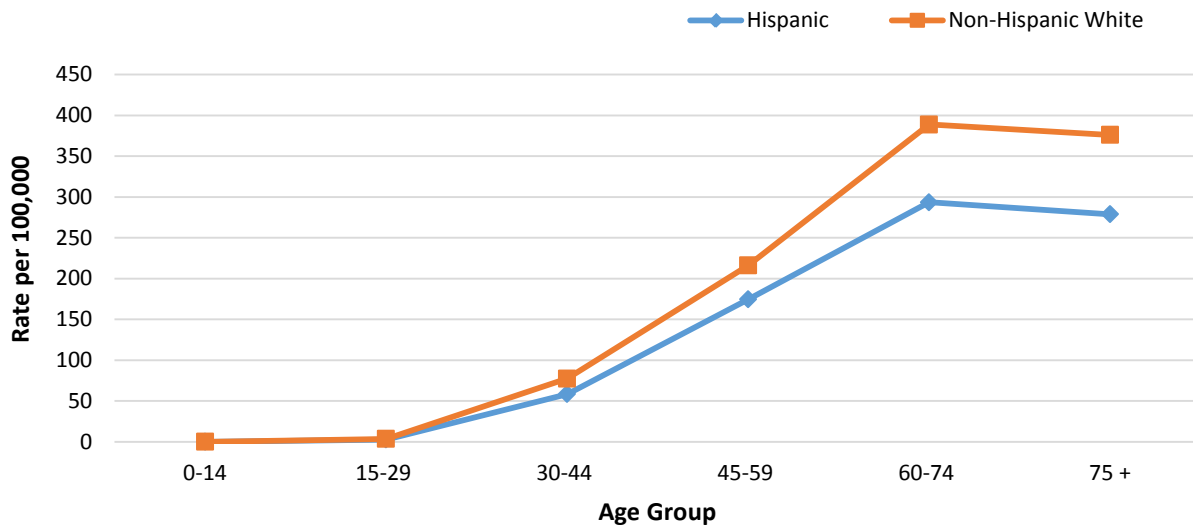


Figure 5.2. Incidence rate of breast cancer in South Texas females by age group and race/ethnicity, 2011-2015.

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

In 2011-2015, a higher average annual age-adjusted incidence rate of breast cancer was seen in South Texas metropolitan counties (104.9/100,000) than in non-metropolitan counties

(96.9/100,000). Overall, Bexar County had a higher incidence of breast cancer (111.9/100,000) than South Texas as a whole (104.0/100,000), and the Lower Rio Grande Valley area (93.1/100,000) had lower breast cancer incidence compared to South Texas (Figure 5.3).

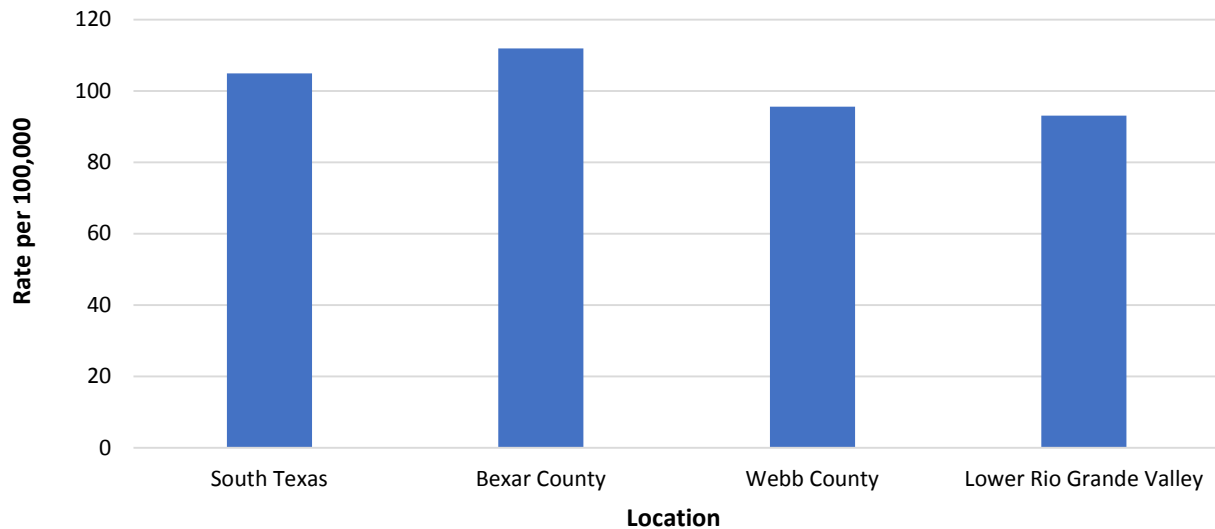


Figure 5.3. Age-adjusted incidence rate of female breast cancer in selected South Texas locations, 2011-2015.

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 18.8/100,000.⁸ The pattern of breast cancer mortality rates in South Texas differed from incidence rates in that non-Hispanic blacks had the highest mortality rate at 32.6 deaths per 100,000 but only the second highest incidence rate (Figure 5.4).

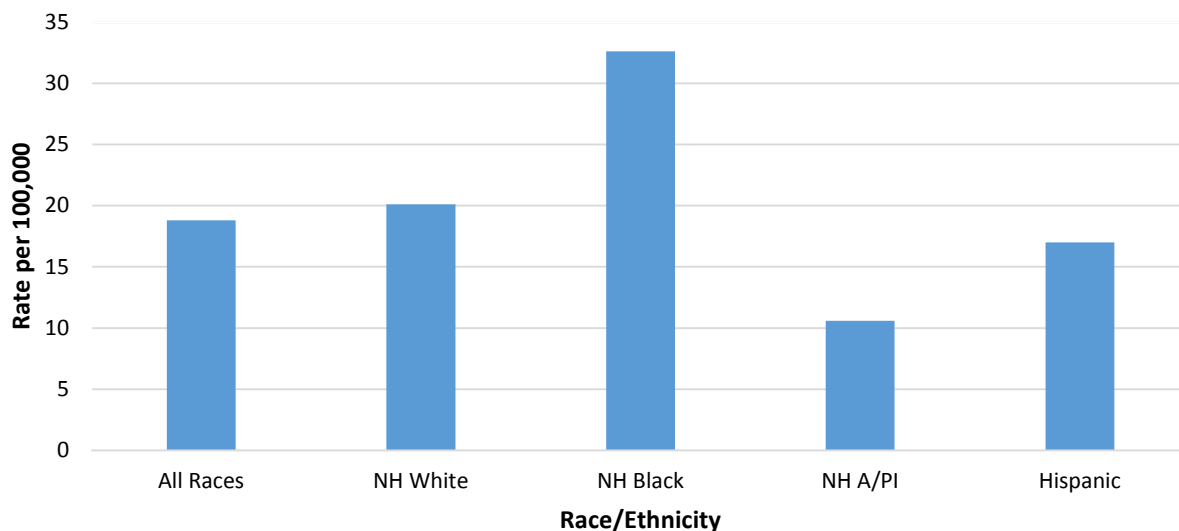


Figure 5.4. Age-adjusted mortality rate of female breast cancer in South Texas by race/ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services. NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native. Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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Cervical Cancer

Cervical cancer typically begins in the lining of the cervix, which is the lower section of the uterus and connects the upper section of the uterus to the vagina. There are two main types of cervical cancer. 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.¹ 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.^{1,2}

Even though cervical cancer is one of the most detectable and preventable cancers through regular screening, it remains a serious threat to the lives of Texas women. It is estimated that in 2018, approximately 1,363 Texas women will be diagnosed with invasive cervical cancer and 431 women will die of the disease.³ In the U.S., Hispanic women are at greater risk of developing cervical cancer than non-Hispanic white women; African-American women are also at greater risk of cervical cancer than are non-Hispanic white women.⁴

Certain human papillomaviruses (HPVs) are the most important risk factors for cervical cancer.^{1,2} 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.^{5,6} 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.¹

Cervical Cancer in South Texas

As of January 1, 2015, an estimated 4,513 Texas women, and 895 South Texas women, who were diagnosed with cervical cancer in the last 5 years, are alive today.⁷ Nationwide, an estimated 41,584 women who were diagnosed with cervical cancer in the last 5 years are alive today.⁸ Overall, the cervical cancer incidence rate was higher among women in South Texas (10.8 cases of cervical cancer per 100,000 women) than in the rest of Texas (8.9/100,000) in 2011-2015 (Figure 5.5).⁷ The overall incidence of cervical cancer in both South Texas and the rest of Texas was higher than the nationwide incidence of 7.4/100,000 in 2010-2014. As in the rest of Texas and nationwide, Hispanic women in South Texas had a higher incidence rate of cervical cancer than non-Hispanic whites. However, this ethnic difference in incidence rate was not as large in South Texas as in the rest of Texas.

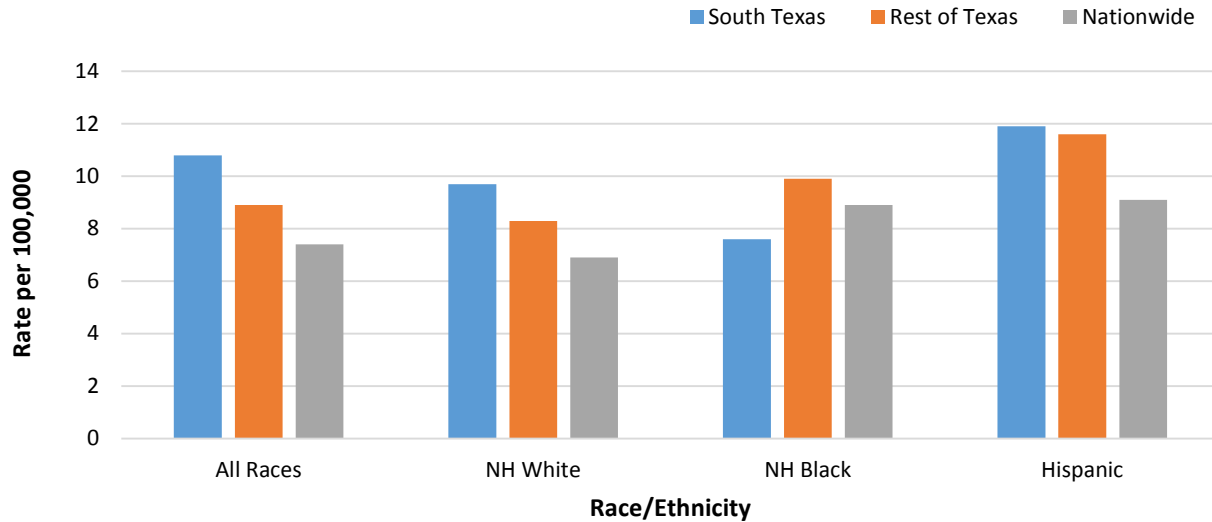


Figure 5.5. Age-adjusted incidence rate of cervical cancer in females by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014.

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

In South Texas, as in the rest of Texas, age-specific cervical cancer incidence rates differed between Hispanics and non-Hispanic whites. Rates were similar until age 44, after which Hispanic women showed significantly higher incidence rate in each age category, peaking at age 45-59 (Figure 5.6). In contrast, rates peaked in non-Hispanic white women at ages 30-44, then declined. 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.⁹

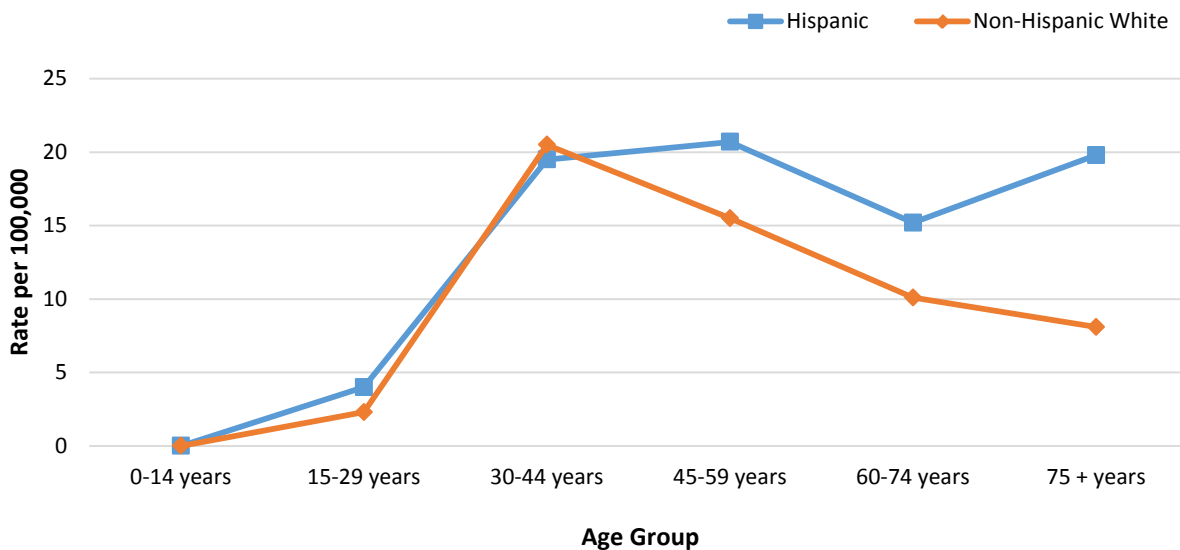


Figure 5.6. Incidence of cervical cancer in South Texas females by age group, 2011-2015.

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

In 2011-2015, a lower average annual age-adjusted incidence of breast cancer was seen in South Texas metropolitan counties (10.7/100,000) than in non-metropolitan counties (12.1/100,000), but this difference was not statistically significant. Overall, Bexar County had a similar incidence of cervical cancer (10.4/100,000) as South Texas as a whole (10.8/100,000), while Webb county tended to have a slightly higher rate (11.2/100,000). The Lower Rio Grande Valley area (12.4/100,000) had higher cervical cancer incidence compared to South Texas (Figure 5.7).

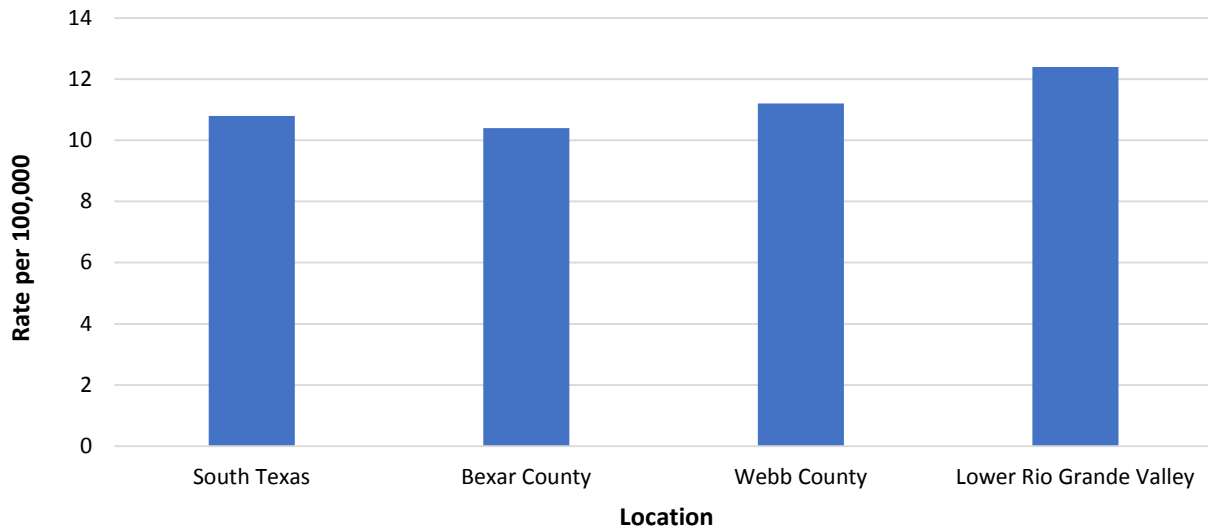


Figure 5.7. Age-adjusted incidence rate of cervical cancer in females in selected South Texas locations, 2011-2015.

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

The overall cervical cancer mortality rate among females in South Texas was 3.0/100,000.¹⁰ Hispanics had the highest cervical cancer mortality rate with 3.5 deaths per 100,000 compared to 2.1 deaths per 100,000 in Non-Hispanic whites (Figure 5.8).

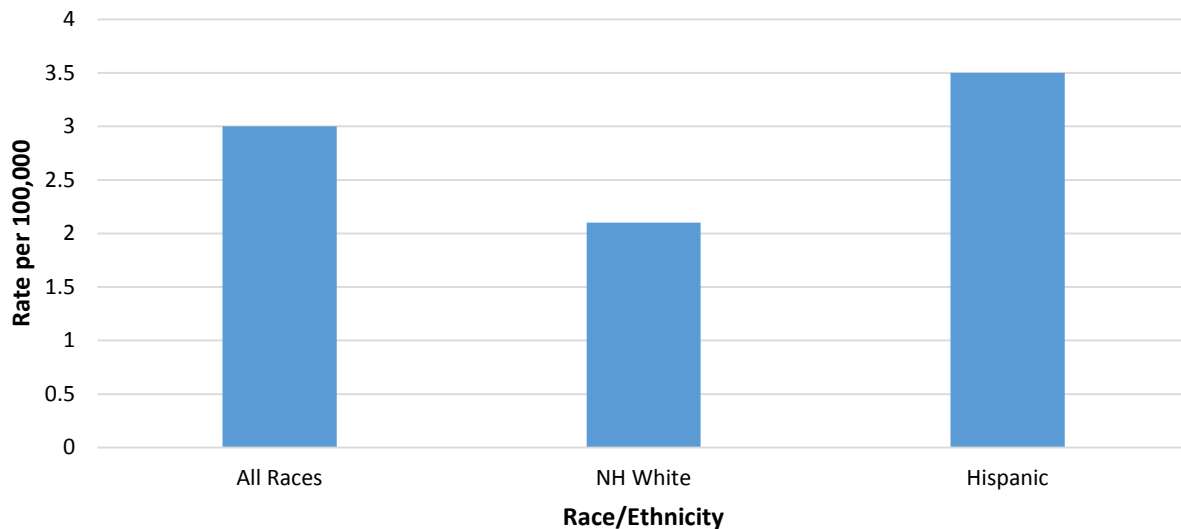


Figure 5.8. Age-adjusted cervical cancer mortality rate in South Texas females, 2011-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services. Rates for non-Hispanic (NH) Black, NH Asian/Pacific Islander and NH American Indian/Alaska Native are suppressed for statistical stability because there are fewer than 16 cases per category.

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Colorectal Cancer

Colorectal cancer is cancer that begins either 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).¹ Most colorectal cancers start as growths called polyps on the inner lining of the colon or rectum. The most common type of colorectal cancer is adenocarcinoma, a cancer that begins in cells that make mucus and line the inside of the colon or rectum.² Screening tests include the fecal occult blood test, sigmoidoscopy, colonoscopy, and double contrast barium enema.³

Colorectal cancer is the third most common diagnosis of cancer in both men and women in the U.S. and in Texas. It is also the third most common cause of cancer death in both genders.⁴ It is estimated that in 2018, approximately 11,314 Texas residents will be diagnosed with colorectal cancer and 4,144 will die of the disease.⁵ In the U.S., men have a higher risk of colorectal cancer than women.⁴ For both males and females, Hispanics are at lower risk of developing colorectal cancer than whites, and African-Americans are at greater risk than whites.⁶ In the U.S., nearly 80% of all colorectal cancers are diagnosed in persons 55 years of age or older.⁶

Risk factors for colorectal cancer include having a history of 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.⁷

Colorectal Cancer in South Texas

As of January 1, 2015, an estimated 32,001 Texans, and 5,456 South Texans, who were diagnosed with colorectal cancer in the last 5 years, are alive today.⁸ Nationwide, an estimated 457,029 Americans who were diagnosed with colorectal cancer in the last 5 years are alive today.⁹ Colorectal cancer incidence was lower in South Texas (37.1 cases of colon cancer per 100,000 population) than in the rest of Texas (38.3/100,000) or nationwide (40.1/100,000).⁸ However, the incidence rate of colorectal cancer among Hispanics in South Texas was higher than the incidence rate among Hispanics in the rest of Texas and nationwide (Figure 5.9).

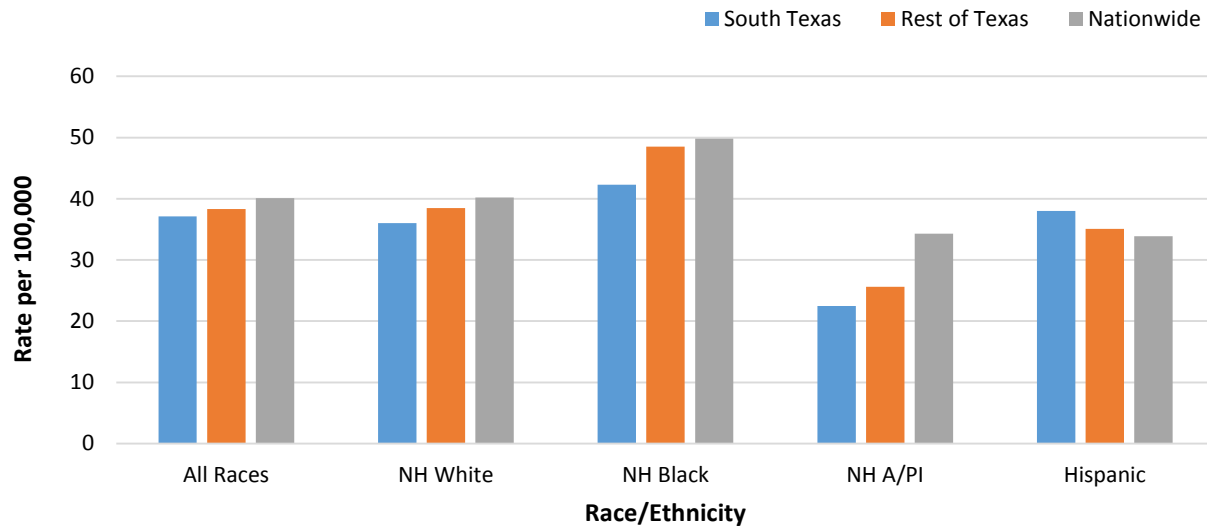


Figure 5.9. Age-adjusted incidence rate of colorectal cancer by location and race/ethnicity.
 Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

South Texas males had a higher incidence rate of colorectal cancer than South Texas females. This disparity persisted across non-Hispanic white and non-Hispanic black males and females. The incidence rate of colorectal cancer was 1.4 times higher among non-Hispanic white males than non-Hispanic white females, and was 1.8 times higher among Hispanic males than Hispanic females (Figure 5.10).

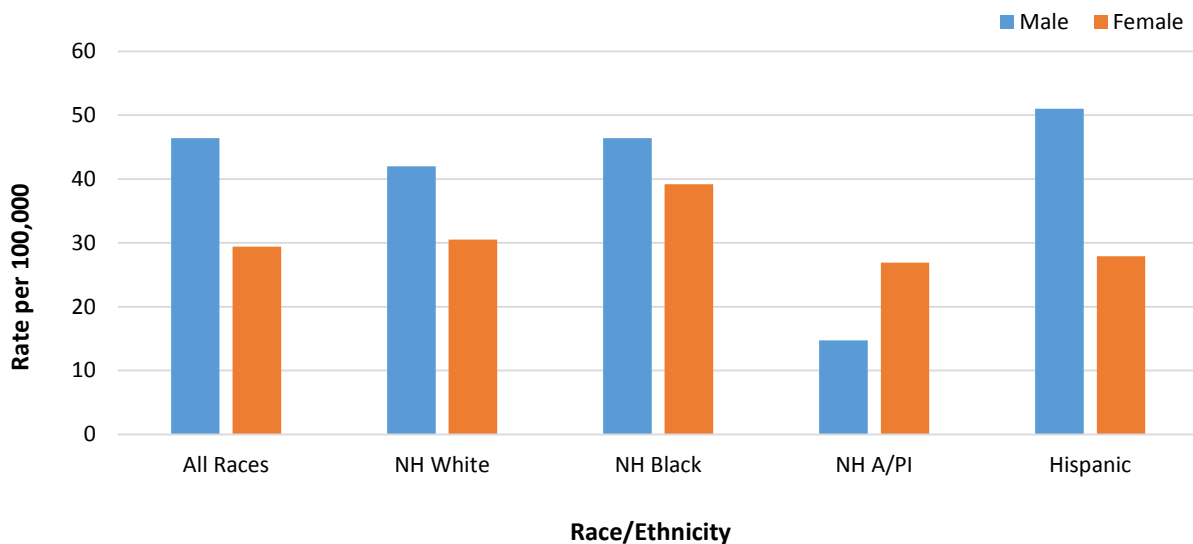


Figure 5.10. Age-adjusted colorectal cancer incidence in South Texas by sex and race/ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

In South Texas, the incidence of colorectal cancer among people living in metropolitan counties (36.6/100,000) was lower than the incidence among those living in non-metropolitan counties (40.8/100,000). In addition, males had a higher incidence of colorectal cancer (46.4/100,000) than females (29.4/100,000) in South Texas. Webb County and the Lower Rio Grande Valley region both had lower incidence rates of colorectal cancer than all of South Texas (Figure 5.11).

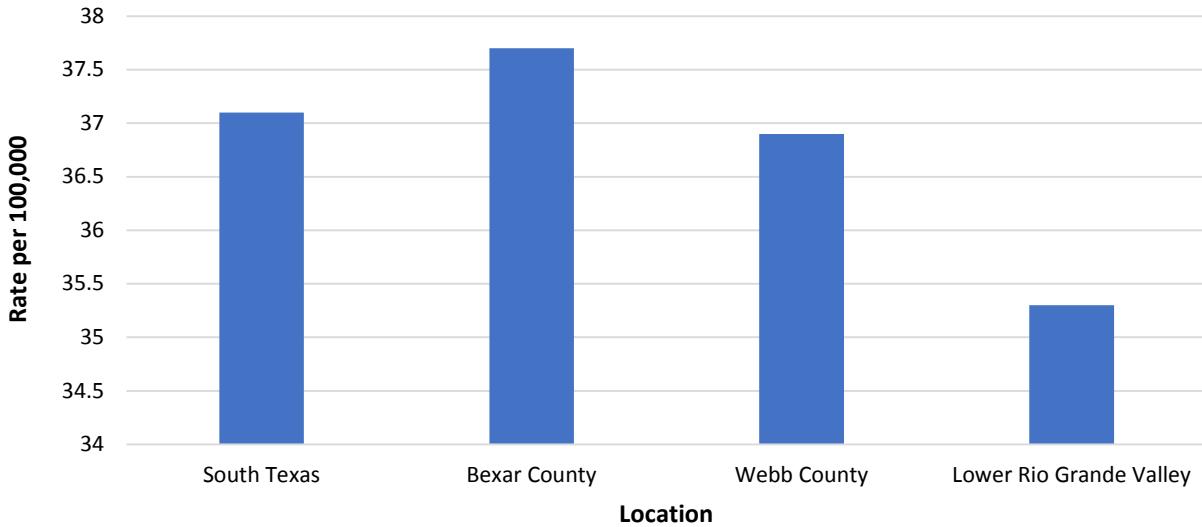


Figure 5.11. Age-adjusted incidence rate of colorectal cancer in selected South Texas locations, 2011-2015.

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

The overall colorectal cancer mortality rate in South Texas was 13.7/100,000.¹⁰ The colorectal cancer mortality rate was lower in South Texas than in the rest of Texas (14.5/100,000) or nationwide (14.5/100,000). Cancer mortality rates were higher for Hispanics in South Texas compared to the rest of Texas, whereas rates were higher for non-Hispanic whites in the rest of Texas compared to South Texas. In South Texas, males had a higher mortality rate of colorectal cancer (17.5/100,000) than females (10.6 /100,000). Similar to incidence rates, colorectal cancer mortality rates were highest in non-Hispanic blacks (18.8/100,000), followed by Hispanics (14/100,000) (Figure 5.12).

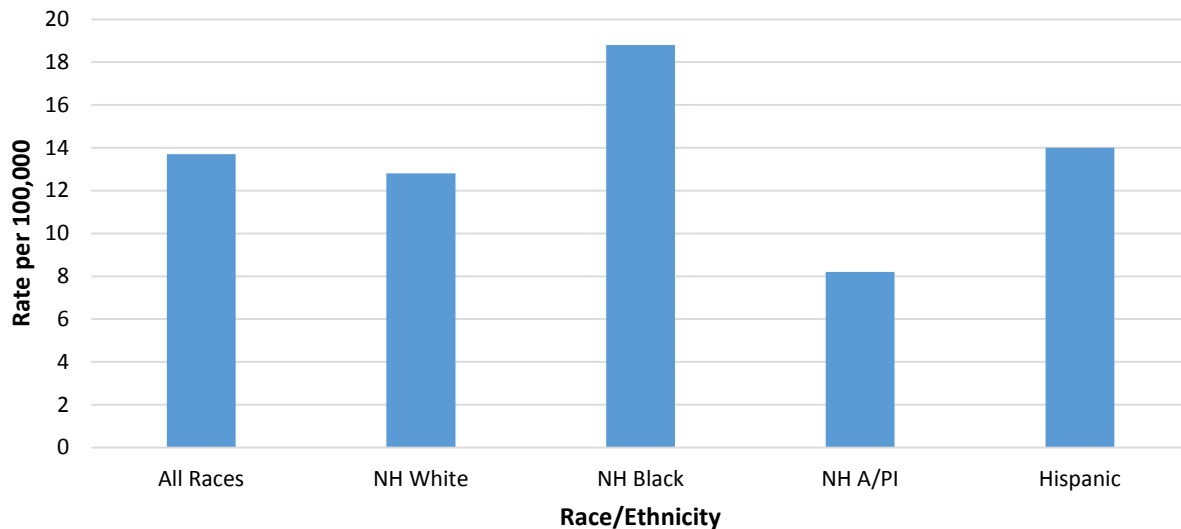


Figure 5.12. Age-adjusted colorectal cancer mortality rate in South Texas, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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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.^{1,2} Prostate cancer is generally slow to grow, and the majority of men diagnosed with prostate cancer are older than 65 years of age.² Screening tests include the digital rectal exam and the blood test for prostate-specific antigen (PSA test).³

Prostate cancer is the most commonly diagnosed cancer, aside from non-melanoma skin cancer, and the second leading cause of cancer death in American men.⁴ It is estimated that in 2018, approximately 13,936 Texas men will be diagnosed with invasive prostate cancer and 2,028 will die of the disease.⁵ Increasing age, race/ethnicity, family history, and inherited gene changes are the most well-known risk factors for prostate cancer.⁶ Prostate cancer is more common in African-American men compared to men of other races.

Prostate Cancer Incidence in South Texas

As of January 1, 2015, an estimated 52,059 Texas men, and 7,327 South Texas men, who were diagnosed with prostate cancer in the last 5 years, are alive today.⁷ Nationwide, an estimated 981,708 men who were diagnosed with prostate cancer in the last 5 years are alive today.⁸ Prostate cancer incidence in South Texas (77.9 cases of prostate cancer per 100,000 men) was lower than in the rest of Texas (99.2/100,000) or nationwide (119.8/100,000).⁷ When compared to Hispanic men in the rest of Texas or nationwide, Hispanic men in South Texas had a lower incidence rate of prostate cancer (Figure 5.13). As observed in the rest of Texas and nationwide, non-Hispanic black and white men in South Texas had a higher incidence rate of prostate cancer than Hispanic men.

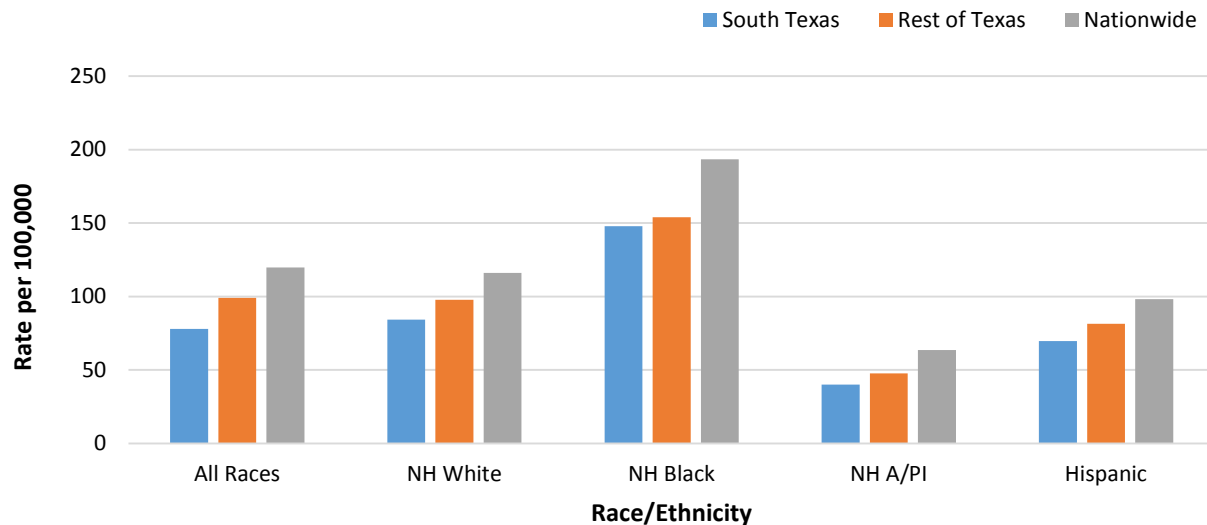


Figure 5.13. Age-adjusted incidence rate of prostate cancer among males, by location and race/ethnicity.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

Prostate cancer incidence rates increased with age in South Texas for non-Hispanic white men (until age 75) and for Hispanic men (until age 80) (Figure 5.14). Non-Hispanic white men experienced a decline in rates among those aged 75-84 years, whereas Hispanic men experienced a slight decline in rates among those aged 80-84 years. Incidence rates increased again in both groups for those aged 85 years and older. Overall, non-Hispanic white men had higher rates of prostate cancer compared to Hispanic men for most age groups above 30 years, with the exception of men aged 75-84 years, where rates were higher among Hispanics. The decreasing incidence rates seen in some of the older age groups may reflect declines in screening rates, which may be attributable, at least in part, to the U.S. Preventive Services Task Force recommendation against screening men 70 years of age and older.

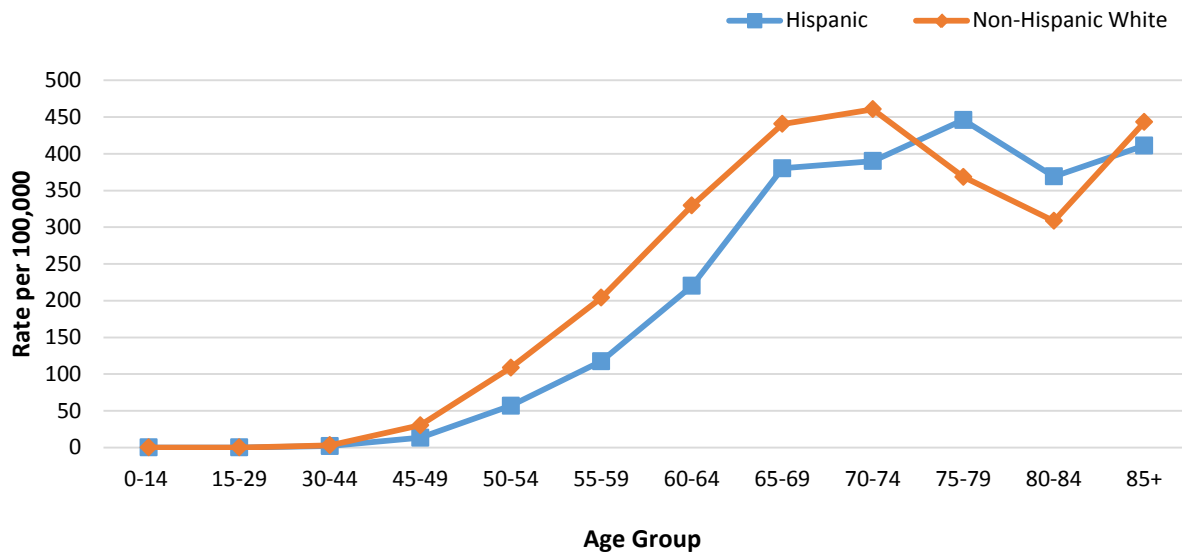


Figure 5.14. Incidence rate of prostate cancer among South Texas males, by age group and race/ethnicity.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data

In South Texas, the incidence rate of prostate cancer among men living in metropolitan counties (77.8/100,000) was similar to the incidence rate among those living in non-metropolitan counties (78.4/100,000). Overall, incidence rates of prostate cancer in Bexar County and the Lower Rio Grande Valley region were similar to those in South Texas as a whole. Webb County had a lower incidence rate of prostate cancer compared to South Texas (60.8/100,000 vs. 77.9/100,000). However, Hispanics in the Lower Rio Grande Valley region had higher incidence rates of prostate cancer than Hispanics in South Texas overall, while Hispanics in Bexar County and Webb County had lower incidence rates of prostate cancer than in South Texas overall (Figure 5.15).

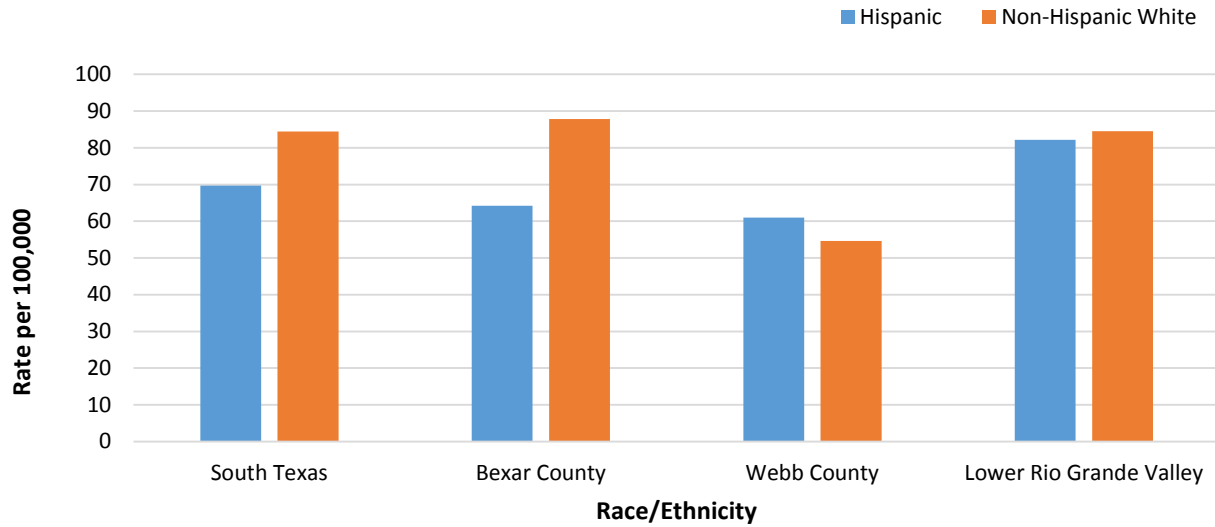


Figure 5.15. Age-adjusted incidence rate of prostate cancer among males in selected South Texas locations, by race/ethnicity, 2011-2015.
 Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

The overall prostate cancer mortality rate in South Texas was 15.6 deaths per 100,000 population.¹⁰ Similar to incidence rates, prostate cancer mortality rates were lower in South Texas than in the rest of Texas or nationwide. For Hispanics, non-Hispanic whites, and non-Hispanic black males, prostate cancer mortality rates were lower in South Texas compared to the rest of Texas, and nationwide. Hispanic men had a lower prostate cancer mortality rate compared to non-Hispanic white men in South Texas, the rest of Texas, and nationwide (Figure 5.16). Non-Hispanic black men had the highest prostate cancer mortality rate in South Texas (Figure 5.16).

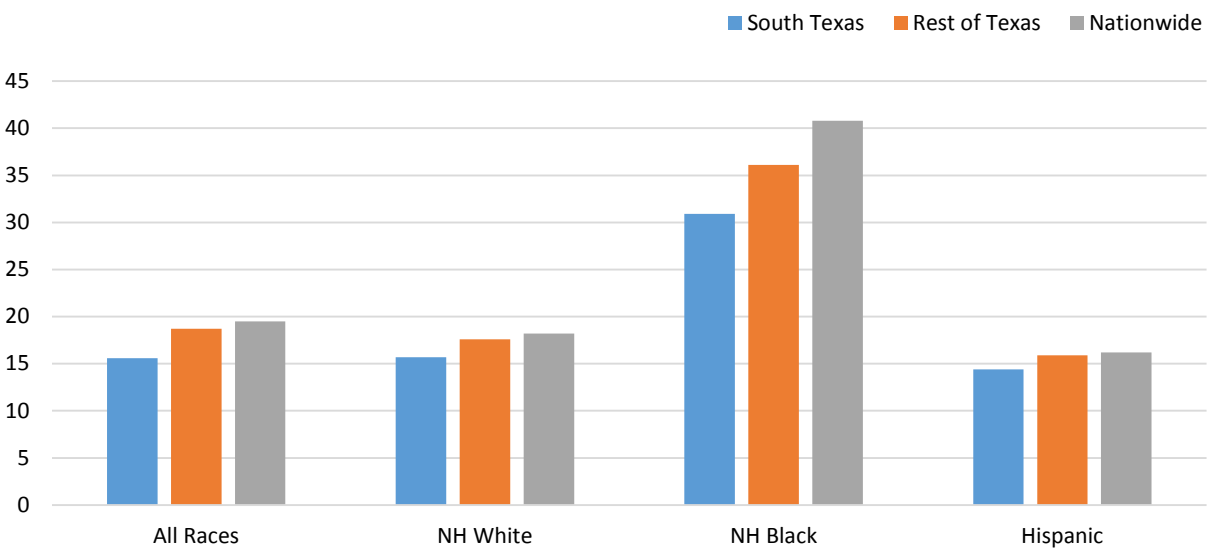


Figure 5.16. Age-adjusted mortality rate of prostate cancer among males, by location and race/ethnicity.

Sources: Texas mortality: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide mortality: U.S. Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention, 2011-2015 data

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

The trend in age-specific prostate cancer mortality rates for South Texas was different from the trend seen in prostate cancer incidence rates; mortality rates continued to increase across all age groups (Figure 5.17).

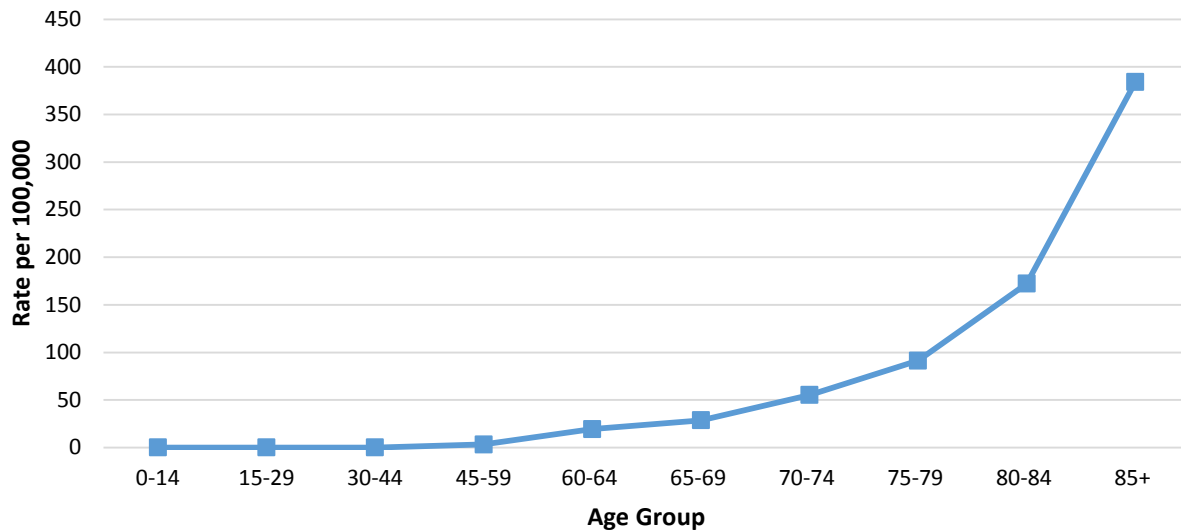


Figure 5.17. Prostate cancer mortality rate among South Texas males by age group, 2011-2015.
 Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

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Lung and Bronchus Cancer

Lung and bronchus cancers are cancers of the respiratory system. The bronchi are tubes that branch off of the trachea (windpipe) and then divide into smaller tubes in the lungs called bronchioles.^{1,2} Lung cancers normally begin in the cells that line the bronchi, the bronchioles, or the alveoli (tiny air sacs attached to the bronchioles).^{1,2}

For treatment purposes, lung and bronchus cancer are grouped into small cell cancers and non-small cell cancers, which account for 10-15% and 80-85% of all lung and bronchus cancers, respectively.^{1,2} 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.² Lung cancer screening with low-dose helical CT (LDCT) is an option in certain groups of current or former smokers.³

Lung and bronchus cancer is the second most common diagnosis of cancer and the leading cause of cancer death among both men and women in the U.S. and Texas.³ It is estimated that in 2018, approximately 15,485 Texans will be diagnosed with lung and bronchus cancer and 11,092 will die of the disease.⁴ In the U.S., males have a higher risk of lung and bronchus cancer than females.^{1,2} 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.^{1,2} The most important risk factor for lung and bronchus cancer is cigarette smoking, which is responsible for 80% of lung cancer deaths.³ Other risk factors include exposure to secondhand cigarette smoke, cigar and pipe smoking, radon, asbestos, certain metals, certain organic chemicals, radiation, air pollution, and diesel exhaust.³

Lung and Bronchus Cancer in South Texas

As of January 1, 2015, an estimated 20,611 Texans, and 2,888 South Texans, who were diagnosed with lung and bronchus cancer in the last 5 years, are alive today.⁵ Nationwide, an estimated 327,383 Americans who were diagnosed with lung and bronchus cancer in the last 5 years are alive today.⁶ The incidence rate of lung and bronchus cancer in South Texas was 40.9 cases per 100,000 population in 2011-2015.⁵ South Texas had a lower incidence rate (40.9/100,000) of lung and bronchus cancer than the rest of Texas (55.8/100,000) and nationwide (55.8/100,000). Metropolitan areas in South Texas had a slightly higher incidence rate of lung and bronchus cancer (41.3/100,000) compared to non-metropolitan areas (38.5/100,000). Hispanics in South Texas had a similar incidence rate of lung and bronchus cancer as Hispanics in the rest of Texas; however, non-Hispanic whites in South Texas had a lower incidence rate (56.1/100,000) when compared to non-Hispanic whites in the rest of Texas (62.5/100,000). As also observed in the rest of Texas and nationwide, Hispanics in South Texas had a lower incidence rate of lung and bronchus cancer than non-Hispanic whites. Non-Hispanic whites and blacks in South Texas had a nearly two-fold greater incidence rate of lung cancer compared to Hispanics (Figure 5.18).

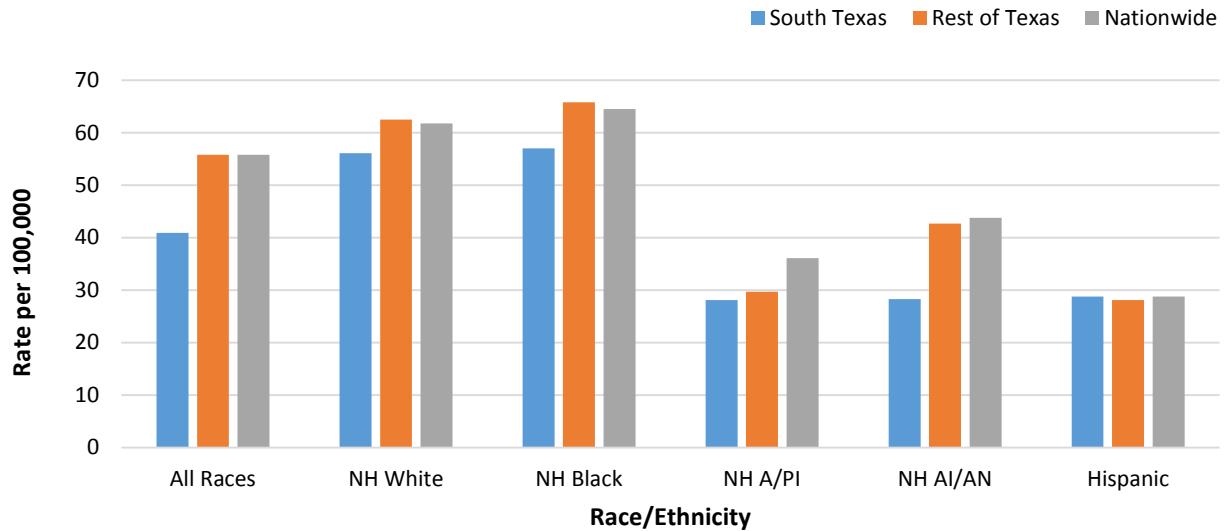


Figure 5.18. Age-adjusted incidence rates of lung and bronchus cancer by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

The incidence rate of lung and bronchus cancer is very rare until ages 30-44, and then rises until ages 80-84 for Hispanics and non-Hispanic whites (Figure 5.19). Among those 45 years of age and older in South Texas, non-Hispanic whites have a statistically significantly higher lung and bronchus cancer incidence rate than Hispanics.

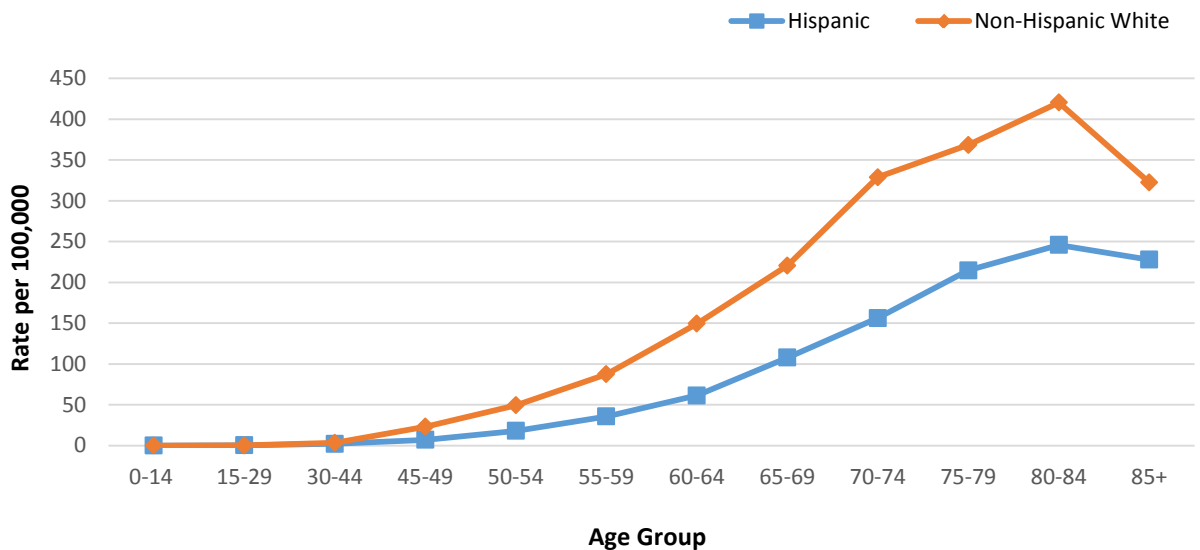


Figure 5.19. Incidence rates of lung and bronchus cancer in South Texas by age group and race/ethnicity, 2011-2015.

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 rate of lung and bronchus cancer than females. The incidence rate of lung and bronchus cancer was highest among Non-hispanic black males (70.4/100,000). The incidence rate of lung and bronchus cancer was 1.3 times higher among non-Hispanic white males than non-Hispanic white females, and was 2.2 times higher among Hispanic males than Hispanic females (Figure 5.20).

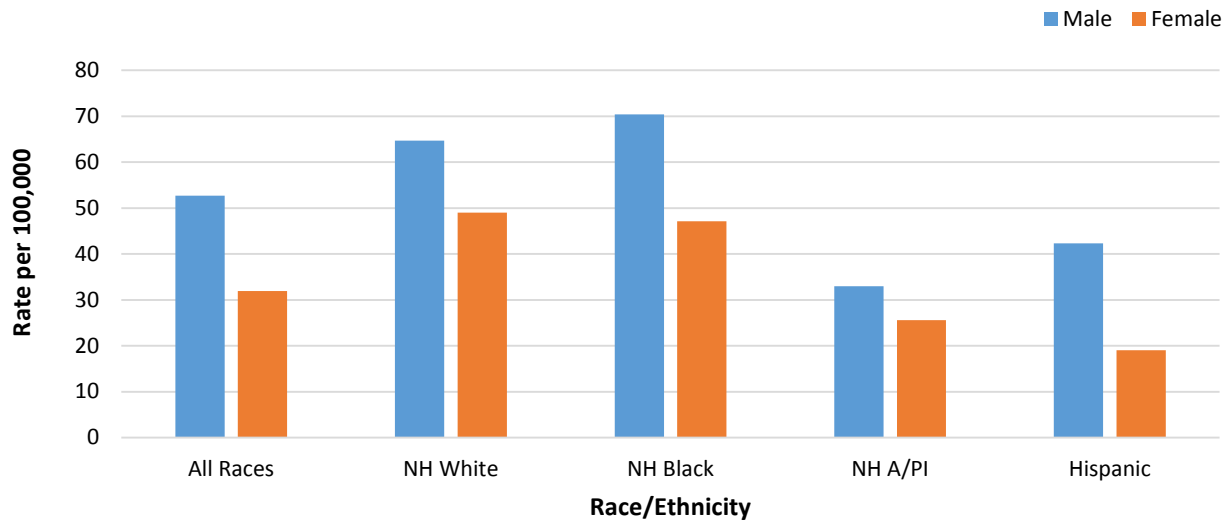


Figure 5.20. Age-adjusted incidence rates of lung and bronchus cancer in South Texas by sex and race/ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

The lung and bronchus cancer mortality rate in South Texas was 30.2 deaths per 100,000 population.⁷ For the most part, lung cancer mortality rate patterns were similar to those for lung cancer incidence rate patterns (Figure 5.21).

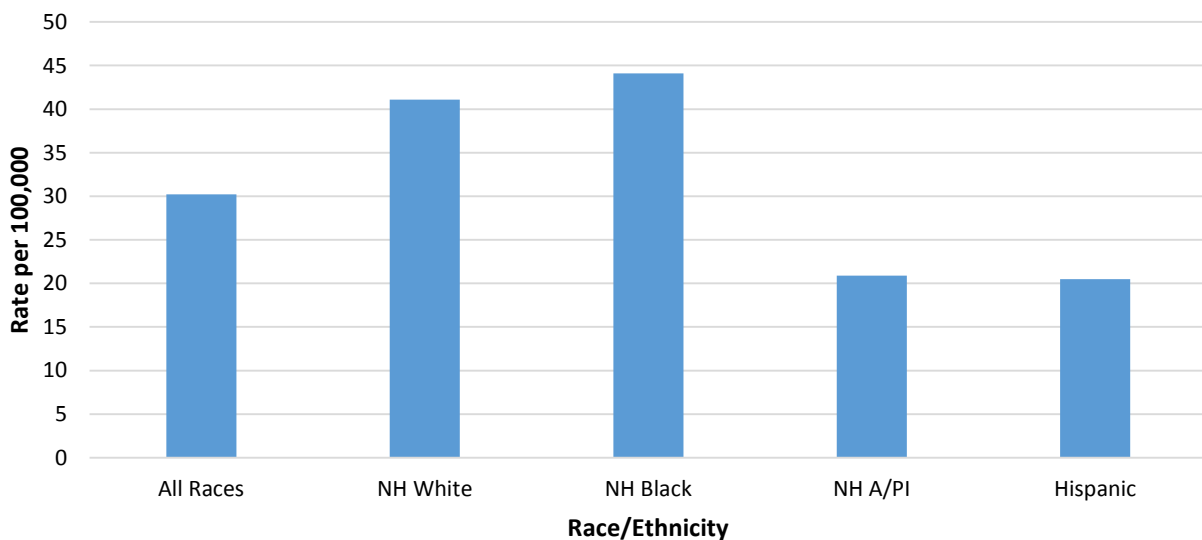


Figure 5.21. Age-adjusted lung and bronchus mortality rate in South Texas by race and ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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Liver and Intrahepatic Bile Duct Cancer

Liver and intrahepatic bile duct cancer occurs either in the liver or the intrahepatic bile ducts, which are small tubes that extend out of the liver and carry bile from the liver to the gallbladder or directly to the intestines. The liver is responsible for metabolizing nutrients, making bile to help absorb nutrients, and breaking down alcohol, drugs, and other chemicals.¹ In 2018, an estimated 3,714 Texans will be diagnosed with liver cancer and an estimated 2,532 Texans will die from liver cancer.² Incidence rates of liver and intrahepatic bile duct cancer increase with age, and men have a nearly 3-times higher incidence rate than women.¹ Hispanic men and women have a much higher risk of developing liver and intrahepatic bile duct cancer than non-Hispanics.³

The majority of primary liver cancers, which are cancers that start in the liver, are hepatocellular carcinoma (HCC). Major risk factors for HCC include chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infection, fatty liver disease, heavy alcohol use, smoking, overweight/obesity, and diabetes.^{1,4} Because most signs and symptoms of liver cancer do not appear until the cancer is in its later stage, it is often hard to detect liver cancer early. There are no commonly recommended screening tests for liver cancer among those who are not at increased risk.¹ The Centers for Disease Control and Prevention (CDC) recommends that everyone born between 1945 and 1965 be tested for HCV, as HCV infection was most common during the 1960s through the 1980s before the virus was discovered and preventive measures

were in place.^{4,5} If individuals are at higher risk of liver cancer due to HBV or cirrhosis, some experts recommend screening for liver cancer with alpha-fetoprotein blood tests and ultrasound exams.¹

Liver and Intrahepatic Bile Duct Cancer in South Texas

As of January 1, 2015, an estimated 4,745 Texans, and 992 South Texans, who were diagnosed with liver and intrahepatic bile duct cancer in the last 5 years, are alive today.⁶ Nationwide, an estimated 50,790 Americans who were diagnosed with liver and intrahepatic bile duct cancer in the last 5 years are alive today.⁷ In 2011-2015, the incidence rate of liver and intrahepatic bile duct cancer in South Texas for all races combined (14.1 cases per 100,000 people) was higher than the incidence rate in the rest of Texas (10.8/100,000) and nationwide (8.6/100,000) (Figure 5.22).⁶ Among Hispanics in South Texas, the incidence rate of liver and intrahepatic bile duct cancer (18.7/100,000) was more than twice as high as the incidence rate among non-Hispanic whites (8.2/100,000).

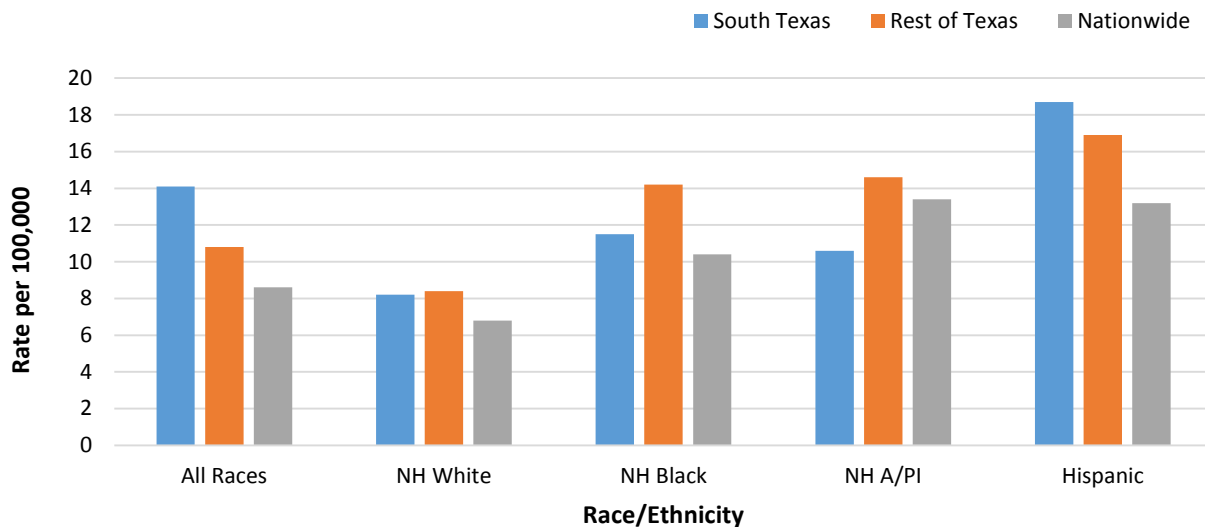


Figure 5.22. Age-adjusted incidence rates of liver and intrahepatic bile duct cancer by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014.

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

The incidence rate of liver and intrahepatic bile duct cancer was more than 2.5 times greater in South Texas males than in females (21.2/100,000 vs. 7.9/100,000, respectively). As observed nationwide, liver and intrahepatic bile duct cancer incidence rates in South Texas increased with age. Across all age groups 30 years and above, incidence rates were higher among Hispanics than non-Hispanic whites. Among those 70 years and older, incidence rates among Hispanics were approximately three times higher than non-Hispanic whites (Figure 5.23).

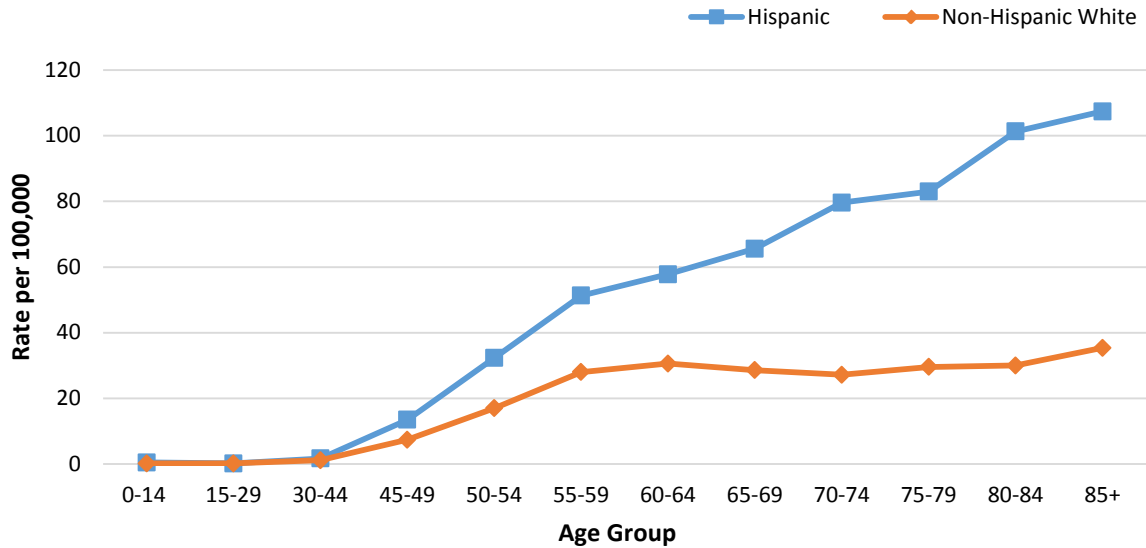


Figure 5.23. Incidence rates of liver and intrahepatic bile duct cancer in South Texas by age group and race/ethnicity, 2011-2015.

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

South Texas males had a higher incidence rate of liver and intrahepatic bile duct than females in all racial ethnic groups, and was more than 2.75 times higher among Hispanic males than Hispanic females (Figure 5.24).

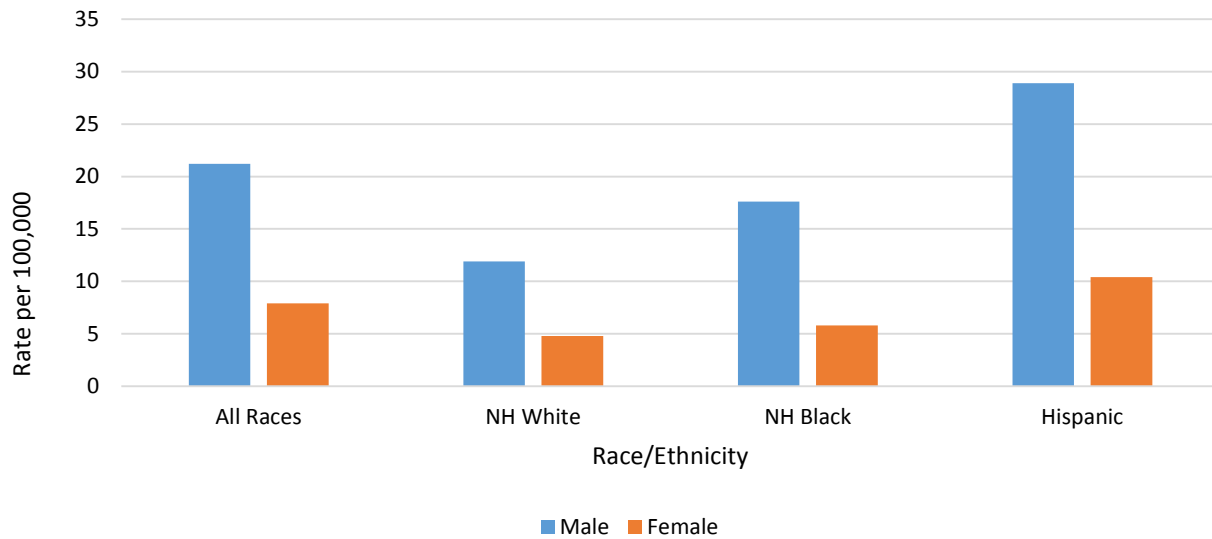


Figure 5.24. Age-adjusted incidence rates of liver and intrahepatic bile duct cancer in South Texas by sex and race/ethnicity, 2011-2015.

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

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

In South Texas, the incidence rate of liver and intrahepatic bile duct cancer was slightly but not statistically significantly higher in non-metropolitan counties (14.9/100,000) than in metropolitan counties (14.0/100,000). The liver and intrahepatic bile duct cancer incidence rate was

statistically significantly higher in South Texas compared to the rest of Texas (Figure 5.25). Within South Texas, incidence rates were higher in Bexar County compared to Webb County or the Lower Rio Grande Valley region.

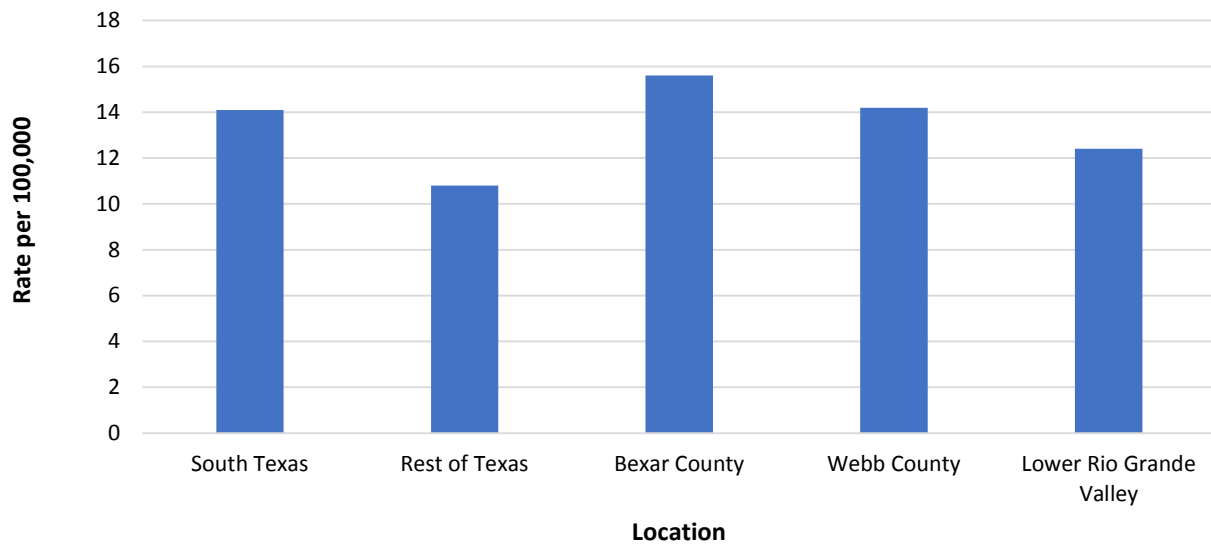


Figure 5.25. Age-adjusted incidence rates of liver and intrahepatic bile duct cancer in selected South Texas locations, 2011-2015.

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

The liver and intrahepatic bile duct cancer mortality rate in 2011-2015 in South Texas was 9.6/100,000.⁸ Overall, patterns of liver cancer mortality rates in South Texas were similar to those for liver cancer incidence rates, although the second highest mortality rate was among Non-Hispanic Asian/Pacific Islanders. Among Hispanics in South Texas, the liver and intrahepatic bile duct liver cancer mortality rate was more than twice as high as the rate among non-Hispanic whites (12.4 vs. 6.0 deaths per 100,000 population, respectively).

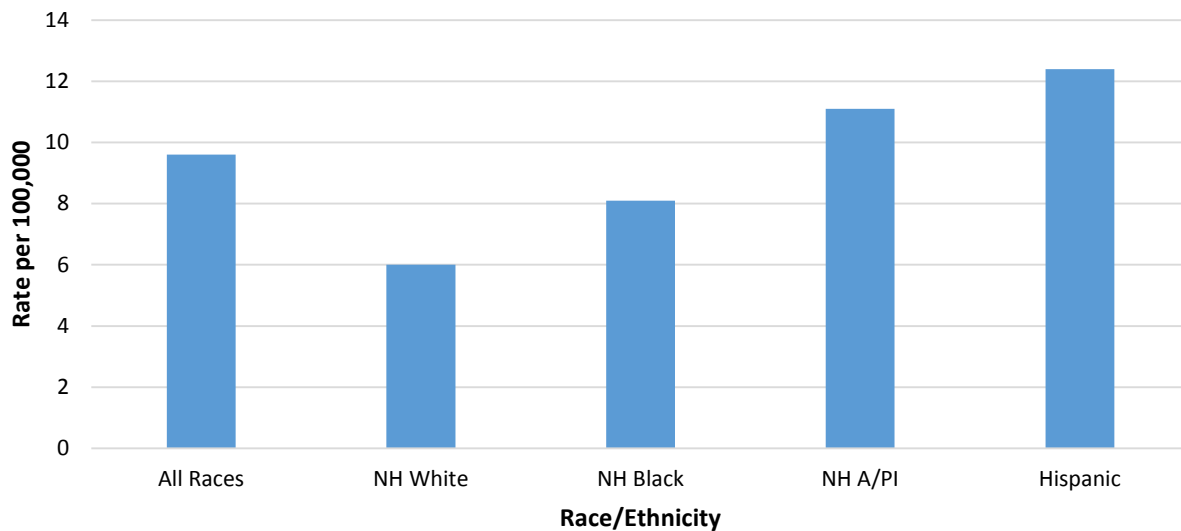


Figure 5.26. Age-adjusted liver and intrahepatic bile duct cancer mortality rates in South Texas by race and ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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Stomach Cancer

Stomach cancer, also called gastric cancer, tends to develop slowly over a period of years. Before cancer develops, pre-cancerous changes occur often in the inner lining of the stomach, rarely causing symptoms, and therefore are frequently undetected. Screening for stomach cancer using tests such as upper endoscopy is done in countries where stomach cancer is very common. However, in the U.S. routine screening has not been shown to be useful because stomach cancer is not very common.¹

Stomach cancer is a relatively rare cancer both in the U.S and in Texas. It is estimated that in 2018, approximately 2,061 Texas residents will be diagnosed with stomach cancer and 1,066 will die of the disease.² The U.S. age-adjusted incidence rate for 2010-2014 was 9.9 cases of stomach cancer per 100,000 in men and 5.2 cases per 100,000 in women.³ Stomach cancer is more common in Hispanic men and women than in non-Hispanic whites. The incidence of stomach cancer increases with age, especially after age 50.¹ Other risk factors for stomach cancer include *Helicobacter pylori* infection, type A blood, certain health conditions such as pernicious anemia or common variable immune deficiency (CVID), and family history of stomach cancer, including inherited cancer syndromes. Modifiable risk factors include smoking, being overweight or obese, and a diet high in smoked foods, salted fish or meat, and/or pickled vegetables.¹

Stomach Cancer in South Texas

As of January 1, 2015, an estimated 3,547 Texans, and 676 South Texans, who were diagnosed with stomach cancer in the last 5 years, are alive today.⁴ Nationwide, an estimated 49,134 Americans who were diagnosed with stomach cancer in the last 5 years are alive today.⁵ South Texas had a slightly higher incidence rate of stomach cancer (7.6 cases of stomach cancer per 100,000 population) than the rest of Texas (6.6/100,000) or nationwide (7.3/100,000).⁴ In South Texas, the stomach cancer incidence rate in non-Hispanic blacks (9.9/100,000) and Hispanics (9.8/100,000) was more than twice as high as the incidence rate in non-Hispanic whites (4.5/100,000) (Figure 5.27).

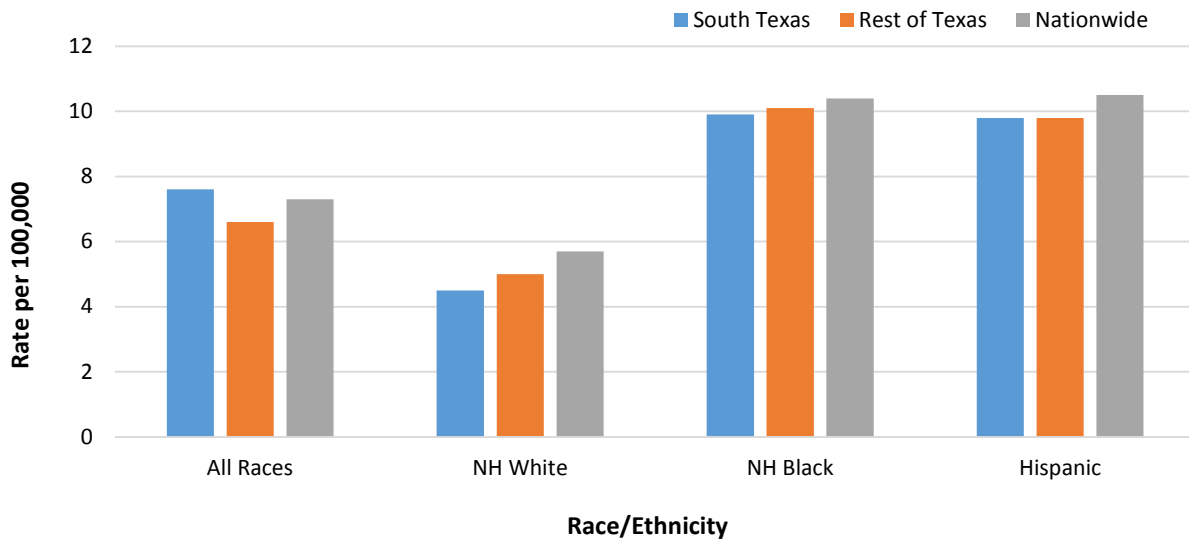


Figure 5.27. Age-adjusted stomach cancer incidence by location and race/ethnicity.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, SEER 18 Areas data, 2010-2014

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

As observed nationwide, the incidence rate of stomach cancer in South Texas residents increased with age. Hispanics had a higher stomach cancer incidence rate than non-Hispanic whites among persons ages 40 and older (Figure 5.28).

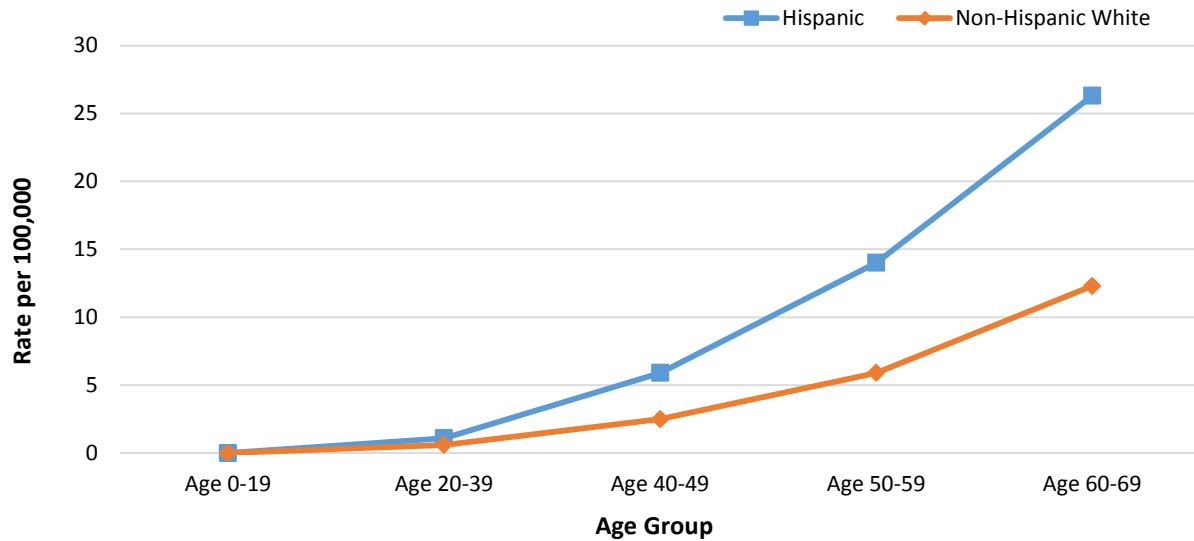


Figure 5.28. Age-adjusted stomach cancer incidence in South Texas by age and race/ethnicity, 2011-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services.

In South Texas, the incidence rate of stomach cancer was nearly twice as high in males compared to females, and this disparity persisted across race/ethnicity groups. Stomach cancer incidence rates in Hispanic males were 2.2 times higher than in non-Hispanic males, and 2.3 times higher in Hispanic females compared to non-Hispanic white females (Figure 5.29).

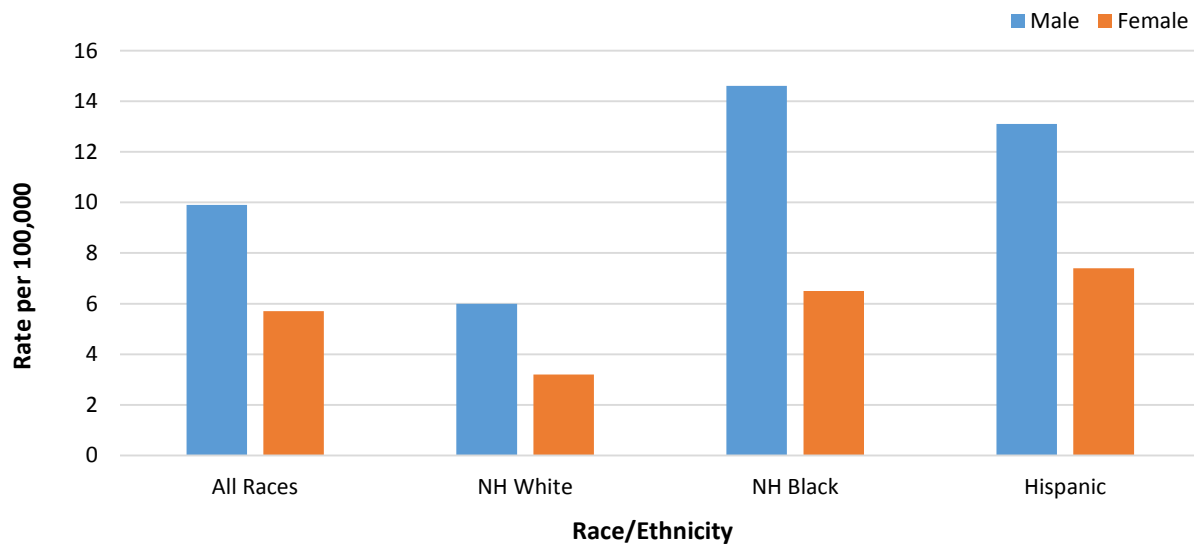


Figure 5.29. Age-adjusted stomach cancer incidence in South Texas by sex and race/ethnicity, 2011-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services. NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native. Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

In 2011-2015, the average annual age-adjusted incidence rate of stomach cancer in South Texas metropolitan counties (7.5/100,000) was similar to non-metropolitan counties (7.7/100,000). Overall, Webb County had a higher incidence rate of stomach cancer (8.9/100,000) than South Texas as a whole (7.6/100,000), and the Lower Rio Grande Valley area (8.6/100,000) also had a higher stomach cancer incidence rate compared to South Texas as a whole (Figure 5.30).

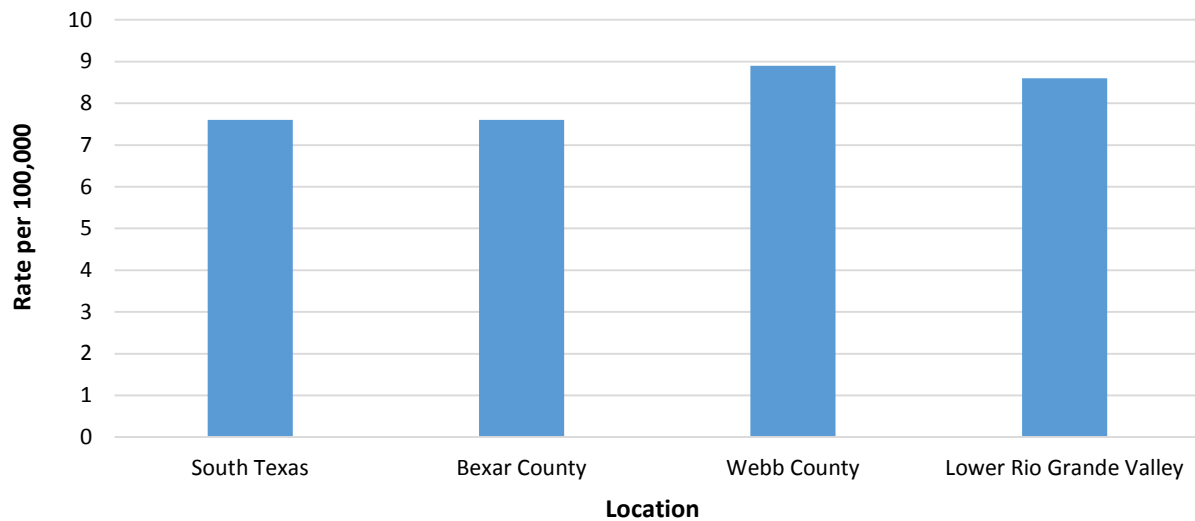


Figure 5.30. Age-adjusted stomach cancer incidence in selected South Texas locations, 2011-2015.
 Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

The overall stomach cancer mortality rate in South Texas was 4.2 deaths per 100,000 population for 2011-2015.⁶ Stomach cancer mortality rate patterns in South Texas by race and ethnicity were similar to patterns for stomach cancer incidence; mortality rates in Hispanics and non-Hispanic blacks were higher than rates in non-Hispanic whites (Figure 5.31).

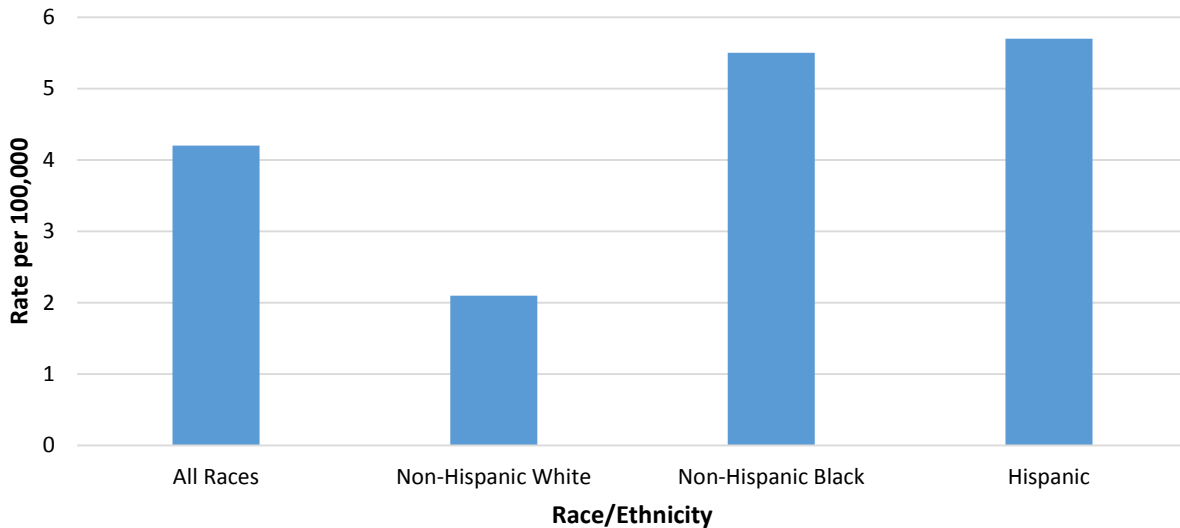


Figure 5.31. Age-adjusted stomach cancer mortality rate in South Texas by race and ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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Pancreatic Cancer

The pancreas consists of two main types of cells, exocrine cells that produce pancreatic enzymes to help digest foods, and endocrine cells that produce hormones such as insulin and glucagon. Pancreatic cancer can occur in either of these cell types but develops most often in exocrine cells.¹ In 2018, an estimated 3,551 Texans will be diagnosed with pancreatic cancer and an estimated 2,925 Texans will die from the disease.² Incidence rates of pancreatic cancer increase with age, with men slightly more likely to develop the disease than women.¹ African-Americans are slightly more likely to develop pancreatic cancer than whites, which may partly reflect higher rates of certain risk factors.¹ Pancreatic cancer rates in the United States increased from 2011 to 2015.³

Modifiable risk factors for pancreatic cancer include tobacco use, being overweight, workplace exposure to certain chemicals, diabetes, chronic pancreatitis, liver cirrhosis, and H. pylori infection.⁴ Genetic factors also contribute to the risk of developing pancreatic cancer. Pancreatic cancer is usually not detected until late in the disease when the cancer has already spread. People with a family history of pancreatic cancer may undergo testing for genetic risk factors or early signs of the disease, but there are no commonly recommended screening tests for pancreatic cancer among those who are at average risk.¹

Pancreatic Cancer in South Texas

During 2011-2015, the incidence rate of pancreatic cancer in South Texas for all races combined (11.4 cases per 100,000 people) was lower than the incidence rate in the rest of Texas (12.2/100,000) and nationwide (12.5/100,000) (Figure 5.32).^{4,5} However, within race/ethnicity groups incidence rates were similar between South Texas and the rest of Texas. Among Hispanics in South Texas, the incidence rate of pancreatic cancer (11.0/100,000) was lower than

the incidence rate among non-Hispanic whites (11.9/100,000).⁴ The rate among Non-Hispanic blacks was higher than other race/ethnicity groups, with 15.9 cases per 100,000.⁴

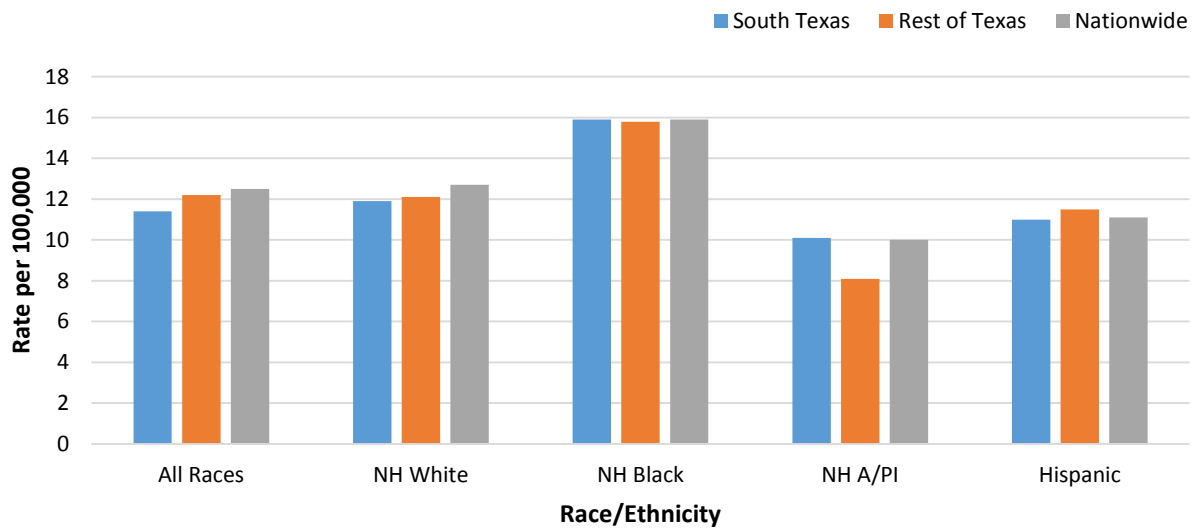


Figure 5.32. Age-adjusted incidence rates of pancreatic cancer by location and race/ethnicity. Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2010-2014. NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

The overall incidence rate of pancreatic cancer in South Texas was higher in males than in females (13.3/100,000 vs. 9.9/100,000, respectively) and this pattern was observed in all race/ethnicity groups (Figure 5.33).⁴ As observed nationwide, pancreatic cancer incidence rates in South Texas increased with age.^{4,5}

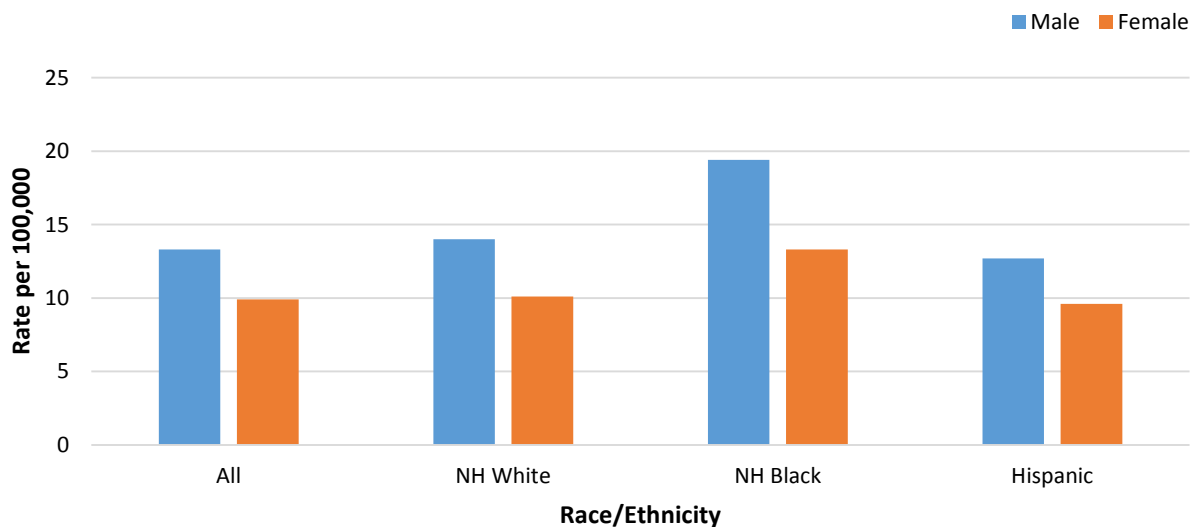


Figure 5.33. Age-adjusted incidence rates of pancreatic cancer in South Texas by gender and race/ethnicity, 2011-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

The incidence rate of pancreatic cancer in South Texas residents increased with age (Figure 5.34). Hispanics had slightly higher pancreatic cancer incidence rates (85.1/100,000 and 95.6/100,000) than non-Hispanic whites among persons ages 80 and older (80.7/100,000 and 89.1/100,000).

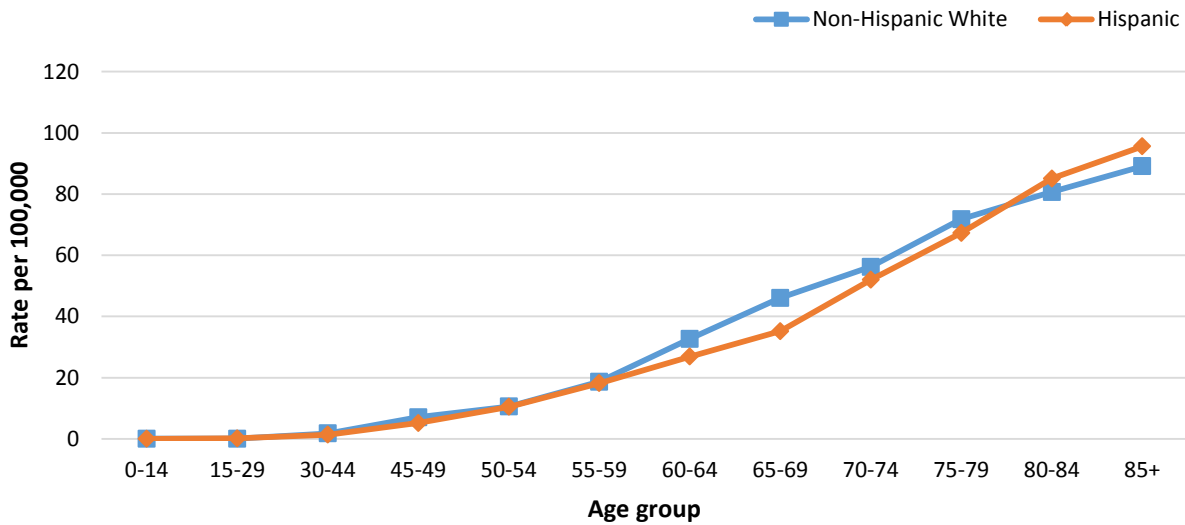


Figure 5.34. Incidence rates of pancreatic cancer in South Texas by age group and race/ethnicity, 2011-2015.

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

In South Texas, the incidence rate of pancreatic cancer was similar in metropolitan (11.4/100,000) and non-metropolitan counties (11.5/100,000).⁴ Incidence rates were higher in Bexar County (12.3/100,000) and Webb County (11.9/100,000) compared to the Lower Rio Grande Valley region (9.7/100,000).⁴

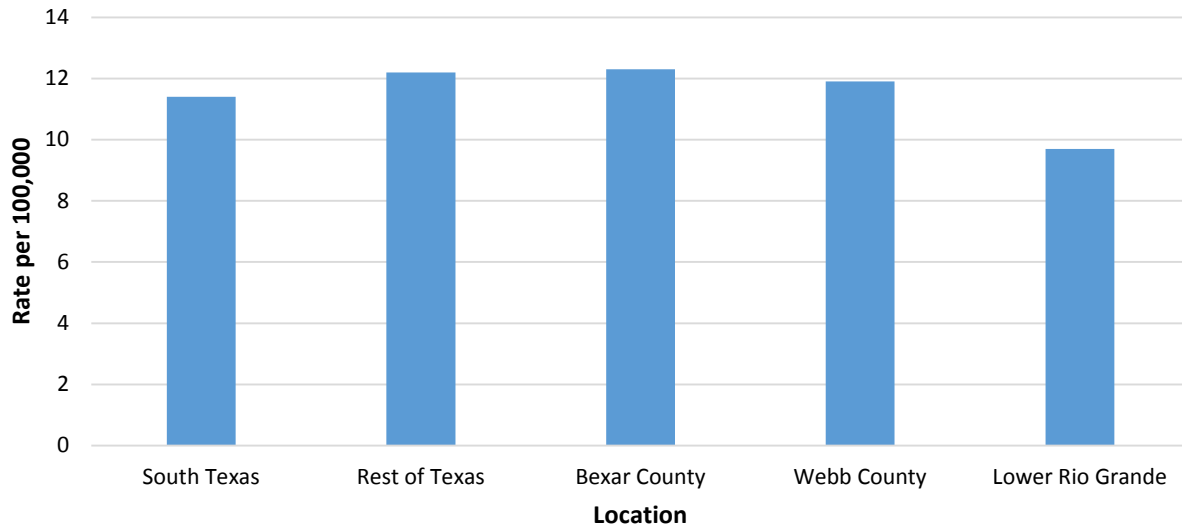


Figure 5.35. Age-adjusted incidence rates of pancreatic cancer in selected South Texas locations, 2011-2015.

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

The pancreatic cancer mortality rate in 2011-2015 in South Texas was 9.8/100,000.⁶ Overall, patterns of pancreatic cancer mortality rates in South Texas were similar to those for pancreatic cancer incidence rates, with the highest rate among NH blacks (Figure 5.36).⁶

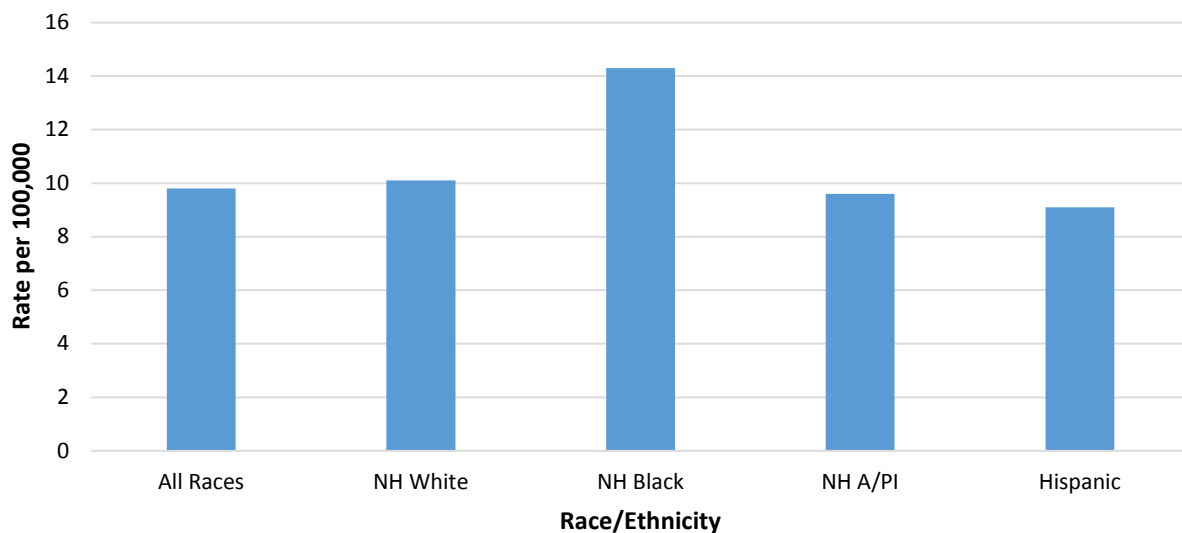


Figure 5.36. Age-adjusted mortality rates of pancreatic cancer in South Texas by race/ethnicity, 2011-2015.

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

NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native

Rates for NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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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.¹ Gallbladder cancer is relatively rare in both the U.S and in Texas. In 2018, it is estimated that 12,190 new cases of gallbladder and other biliary cancer are expected, as well as 3,790 deaths.² In the U.S., the risk of developing gallbladder cancer is highest among Hispanic Americans and Native Americans. Women are more than twice as likely as men to develop gallbladder cancer. Incidence of gallbladder cancer increases with age; more than two out of every three people diagnosed with gallbladder cancer in the U.S. are older than 65 years of age.¹ Other risk factors for gallbladder cancer include having gallstones and inflammation of the gallbladder, typhoid, a family history of gallbladder cancer, and obesity.¹

Gallbladder Cancer in South Texas

As of January 1, 2015, an estimated 463 Texans, and 91 South Texans, who were diagnosed with gallbladder cancer in the last 5 years, are alive today.³ Nationwide, an estimated 5,563 Americans who were diagnosed with gallbladder cancer in the last 5 years are alive today.⁴ Overall, South Texas had a higher incidence rate of gallbladder cancer (1.3 cases of gallbladder cancer per 100,000 population) than the rest of Texas (1.1/100,000) and nationwide (1.2/100,000).³ In South Texas, the incidence rate of gallbladder cancer in Hispanics (1.8/100,000) was 2.6 times higher than the incidence rate in non-Hispanic whites (0.7/100,000) (Figure 5.37).

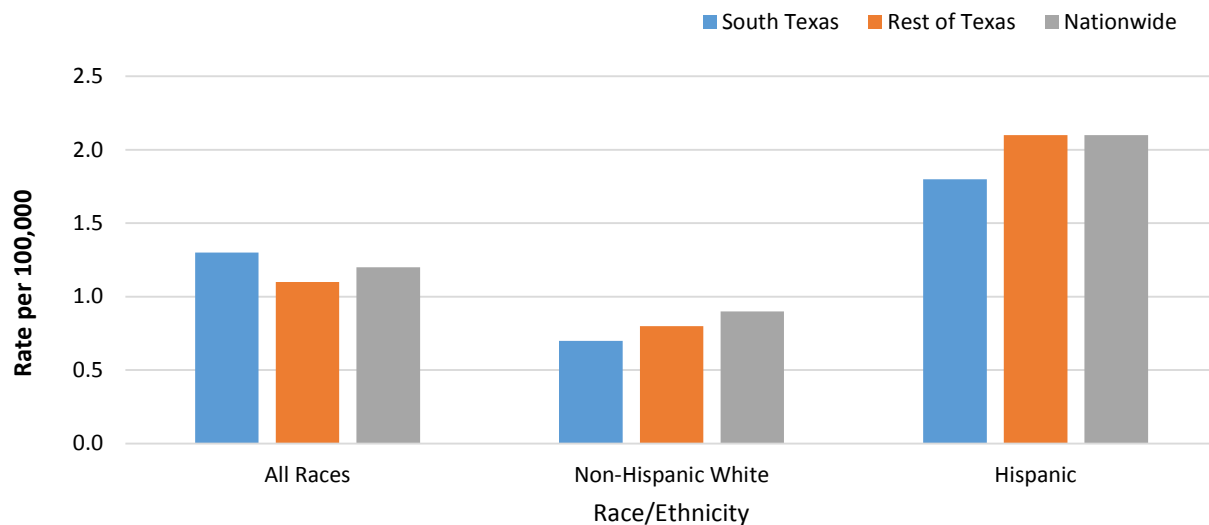


Figure 5.37. Age-adjusted incidence rates of gallbladder cancer by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data; Nationwide incidence: National Cancer Institute, 18-Region SEER data, 2010-2014. Rates for non-Hispanic (NH) Black, NH Asian/Pacific Islander and NH American Indian/Alaska Native are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

The incidence rate of gallbladder cancer in South Texas increased with age. In addition, the difference in gallbladder cancer incidence rates between Hispanics and non-Hispanic whites grew with age (Figure 5.38).

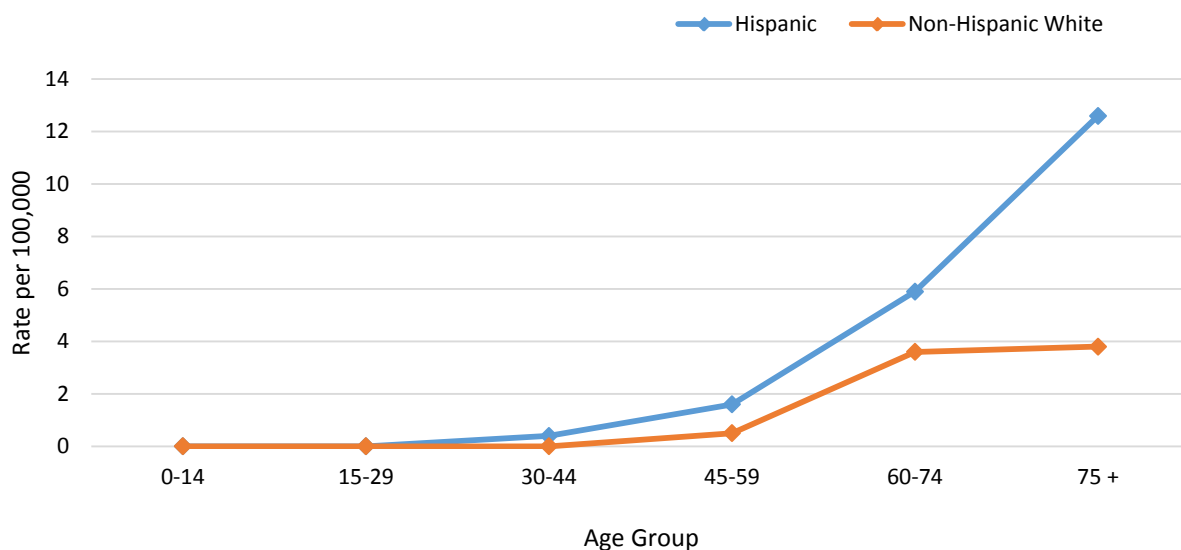


Figure 5.38. Incidence rates of gallbladder cancer in South Texas by age group and race/ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services. Rates for non-Hispanic (NH) Black, NH Asian/Pacific Islander and NH American Indian/Alaska Native are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

In South Texas, the age-adjusted incidence rate of gallbladder cancer was slightly but not statistically significantly higher in non-metropolitan counties (1.5/100,000) than in metropolitan counties (1.3/100,000). The age-adjusted gallbladder cancer incidence rate was almost twice as high in females (1.7/100,000) as in males (0.9/100,000). Hispanic females had more than twice the rate of gallbladder cancer as Hispanic males (Figure 5.39).

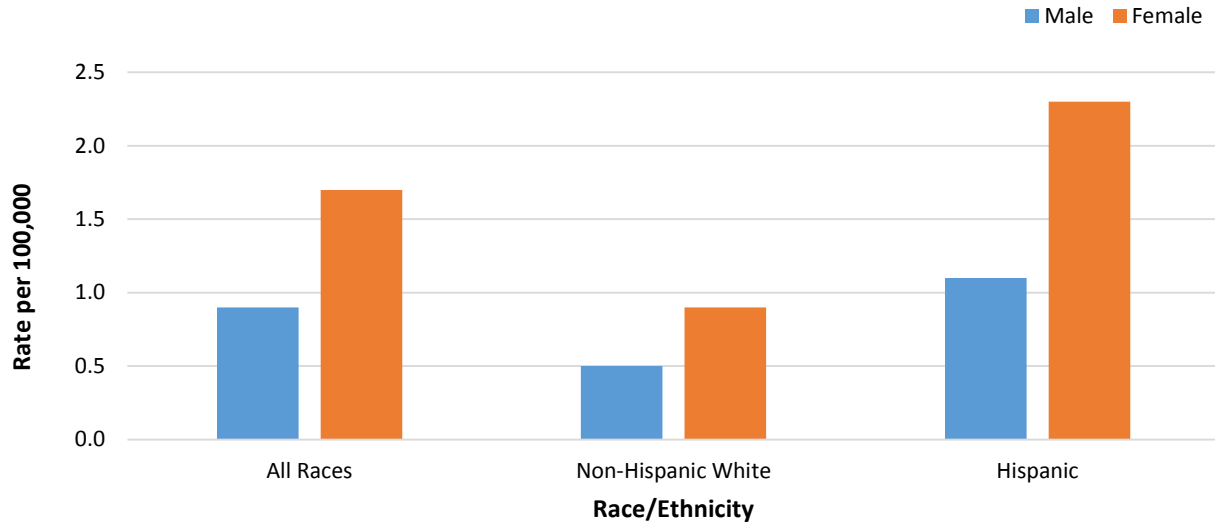


Figure 5.39. Age-adjusted incidence rates of gallbladder cancer in South Texas by sex and race/ethnicity, 2011-2015.

Source: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data

Rates for non-Hispanic (NH) Black, NH Asian/Pacific Islander and NH American Indian/Alaska Native are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

The age-adjusted gallbladder cancer mortality rate in South Texas was 0.7 deaths per 100,000 people.⁵ The gallbladder cancer mortality rate was more than twice as high in Hispanics (0.9/100,000) as Non-Hispanic whites (0.4/100,000).

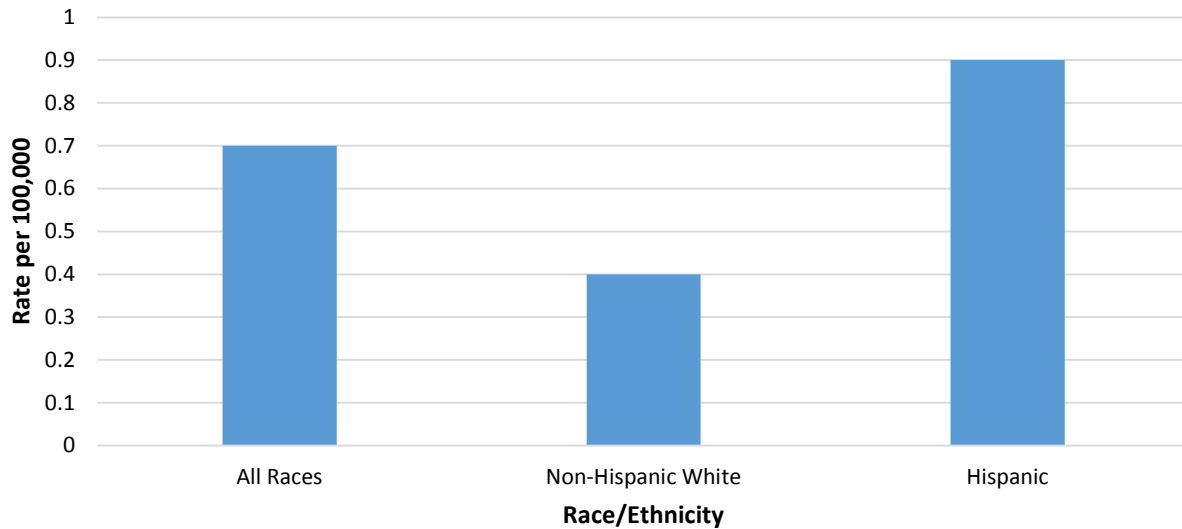


Figure 5.40. Age-adjusted gallbladder cancer mortality rate in South Texas by race and ethnicity, 2011-2015.

Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2011-2015 data

Rates for non-Hispanic (NH) Black, NH Asian/Pacific Islander and NH American Indian/Alaska Native are suppressed for statistical stability because there are fewer than 16 cases in South Texas.

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Childhood and Adolescent Leukemia

Leukemia is a cancer that develops in bone marrow, in 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 (a type of white blood cell), and is called lymphocytic leukemia. Leukemias that start in other types of immature cells found in the blood, such as red blood cells, white blood cells other than lymphocytes, and platelets, are called myelogenous (or myeloid) 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, both in the U.S. and in Texas.¹ Nearly one-third of all childhood cancers are leukemias.² Among children with leukemia, about 75% will be diagnosed with acute lymphocytic leukemia (ALL).^{1,2} 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

Cancer in children and adolescents is relatively rare. Over ten years (2006-2015), there were 3,451 cases of leukemia, myeloproliferative disease, and myelodysplastic disease in Texas children aged 0-14 and an additional 724 cases in adolescents aged 15-19.³ It is estimated that in 2018, approximately 365 Texas children and 87 adolescents will be diagnosed with Leukemia, myeloproliferative disease, or myelodysplastic disease.⁴ Hispanic children and adolescents are at higher risk of developing leukemia, myeloproliferative disease, or myelodysplastic disease compared to non-Hispanic white children and adolescents, while African-American children and adolescents have the lowest risk.³ In general, rates of leukemia, myeloproliferative disease, and myelodysplastic disease are slightly higher in boys than girls.¹ Little is known about the risk factors for childhood and adolescent leukemia. The few known risk factors include radiation exposure and certain genetic conditions, such as Down's syndrome and Li-Fraumeni syndrome.¹

Childhood and Adolescent Leukemia in South Texas

As of January 1, 2015, an estimated 1,693 Texans, and 358 South Texans, who were diagnosed with childhood/adolescent leukemia in the last 5 years, are alive today.³ Nationwide, it is estimated that 16,050 Americans who were diagnosed with childhood/adolescent leukemia in the last 5 years are alive today.⁵ Overall, the incidence rate of childhood and adolescent leukemia in South Texas from 2006-2015 (62.1 cases of leukemia per million children or adolescents) was higher than the rate observed either in the rest of Texas (52.3/million) or nationwide (47.1/million). However, Hispanics and non-Hispanic whites in South Texas had fairly similar incidence rates of childhood and adolescent leukemia compared to their counterparts in the rest of Texas and nationwide (Figure 5.41). As also observed in the rest of Texas and nationwide, the incidence rate of childhood and adolescent leukemia in South Texas was higher for Hispanics (65.3/million) than for non-Hispanic whites (52.0/million).

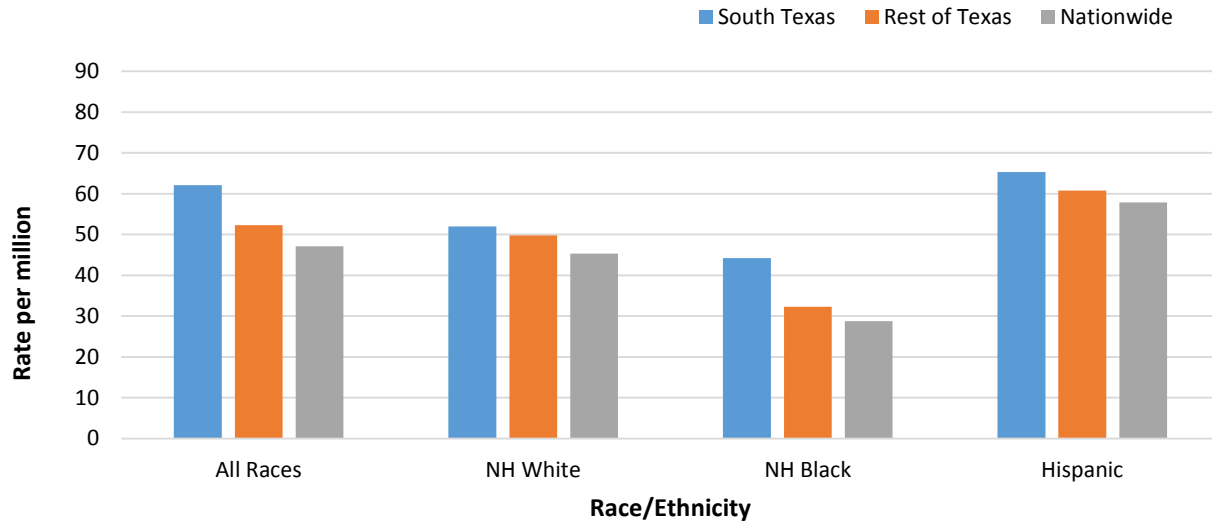


Figure 5.41. Age-adjusted incidence rates of child and adolescent leukemia by location.

Sources: Texas incidence: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 2006-2015 data; Nationwide incidence: National Cancer Institute, 18-region SEER data, 2006-2014
 NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native
 Rates for NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

In South Texas, the incidence rate of childhood leukemia (66.2/million) was about one and one third times higher than the incidence rate of adolescent leukemia (50.1/million) during 2006-2015. As is true both statewide and nationally, the incidence rates of leukemia in South Texas decreased with age. Incidence was highest among children 0-4 years old (Figure 5.42).^{3,6} As observed nationwide, incidence rates of childhood and adolescent leukemia in South Texas was higher for males (69.2/million) than for females (54.7/million).

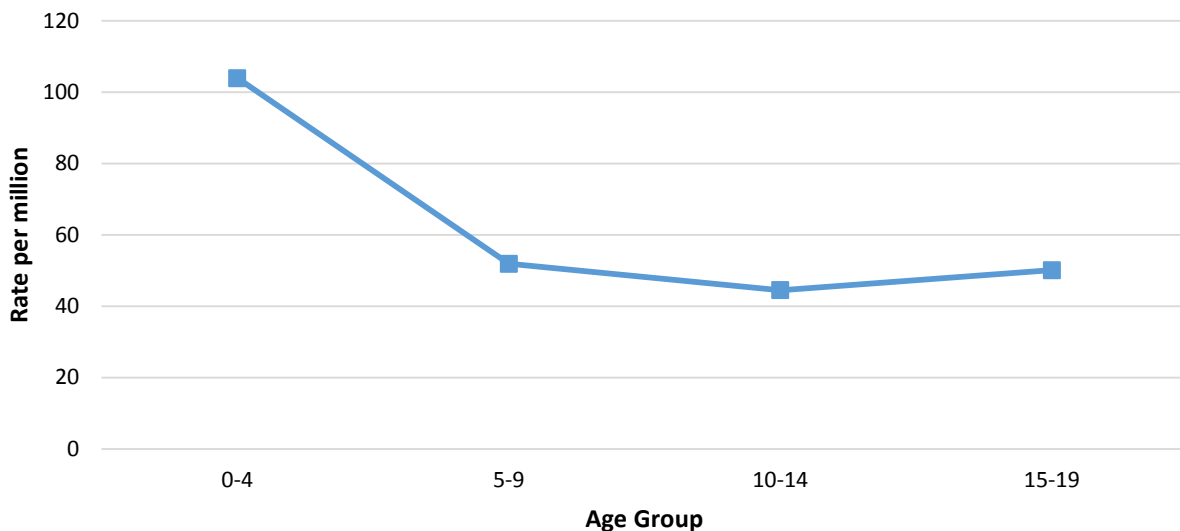


Figure 5.42. Incidence rates of child and adolescent leukemia in South Texas by age group, 2006-2015.

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

The overall child and adolescent leukemia mortality rate in South Texas was 9.4/million. In South Texas, the trend in age-specific child and adolescent leukemia mortality was quite different than the trend in incidence; the highest mortality rate was seen among the adolescent (15-19 years) age group (Figure 5.43).⁷ This is also true statewide and nationally; leukemia subtypes differ with age at diagnosis, resulting in less favorable survival rates for infants less than one year, followed by adolescents ages 15-19.⁶

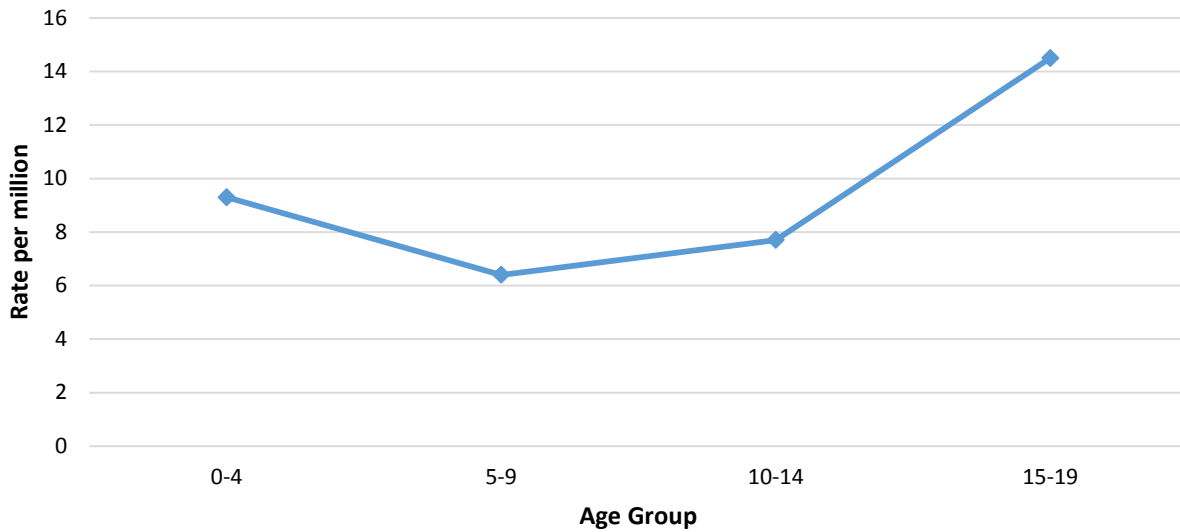


Figure 5.43. Child and adolescent leukemia mortality rates in South Texas by age group, 2006-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

Similar to incidence rates, the mortality rate of Hispanics with childhood/adolescent leukemia in South Texas was higher than that for non-Hispanic whites (Figure 5.44).

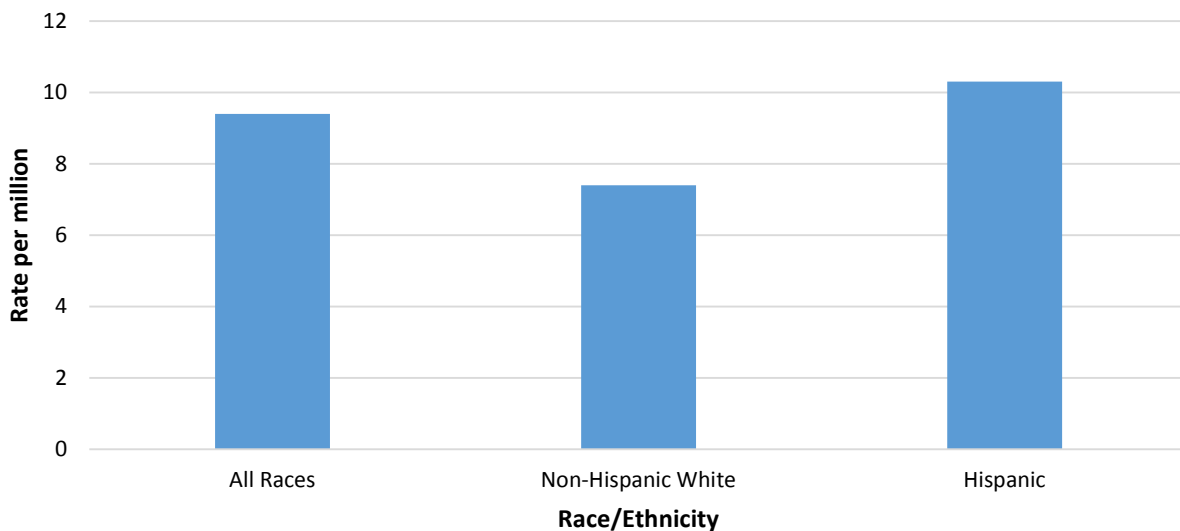


Figure 5.44. Child and adolescent leukemia mortality rates in South Texas by race and ethnicity, 2006-2015. Source: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services

Rates for non-Hispanic (NH) Black, NH A/PI and NH AI/AN are suppressed for statistical stability because there are fewer than 16 cases.

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