Colorectal Cancer in Texas, 2015–2019

Prepared by the Texas Cancer Registry
Texas Department of State Health Services

October 2022

Suggested Citation: Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch. Colorectal Cancer in Texas, 2015–2019. Austin, TX. Texas Department of State Health Services, 2022.

TEXAS Health and Human Services | Texas Department of State Health Services

Acknowledgements

The Texas Cancer Registry (TCR) recognizes the following whose financial support is essential to accomplishing the Registry's mission for our State.

Federal Grant Funding

We acknowledge support from the following federal agencies.

- The Centers for Disease Control and Prevention provides financial support under Cooperative Agreement #1NU58DP007140. The contents of the TCR website are solely the responsibility of the authors and do not necessarily represent the official views of the CDC or U.S. Department of Health and Human Services.
- The National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program provides financial support under Contract #75N91021D00011.

State Agency Funding

- Texas Department of State Health Services
- Texas Health and Human Services Commission
- Cancer Prevention and Research Institute of Texas

The TCR also wants to thank all cancer reporters for their hard work and collaboration. Cancer reporters help us meet national high quality and timeliness standards and enable us to serve as the primary source of cancer data in Texas.

Table of Contents

Background

- Colorectal cancer screening is the only age-based cancer screening currently recommended for all adults by the U.S. Preventive Services Task Force.[1]
- According to the Centers for Disease Control and Prevention, routine colorectal cancer screening is the most effective way to reduce the risk of colorectal cancer. Screenings can help prevent colorectal cancer by identifying and removing precancerous polyps before they turn into cancer. Screening can also find colorectal cancer early, when it is easier to treat.[2]
- This statistical report describes colorectal cancer screening prevalence and the burden of colorectal cancer in Texas.

Implications for Public Health Practice

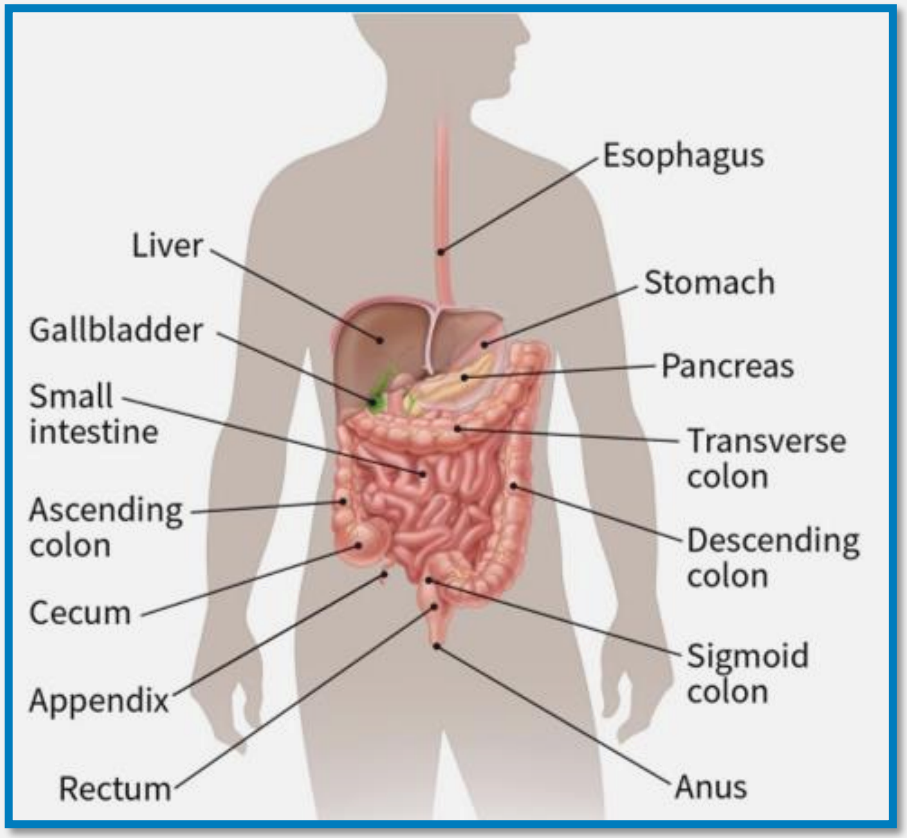
- The burden of colorectal cancer can be reduced through efforts to screen a large percentage of the population at risk and by encouraging healthy lifestyles that reduce modifiable risk factors.
- Identifying health disparities in colorectal cancer incidence, mortality, and survival can help determine and implement strategies to reduce the cancer burden.

[1] Colorectal Cancer: Screening. United States Preventive Services Task Force. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening

[2] What Can I Do to Reduce My Risk for Colorectal Cancer? Centers for Disease Control and Prevention. https://www.cdc.gov/cancer/colorectal/basic_info/prevention.htm

Colorectal Cancer Overview

- Colorectal cancer (CRC) is cancer that starts in the colon or rectum.
- The colon and rectum make up the large intestine.
- Most CRCs begin as adenomatous polyps (precancerous growths called adenomas) that grow slowly over 10-20 years.
- Although all adenomas have the potential to become cancerous, fewer than 10% become an invasive cancer.
- 96% of all CRCs are adenocarcinomas which arise from the inner lining of the colon or rectum.[1]
- The most common colorectal tumor location is the proximal colon (42% of cases), which includes the cecum, ascending colon, hepatic flexure, transverse colon, and splenic flexure. The second most common location is in the distal colon (26%), which includes the descending and sigmoid colon.[1]



1 Stewart, S.L., Wike, J.M., Kato, I., Lewis, D.R. and Michaud, F. (2006), A population-based study of colorectal cancer histology in the United States, 1998–2001. Cancer, 107: 1128-1141. https://doi.org/10.1002/cncr.22010

Image: What is Colorectal Cancer? American Cancer Society. https://www.cancer.org/cancer/colon-rectal-cancer/about/what-is-colorectal-cancer.html

Colorectal Cancer Symptoms

Symptoms of colorectal cancer include:

- Bleeding from the rectum
- Blood in the stool
- Dark or black stools
- A change in bowel habits or shape of the stool (e.g., more narrow than usual)
- Constipation or diarrhea that lasts for more than a few days
- An urge to have a bowel movement when the bowel is empty
- Cramping or discomfort in the lower abdomen
- Decreased appetite
- Unintended weight loss

[1] American Cancer Society. Colorectal Cancer Signs and Symptoms. cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/signs-and-symptoms.html
[2] Centers for Disease Control and Prevention. What Are the Symptoms of Colorectal Cancer? https://www.cdc.gov/cancer/colorectal/basic_info/symptoms.htm

Colorectal Cancer Modifiable Risk Factors

Modifiable risk factors contribute to around 55% of cases and include:[1]

- Overweight/obesity, especially in men
- Physical inactivity
- Diets high in red or processed meats
- Diets low in fiber, fruit, and vegetables
- Smoking
- Heavy alcohol use

[1] Islami et al. (2017). Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States. *CA Cancer J. Clin*. 68(1):31-54. https://doi.org/10.3322/caac.21440

Colorectal Cancer Non-Modifiable Risk Factors

Risk factors for colorectal cancer that you cannot change include: [1]

- Age
- Family history of colorectal polyps or colorectal cancer (One of three people who develop colorectal cancer have other family members with colorectal cancer; however, only a small percentage of these have a hereditary syndrome.)
- Personal history of inflammatory bowel disease (This is different from irritable bowel syndrome, which does not increase risk.)
- Racial/ethnic background (African Americans and Ashkenazi Jews are at higher risk.)
- Type 2 diabetes
- Certain inherited conditions, including Lynch syndrome which causes about 4% of all colorectal cancers

[1] American Cancer Society. Colorectal Cancer Risk Factors. cancer.org/cancer/colon-rectal-cancer/causes-risks-prevention/risk-factors.html

Colorectal Cancer Screening

- Screening is a check for cancer or abnormal cells that may become cancer in people who have no symptoms.
- Regular colorectal cancer screening can find polyps that can be removed before turning into cancer.
- Screening also helps find cancer at an early stage, when it is more easily treated.
- If colorectal cancer is found early, the survival rate is very high. 91% of patients diagnosed at an early stage survive at least five years after diagnosis; only 14% diagnosed at a late stage survive five years.[1]
- Since May 2021, the U.S. Preventive Services Task Force recommends colorectal cancer screening for all adults ages 45-75 years.[2] Individuals with an increased risk might follow different screening guidelines, including starting screening earlier or using specific screening methods.

[1] American Cancer Society Guidelines for Colorectal Cancer Screening. American Cancer Society. cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/acs-recommendations.html

[2] United States Preventive Services Task Force. Colorectal Cancer: Screening. uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening

Colorectal Cancer Screening Methods

The U.S. Preventive Services Task Force recommends the following colorectal cancer screening methods for all adults between the ages of 45 and 75.[1,2]

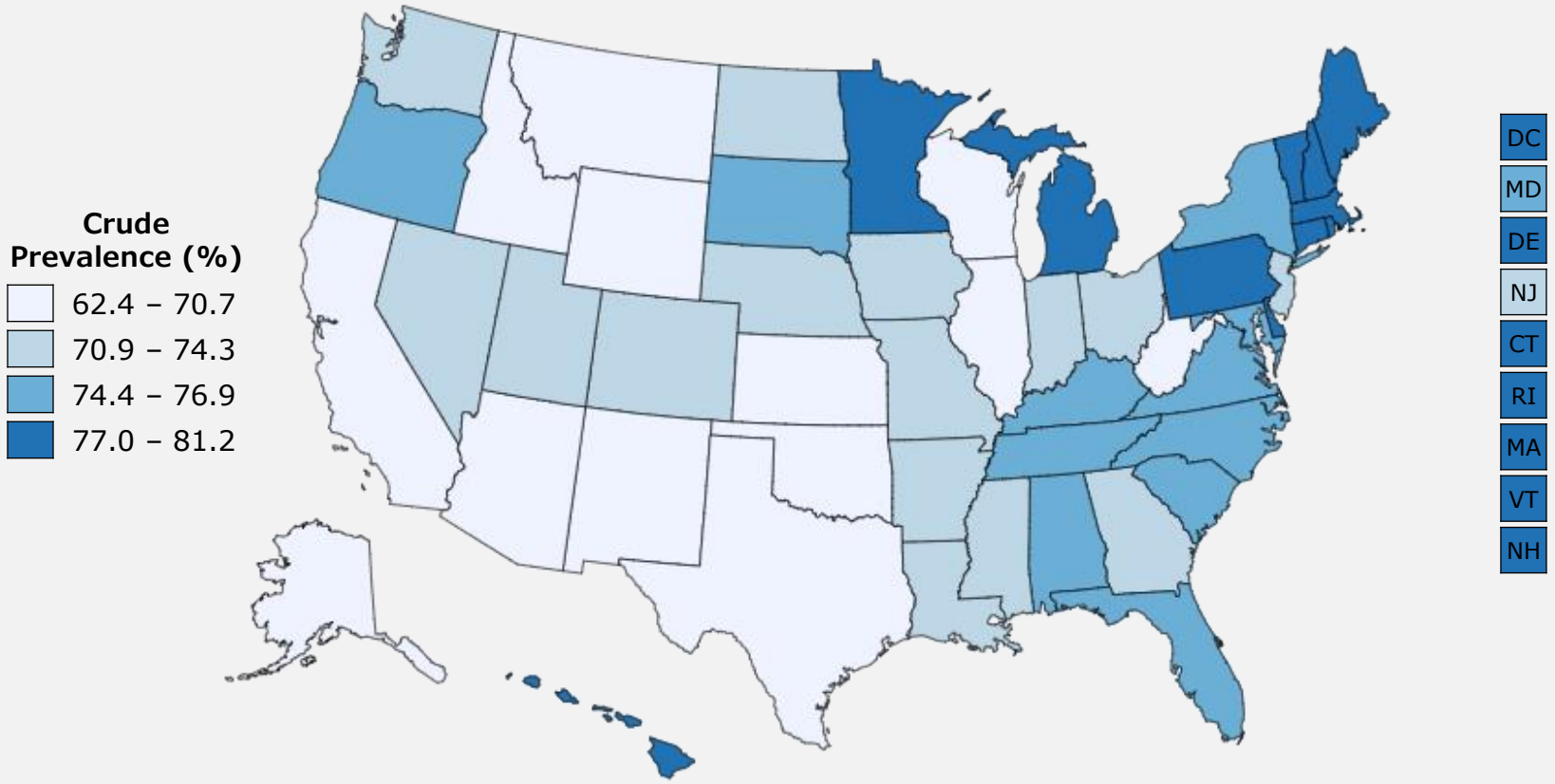
Screening Method	Description	Frequency
Stool tests	Stool sample taken at home. Test looks for blood or altered DNA in the stool. Three different tests available–gFOBT, FIT and FIT-DNA.	• Every year for gFOBT and FIT • Every 3 years for FIT-DNA
Flexible sigmoidoscopy	Conducted in the doctor's office. Allows the doctor to view the lower third of the colon.	Every five years
Colonoscopy	Conducted in the doctor's office. Allows the doctor to view the entire colon and remove most polyps and some cancers. Can also be used as a follow-up if anything unusual is found using one of the other tests.	Every 10 years
Virtual colonoscopy	Conducted in the doctor's office. Uses x-rays to let doctor view images of the colon on a computer screen.	Every five years

[1] Colorectal Cancer: Screening. United States Preventive Services Task Force. https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2#tab

[2] Colorectal Cancer. Centers for Disease Control and Prevention. https://www.cdc.gov/cancer/colorectal/basic_info/screening/

Colorectal Cancer Screening Prevalence

According to the Behavioral Risk Factor Surveillance System (BRFSS) 2020 data, 66.8% of Texas adults aged 50-75 reported being up-to-date[1] with colorectal cancer screening. This was less than the U.S. overall, which was 72.4%.

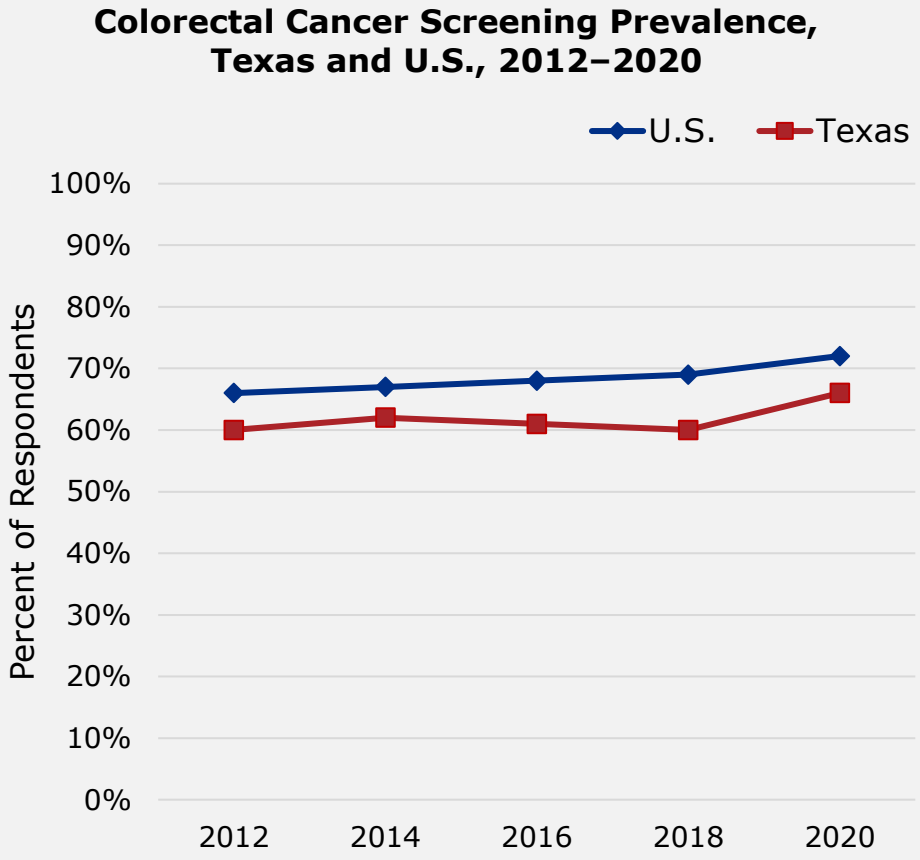


Source: U.S. Cancer Statistics Data Visualizations Tool. Centers for Disease Control and Prevention (CDC). www.cdc.gov/cancer/dataviz

Measure: Adults aged 50-75 years were considered up-to-date on screening based on the most recent guidelines: 1) a fecal occult blood test (FOBT) within the past year, 2) a sigmoidoscopy within the past 5 years and a FOBT within the past 3 years, or 3) a colonoscopy within the past 10 years.

Colorectal Cancer Screening Prevalence

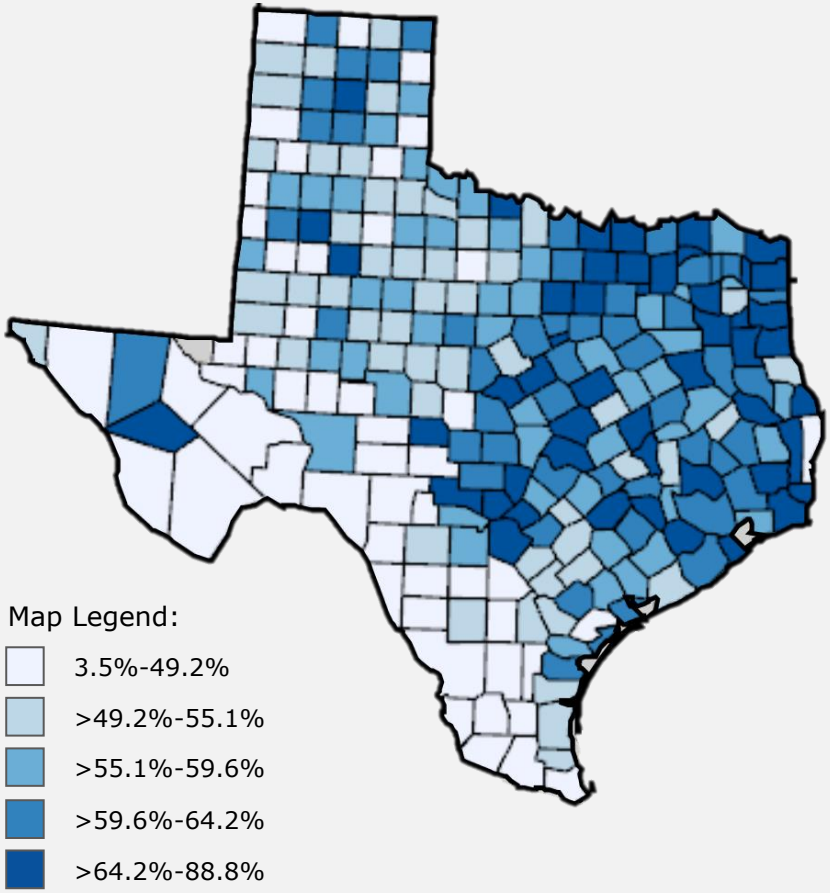
- In 2014, the National Colorectal Cancer Roundtable (NCCR) launched a goal to increase the colorectal cancer screening rate to 80% in every U.S. community.
- Screening rates in the U.S. and Texas made progress toward, but did not reach the NCCR goal by 2020.[1]
- Colorectal cancer screening test use in the U.S. and Texas has increased since 2012.



[1] Colorectal Cancer Screening Test Use, National Comprehensive Cancer Control Program (NCCCP), https://www.cdc.gov/cancer/ncccp/screening-test-use/index.htm. Measure: Proportion of people who reported completing a colorectal cancer screening test among all people who could be screened based on age (50 to 75 years), according to 2008 United States Preventive Services Task Force (USPSTF) recommendations.

Colorectal Cancer Screening Prevalence by Texas County

- Seven of the 30 U.S. counties with the lowest estimated percentages for being current with any type of colorectal cancer screening test among adults 50 years and older were in Texas from 2008-2010.[1]
  - Five of the counties—Presidio, Brooks, Zavala, Edwards and Starr—are in South Texas.
  - The other counties are Throckmorton and Collingsworth.

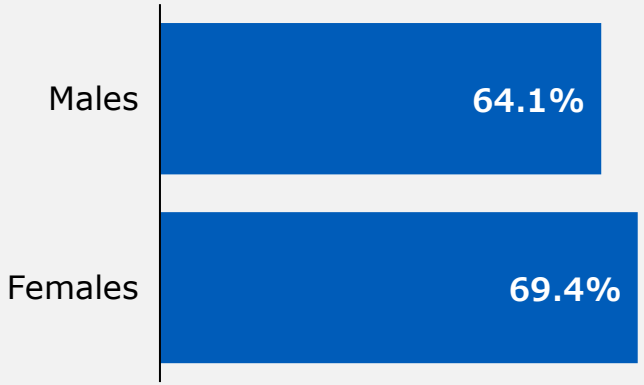


[1] CRC Test Ever - Maps and Data of Model-Based Small Area Estimates National Cancer Institute, DCCPS, Statistical Research & Applications Branch, https://sae.cancer.gov/nhis-brfss/estimates/crc.html.

Source: Small Area Estimates for Cancer-Related Measures. National Cancer Institute, DCCPS, Statistical Research & Applications Branch, released October 2016 (sae.cancer.gov). Generated by https://sae.cancer.gov/nhis-brfss/estimates.

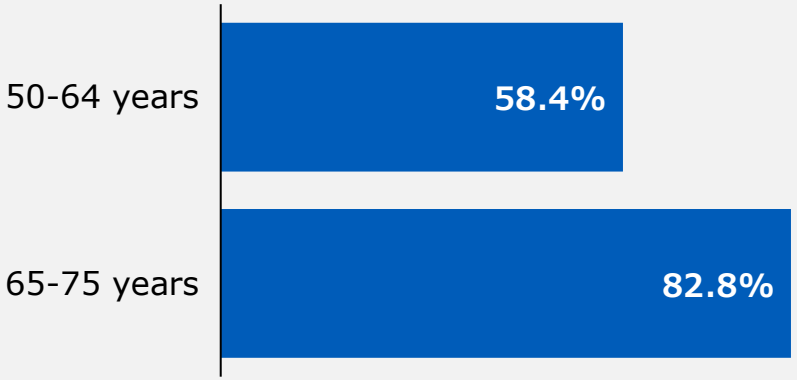
Colorectal Cancer Screening in Texas by Sex and Age

Colorectal Cancer Screening Prevalence by Sex, Texas, 2020[1]



Colorectal cancer screening prevalence was higher among females 50-75 years old compared to males in the same age group.

Colorectal Cancer Screening Prevalence by Age, Texas, 2020[1]



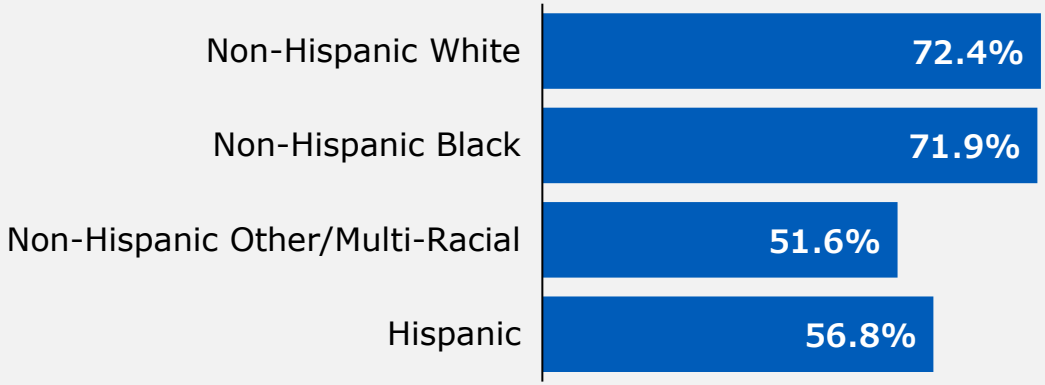
Colorectal cancer screening prevalence was lower among 50-64 year old adults.

[1] Texas Behavioral Risk Factor Surveillance System (BRFSS), Center for Health Statistics. https://healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system

Measure: Percentage of adults 50 to 75 years old who meet the U.S. Preventive Services Task Force colorectal cancer screening recommendations.

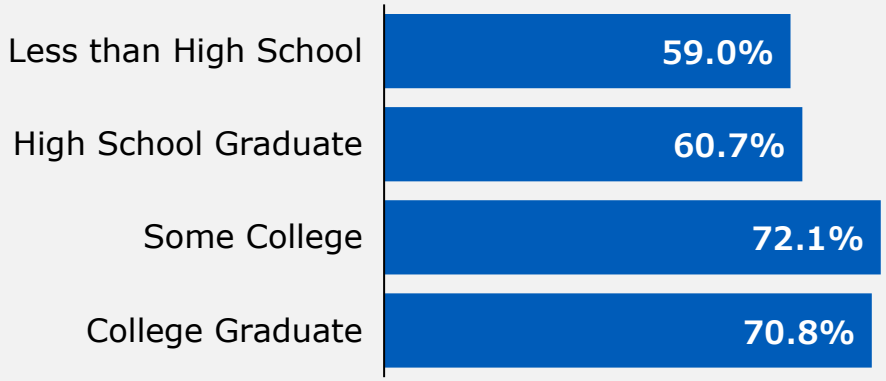
Colorectal Cancer Screening Prevalence by Race/Ethnicity and Education Level

Colorectal Cancer Screening Prevalence by Race/Ethnicity, Texas, 2020[1]



Non-Hispanic Whites had the highest colorectal cancer screening prevalence for adults aged 50-75 years.

Colorectal Cancer Screening Prevalence by Education Level, Texas, 2020[1]



Colorectal cancer screening prevalence was lowest among those with less than high school education and highest among those with some college education.

[1] Texas Behavioral Risk Factor Surveillance System (BRFSS), Center for Health Statistics. https://healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system

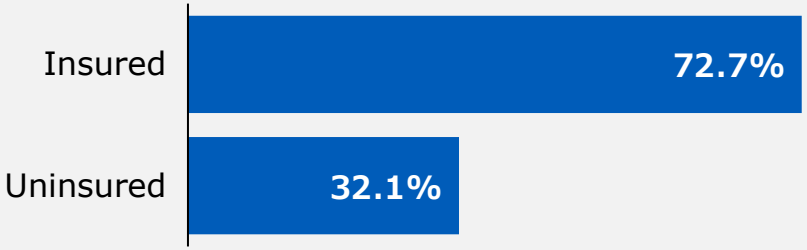
Measure: Percentage of adults 50 to 75 years old who meet the U.S. Preventive Services Task Force colorectal cancer screening recommendations.

Colorectal Cancer Screening Prevalence by Income Level and Insurance Status

Colorectal Cancer Screening Prevalence by Income Level, Texas, 2020[1]

Colorectal cancer screening prevalence was highest among those with incomes of $50,000 or more.

Colorectal Cancer Screening Prevalence by Insurance Status, Texas, 2020[1]



Prevalence of colorectal cancer screening was higher among those who are insured.

[1] Texas Behavioral Risk Factor Surveillance System (BRFSS), Center for Health Statistics. https://healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system

Measure: Percentage of adults 50 to 75 years old who meet the U.S. Preventive Services Task Force colorectal cancer screening recommendations.

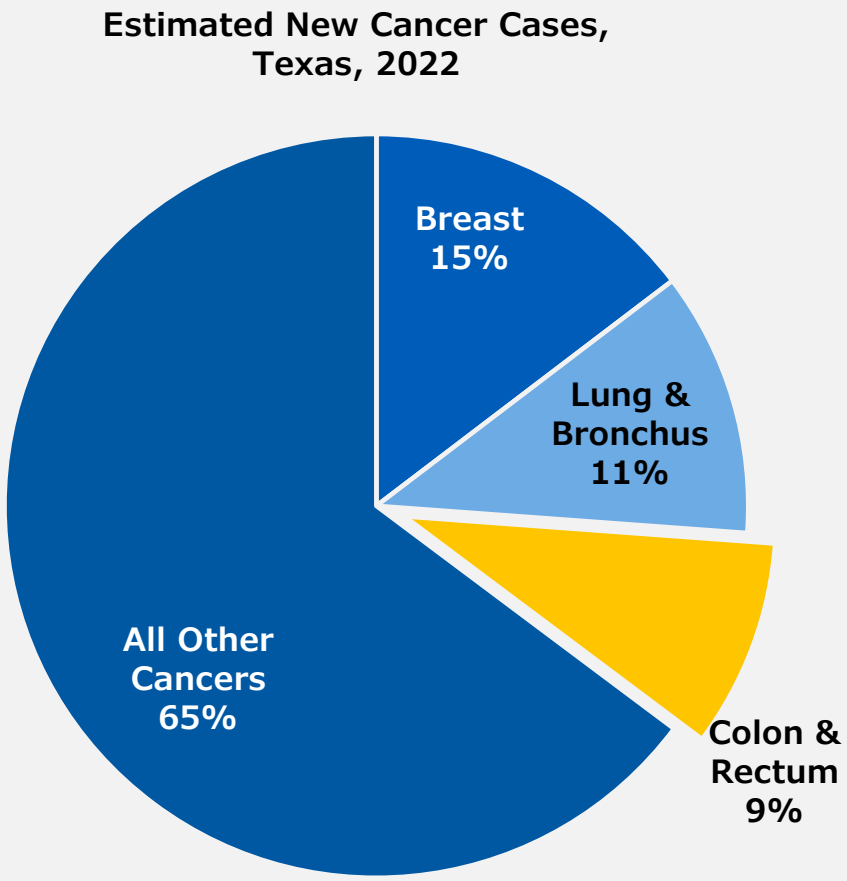
Colorectal Cancer Incidence

Rates and trends by age, race/ethnicity, and stage at diagnosis

Overview of Colorectal Cancer Incidence in Texas

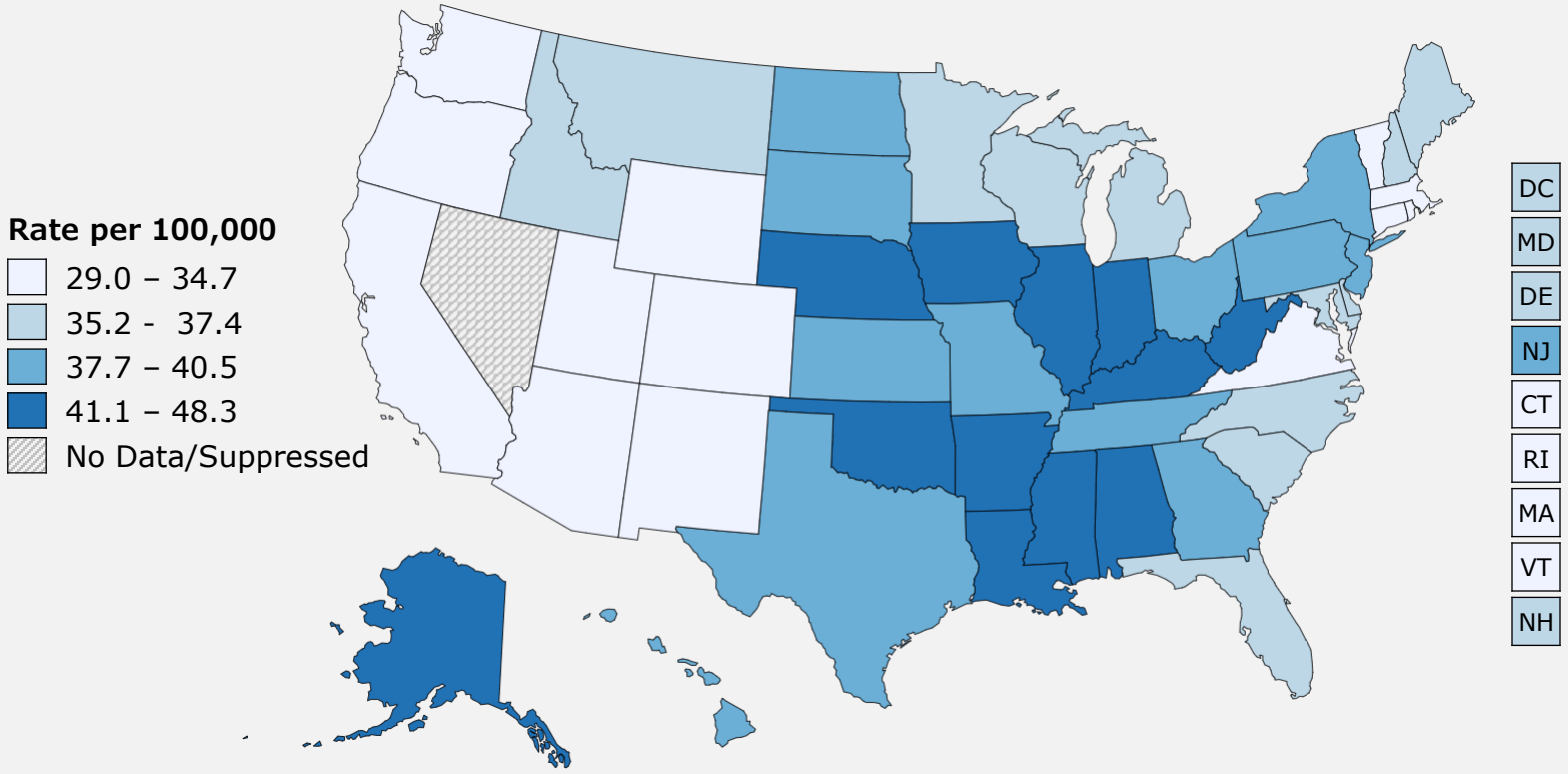
Incidence (New Cases)

- In 2019, colorectal cancer was the 3rd leading cancer diagnosis in both males and females, representing 9.0% of all new malignant cancers diagnosed in Texas.
- In 2022, an estimated 12,444 new cases of colorectal cancer will be diagnosed in Texas.
- During 2015–2019, the colorectal cancer incidence rate was 37.9 per 100,000 people.
- In 2019, Texas ranked 23rd out of all U.S. states and DC for highest colorectal cancer incidence.



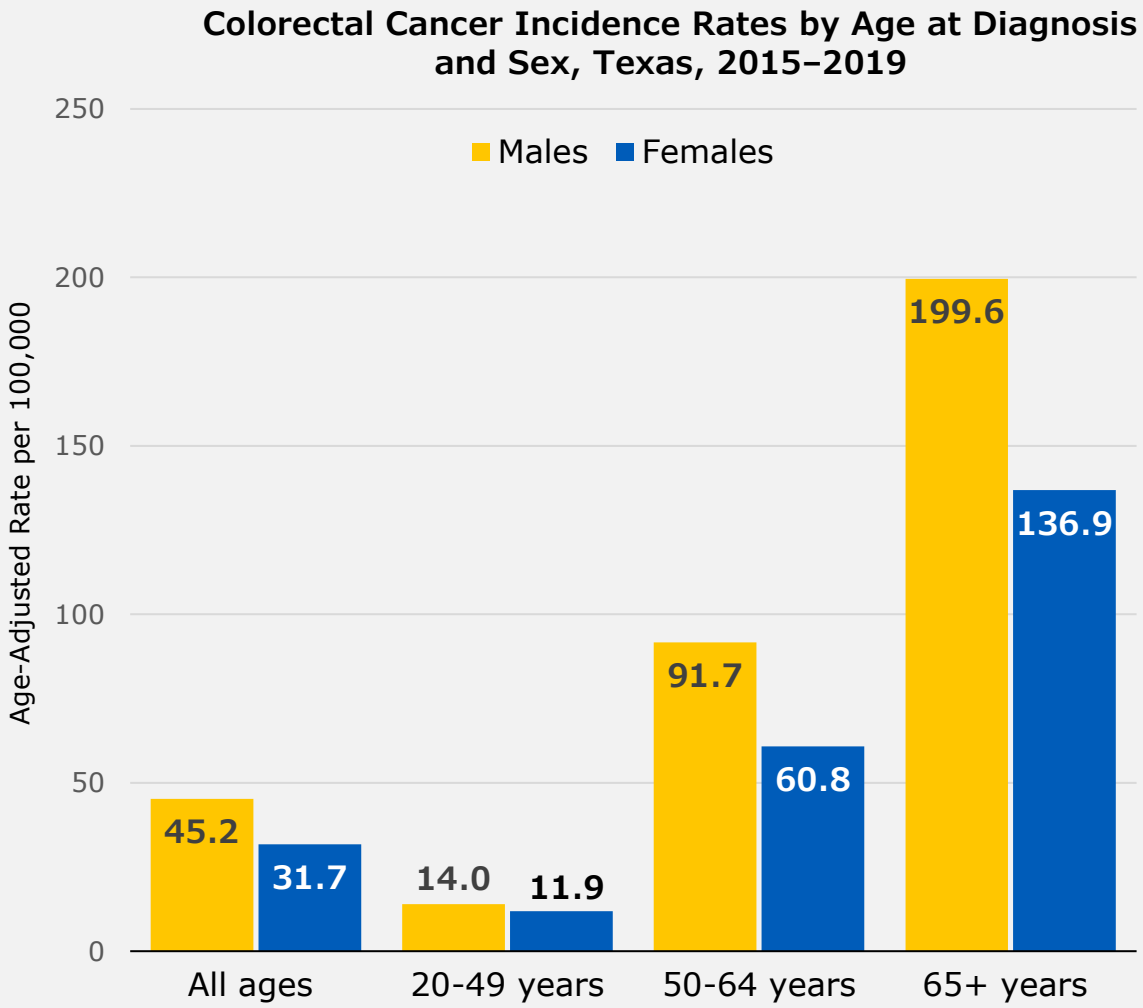
U.S. Colorectal Cancer Incidence Rates

During 2015–2019, Texas has the 23rd highest rate out of all U.S. states and D.C. in colorectal cancer incidence.[1] The colorectal cancer incidence rate in Texas (38.0 cases per 100,000) was higher than the U.S. rate of 37.7 cases per 100,000.



[1] The ranking excludes one state for which data were suppressed or not available.
Source: United States Cancer Statistics: Data Visualizations. Centers for Disease Control and Prevention (CDC). gis.cdc.gov/Cancer/USCS/DataViz.html
Rates calculated by the Texas Cancer Registry may differ slightly from those calculated by the CDC due to rounding differences.

Colorectal Cancer Incidence Rates by Age at Diagnosis and Sex

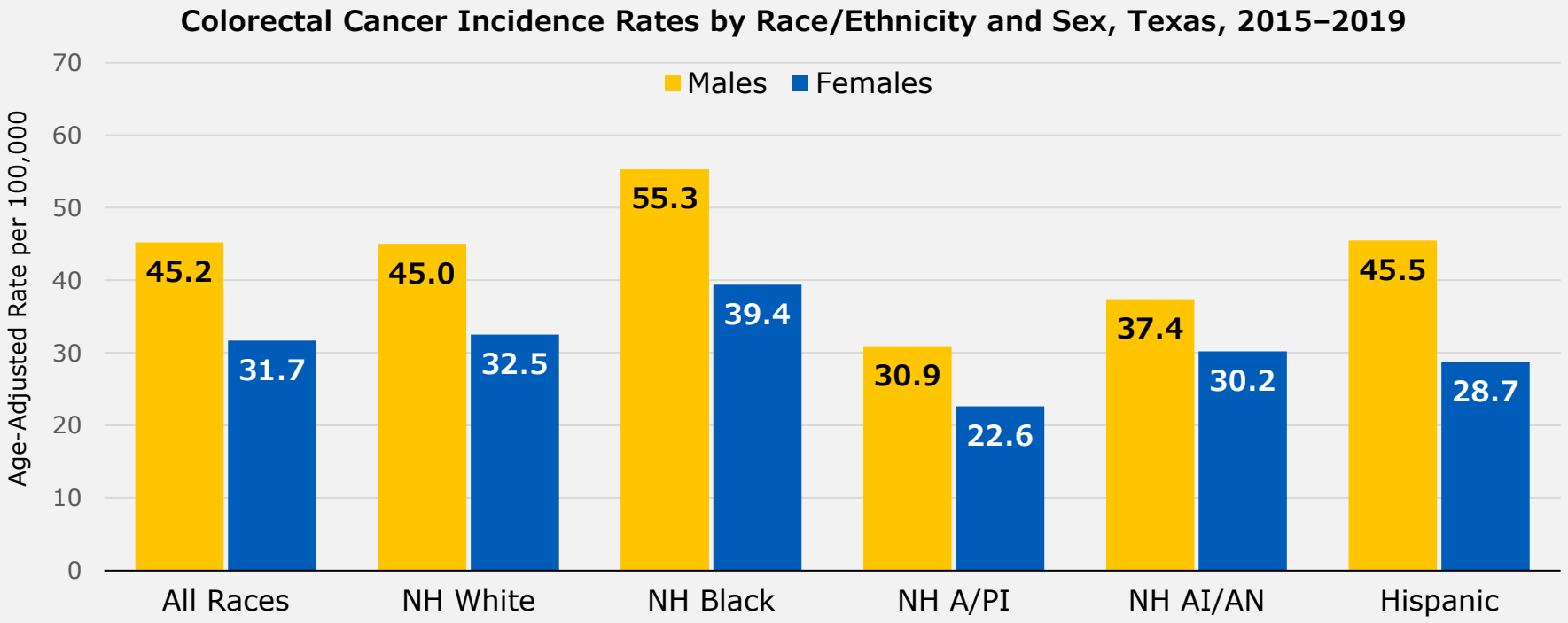


- Incidence rates were significantly higher in males than females across all age groups. The percentage difference between males and females changed with age.
- Higher rates in males than females is thought to reflect risk factors, sex hormones, and differences in screening behavior.[1]

[1] Siegel et al. (2017). Colorectal cancer statistics, 2017. *CA Cancer J. Clin*. 67(3):177-193. https://acsjournals.onlinelibrary.wiley.com/doi/10.3322/caac.21395

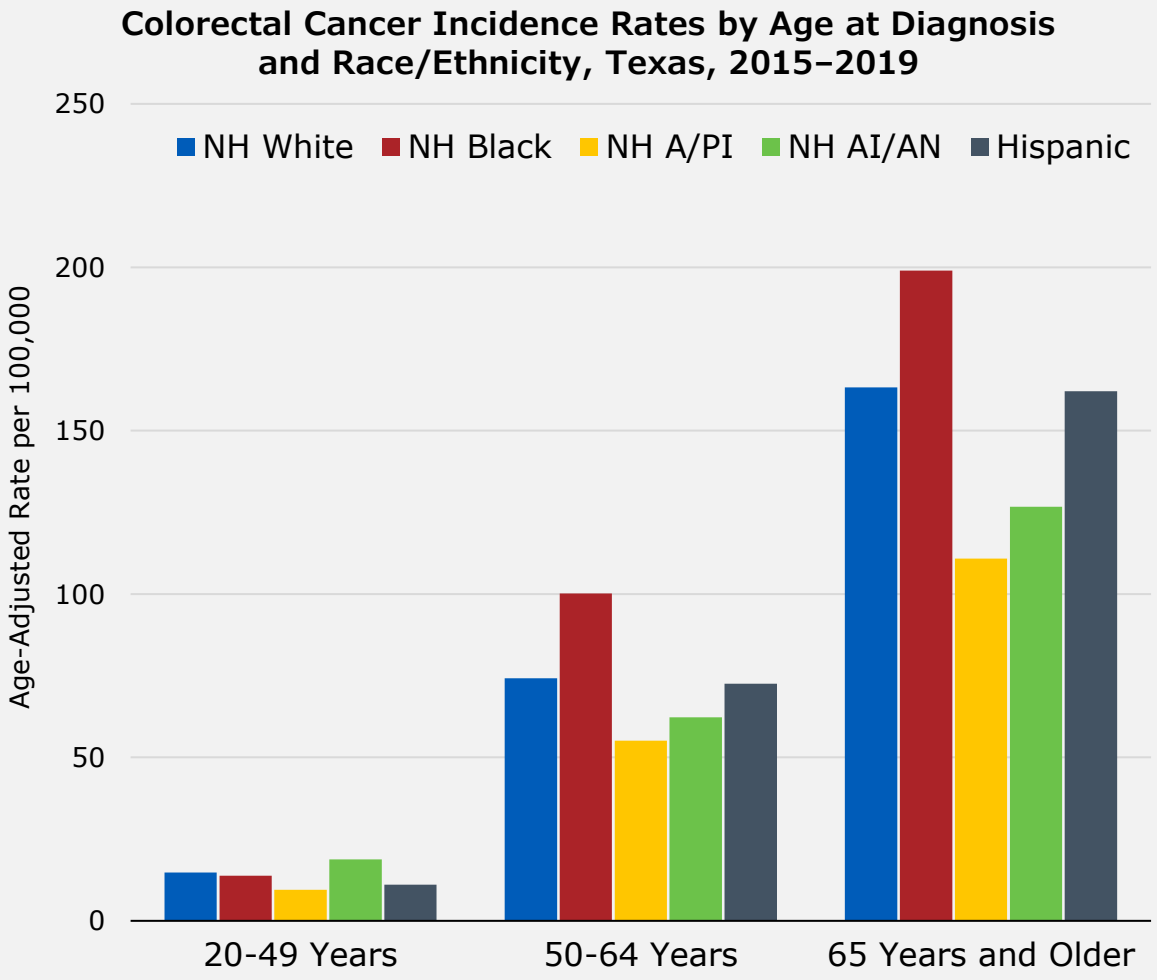
Colorectal Cancer Incidence Rates by Race/Ethnicity and Sex

- Among men, the incidence rate of colorectal cancer was highest in non-Hispanic (NH) Black men at 55.3 cases per 100,000, and lowest among NH Asian/Pacific Islander men at 30.9 cases per 100,000 during 2015–2019.
- Among women, colorectal cancer incidence rates were highest in NH Blacks at 39.4 cases per 100,000, and lowest among NH Asian/Pacific Islanders at 22.6 cases per 100,000.



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

Colorectal Cancer Incidence Rates by Age at Diagnosis and Race/Ethnicity



20–49 Years

- During 2015–2019, incidence rates were highest in non-Hispanic (NH) American Indian/Alaska Natives (18.8 per 100,000), NH Whites (14.8) and NH Blacks (13.8).
- Rates were lowest in NH A/PI (9.5).

50–64 Years

- Incidence rates were highest in NH Blacks (100.2), NH Whites (74.2) and Hispanics (72.6).
- Rates were lowest in NH Asian/Pacific Islanders (55.1).

65 Years and Older

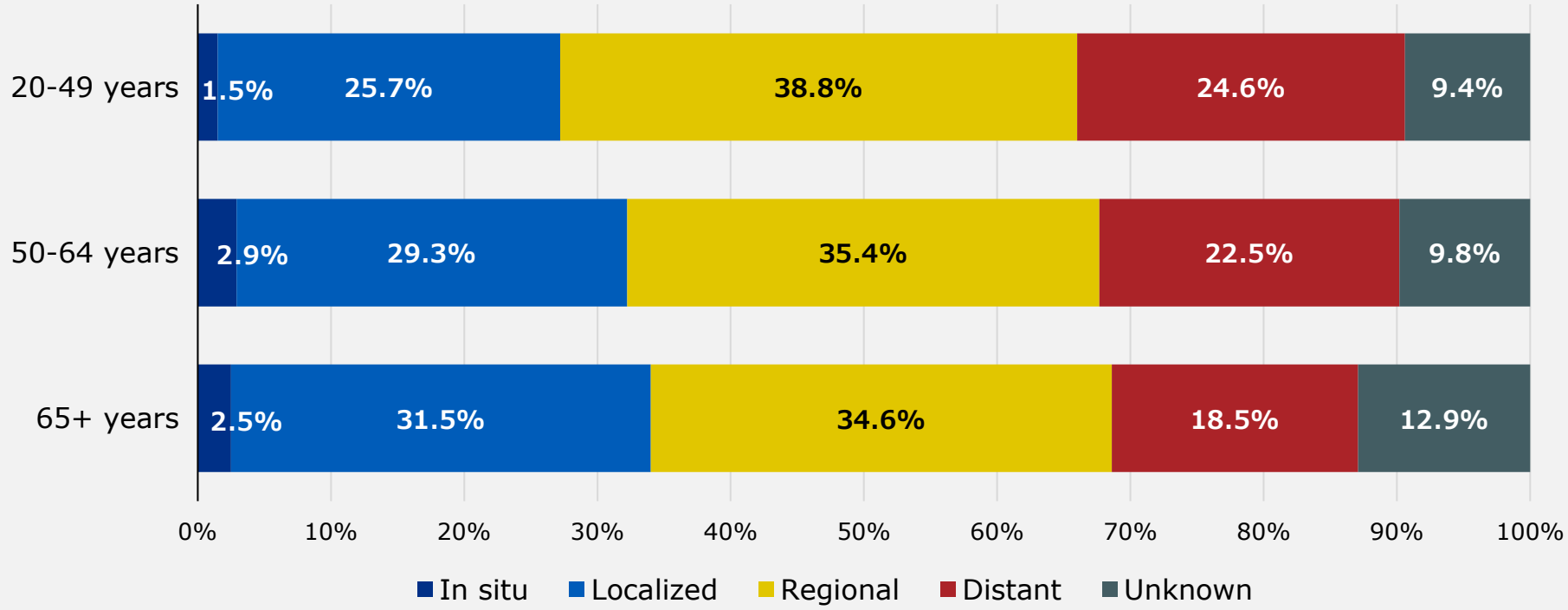
- Incidence rates were highest in NH Blacks (199.0), NH Whites (163.3) and Hispanics (162.1).
- Rates were lowest among NH A/PIs (110.9).

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

Colorectal Cancer Incidence by Age at Diagnosis and Stage at Diagnosis

- For ages 20-49 years, a smaller proportion of cases were diagnosed at the localized stage (and a larger proportion at the distant stage) compared to older age groups.
- For ages 50-64 years, a smaller proportion of cases were diagnosed at the localized stage (and a larger proportion at the distant stage) compared to ages 65 years and older.

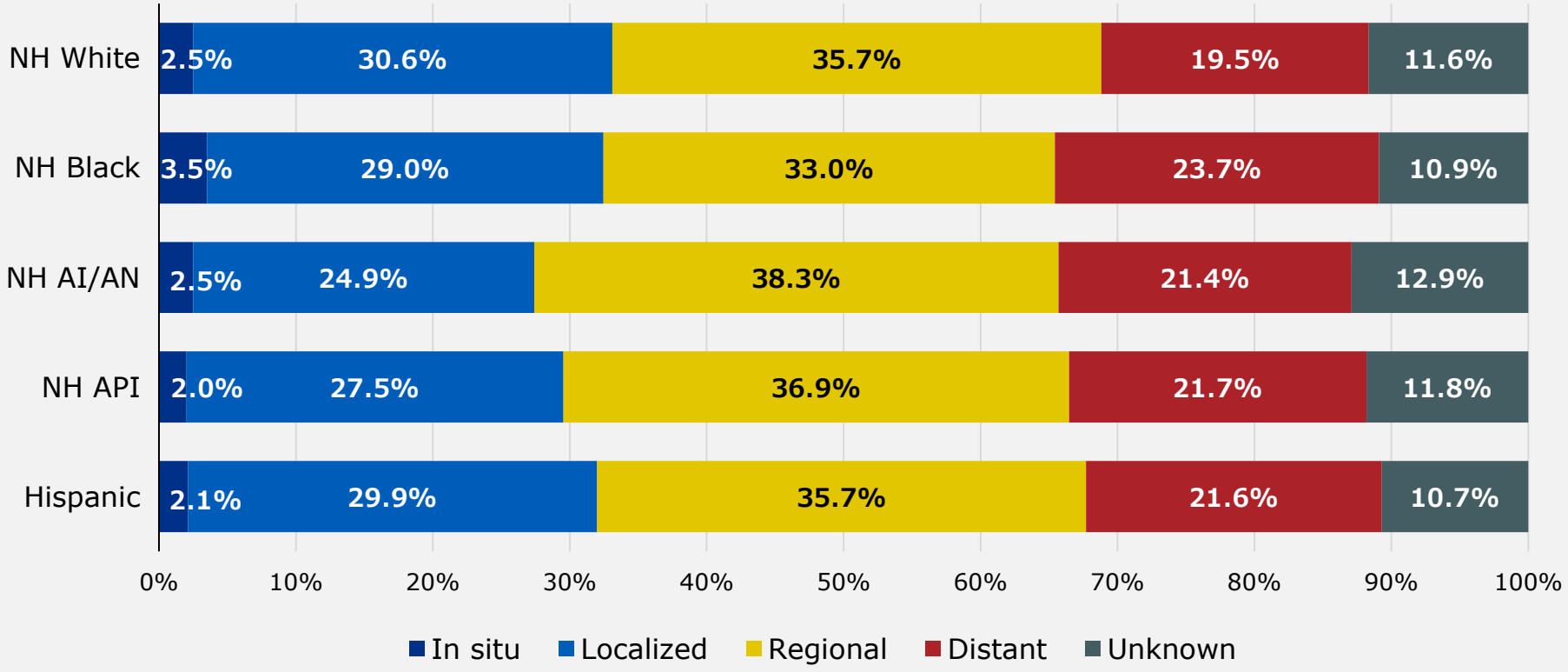
Proportion (%) of Colorectal Cancer Cases by Age at Diagnosis and Stage at Diagnosis, Texas, 2015–2019



Colorectal Cancer Incidence by Race/Ethnicity and Stage at Diagnosis

- A higher proportion of cases were diagnosed at the localized stage for NH Whites, Hispanics, and NH Blacks compared to NH A/PI and NH AI/AN.
- NH Blacks had the highest proportion of cases diagnosed at the distant stage.

Proportion (%) of Colorectal Cancer Cases by Race/Ethnicity and Stage at Diagnosis, Texas, 2015–2019

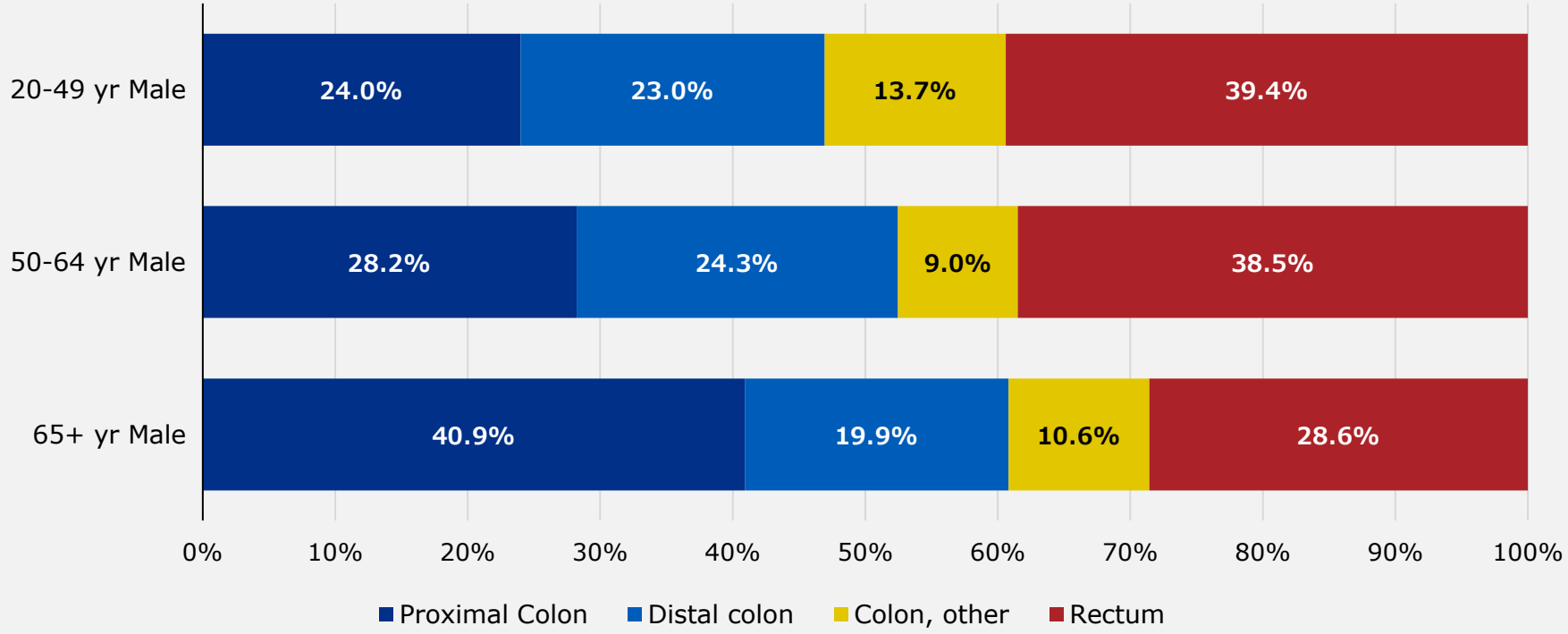


Colorectal Cancer Incidence by Age at Diagnosis and Tumor Location

Males

- For ages 20-49 years and 50-64 years, colorectal cancer was most commonly diagnosed in the rectum, followed by the proximal colon.
- For ages 65 years and older, colorectal cancer was most commonly diagnosed in the proximal colon, followed by the rectum.

Proportion (%) of Colorectal Cancer Cases by Age at Diagnosis and Tumor Location, Texas, 2015–2019

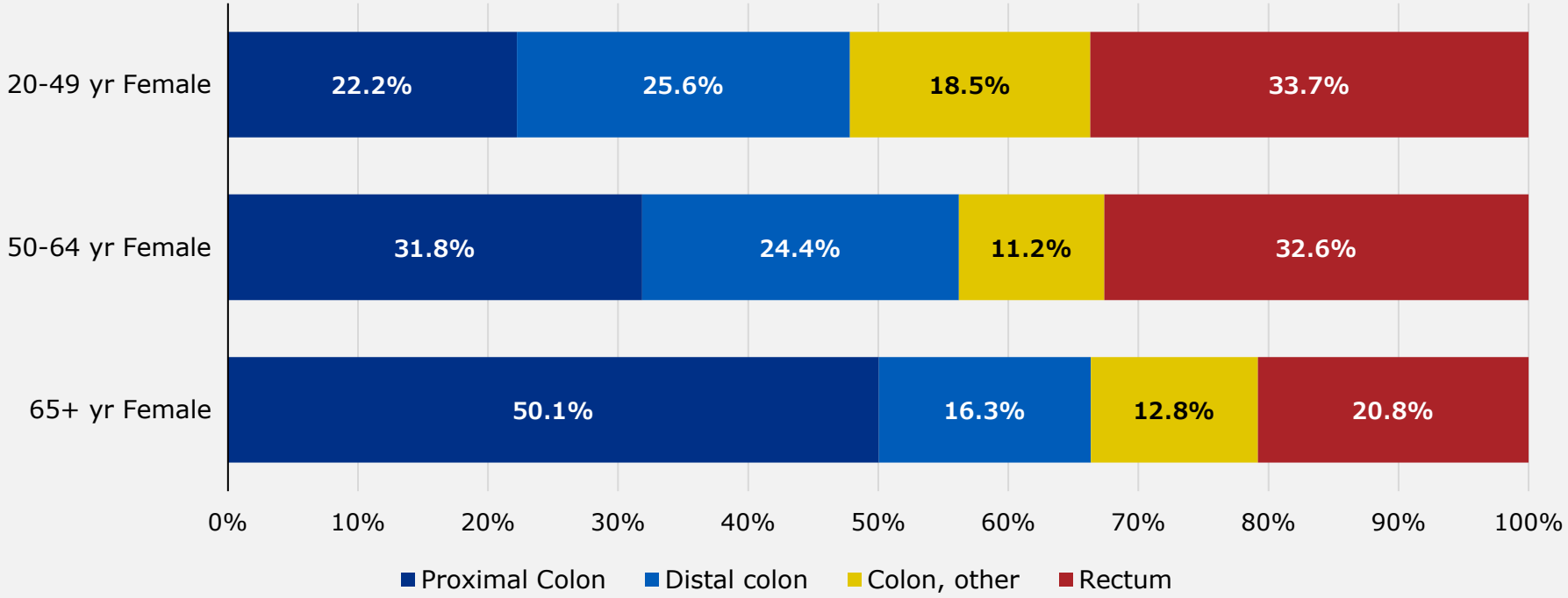


Colorectal Cancer Incidence by Age at Diagnosis and Tumor Location

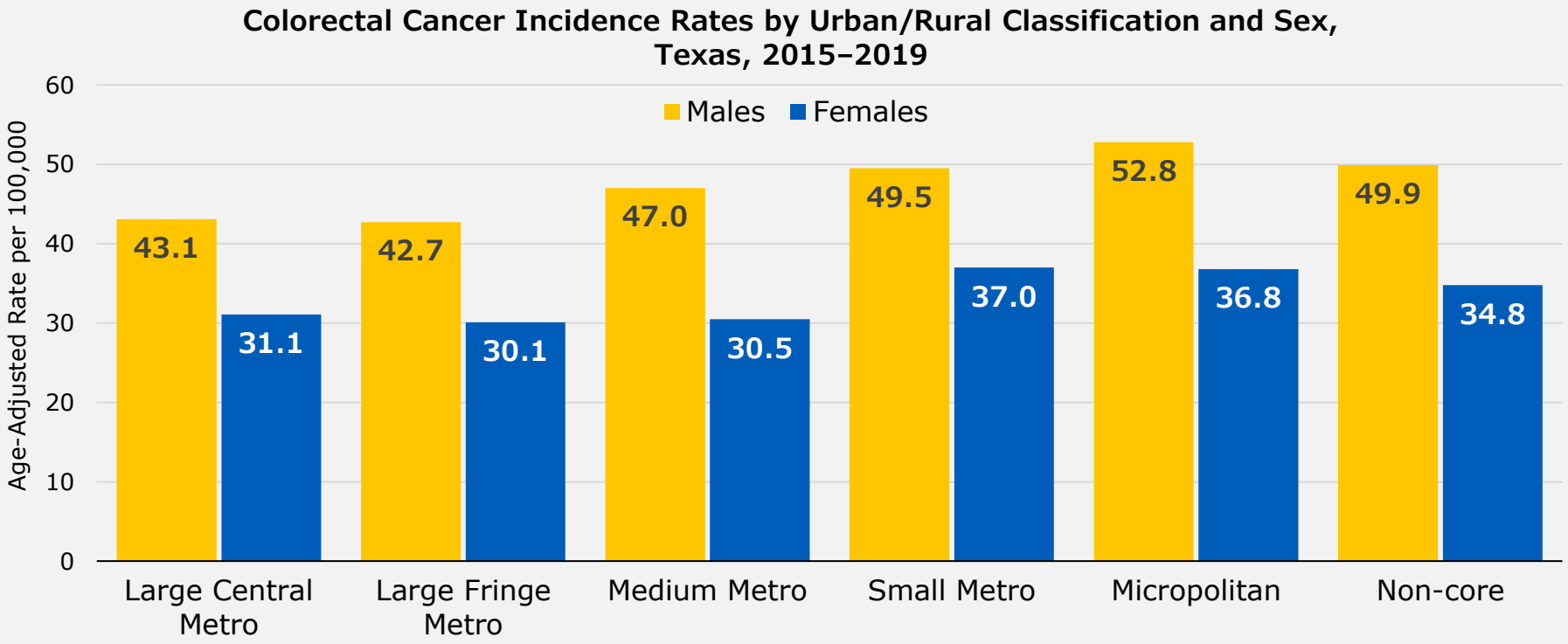
Females

- For ages 20-49 years and 50-64 years, colorectal cancer was most commonly diagnosed in the rectum, followed the distal colon among those 20-49 years and the proximal colon for those 50-64 years.
- For ages 65 years and older, colorectal cancer was most commonly diagnosed in the proximal colon, followed by the rectum.

Proportion (%) of Colorectal Cancer Cases by Age at Diagnosis and Tumor Location, Texas, 2015–2019



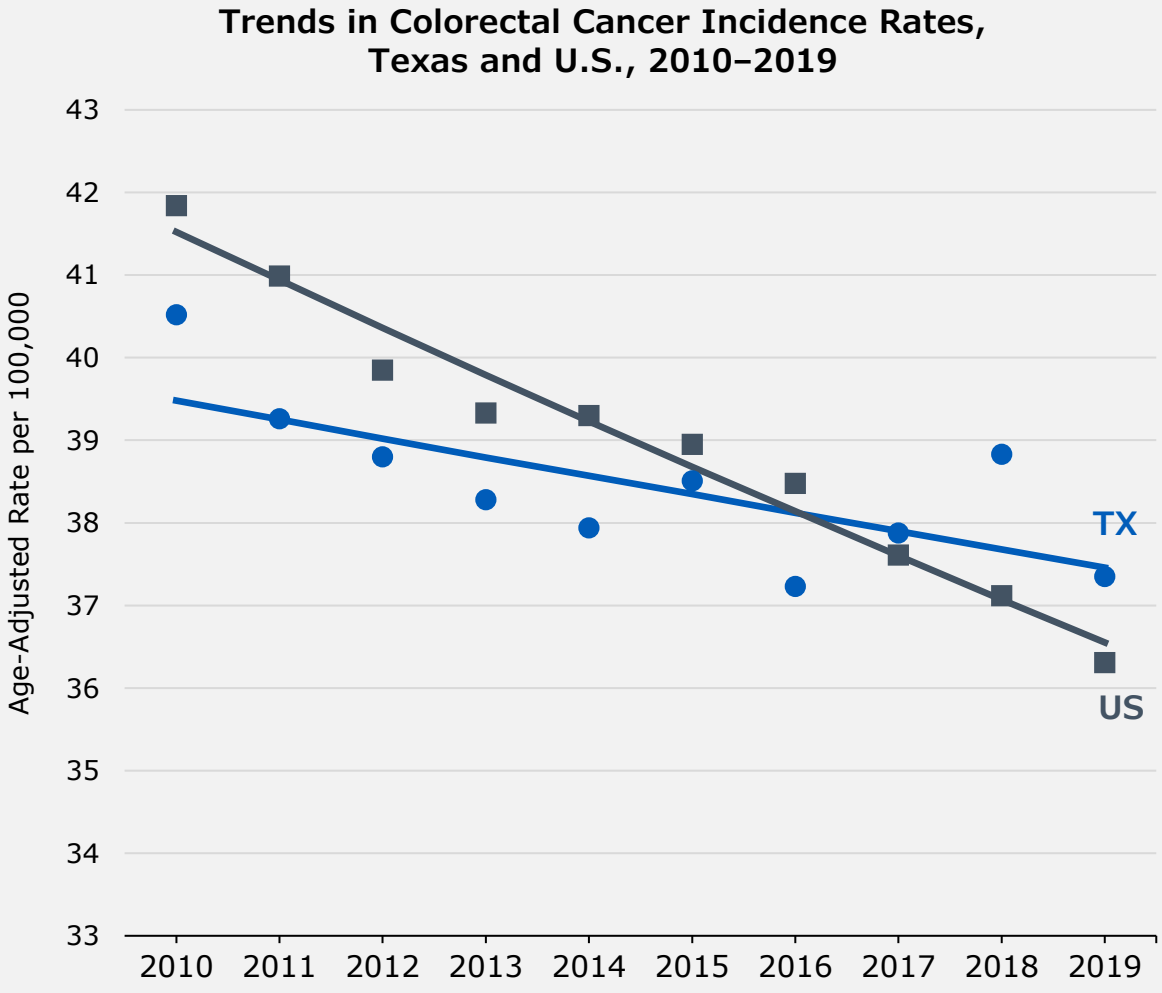
Colorectal Cancer Incidence Rates by Urban-Rural Classification and Sex



- Incidence rates of colorectal cancer were highest among those living in micropolitan areas for males (52.8) and small metro areas for females (37.0).
- Colorectal cancer incidence rates were lowest among those living in large fringe areas for males (42.7) and females (30.1).

For information on urban-rural classification, see slide Texas Urban-Rural Classification.

Colorectal Cancer Incidence Trends, Texas vs U.S.

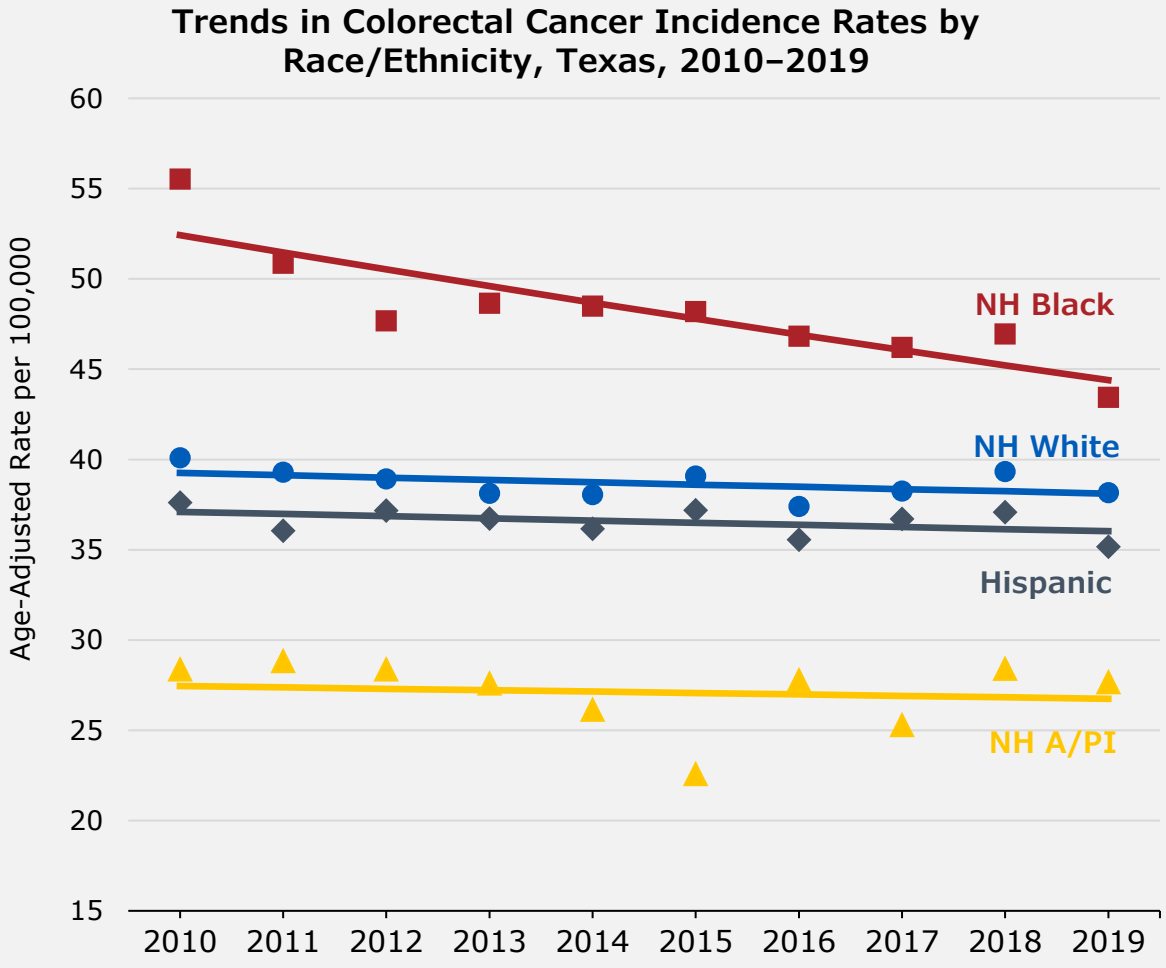


- Colorectal cancer incidence rates were higher in the U.S. than in Texas from 2010 to 2016.
- In the U.S., incidence rates decreased by an average of 1.4% per year over the time period.
- Incidence rates of colorectal cancer decreased by an average of 0.6% per year over the time period in Texas.

Texas, AAPC = -0.6*
U.S., AAPC = -1.4*
Lines represent the modeled trends; Markers represent the observed data.
*AAPC significantly different from zero.

Malignant/invasive cases only.
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Incidence Trends by Race/Ethnicity



- Incidence rates of colorectal cancer decreased among non-Hispanic (NH) Blacks by an average of 1.8% per year from 2010 to 2019.
- Rates remained stable among NH Whites, NH Asian/Pacific Islanders, and Hispanics.

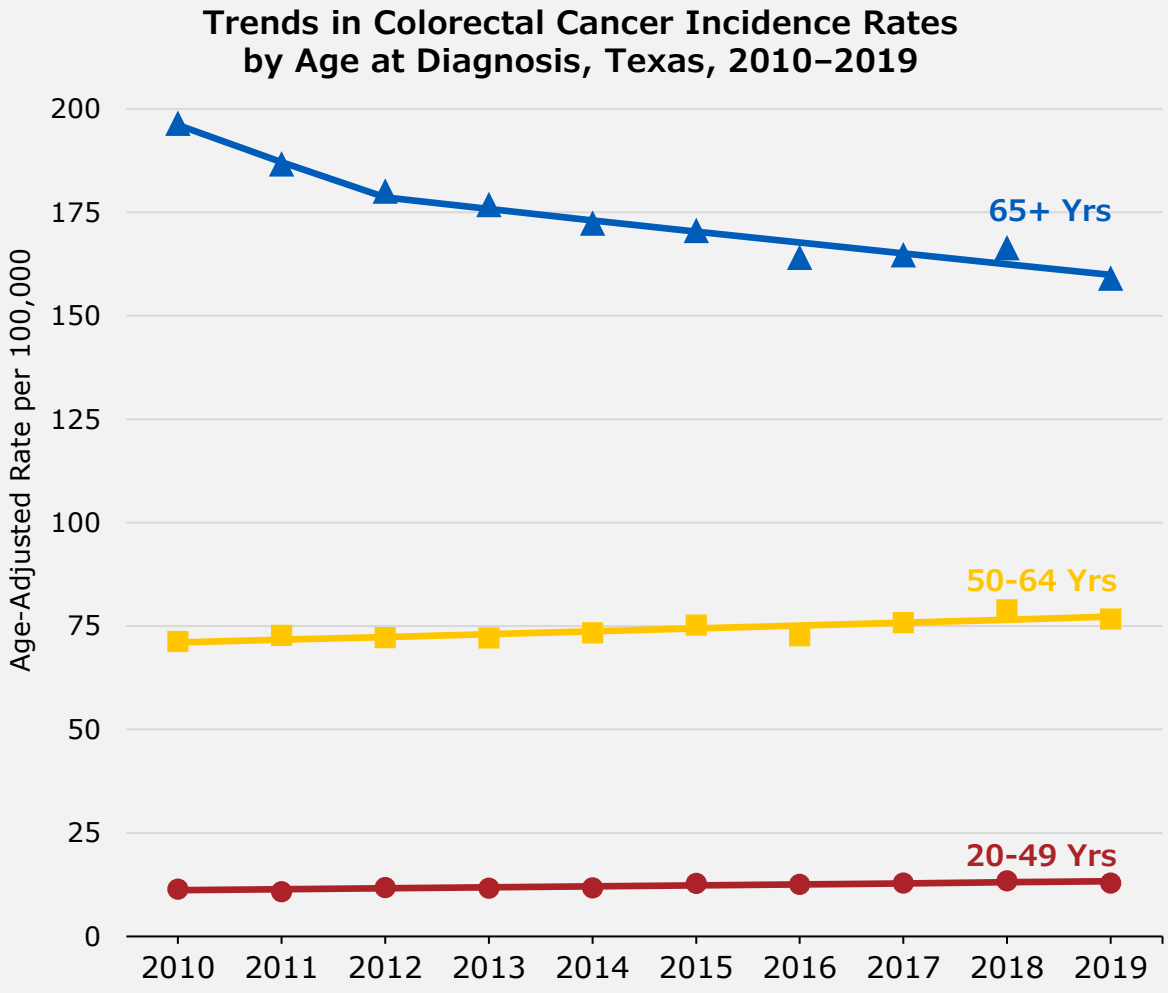
NH White, AAPC = -0.3
NH Black, AAPC = -1.8*
NH A/PI, AAPC = -0.3
Hispanic, AAPC = -0.3

Lines represent the modeled trends; Markers represent the observed data.

*AAPC significantly different from zero.

Malignant/invasive cases only. NH = Non-Hispanic; A/PI = Asian/Pacific Islander.
Data for NH American Indian/Alaska Native are not shown due to unstable rates and/or low counts.
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Incidence Trends by Age at Diagnosis



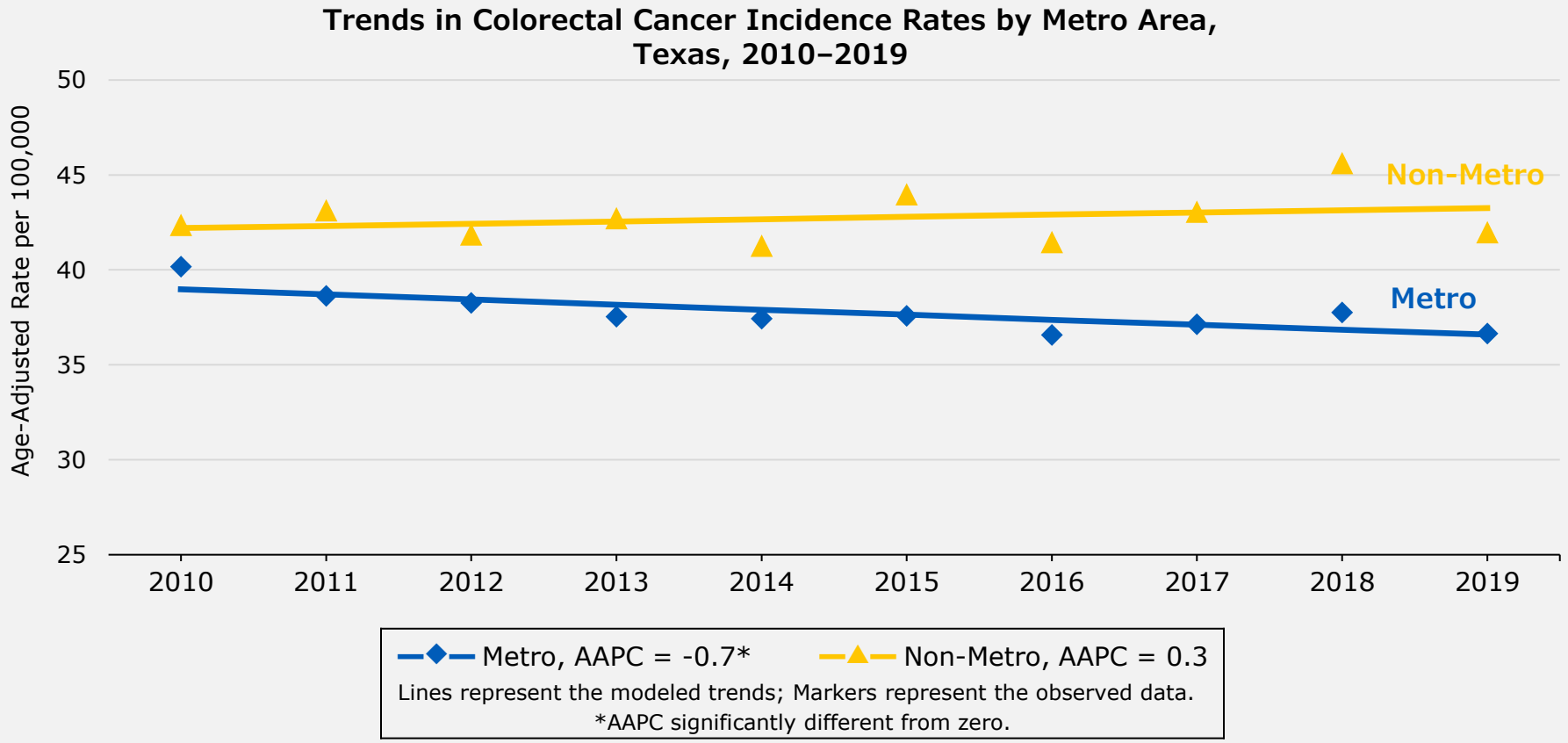
- Incidence rates of colorectal cancer increased by an average of 2.0% for ages 20-49 years and 0.9% for 50-64 years per year from 2010-2019.
- Colorectal cancer incidence rates decreased among 65 years and older by an average of 2.2% per year over the time period.

20-49 yrs, AAPC = 2.0*
50-64 yrs, AAPC = 0.9*
65+ yrs, AAPC = -2.2*
Lines represent the modeled trends; Markers represent the observed data.
*AAPC significantly different from zero.

Malignant/invasive cases only.
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Incidence Trends by Metro Area

- Colorectal cancer incidence rates decreased by an average of 0.7% per year among those living in metro areas from 2010 to 2019. Rates were stable among those living in non-metro areas over the time period.



Malignant/invasive cases only.

AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Incidence Trends by Race/Ethnicity and Age at Diagnosis

Race/ Ethnicity	Age at Diagnosis	Average Annual Percent Change 2010–2019
NH White	20–49 Years	2.3*
	50–64 Years	1.6*
	65 Years and Older	-2.1*
NH Black	20–49 Years	-0.3
	50–64 Years	-1.1*
	65 Years and Older	-2.6*
NH A/PI	20–49 Years	5.9*
	50–64 Years	1.4
	65 Years and Older	-2.7*
Hispanic	20–49 Years	2.5
	50–64 Years	0.7*
	65 Years and Older	-1.5*

Non-Hispanic (NH) White

Incidence rates increased by an average of 2.3% per year among those ages 20-49 years at diagnosis and 1.6% for ages 50–64. Rates decreased by an average of 2.1% among 65 years and older.

NH Black

Incidence rates decreased by an average of 1.1% per year among those ages 50–64 and 2.6% among the 65 years and older age group. Rates remained stable for the 20-49 years age group. There was a non-significant decrease among those 65 years and older.

NH Asian/Pacific Islander (A/PI)

Incidence rates increased by an average of 5.9% per year for ages 20–49 years at diagnosis. Rates decreased by an average of 2.7% per year for ages 65 years and older.

Hispanic

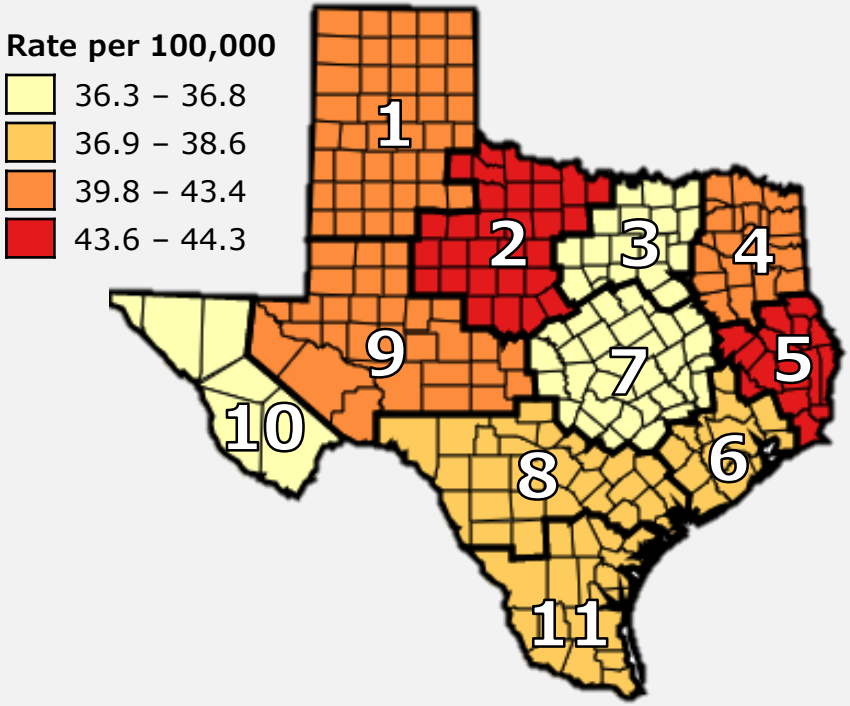
Incidence rates increased by an average of 0.7% per year among those ages 50-64 years at diagnosis and decreased by 1.5% for ages 65 years and older.

Malignant/invasive cases only. *AAPC significantly different from 0. Refer to technical notes for how trend significance was determined.
NH = Non-Hispanic; A/PI = Asian/Pacific Islander. Data for NH American Indian/Alaska Native are not shown due to unstable rates and/or low counts.

Colorectal Cancer Incidence Rates by Public Health Region

The incidence rate of colorectal cancer was highest in Public Health Region (PHR) 2 (44.3 per 100,000). It was lowest in PHR 10 (36.3).

Incidence Rates of Colorectal Cancer by PHR, Texas, 2015–2019



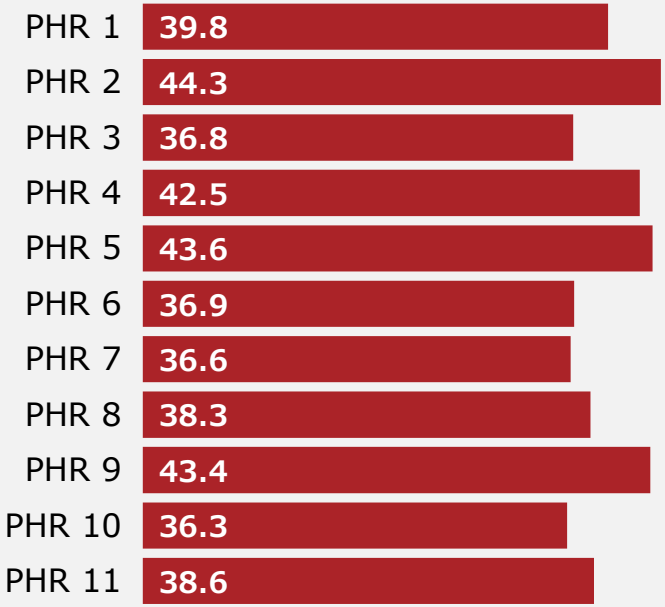


Image Source: Web Query Tool. Texas Cancer Registry. https://www.cancer-rates.info/tx/

Colorectal Cancer Mortality

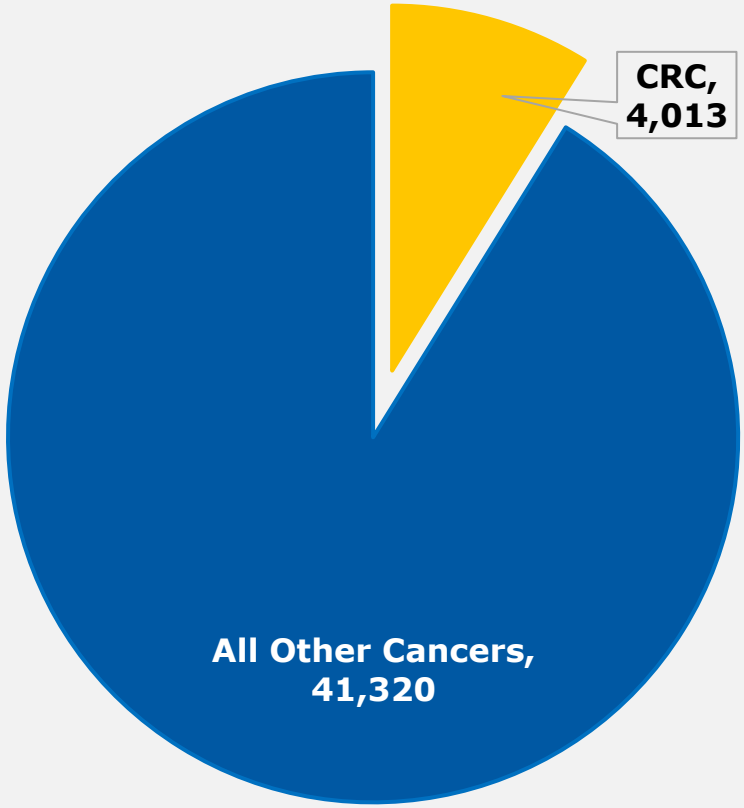
Rates and trends by age, race/ethnicity, and public health region

Overview of Colorectal Cancer Mortality in Texas

Mortality

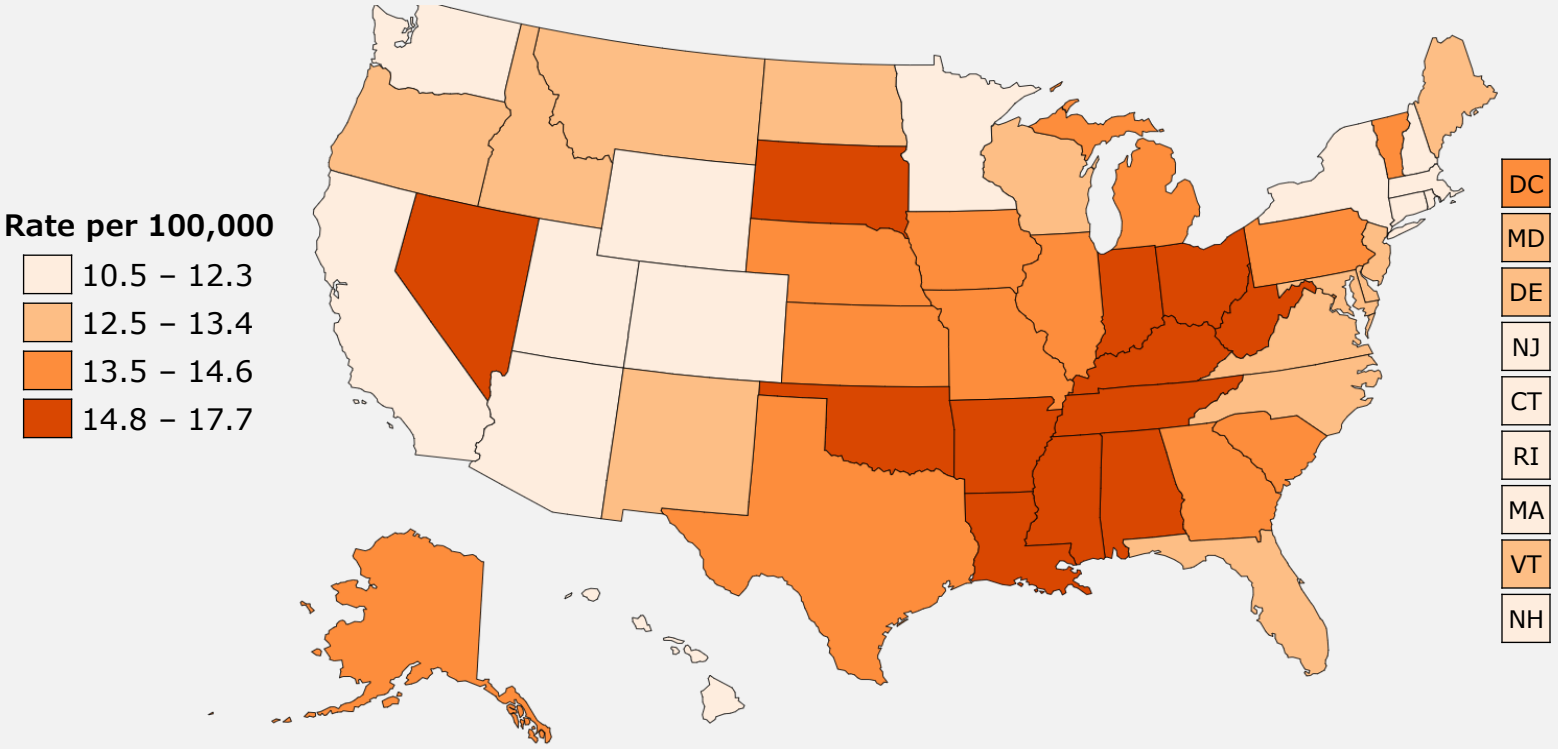
- In 2019, colorectal cancer was the 3rd leading cause of cancer death in males and females, representing 9.7% of all cancer deaths in Texas. Most deaths are from cases that were diagnosed years before.
- During 2015–2019, the colorectal cancer mortality rate was 13.8 per 100,000.
- In 2022, an estimated 4,447 Texans will die of this disease.

Cancer Deaths, 2019



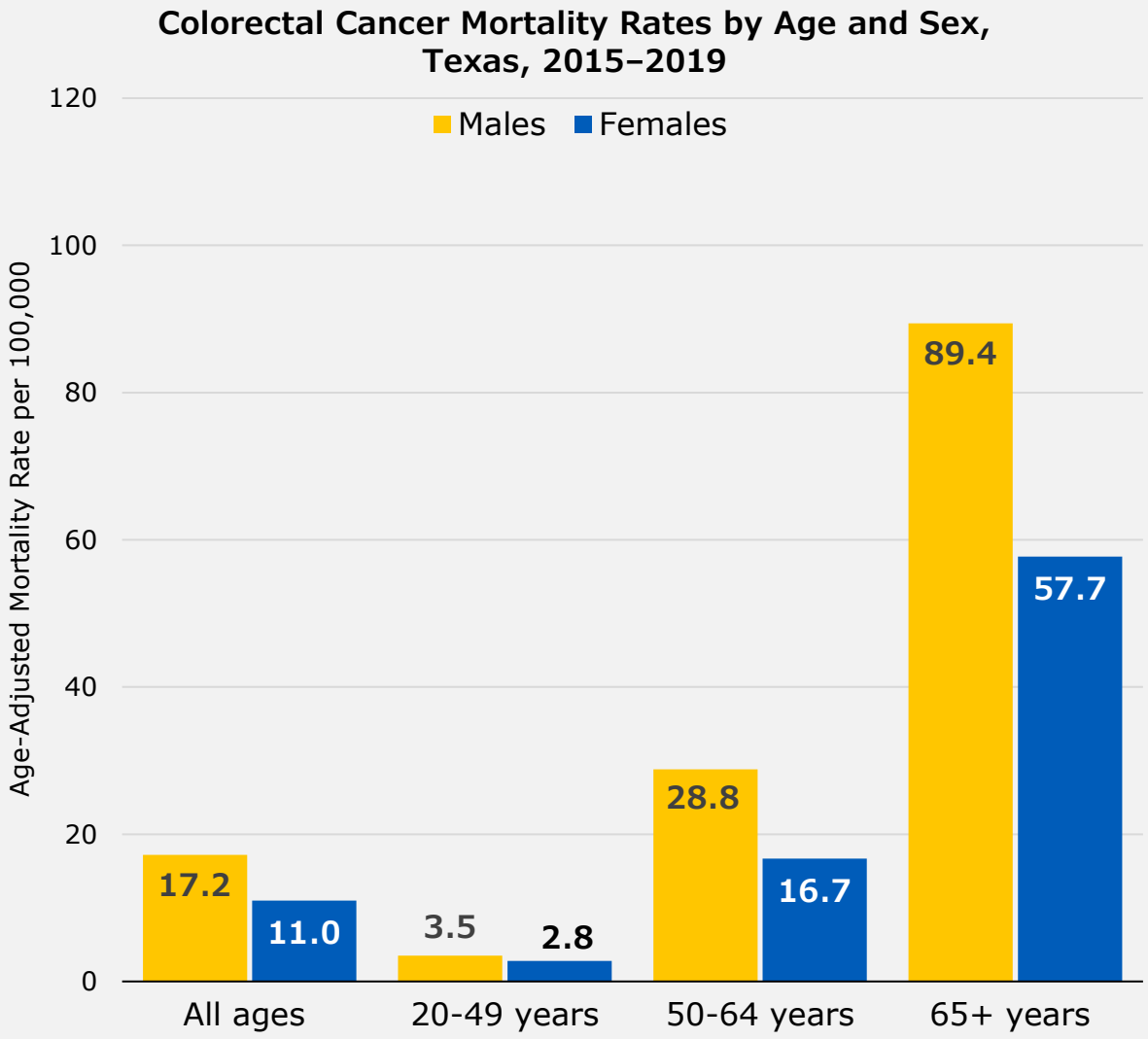
U.S. Colorectal Cancer Mortality Rates

During 2015–2019, Texas ranked 23rd out of all U.S. states and D.C. for highest colorectal cancer mortality. The colorectal cancer mortality rate in Texas (13.9 deaths per 100,000) was close to the U.S. rate of 13.4 deaths per 100,000.



Source: United States Cancer Statistics: Data Visualizations. Centers for Disease Control and Prevention (CDC). gis.cdc.gov/Cancer/USCS/DataViz.html
Rates calculated by the Texas Cancer Registry may differ slightly from those calculated by the CDC due to rounding differences.

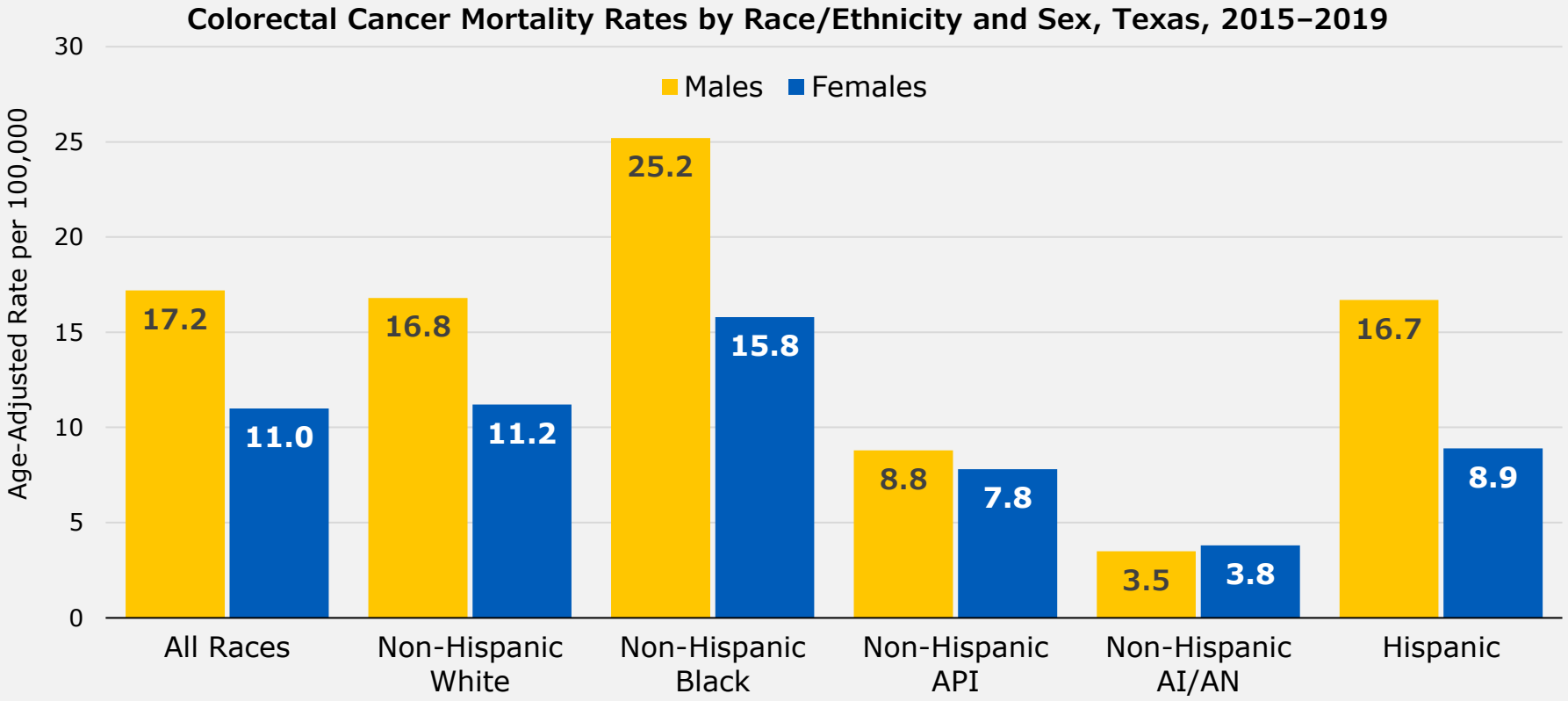
Colorectal Cancer Mortality Rates by Age at Death and Sex



- During 2015–2019, there were 13.8 deaths from colorectal cancer per 100,000.
- The mortality rate was significantly higher in males (17.2) than females (11.0) combined and in all age groups.
- Mortality rates for males and females combined increased with age from 3.2 for patients diagnosed at ages 20-49 years, to 22.6 at ages 50-64 years, and to 71.5 at ages 65 years and older.

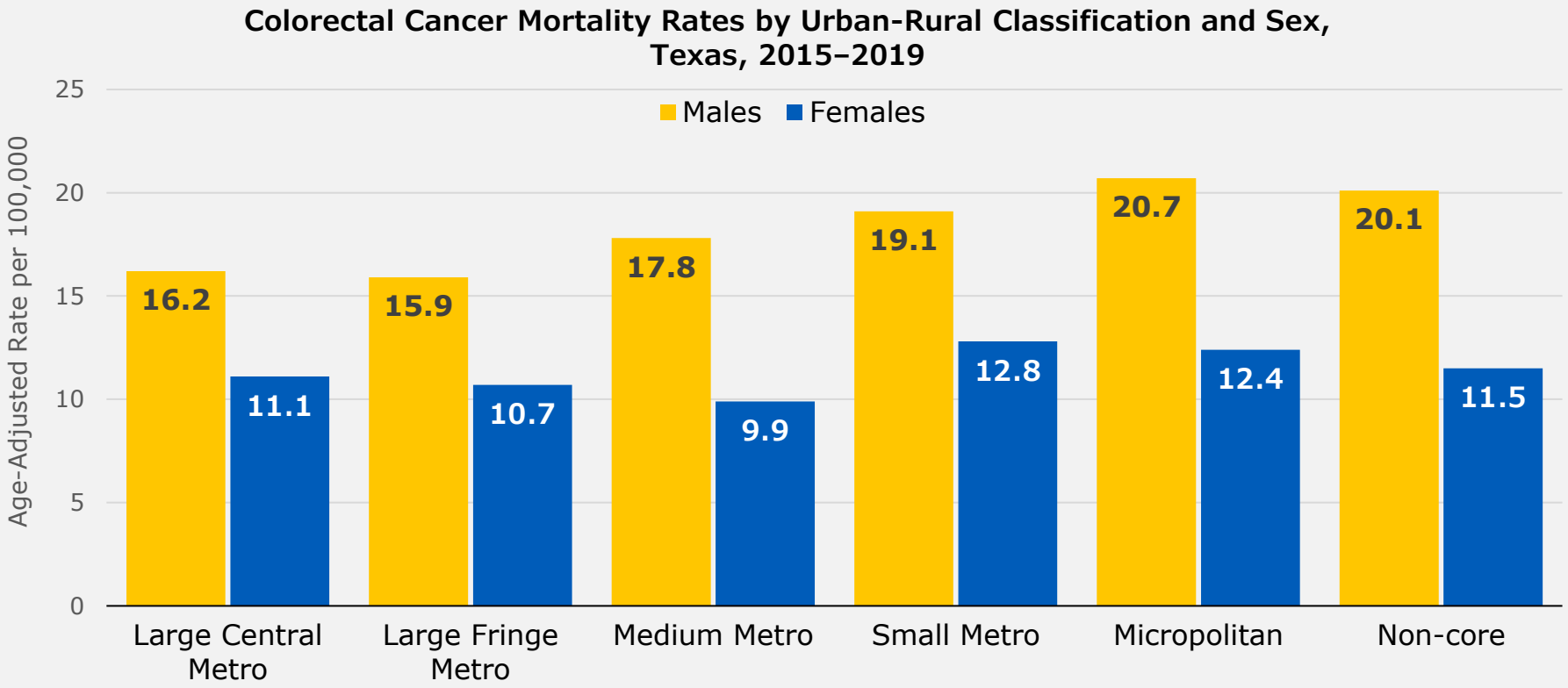
Colorectal Cancer Mortality Rates by Race/Ethnicity and Sex

- Mortality rates were highest in non-Hispanic (NH) Blacks, followed by NH Whites, overall and in both males and females.
- In both males and females, rates were lowest among NH AI/AN.



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

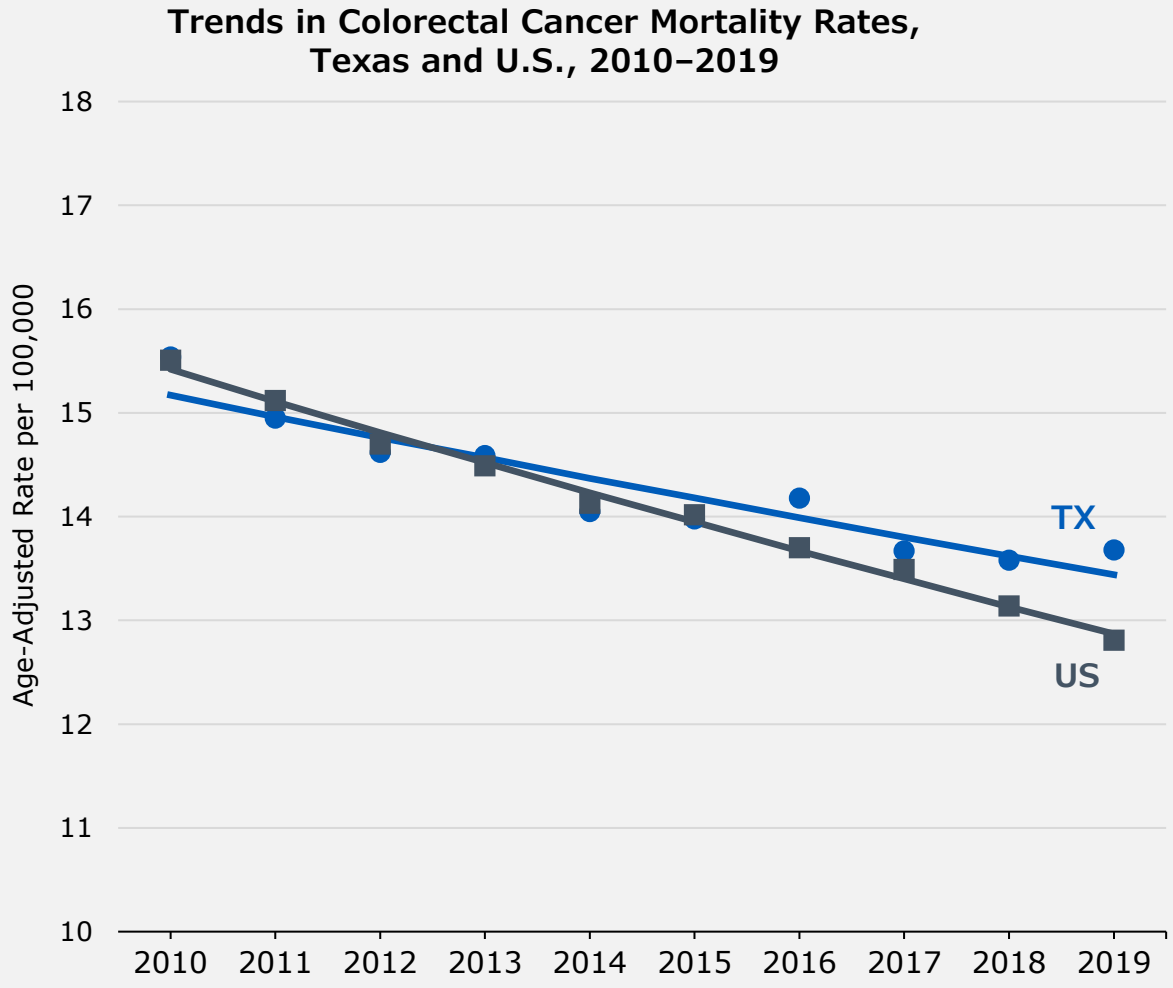
Colorectal Cancer Mortality Rates by Urban-Rural Classification and Sex



- In both males and females, mortality rates were lower in large central metro, large fringe metro, and medium metro areas compared to small metro, micropolitan, and noncore areas.
- The mortality rate was significantly higher in non-metro (15.9) versus metro areas (13.5).

For information on urban-rural classification, see Texas Urban-Rural Classification slide.

Colorectal Cancer Mortality Trends, Texas vs U.S.

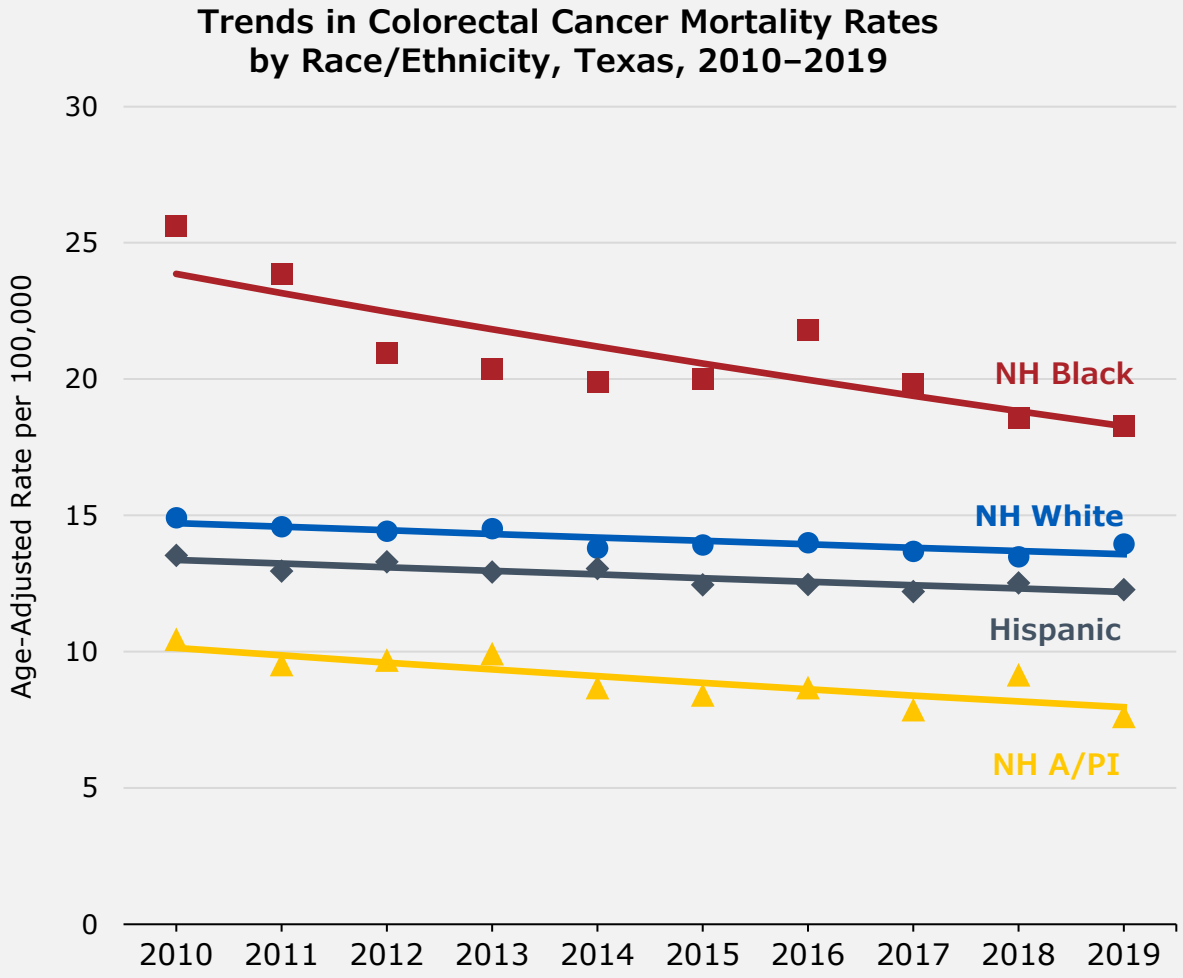


- Colorectal cancer mortality rates were slightly higher in Texas than in the U.S. since 2016.
- In both Texas and U.S., colorectal cancer mortality rates decreased between 2010 and 2019.
- In Texas, the decrease was an average of 1.3% per year, and in the U.S., the decrease averaged 2.0% per year.

Texas, AAPC = -1.3*
U.S., AAPC = -2.0*
Lines represent the modeled trends; Markers represent the observed data.
*AAPC significantly different from zero.

AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Mortality Trends by Race/Ethnicity



- Colorectal cancer mortality rates decreased an average of 2.9% per year among non-Hispanic (NH) Blacks, and 2.7% per year among Asian/Pacific Islanders.
- Rates also decreased an average of 1.0% and 0.9% per year among Hispanics and NH whites, respectively.

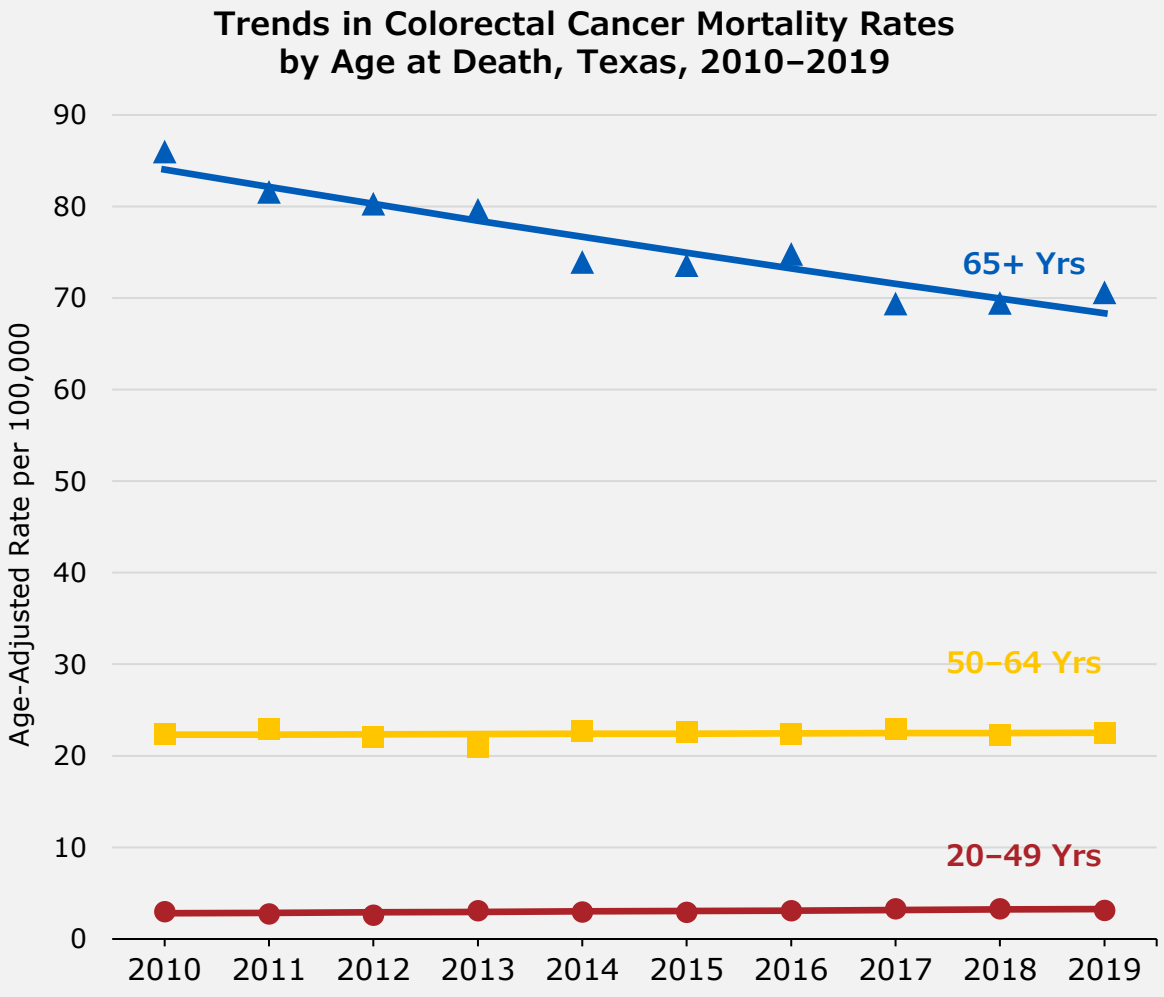
NH White, AAPC = -0.9*
NH Black, AAPC = -2.9*
NH A/PI, AAPC = -2.7*
Hispanic, AAPC = -1.0*

Lines represent the modeled trends; Markers represent the observed data.

*AAPC significantly different from zero.

NH = Non-Hispanic; A/PI = Asian/Pacific Islander.
Data for NH American Indian/Alaska Native are not shown due to unstable rates and/or low counts.
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Mortality Trends by Age at Death



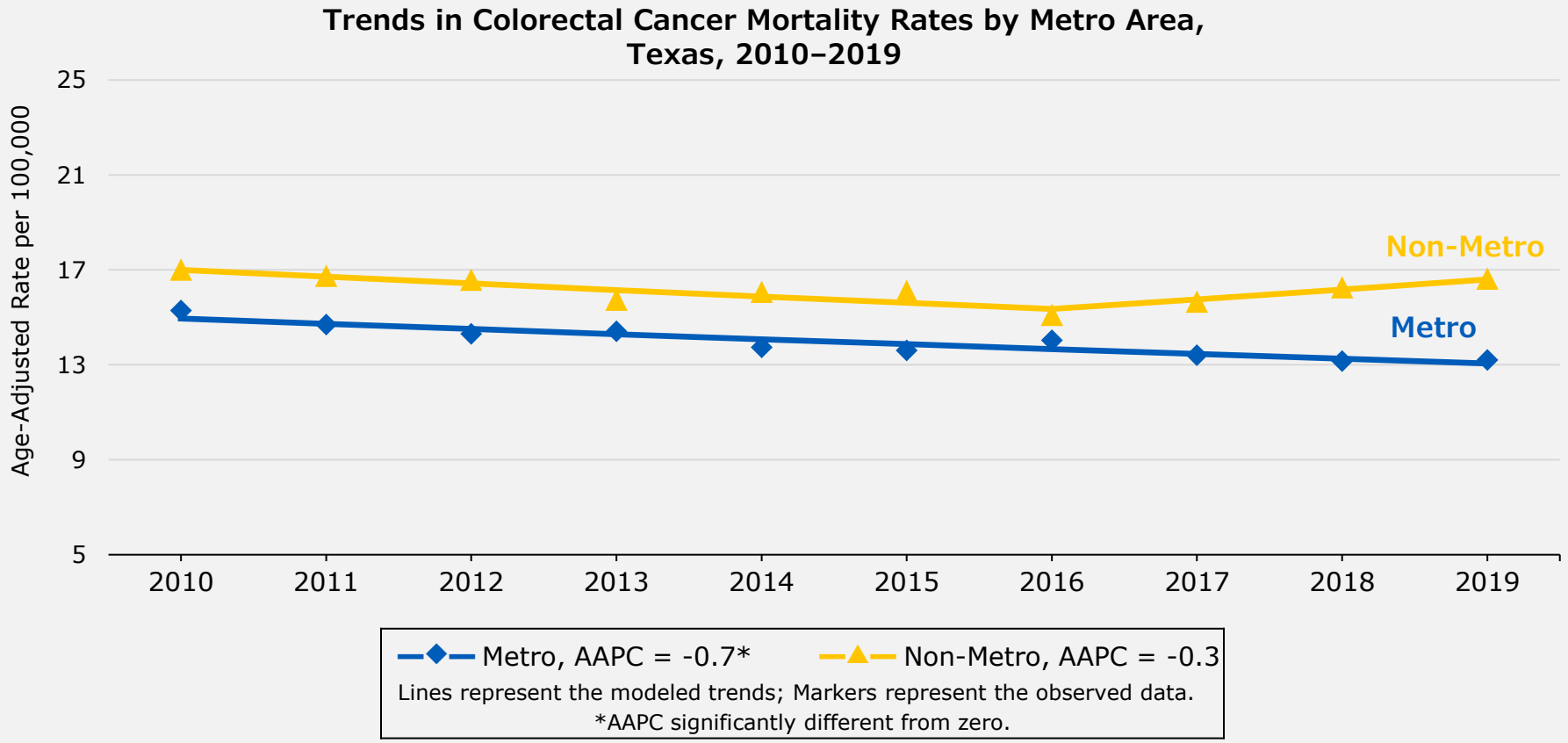
- Colorectal cancer mortality rates increased an average of 1.7% per year among those aged 20–49 years at death, from 2010 to 2019.
- Mortality rates decreased an average of 2.3% per year in the 65 years and older age group, for the same time period.
- Rates remained stable among those aged 50–64 years at death.

20-49 yrs, AAPC = 1.7*
50-64 yrs, AAPC = 0.1
65+ yrs, AAPC = -2.3*
Lines represent the modeled trends; Markers represent the observed data.
*AAPC significantly different from zero.

AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Mortality Trends by Metro Area

- Colorectal mortality rates decreased among those living in metro areas by an average of 1.5% per year, and remained stable in non-metro areas, from 2010 to 2019.



Malignant/invasive cases only.

AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Colorectal Cancer Mortality Trends by Race/Ethnicity and Age at Death

Race/ Ethnicity	Age at Death	Average Annual Percent Change 2010–2019
NH White	20–49 Years	2.7*
	50–64 Years	0.6
	65 Years and Older	-2.0*
NH Black	20–49 Years	-0.2
	50–64 Years	-2.7*
	65 Years and Older	-3.4*
Hispanic	20–49 Years	2.2*
	50–64 Years	0.6
	65 Years and Older	-2.0*

Non-Hispanic (NH) White

Mortality rates increased among those ages 20-49 years at death by an average of 2.7% per year, and decreased by 2.0% among those 65 years and older at death. Rates remained stable in the 50–64 year age group.

NH Black

Mortality rates decreased among those ages 50–64 years at death by an average of 2.7% per year and 3.4% among those 65 years and older at death. Rates remained stable among those ages 20–49 years at death.

Hispanic

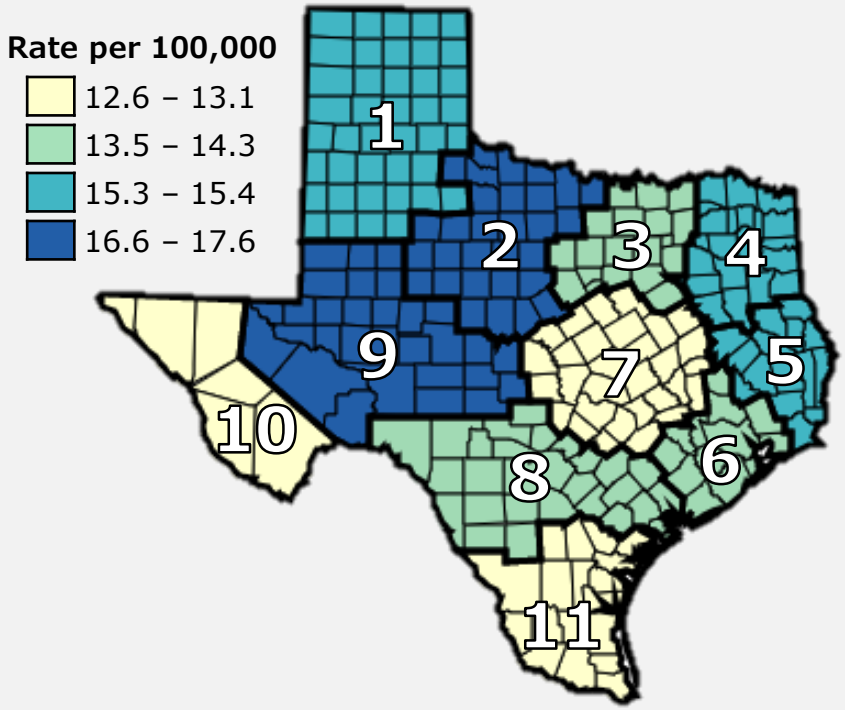
Mortality rates increased among those ages 20–49 years at death by 2.2% per year. Among those ages 50–64 years at death rates remained stable. Mortality rates decreased among those 65 years and older at death by 2.0% per year.

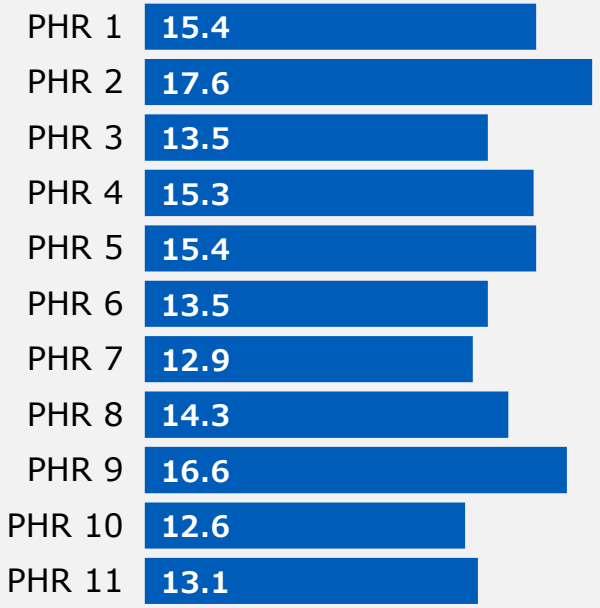
Malignant/invasive cases only. *AAPC significantly different from 0. Refer to technical notes for how trend significance was determined.
NH = Non-Hispanic; Data for NH Asian/Pacific Islander and NH American Indian/Alaska Native are not shown due to unstable rates and/or low counts.

Colorectal Cancer Mortality Rates by Public Health Region

During 2015–2019, colorectal cancer mortality rates were highest in Public Health Region (PHR) 2, and were lowest in PHRs 10 and 7.

Mortality Rates of Colorectal Cancer by PHR, Texas, 2015–2019



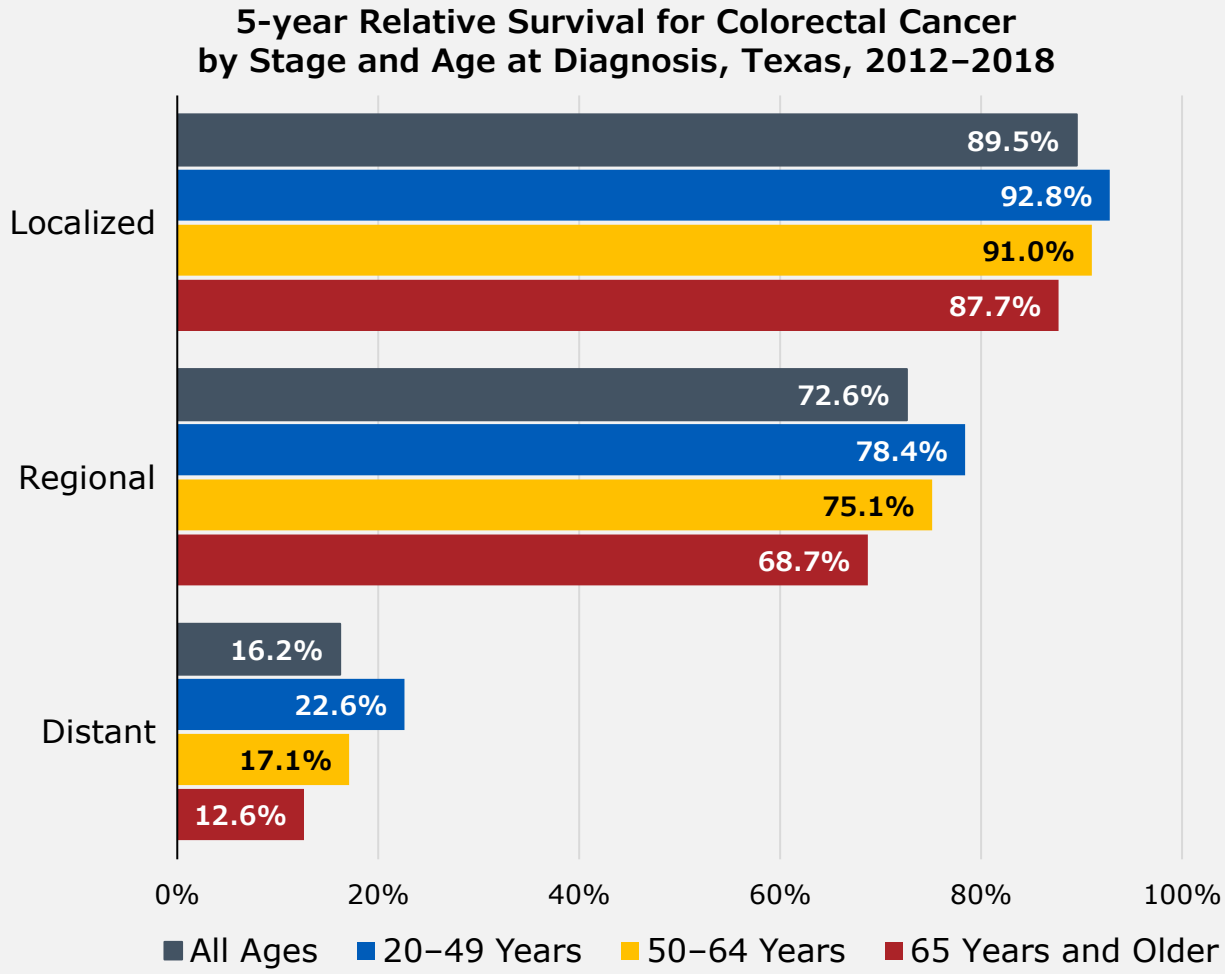


Source: Web Query Tool. Texas Cancer Registry. https://www.cancer-rates.info/tx/

Colorectal Cancer Survival

5-year survival rates by age and stage at diagnosis

Colorectal Cancer Relative Survival* by Stage and Age at Diagnosis



- As with other cancers, 5-year relative survival was highest for tumors diagnosed at the localized stage, and lowest for tumors diagnosed at the distant stage.
- At each stage, survival was highest for younger adults than for older age classes.
- However, a larger proportion of tumors are diagnosed at the distant stage in younger adults 20–49 years (26.5%) than in older adults 65 years and older (19.6%).

* Relative survival measures cancer survival in the absence of other causes of death and uses expected life tables to compare the ratio of observed cancer survivors to the expected survival of the wider (cancer free) population (of similar race, sex, and age). Tumors diagnosed between 2012 and 2018 were included, with survival follow-up through December 2019.

Report Information

Definitions, abbreviations, technical notes, data sources

Definitions and Abbreviations

- **Incidence rate:** the number of newly diagnosed cases during a specific time period, usually expressed as the number of cases per 100,000 population at risk.
- **Mortality rate:** the number of deaths during a specific time period, usually expressed as the number of deaths per 100,000 population at risk.
- **Age-adjusted rate:** a weighted average of the age-specific rates, where the weights are the proportions of persons in the corresponding age groups of a standard population. The potential confounding effect of age is reduced when comparing age-adjusted rates computed using the same standard population. Age-adjusted rates allow for comparison between populations with different age compositions.
- **Annual Percent Change (APC):** one way to characterize trends in cancer rates over time. With this approach, the cancer rates are assumed to change at a constant percentage of the rate of the previous year. For example, if the APC is 1%, and the rate is 50 per 100,000 in 1990, the rate is 50 x 1.01 = 50.5 in 1991 and 50.5 x 1.01 = 51.005 in 1992. Rates that change at a constant percentage every year change linearly on a log scale.
- **Average Annual Percent Change (AAPC):** a summary measure of the trend over a pre-specified fixed interval. It allows us to use a single number to describe the average APCs over a period of multiple years. It is valid even if the joinpoint model indicates that there were changes in trends during those years. It is computed as a weighted average of the APCs from the joinpoint model, with the weights equal to the length of the APC interval.
- **Race/Ethnicity group abbreviations:** Non-Hispanic (NH), Asian/Pacific Islander (A/PI), American Indian/Alaska Native (AI/AN).

For more information on defining cancer statistics, visit seer.cancer.gov/statistics/types.html

Data Sources

- Texas Cancer Registry (www.dshs.texas.gov/tcr) SEER*Stat Database, 1995-2019 Incidence, Texas statewide, 2021 Submission, cutoff 10/03/2021. Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, created June 2022.
- Texas Cancer Registry (www.dshs.texas.gov/tcr) SEER*Stat Database, 1990-2019 Mortality, Texas statewide. Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, created February 2022.
- U.S. Incidence Data: National Program of Cancer Registries and Surveillance, Epidemiology, and End Results Program SEER*Stat Database: NPCR and SEER Incidence – U.S. Cancer Statistics Public Use Research Database, 2021 submission (2001–2019). United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute, released June 2022. Available at www.cdc.gov/cancer/uscs/public-use.
- U.S. Mortality Data: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality – All COD, Aggregated with State, Total U.S. (1990-2019) <Katrina/Rita Population Adjustment>. National Cancer Institute, DCCPS, Surveillance Research Program, released April 2021. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

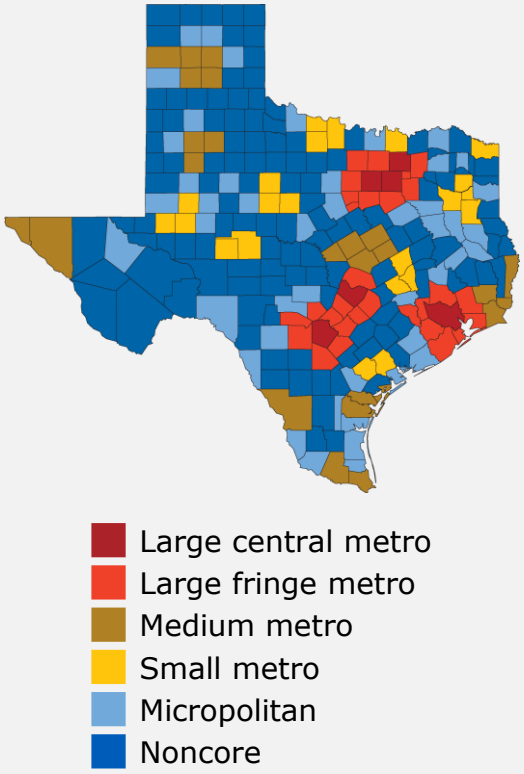
Technical Notes

- Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population (19 age groups - Census P25-1130). Confidence Intervals (CI) are 95% for rates and ratios (Tiwari mod). To discourage misinterpretation and misuse of rates and trends that are unstable due to the small number of cases or deaths, these statistics are not shown for groups in which counts are below 16.
- A rate ratio compares the incidence or mortality rates of two groups. A rate ratio of 1.0 indicates equal rates in the two groups, a rate ratio greater than 1.0 indicates an increased risk for the group in the numerator, and a rate ratio less than 1.0 indicates a decreased risk for the group in the numerator. In this report, refer to individual slides/tables for information on which group is represented in the numerator and which group is represented in the denominator.
- The Joinpoint Regression Program is statistical software for the analysis of trends using joinpoint models. The software enables the user to test whether an apparent change in trend is statistically significant. Joinpoint fits the selected trend data (e.g., cancer rates) into the simplest joinpoint model that the data allow.
  - Annual Percent Change (APC) is calculated by fitting a least squares regression line to the natural logarithm of the age-adjusted rates, with year as the regressor variable. This method allows for more than one APC to describe the trend over a time period. The joinpoint model uses statistical criteria to determine when and how often the APC changes. Cancer rates are fit using joined log-linear segments, so each segment can be characterized using an APC.
  - Average Annual Percent Change (AAPC) is computed as a weighted average of the APCs from the joinpoint model. AAPC is derived by first estimating the underlying joinpoint model that best fits the data. The AAPC over any fixed interval is calculated using a weighted average of the slope coefficients of the underlying joinpoint regression line with the weights equal to the length of each segment over the interval.
  - In describing trends, the term *increase* or *decrease* was used when the slope of the trend (APC or AAPC) was statistically significant ($P<0.05$). For non-statistically significant trends, terms such as *stable*, *non-significant increase,* and *non-significant decrease* were used. If a non-significant trend was less than 1% change (AAPC), the trend was described as *stable*. If a non-significant trend was 1% or more change (AAPC), the trend was described as *non-significant increase* or *non-significant decrease*.
  - Joinpoint Regression Program, Version 4.9.0.0 – March 2021; Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute.

Texas Urban-Rural Classification

In this report, Texas counties are classified using the 2013 Urban-Rural Classification Scheme for Counties.[1]

Metropolitan	
Large central metro	Counties in metropolitan statistical areas (MSA) of 1,000,000 or more population that: contain the entire population of the largest principal city of the MSA, or have their entire population contained in the largest principal city, or contain at least 250,000 inhabitants of any principal city
Large fringe metro	Counties in MSAs of 1,000,000 or more population that do not qualify as large central metro counties
Medium metro	Counties in MSAs with populations of 250,000–999,999
Small metro	Counties in MSAs with populations less than 250,000
Nonmetropolitan	
Micropolitan	Counties with an urban cluster population of 10,000–49,999
Noncore	Nonmetro counties that do not qualify as micropolitan



[1] 2013 Urban-Rural Classification Scheme for Counties, National Center for Health Statistics, Centers for Disease control and Prevention (CDC). cdc.gov/nchs/data_access/urban_rural.htm

Additional Colorectal Cancer Resources

- Centers for Disease Control and Prevention:
  - https://www.cdc.gov/cancer/nbccedp/index.htm
  - https://www.cdc.gov/cancer/colorectal/resources/index.htm
- National Cancer Institute:
  - https://www.cancer.gov/types/colorectal
  - https://www.cancer.gov/types/colorectal/patient/colorectal-screening-pdq
- American Cancer Society:
  - https://www.cancer.org/research/cancer-facts-statistics/colorectal-cancer-facts-figures.html
  - https://www.cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/acs-recommendations.html