

Female Breast Cancer in Texas, 2014-2018

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Texas Department of State
Health Services

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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.

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Background

- Breast cancer is one of three age-based cancer screenings currently recommended for all women by the U.S. Preventive Services Task Force.¹ Colorectal and cervical cancer screenings are the other two recommended.
- This statistical report describes breast cancer screening rates and the burden of female breast cancer in Texas.

Implications for Public Health Practice

- The burden of female breast cancer can be reduced by screening a large percentage of the population at risk and by encouraging healthy lifestyles that reduce modifiable risk factors.
- Identifying any health disparities in breast cancer incidence, mortality, and survival can also help to identify ways to reduce the cancer burden.

¹ Breast Cancer: Screening. United States Preventive Services Task Force. uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening

Breast Cancer Overview

- Breast cancer is cancer that begins in the breast tissue.
- The breast consists of different types of tissue, including ducts, lobes, fat, and other connective tissue.
- Most breast cancers are ductal carcinomas that start in the ducts.
- Breast cancer can also be lobular carcinoma, which starts in lobes. These lobes are made up of smaller lobules (milk glands).
- Breast cancer mostly occurs in women, but men can also develop it. Male breast cancer accounts for one percent of breast cancer cases in the US.

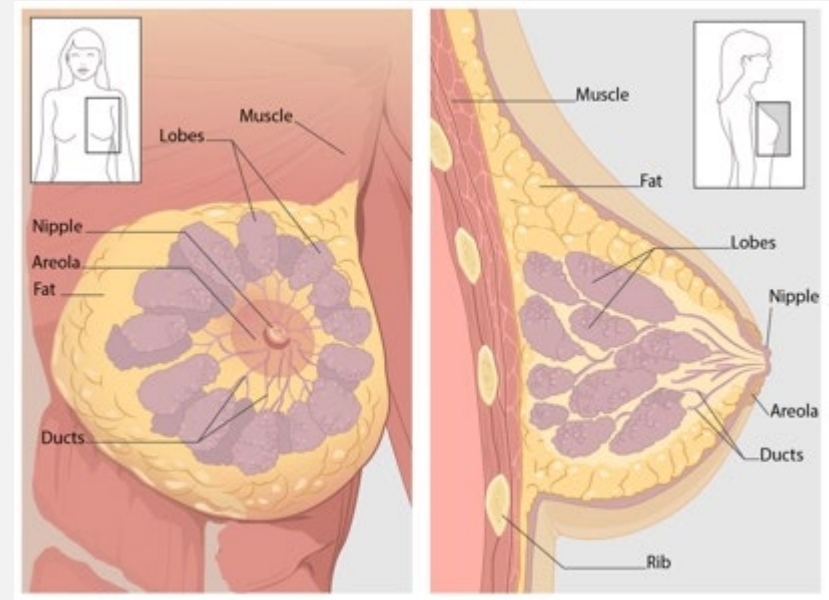


Image Source: Centers for Disease Control and Prevention. What Is Breast Cancer? [cdc.gov/cancer/breast/basic_info/what-is-breast-cancer.htm](https://www.cdc.gov/cancer/breast/basic_info/what-is-breast-cancer.htm)

Breast Cancer Symptoms

- The most common symptom is a new lump or mass in the breast or underarm (armpit).
 - A painless, hard lump with irregular edges is more likely to be cancer, but breast cancers can also be tender, soft or rounded.¹
 - Most breast lumps are not cancer and are caused by other medical conditions.²
- Other symptoms of breast cancer include:
 - Thickening or swelling of the breast
 - Irritation or dimpling of the breast skin
 - Redness or flaky skin in the nipple area or the breast
 - Pulling in of the nipple or pain in the nipple area
 - Nipple discharge other than breast milk, including blood
 - Any change in the size or shape of the breast
 - Pain in any area of the breast²

¹ American Cancer Society. Breast Cancer Signs and Symptoms. [cancer.org/cancer/breast-cancer/about/breast-cancer-signs-and-symptoms.html](https://www.cancer.org/cancer/breast-cancer/about/breast-cancer-signs-and-symptoms.html)

² Centers for Disease Control and Prevention. What Are the Symptoms of Breast Cancer? [cdc.gov/cancer/breast/basic_info/symptoms.htm](https://www.cdc.gov/cancer/breast/basic_info/symptoms.htm)

Breast Cancer Risk

- The current prediction is that 1 in 8 women born today will be diagnosed with breast cancer at some point in life.¹
- The average risk of being diagnosed with breast cancer in the next 10 years increases with age.¹

Age	Average Risk
30 years	0.49% (1 in 204)
40 years	1.55% (1 in 65)
50 years	2.40% (1 in 42)
60 years	3.54% (1 in 28)
70 years	4.09% (1 in 24)

- Each woman's risk varies depending on her exposure to modifiable and unmodifiable risk factors.

¹ Breast Cancer Risk in American Women. National Cancer Institute. [cancer.gov/types/breast/risk-fact-sheet](https://www.cancer.gov/types/breast/risk-fact-sheet)

Breast Cancer Modifiable Risk Factors

A recent study estimated that almost 1 in 3 breast cancer cases are attributable to three modifiable lifestyle factors:

- Excess body weight
- Physical inactivity
- Alcohol consumption¹

Other modifiable risk factors include:

- Taking hormones
 - Some forms of hormone replacement therapy
 - Certain oral contraceptives (birth control pills)
- Reproductive history
 - Having the first child after age 30
 - Not breastfeeding
 - Never having a full-term pregnancy²

¹ Islami F, Goding Sauer A, Miller KD, et al. (2018). Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States. *CA: A Cancer Journal for Clinicians*, 68(1), 31-54.

² Centers for Disease Control and Prevention. What Are the Risk Factors for Breast Cancer? [cdc.gov/cancer/breast/basic_info/risk_factors.htm](https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm)

Breast Cancer Non-Modifiable Risk Factors

Risk factors for breast cancer that you cannot change include:

- Getting older
- Genetic mutations (e.g., BRCA1 and BRCA2)
- Early menstrual periods (before age 12)
- Late menopause (after age 55)
- Dense breasts
- Personal history of breast cancer or certain non-cancerous breast diseases (e.g., atypical hyperplasia or lobular carcinoma in situ)
- Family history of breast cancer
- Previous treatment using radiation therapy to the chest or breasts
- Exposure to DES (diethylstilbestrol), a drug given to some pregnant women from 1940 to 1971 to prevent miscarriage¹

¹ Centers for Disease Control and Prevention. What Are the Risk Factors for Breast Cancer? [cdc.gov/cancer/breast/basic_info/risk_factors.htm](https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm)

Breast Cancer Screening

- Screening is a check for cancer or abnormal cells that may become cancer in people who have no symptoms.
- Screening helps find breast cancer at an early stage when it is more easily treated.
- Mammography, an x-ray of the breast, is the most common screening test for breast cancer. Magnetic resonance imaging (MRI) may be used to screen women who have a high risk of breast cancer.¹
- The U.S. Preventive Service Task Force (USPSTF) currently recommends a screening mammogram every other year for women ages 50-74 years who are at average risk.²
- The USPSTF advises women in their 40s to discuss their individual risk as well as the benefits and harms of screening with their doctor.
- Some other groups, such as the American Cancer Society³, recommend different screening guidelines.

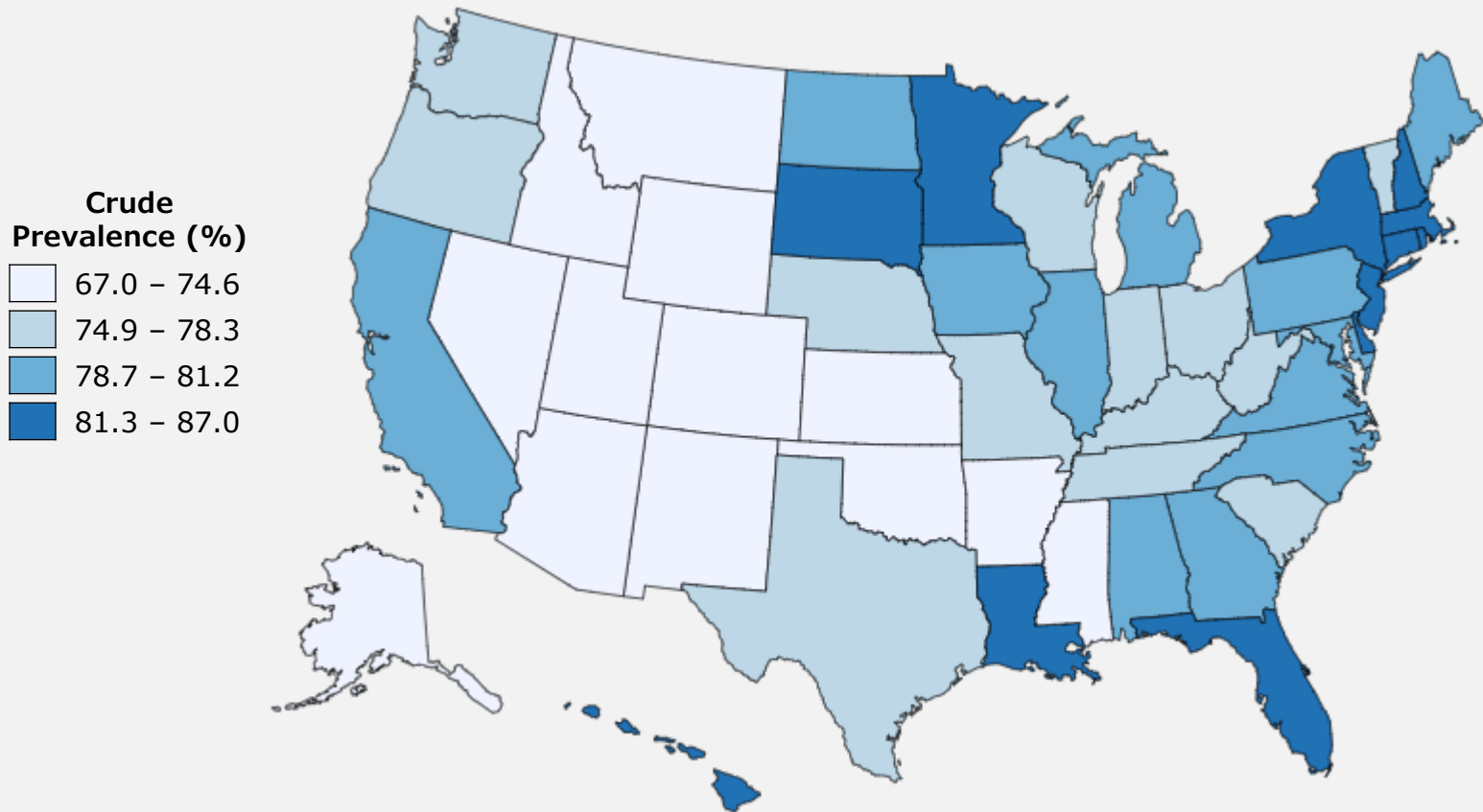
¹ National Cancer Institute. Breast Cancer Screening (PDQ®)–Patient Version. cancer.gov/types/breast/patient/breast-screening-pdq

² United States Preventive Services Task Force. Breast Cancer: Screening. uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening

³ American Cancer Society. American Cancer Society Recommendations for the Early Detection of Breast Cancer. cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html

Breast Cancer Screening Prevalence

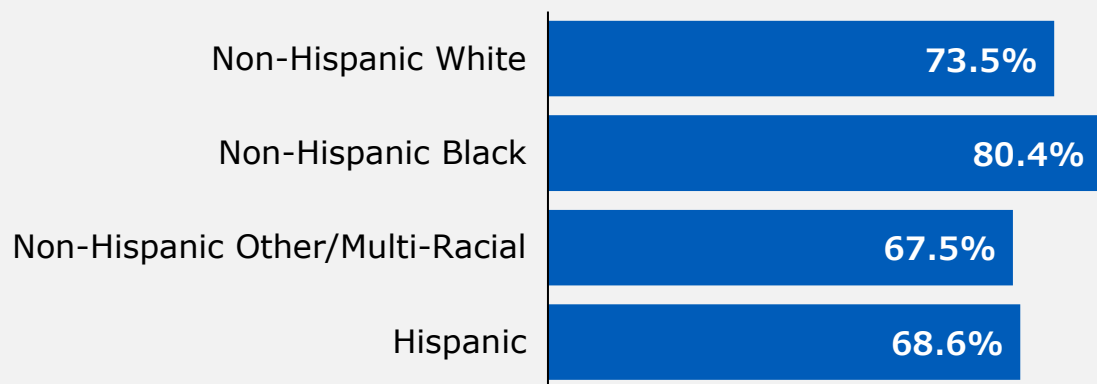
According to Behavioral Risk Factor Surveillance System (BRFSS) 2018 data, 74.9% of women in Texas aged 50-74 years had a mammogram within the past 2 years. This was lower than the United States overall, which was 78.8%.



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

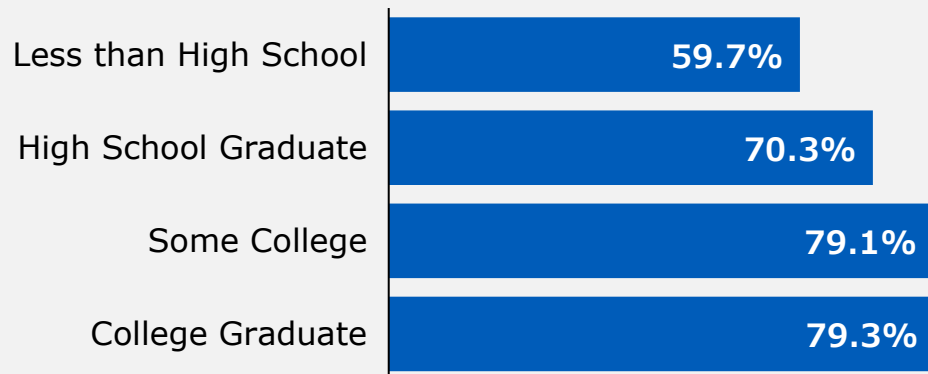
Breast Cancer Screening Prevalence by Race/Ethnicity and by Education Level

Breast Cancer Screening Prevalence by Race/Ethnicity, Texas, 2018¹



Non-Hispanic Black women had the highest breast cancer screening prevalence.

Breast Cancer Screening Prevalence by Education Level, Texas, 2018¹



Breast cancer screening prevalence was lowest among those with less than high school education and highest among those who had at least attended some college.

¹ Texas Behavioral Risk Factor Surveillance System (BRFSS), Center for Health Statistics. healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/brfss
Measure: Percentage of adult females 50 years and older who had a mammogram in the past two years.

Breast Cancer Screening Prevalence by Income Level and by Insurance Status

Breast Cancer Screening Prevalence by Income Level, Texas, 2018¹



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

Breast Cancer Screening Prevalence by Insurance Status, Texas, 2018¹



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

¹ Texas Behavioral Risk Factor Surveillance System (BRFSS), Center for Health Statistics. healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/brfss
Measure: Percentage of adult females 50 years and older who had a mammogram in the past two years.

Female Breast Cancer Incidence

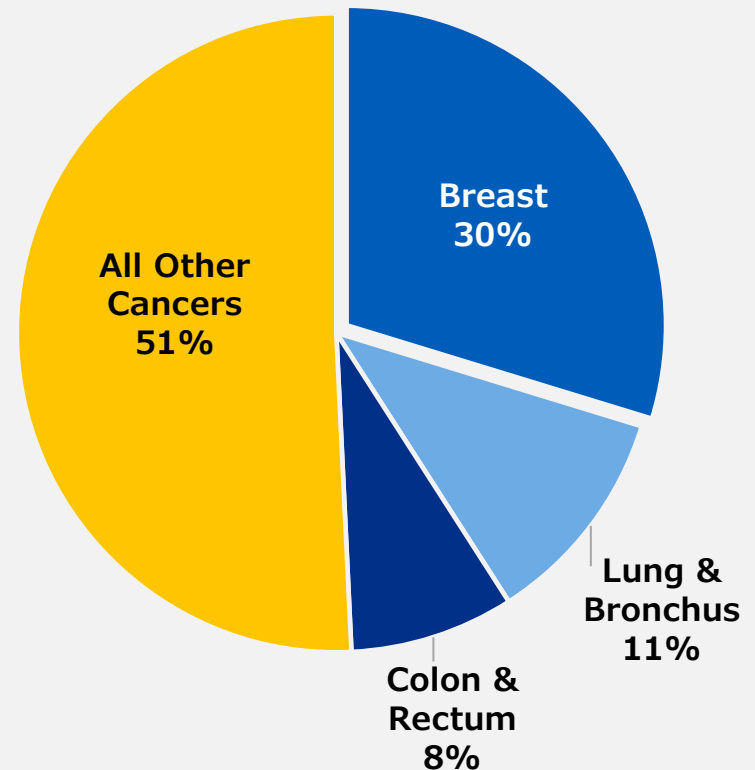
Rates and trends by age, race/ethnicity, and stage at diagnosis

Overview of Breast Cancer Incidence in Texas

Incidence (New Cases)

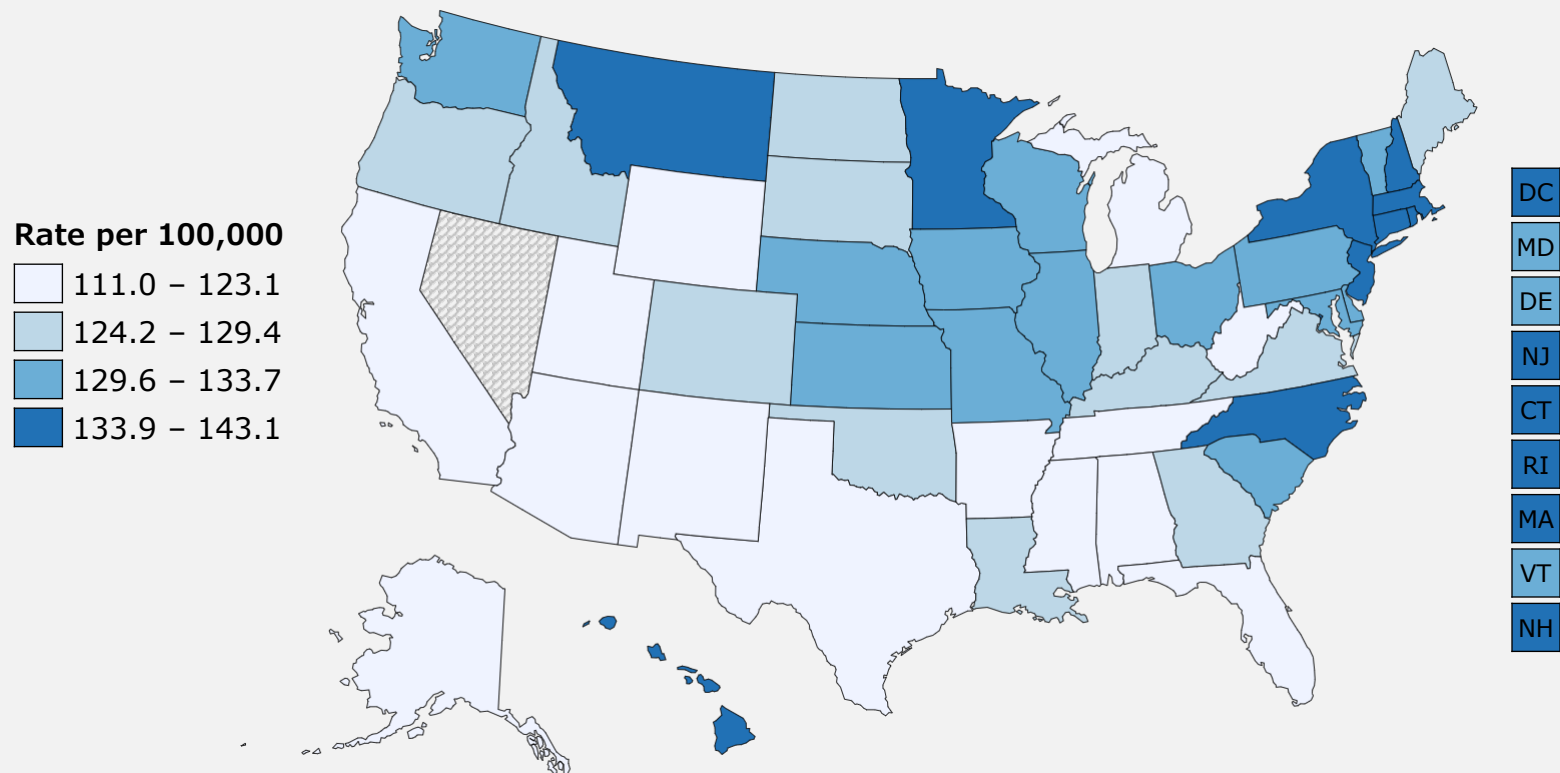
- Breast cancer is the most diagnosed cancer in Texas women.
- In 2022, an estimated 19,921 new cases of female breast cancer will be diagnosed in Texas.
- During 2014–2018, the incidence rate of invasive or malignant breast cancer in Texas was **114.1** cases per 100,000 women and the incidence rate of non-invasive or in situ breast cancer was **22.2** cases per 100,000 women.

Estimated New Cancer Cases in Females, Texas, 2021



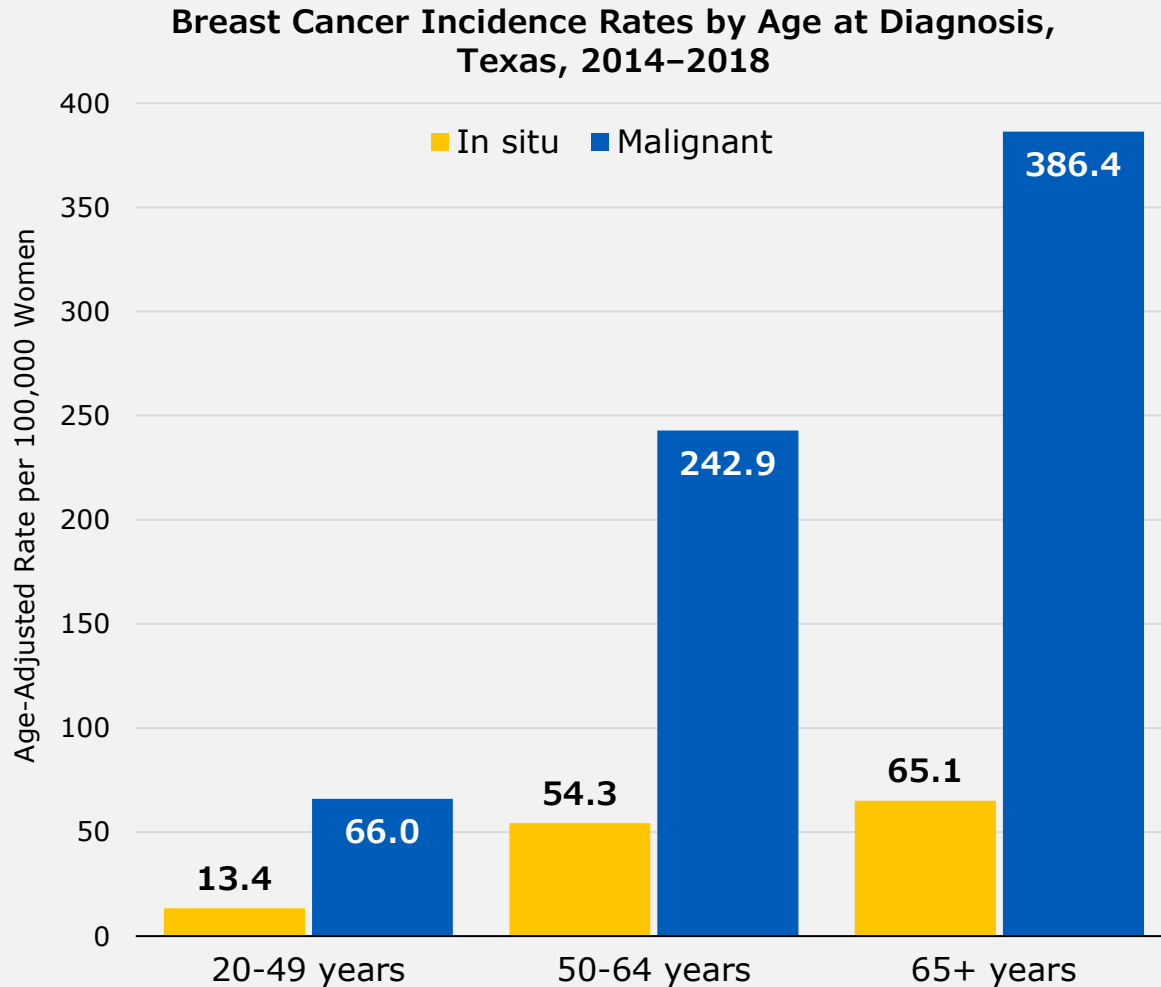
U.S. Breast Cancer Incidence Rates

From 2014 to 2018, Texas ranked 49th out of all U.S. states and D.C. in female breast cancer incidence. The breast cancer incidence rate in Texas (114.1 cases per 100,000 women) was lower than the U.S. rate of 126.9 cases per 100,000 women.



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.

Breast Cancer Incidence Rates by Age at Diagnosis



In Situ

From 2014 to 2018, the incidence rate of in situ breast cancer increased with age, from 13.4 cases per 100,000 women at ages 20–49 years to 65.1 at ages 65 years and older.

Malignant

The incidence rate of malignant breast cancer also increased with age, from 66.0 cases per 100,000 women at ages 20–49 years to 386.4 at ages 65 years and older.

In situ breast cancer is non-invasive/pre-invasive. Malignant breast cancer is invasive or infiltrating cancer that has spread into surrounding breast tissue.

Breast Cancer Incidence Rates by Race/Ethnicity

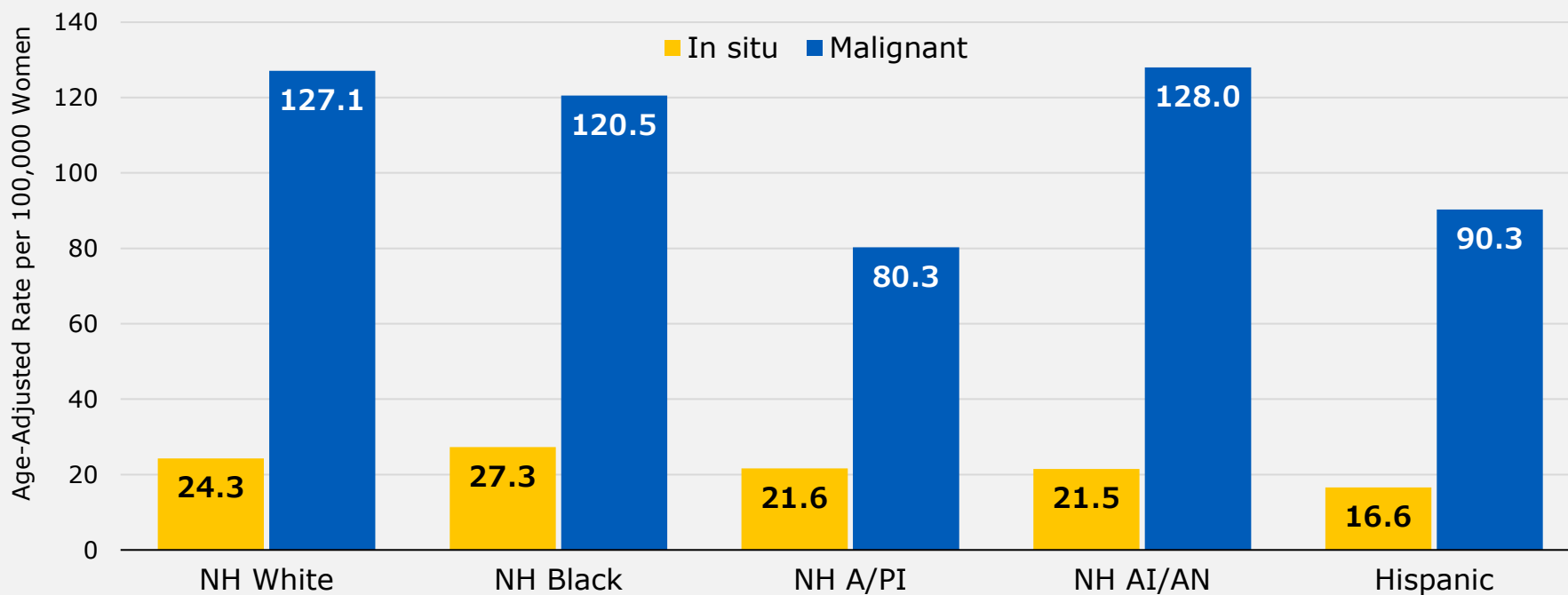
In Situ

- During 2014–2018, the incidence rate of in situ breast cancer was highest in non-Hispanic (NH) Black women at 27.3 cases per 100,000 women, and lowest among Hispanic women at 16.6 cases per 100,000 women.

Malignant

- Malignant breast cancer incidence rates were highest in NH American Indian/Alaska Native (128.0) and white women (127.1), and lowest among NH Asian/Pacific Islander women at 80.3 cases per 100,000 women.

Breast Cancer Incidence Rates by Race/Ethnicity, Texas, 2014–2018

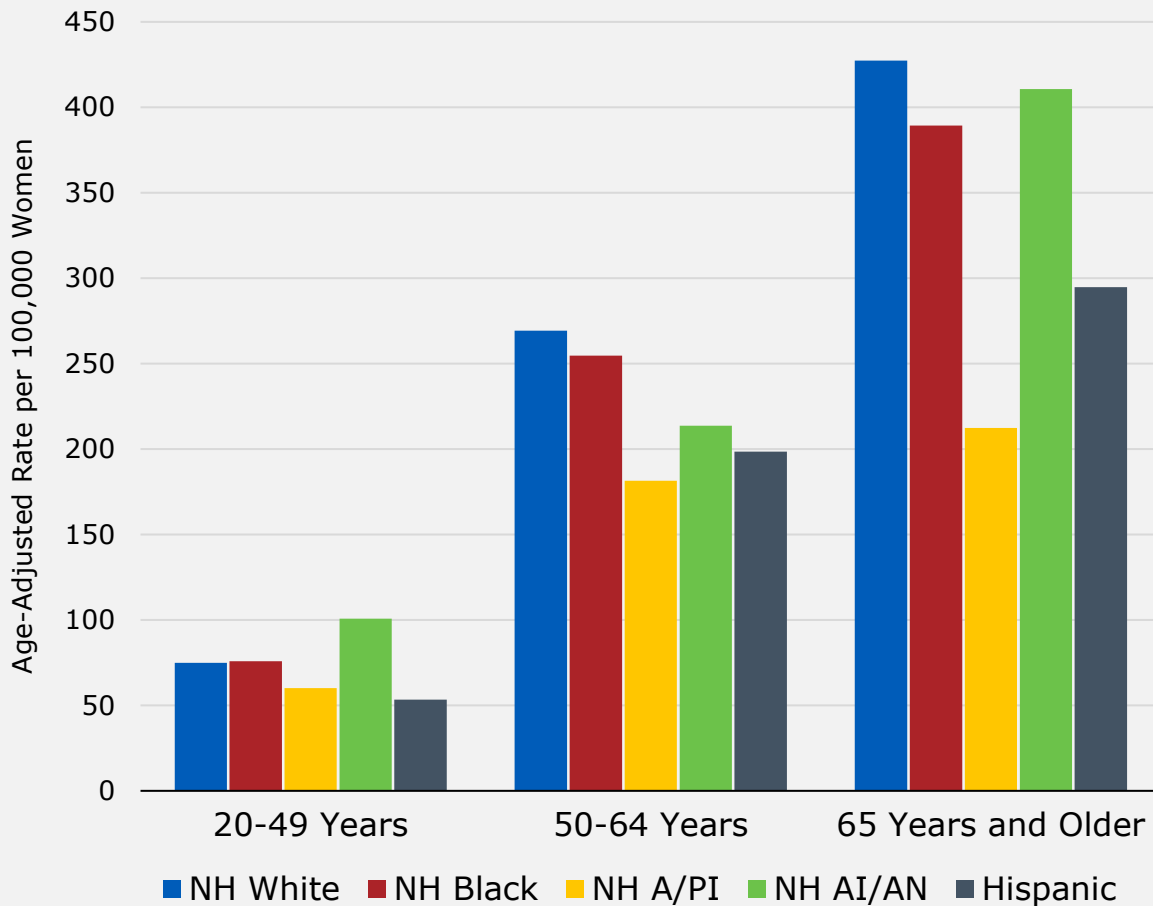


NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native.

In situ breast cancer is non-invasive/pre-invasive. Malignant breast cancer is invasive or infiltrating cancer that has spread into surrounding breast tissue.

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

Breast Cancer Incidence Rates by Age at Diagnosis and Race/Ethnicity, Texas, 2014–2018



20–49 Years

- During 2014–2018, incidence rates were highest in non-Hispanic American Indian/Alaska Native (100.8 per 100,000), NH Black (75.8), and NH white (74.9) women.
- Rates were lowest in Hispanic women (53.3).

50–64 Years

- Incidence rates were highest in NH white (269.2) and NH Black (254.7) women.
- Rates were lowest in NH Asian/Pacific Islander women (181.4).

65 Years and Older

- Incidence rates were highest in NH whites (427.3) and NH AI/AN (410.7).
- Rates were lowest among NH A/PI women (212.4).

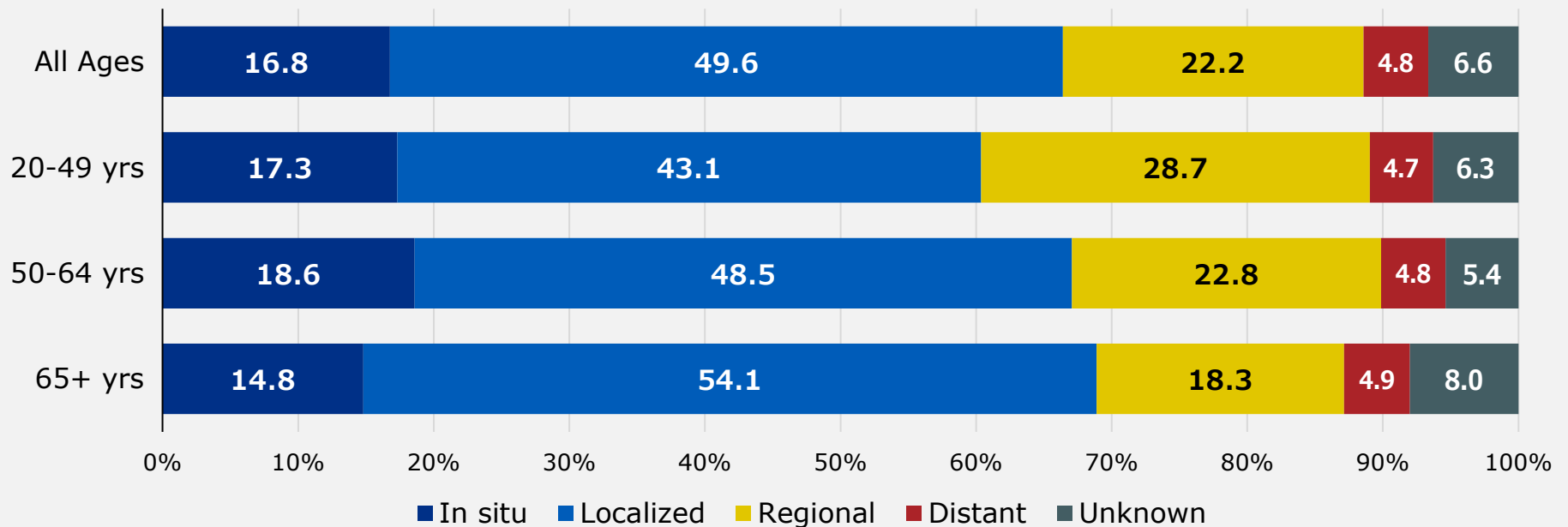
Malignant/invasive cases only.

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

Breast Cancer Cases by Stage at Diagnosis grouped by Age at Diagnosis

- Among those age 20-49 years at diagnosis, a smaller proportion of cases (60.4%) were diagnosed at an early stage (in situ or localized) compared to the older age groups.
- The proportion of cases diagnosed at distant stage was similar across all age groups.

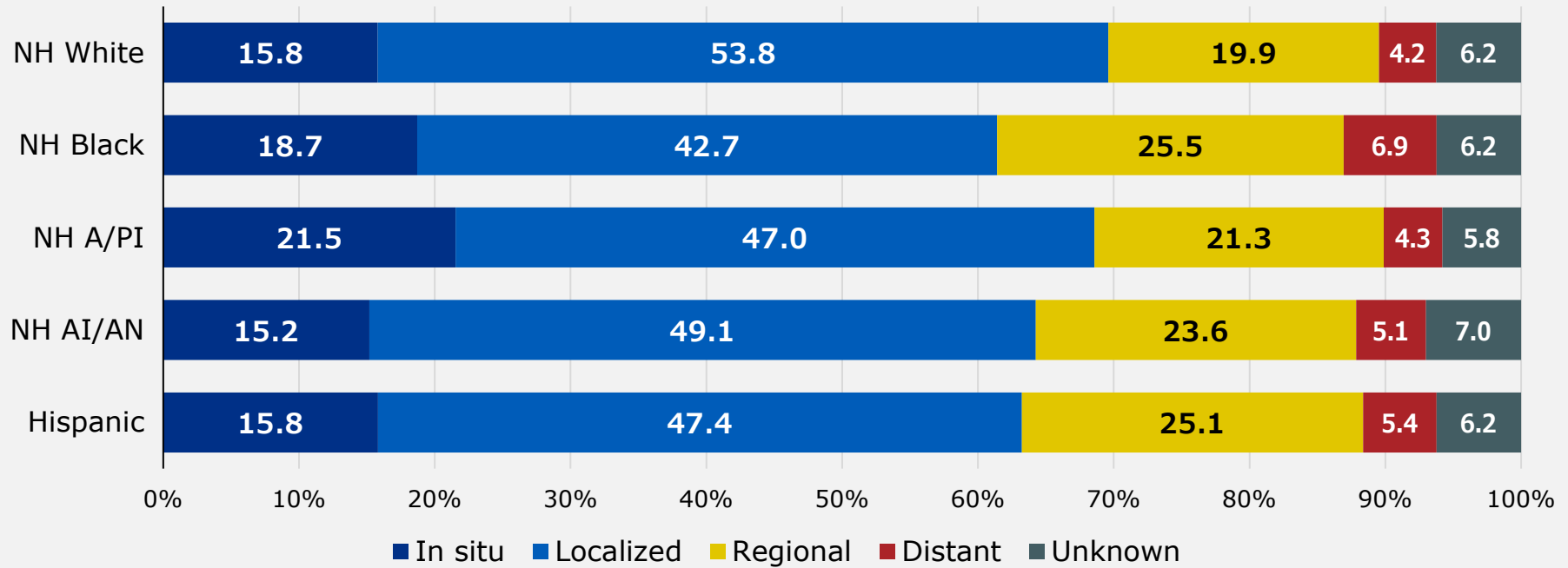
Proportion (%) of Female Breast Cancer Cases by Stage at Diagnosis and grouped by Age at Diagnosis, Texas, 2014–2018



Breast Cancer Cases by Stage at Diagnosis grouped by Race/Ethnicity

- The proportion of cases diagnosed at an early stage (in situ or localized) was highest among non-Hispanic (NH) white (69.6%) and NH Asian/Pacific Islander (68.5%) women and lowest for NH Black (61.4%) and Hispanic (63.2%) women.
- The proportion of cases that were diagnosed at the distant stage was highest among NH Black women (6.9%).

Proportion (%) of Breast Cancer Cases by Stage of Diagnosis and grouped by Race/Ethnicity, Texas, 2014-2018

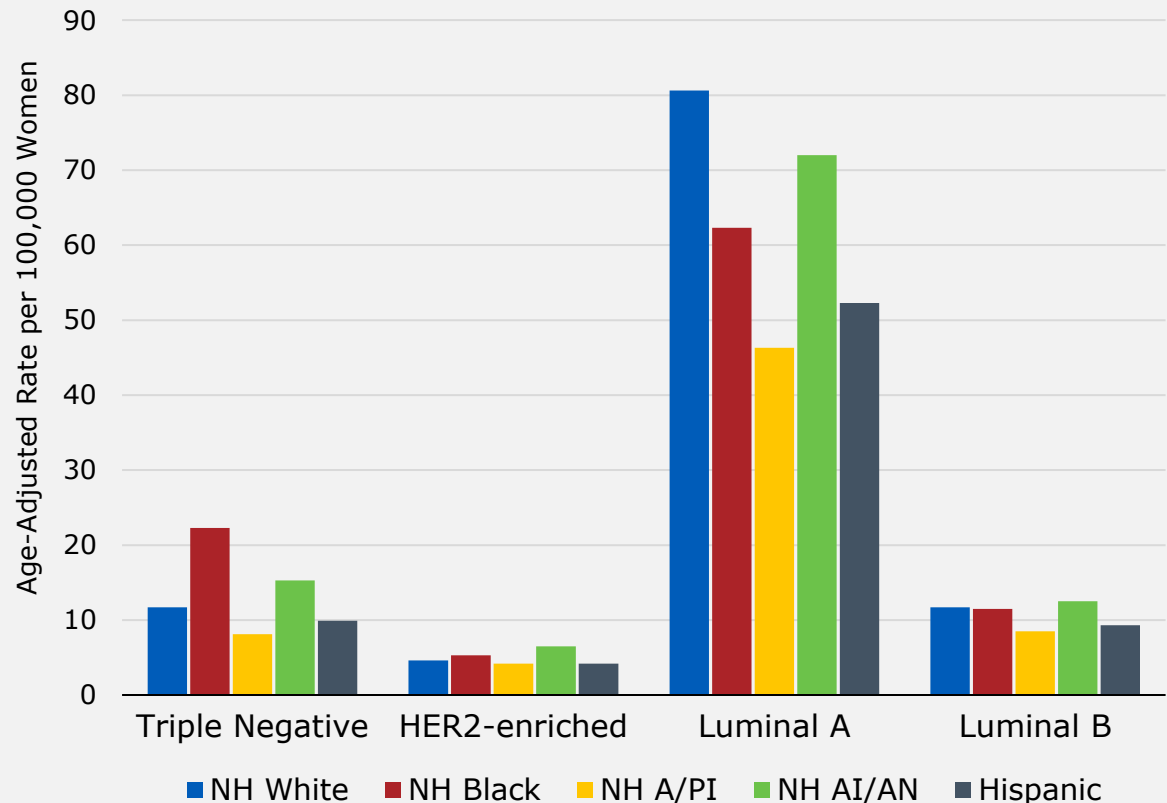


NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native.

Breast Cancer Incidence Rates by Molecular Subtype

- Breast cancer can be defined by molecular subtype based on the presence or absence of hormone receptors (HR) and on the amplification or overexpression of Human Epidermal Growth Factor Receptor 2 (HER2).
- Luminal A (HR-positive/HER2-negative) is the most common subtype, with the highest incidence rate in Non-Hispanic (NH) white women.
- Triple negative (HR-negative/HER2-negative) is the second most common subtype overall. It is more common in NH Black women.

Malignant Breast Cancer Incidence Rates by Molecular Subtype, Texas, 2014–2018



Malignant/invasive cases only.

Triple Negative = HR-/HER2-; HER2 enriched = HR-/HER2+; Luminal A = HR+/HER2-; Luminal B = HR+/HER2+.

HR+ cases were defined as those where either estrogen or progesterone receptors were present. HR- cases were defined as those where neither estrogen or progesterone receptors were positive. Cases where one or more markers were unknown/borderline are not shown (19% of cases overall from 2014 to 2018).

Subtypes were defined using Howlader et al. (2014). US incidence of breast cancer subtypes defined by joint hormone receptor and HER2 status. Journal of the National Cancer Institute. 106(5).

Breast Cancer Incidence Rates by Urban-Rural Classification

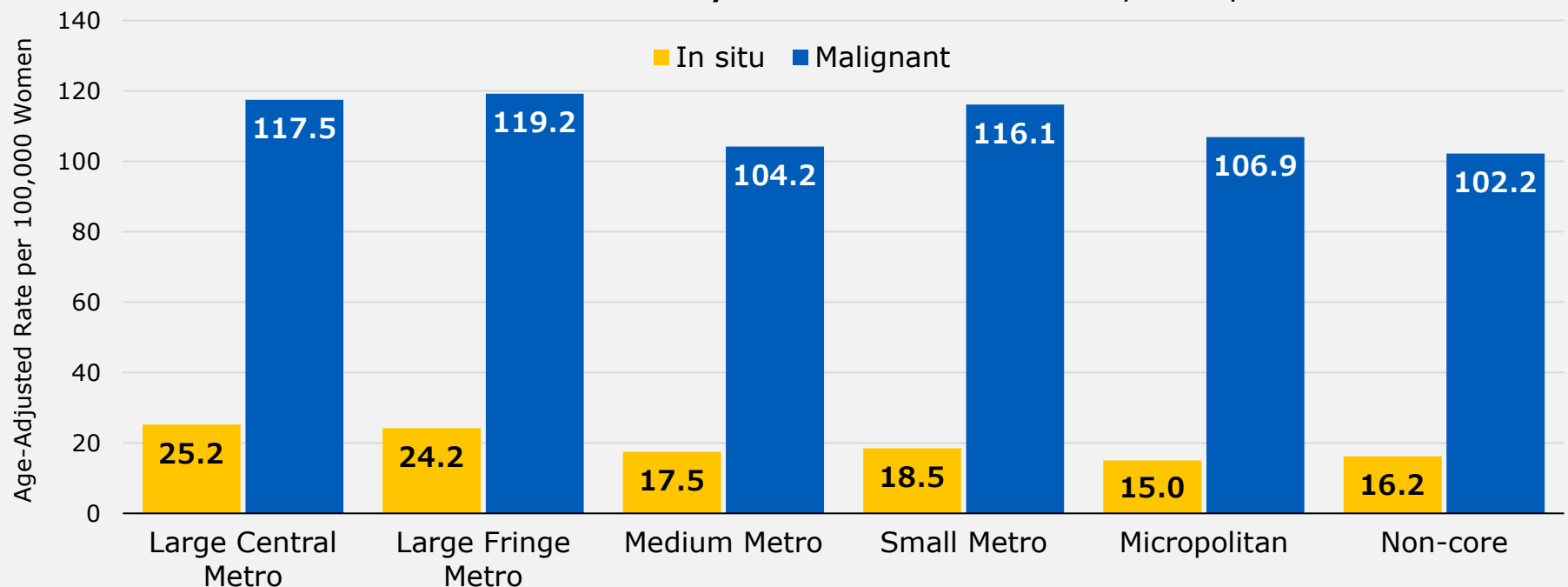
In Situ

- During 2014–2018, in situ breast cancer incidence rates were highest among those living in large central (25.2) and large fringe (24.2) metro areas. In situ rates were lowest in micropolitan areas.

Malignant

- Incidence rates of malignant breast cancer were also highest among those living in large fringe (119.2) and large central (117.5) metro areas. Malignant rates were lowest in non-core areas.

Breast Cancer Incidence Rates by Urban-Rural Classification, Texas, 2014–2018

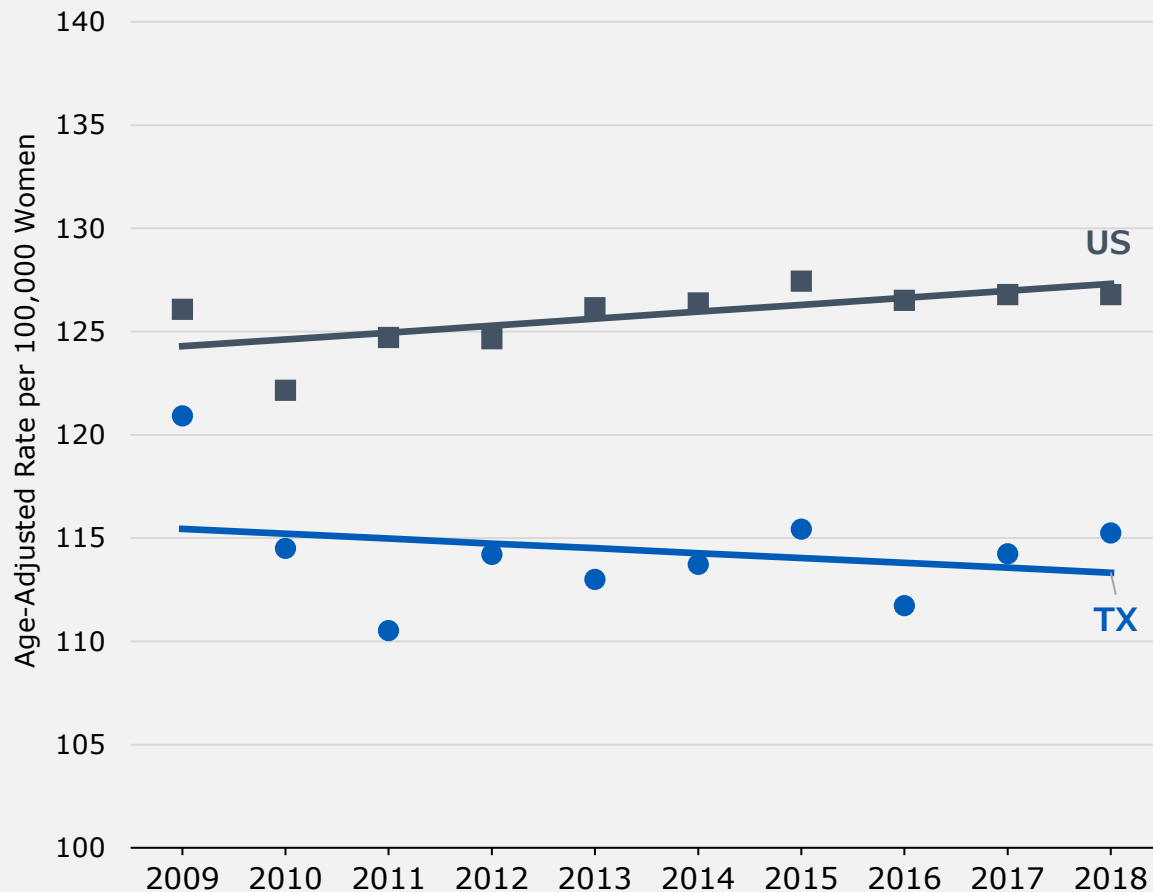


For information on urban-rural classification, see slide [Texas Urban-Rural Classification](#).

In situ breast cancer is non-invasive/pre-invasive. Malignant breast cancer is invasive or infiltrating cancer that has spread into surrounding breast tissue.

Breast Cancer Incidence Trends, Texas vs U.S.

Trends in Female Breast Cancer Incidence Rates, Texas and U.S., 2009–2018



- Breast cancer incidence rates were higher in the U.S. than in Texas from 2009 to 2018.
- In the U.S., incidence rates increased by an average of 0.3% per year over the time period.
- Incidence rates of female breast cancer were stable in Texas.

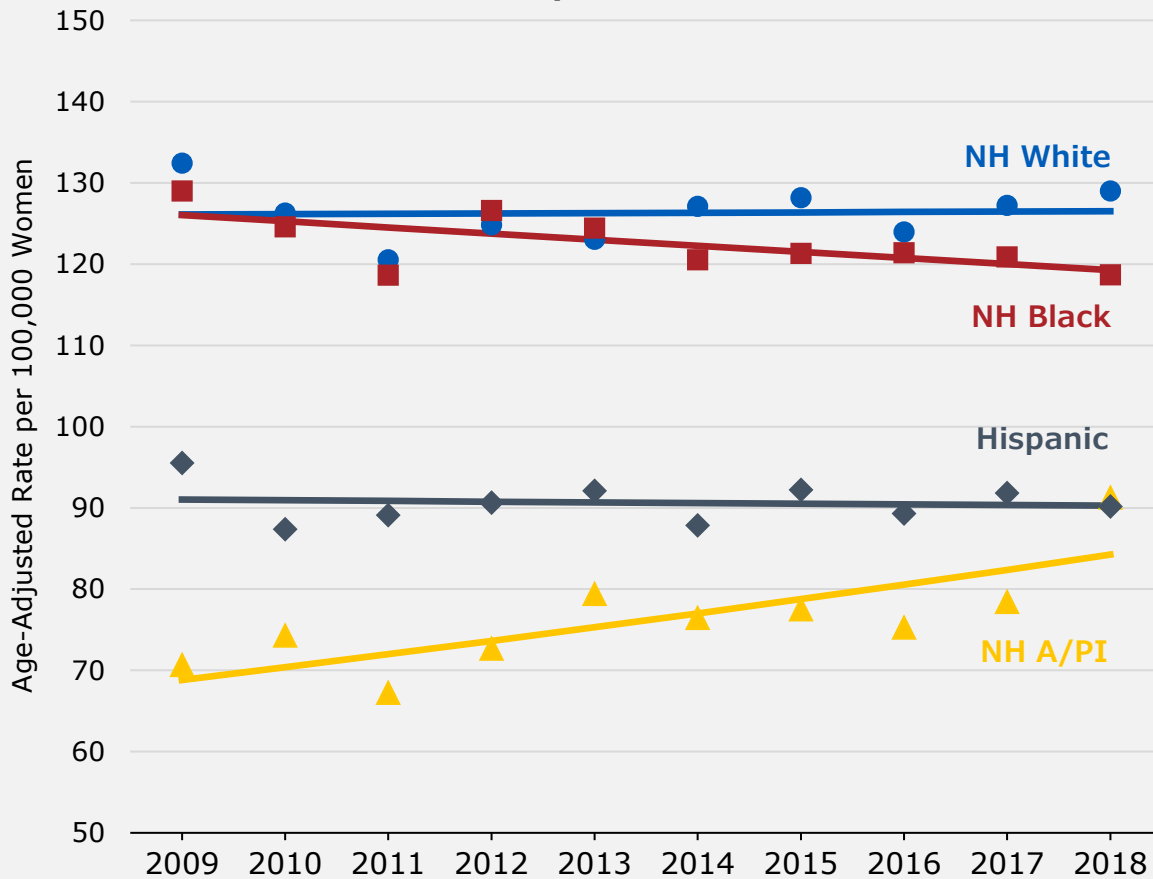
—●— Texas, AAPC = -0.2
—■— U.S., AAPC = 0.3*
Lines represent the modeled trends;
Markers represent the observed data.
*AAPC significantly different from zero.

Malignant/invasive cases only.

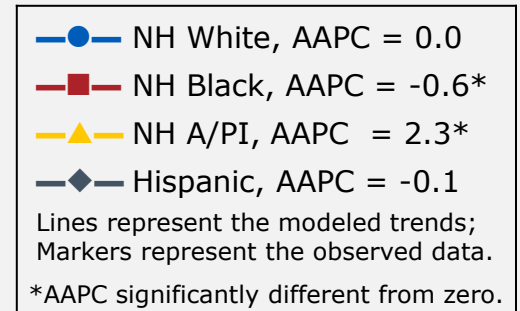
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Breast Cancer Incidence Trends by Race/Ethnicity

Trends in Female Breast Cancer Incidence Rates by Race/Ethnicity, Texas, 2009–2018



- Incidence rates of breast cancer decreased among non-Hispanic Black women by an average of 0.6% per year from 2009 to 2018.
- Among NH Asian/Pacific Islander women, incidence rates increased by an average of 2.3% per year over the period.
- Rates remained stable among NH White and Hispanic women.



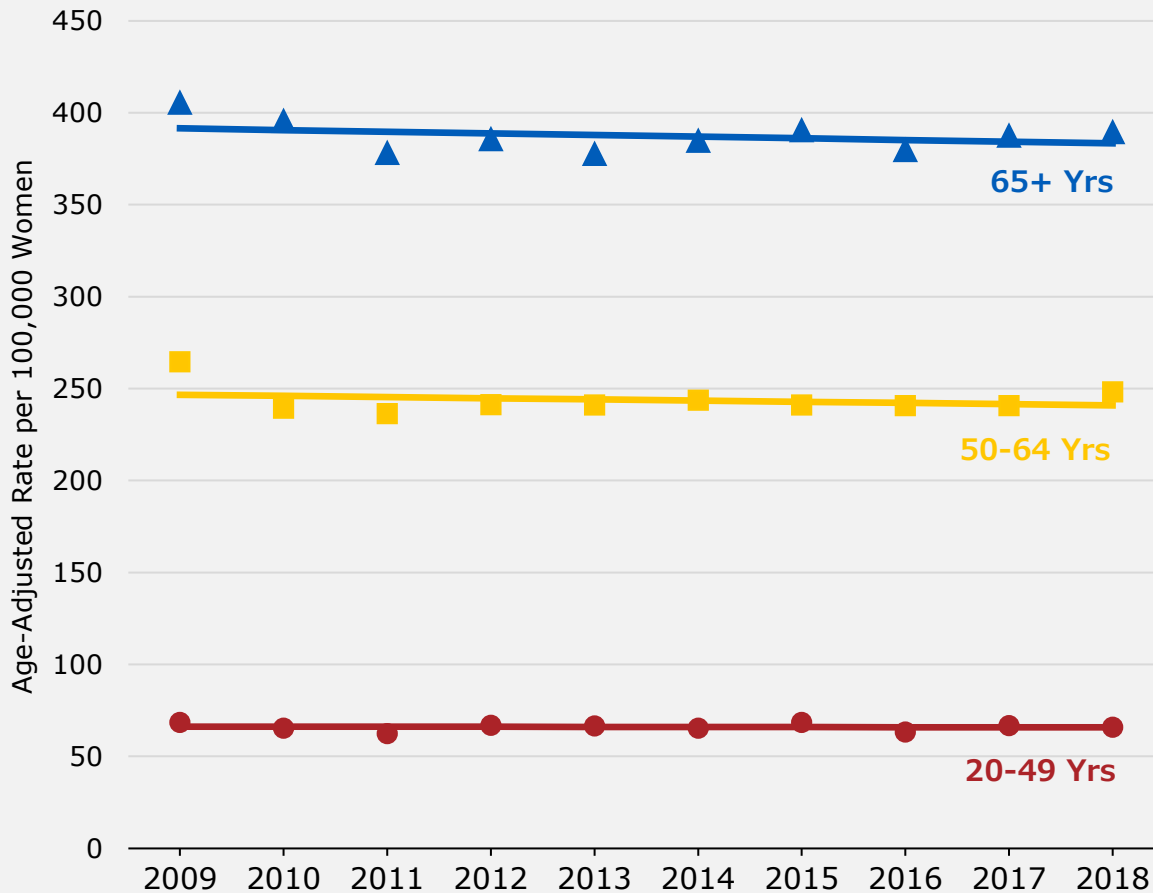
Malignant/invasive cases only. NH = Non-Hispanic; A/PI = Asian/Pacific Islander.

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.

Breast Cancer Incidence Trends by Age at Diagnosis

Trends in Female Breast Cancer Incidence Rates by Age at Diagnosis, Texas, 2009–2018



- Female breast cancer incidence rates were stable across all age groups from 2009 to 2018.

—●— 20-49 yrs, AAPC = -0.1
 —■— 50-64 yrs, AAPC = -0.3
 —▲— 65+ yrs, AAPC = -0.2
 Lines represent the modeled trends;
 Markers represent the observed data.
 *AAPC significantly different from zero.

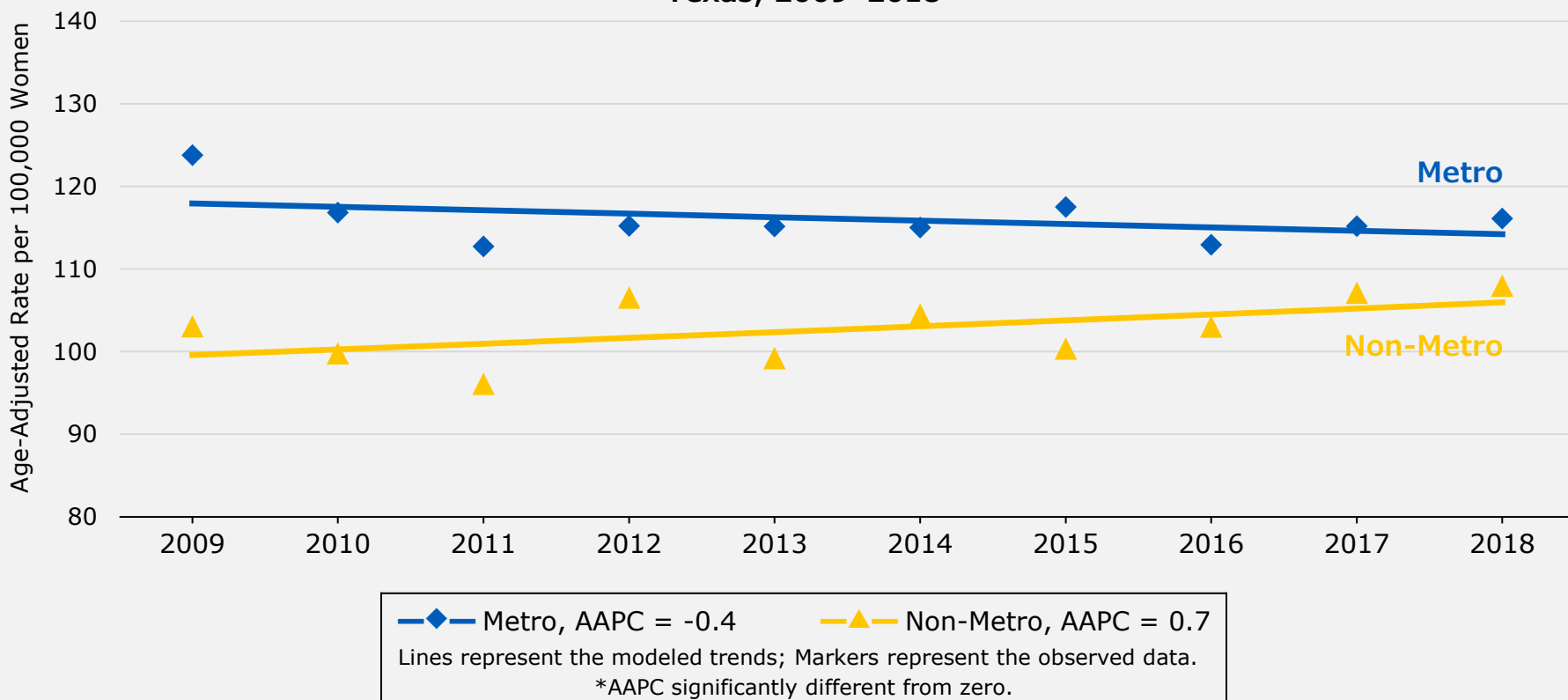
Malignant/invasive cases only.

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

Breast Cancer Incidence Trends by Metro Area

Female breast cancer incidence rates were stable among those living in metro and non-metro areas from 2009 to 2018.

Trends in Female Breast Cancer Incidence Rates by Metro Area, Texas, 2009–2018



Malignant/invasive cases only.

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

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

Race/Ethnicity	Age at Diagnosis	Average Annual Percent Change 2009-2018
NH White	20-49 Years	0.3
	50-64 Years	0.0
	65 Years and Older	-0.1
NH Black	20-49 Years	-0.6
	50-64 Years	-0.6*
	65 Years and Older	-0.6
NH A/PI	20-49 Years	2.6*
	50-64 Years	1.5
	65 Years and Older	2.7
Hispanic	20-49 Years	-0.2
	50-64 Years	-0.2
	65 Years and Older	0.0

Non-Hispanic (NH) White

Incidence rates remained stable across all age groups.

NH Black

Incidence rates decreased by an average of 0.6% per year among those ages 50-64 years at diagnosis. Rates remained stable for the other age groups.

NH Asian/Pacific Islander (A/PI)

Incidence rates increased by an average of 2.6% per year among those ages 20-49 years at diagnosis. There were also non-significant increases in rates among those ages 50-64 years and ages 65 years and older at diagnosis.

Hispanic

Incidence rates remained stable across all age groups.

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.

Breast Cancer Incidence Rates by Public Health Region

The incidence rate of breast cancer was highest in Public Health Regions (PHRs) 3 and 7. It was lowest in PHR 11.

Incidence Rates of Breast Cancer by PHR, Texas, 2014–2018

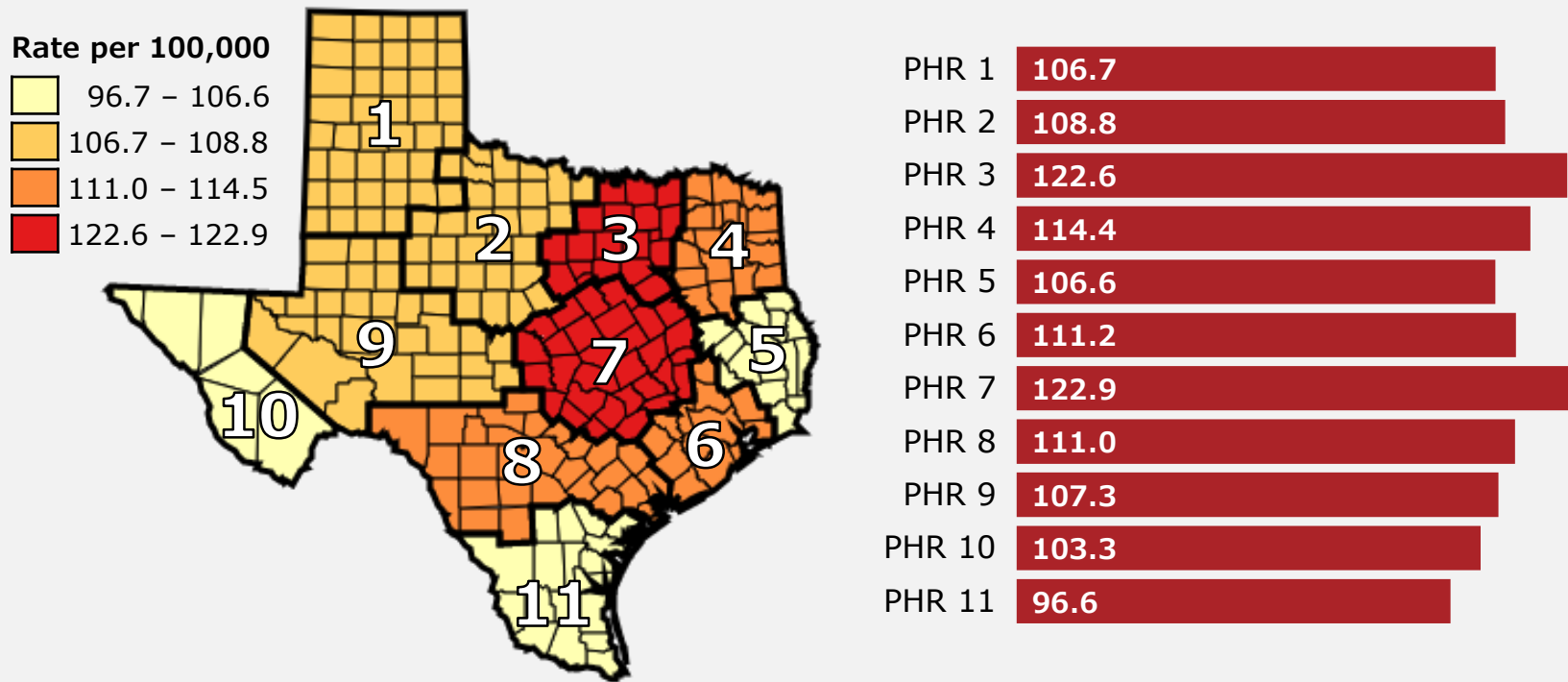


Image Source: Web Query Tool. Texas Cancer Registry. <https://www.cancer-rates.info/tx/>

Female Breast Cancer Mortality

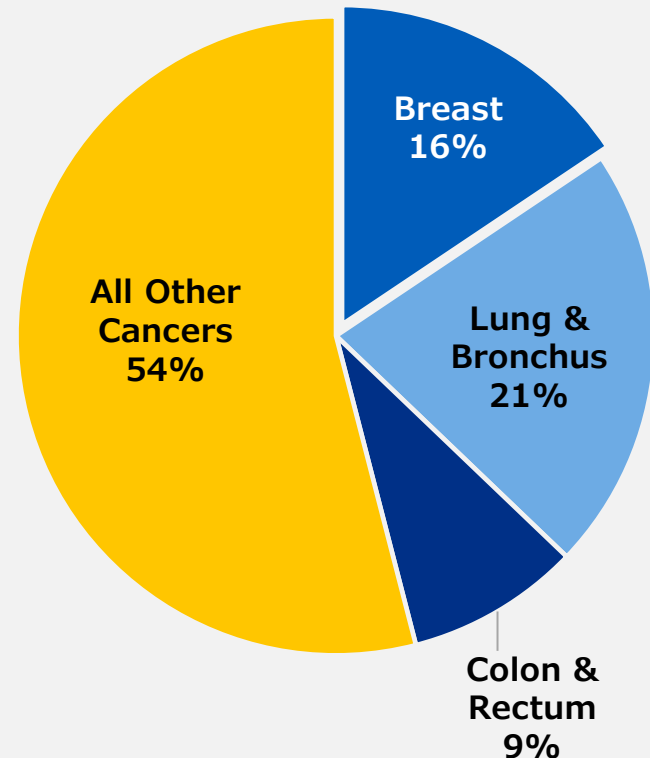
Rates and trends by age, race/ethnicity, and public health region

Overview of Breast Cancer Mortality in Texas

Mortality (Deaths)

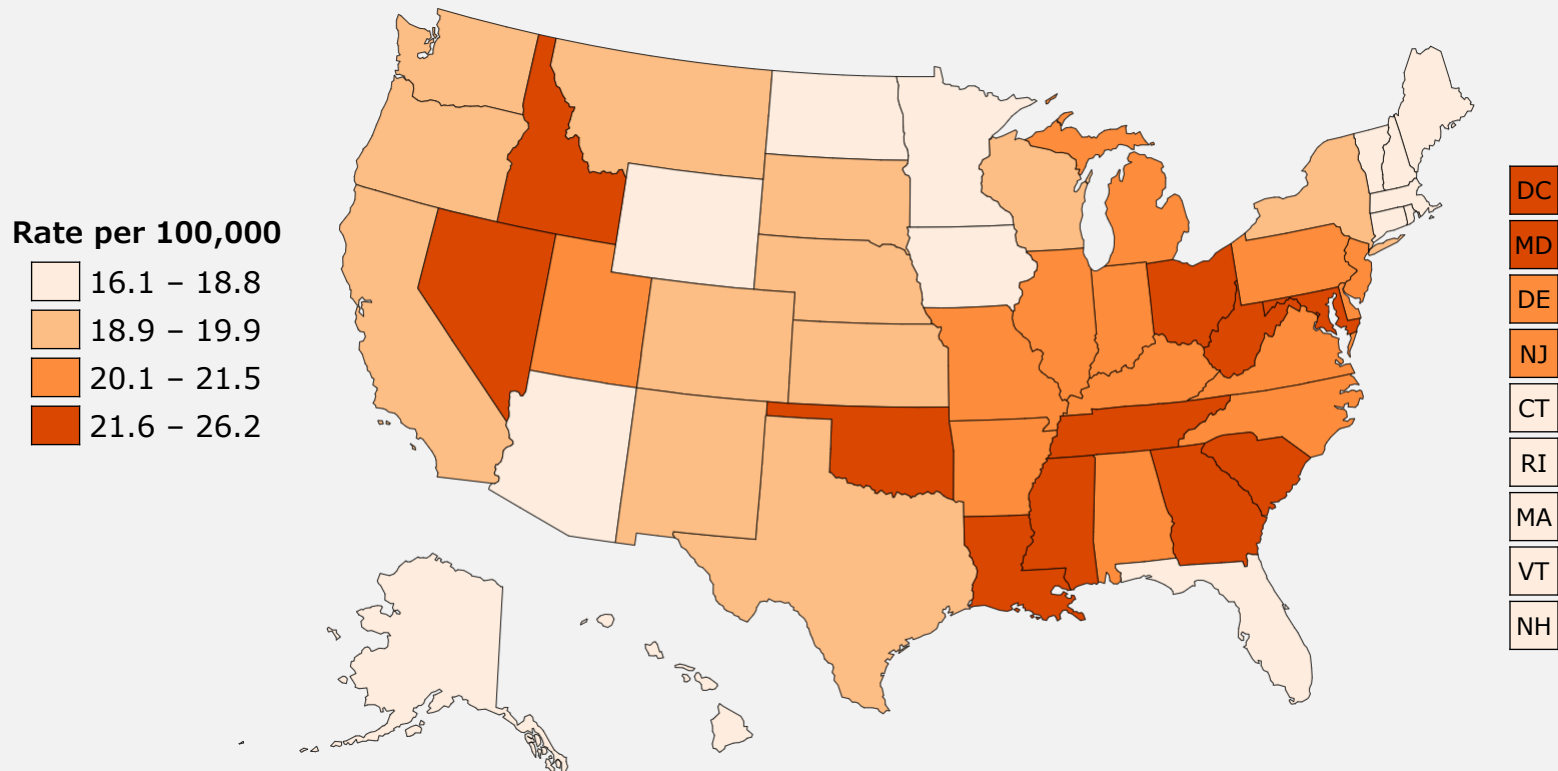
- In 2022, an estimated 3,415 women will die of breast cancer in Texas. It is the second leading cause of cancer death in Texas women. Most deaths will be from cases that were diagnosed years before.
- During 2014-2018, the breast cancer mortality rate in Texas was **19.7** deaths per 100,000 women.

Estimated Cancer Deaths in Females, Texas, 2021



U.S. Breast Cancer Mortality Rates

From 2014 to 2018, Texas ranked 26th out of all U.S. states and D.C. in female breast cancer mortality. The breast cancer mortality rate in Texas (19.7 deaths per 100,000 women) was close to the U.S. rate of 20.1 deaths per 100,000 women.

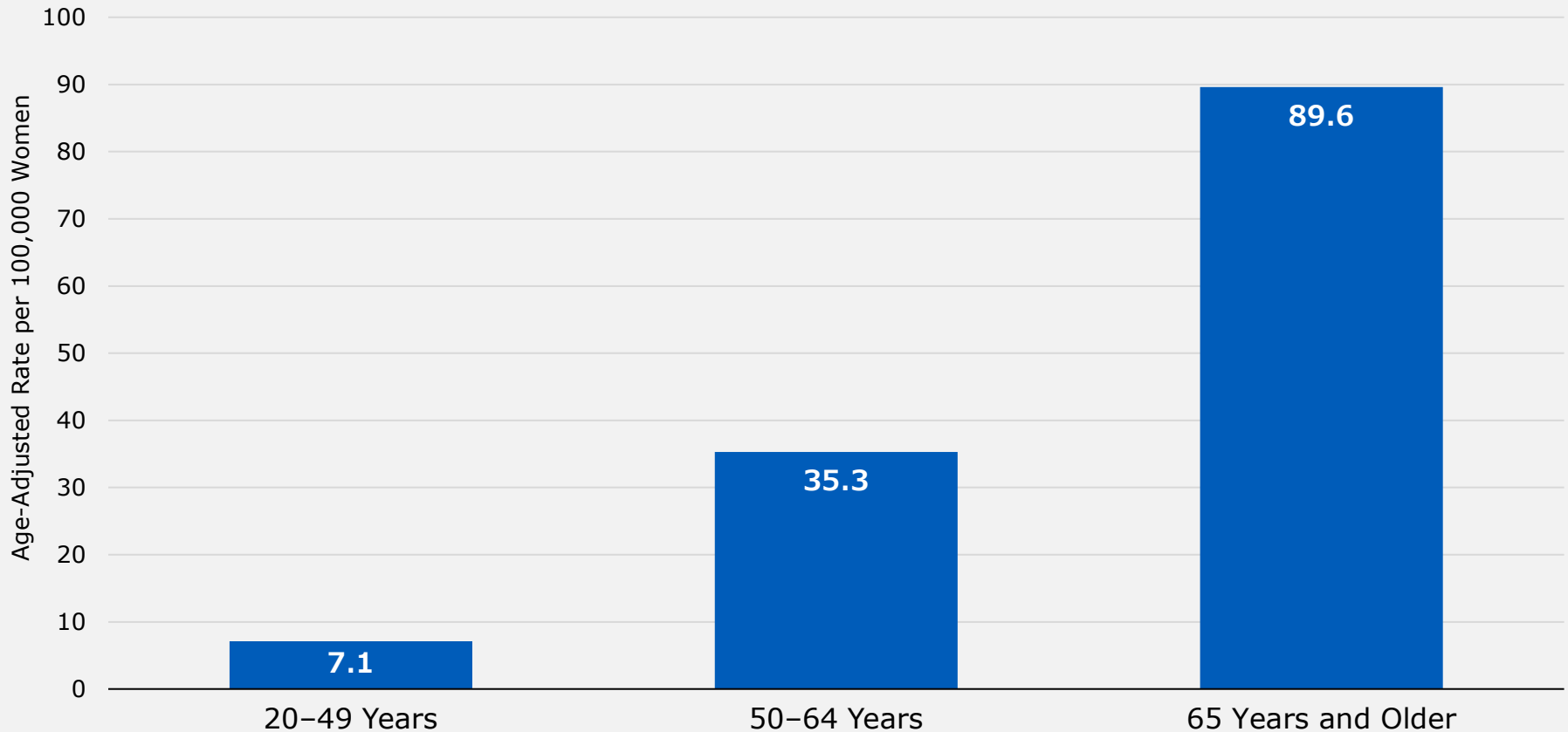


Source: United States Cancer Statistics: Data Visualizations. Centers for Disease Control and Prevention (CDC). gis.cdc.gov/Cancer/USCS/DataViz.html
Rates calculated by the Texas Cancer Registry may differ slightly from those calculated by the CDC due to rounding differences.

Breast Cancer Mortality Rates by Age at Death

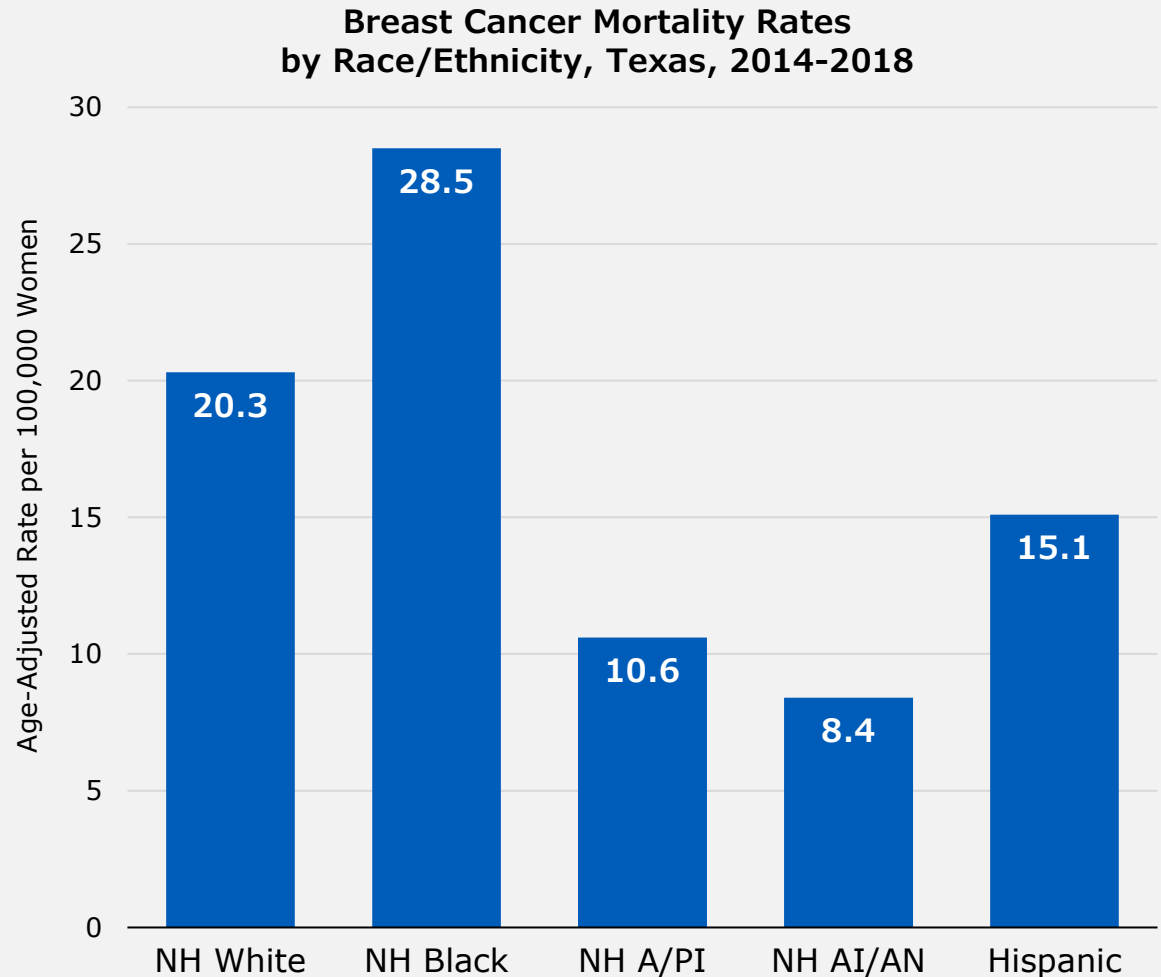
Breast cancer mortality rates increased with age, from 7.1 deaths per 100,000 for ages 20–49 years to 35.3 for ages 50–64 years, and 89.6 for ages 65 years and older.

Breast Cancer Mortality Rates by Age at Death, Texas, 2014–2018



Breast Cancer Mortality Rates by Race/Ethnicity

- During 2014 to 2018, the mortality rate of breast cancer among non-Hispanic (NH) Black women was 28.5 deaths per 100,000 women—significantly higher than in any other race/ethnicity group.
- The breast cancer mortality rate among NH Black women was 40% higher than the rate in NH white and 89% higher than in Hispanic women.
- Breast cancer mortality rates were lowest among NH American Indian/Alaska Native women at 8.4 deaths per 100,000 women.

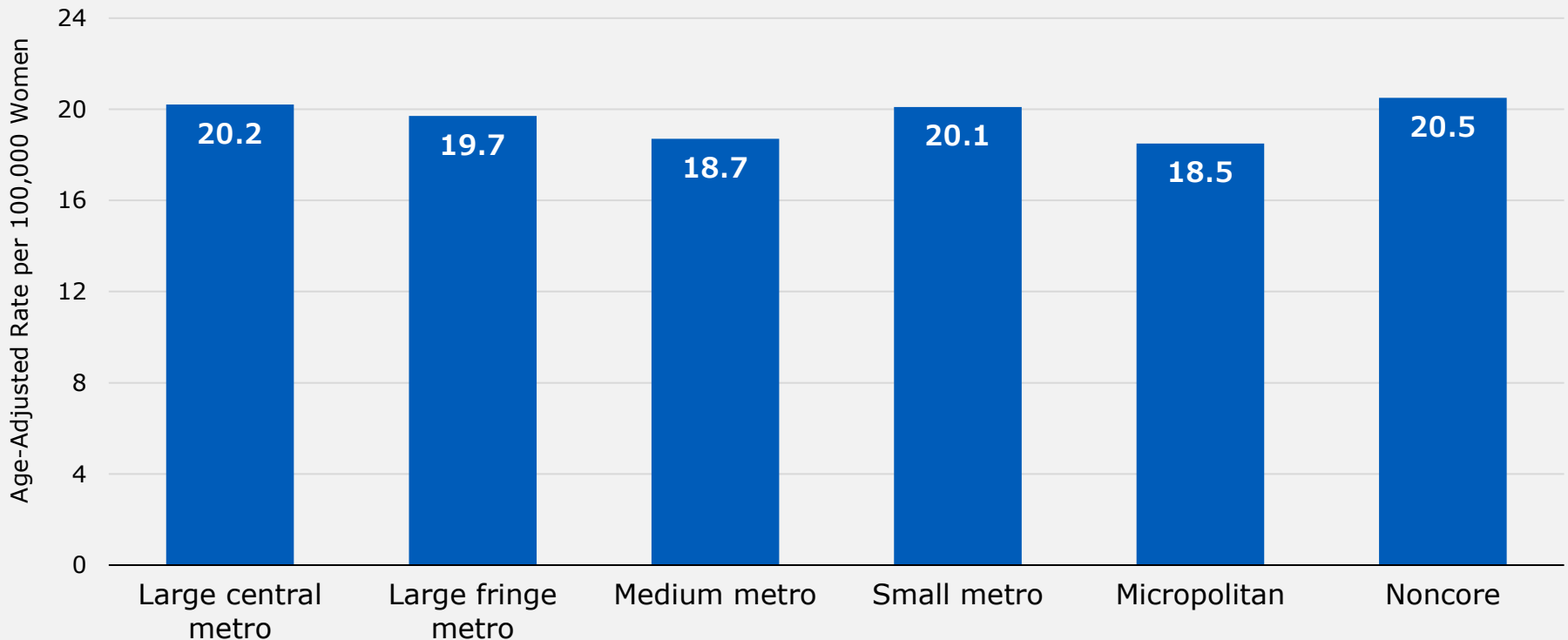


NH = Non-Hispanic; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native.

Breast Cancer Mortality Rates by Urban-Rural Classification

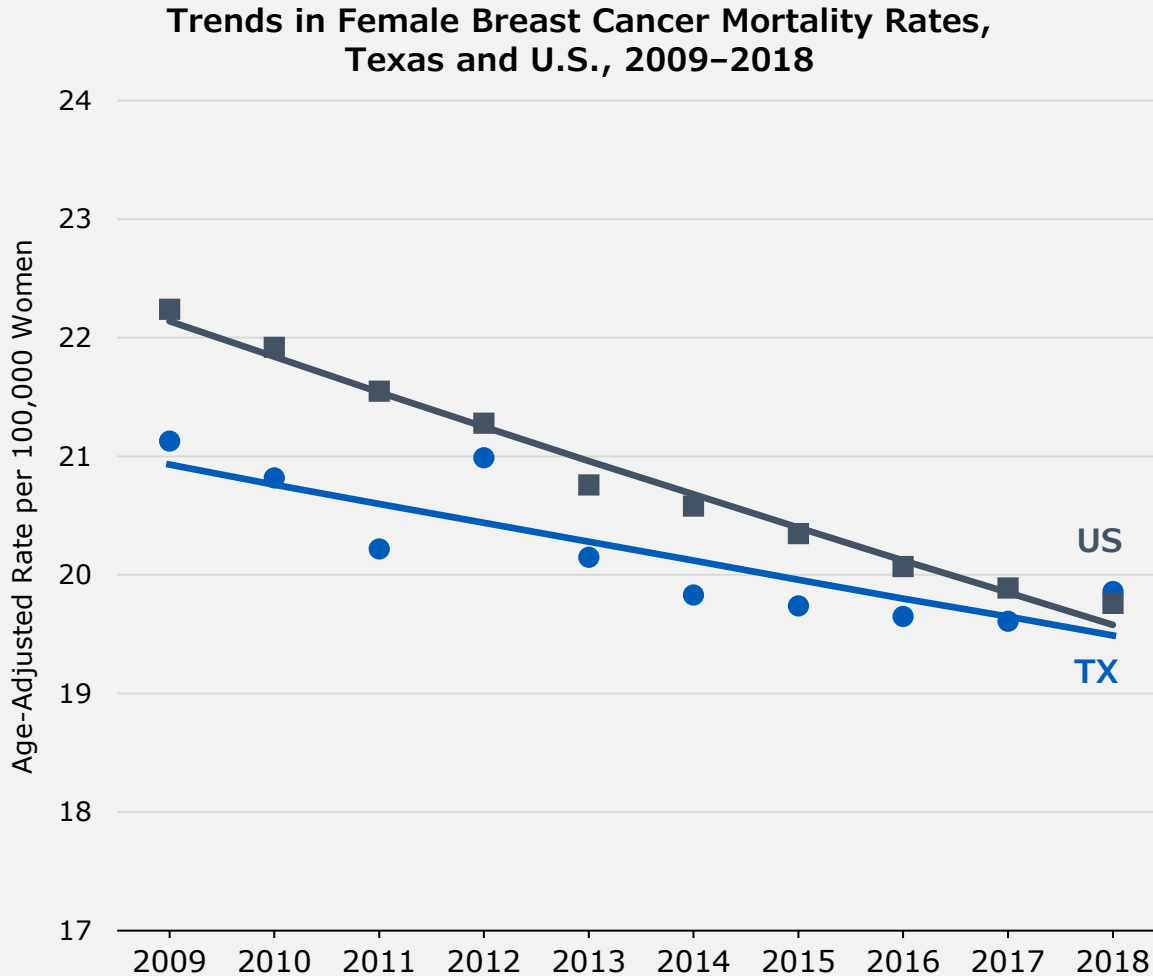
- During 2014–2018, breast cancer mortality rates were highest among those living in non-core counties at 20.5 deaths per 100,000 women followed by 20.2 among those in large central metro counties.
- Mortality rates were lowest among those living in micropolitan counties at 18.5 deaths per 100,000 women followed by 18.7 among those in medium metro counties.

Breast Cancer Mortality Rates by Urban-Rural Classification, Texas, 2014–2018



For information on urban-rural classification, see slide [Texas Urban-Rural Classification](#).

Breast Cancer Mortality Trends, Texas vs U.S.

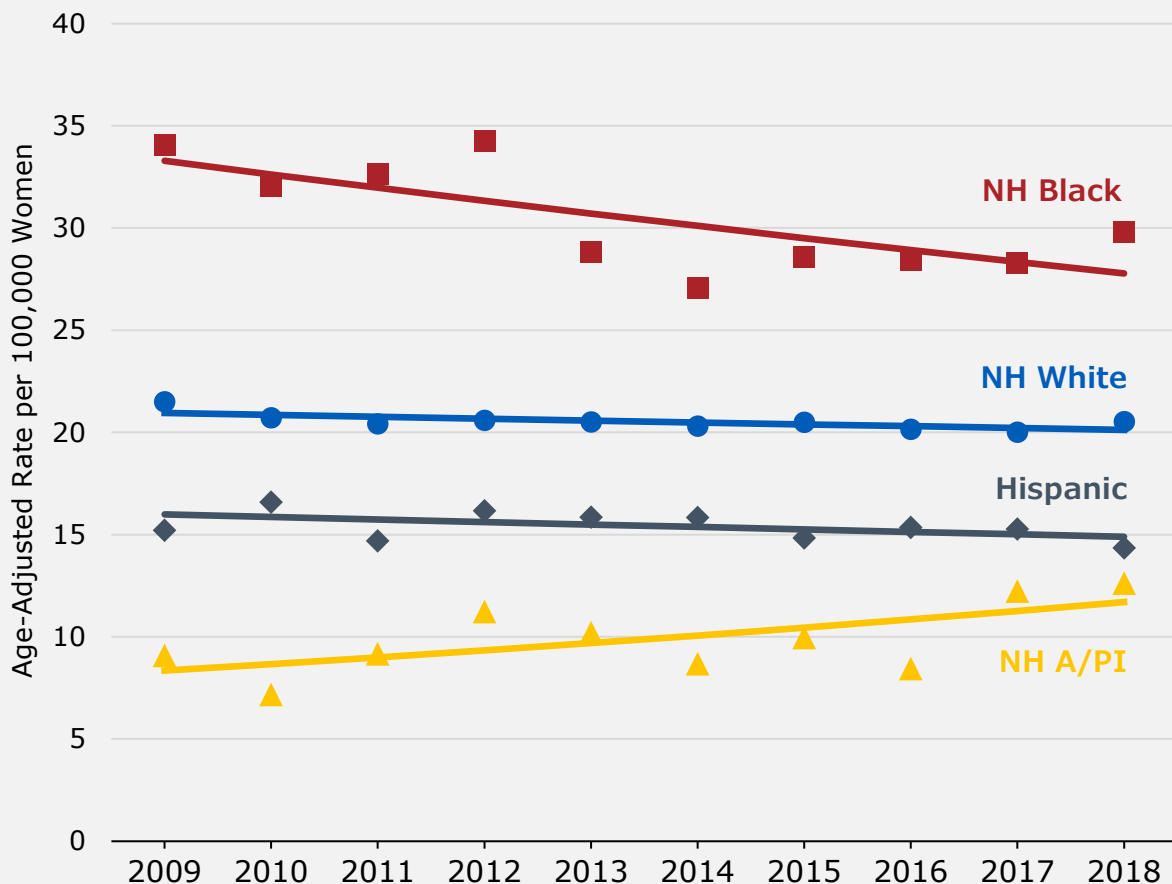


- Female breast cancer mortality rates were higher in the U.S. than in Texas from 2009-2018, with the gap between the two closing over time.
- In both Texas and U.S., female breast cancer mortality rates decreased between 2009 and 2018.
- In Texas, the decrease was an average of 0.8% per year, and in the U.S., the decrease averaged 1.4% per year.

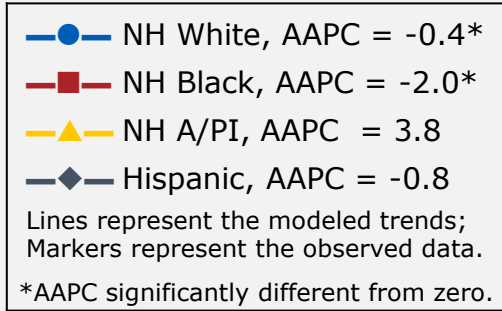
AAPC = Average Annual Percent Change. *Refer to technical notes for how trend significance was determined.

Breast Cancer Mortality Trends by Race/Ethnicity

Trends in Female Breast Cancer Mortality Rates by Race/Ethnicity, Texas, 2009–2018



- Female breast cancer mortality rates decreased an average of 0.4% per year among non-Hispanic (NH) white women, and 2.0% per year among NH Black women, from 2009 to 2018.
- Rates remained stable among Hispanic women and there was a non-significant increase among NH Asian/Pacific Islander women.



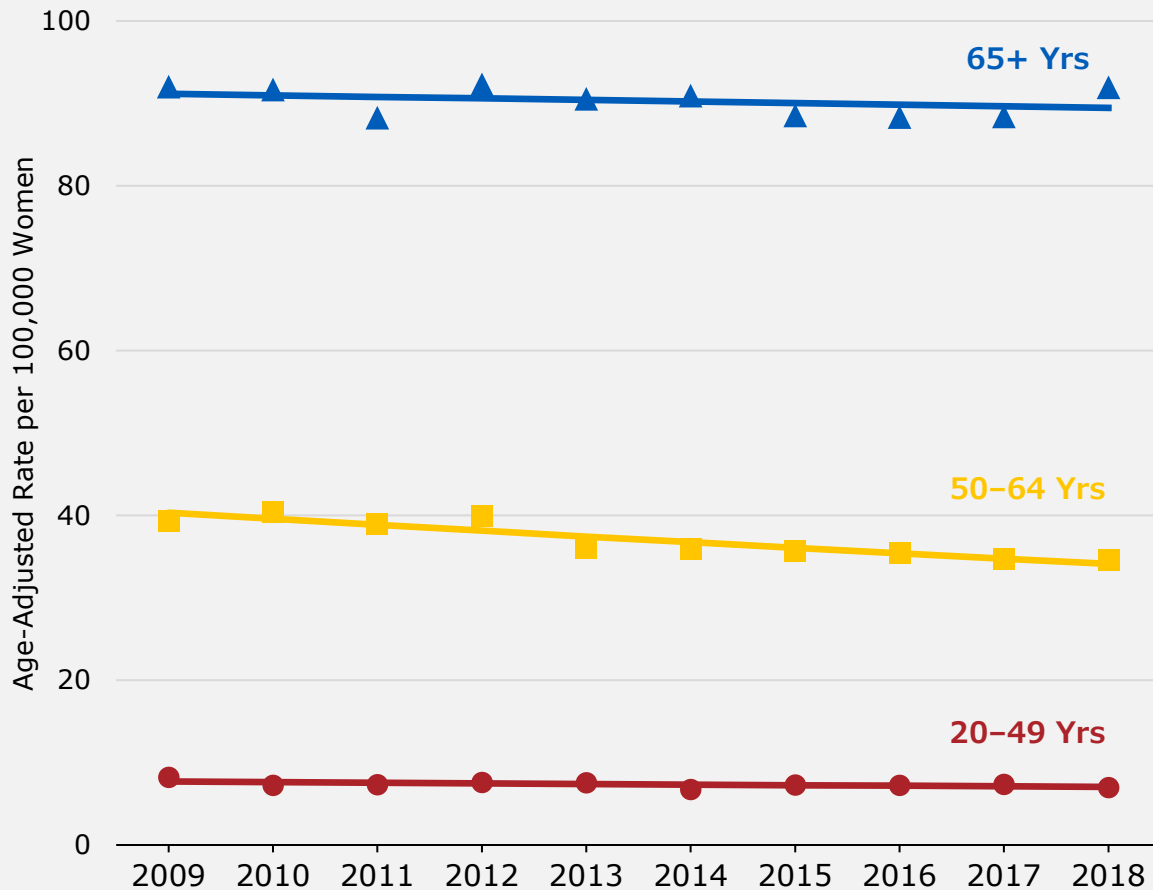
NH = Non-Hispanic; A/PI = Asian/Pacific Islander.

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.

Breast Cancer Mortality Trends by Age at Death

Trends in Female Breast Cancer Mortality Rates by Age at Death, Texas, 2009–2018



- Female breast cancer mortality rates decreased an average of 1.8% per year among those who died age 50–64 years, from 2009 to 2018.
- Rates remained stable among those who died at ages 20–49 years and 65+ years.

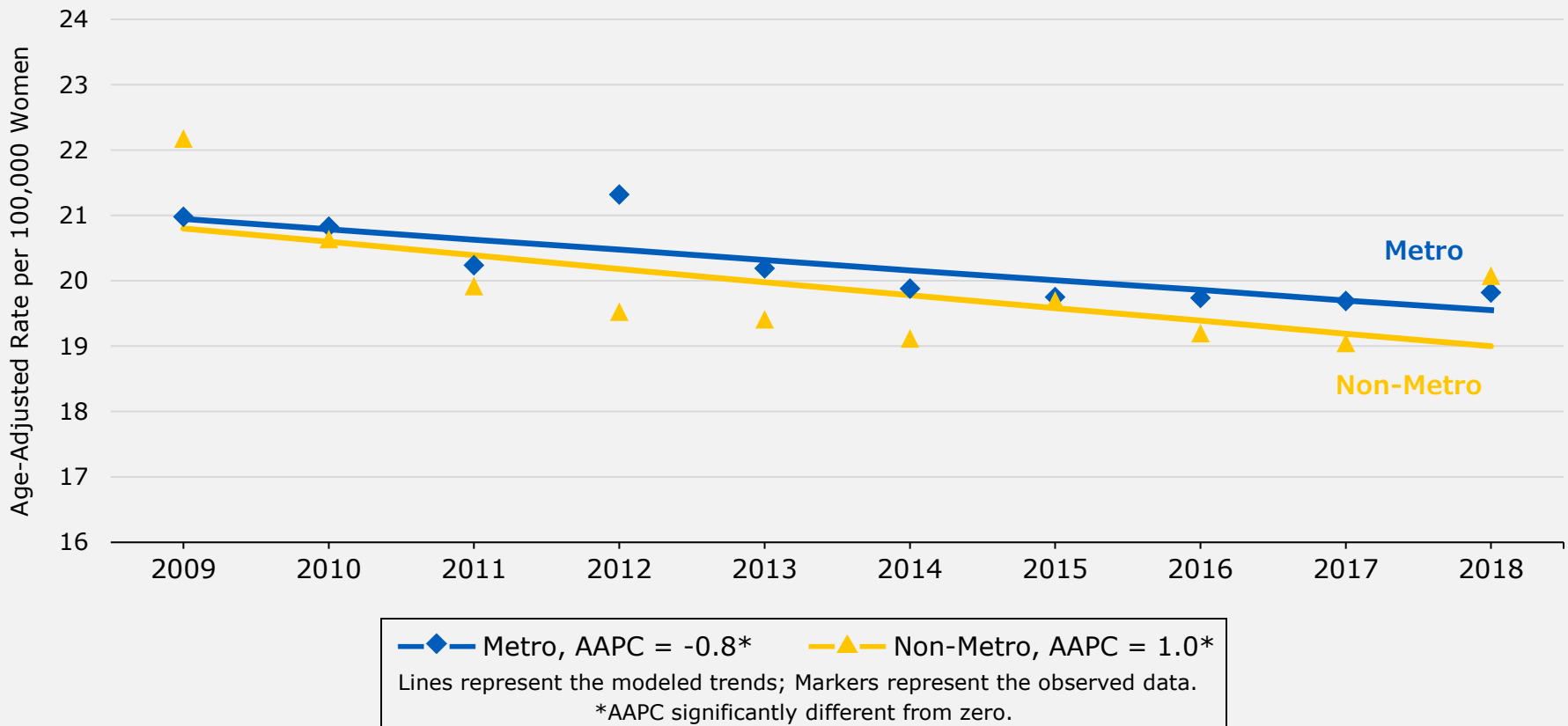
—●— 20-49 yrs, AAPC = -1.0
—■— 50-64 yrs, AAPC = -1.8*
—▲— 65+ yrs, AAPC = -0.2
 Lines represent the modeled trends;
 Markers represent the observed data.
 *AAPC significantly different from zero.

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

Breast Cancer Mortality Trends by Metro Area

Female breast cancer mortality rates decreased among those living in both metro and non-metro areas—by an average of 0.8% per year in metro areas, and 1.0% per year in non-metro areas, from 2009 to 2018.

Trends in Female Breast Cancer Mortality Rates by Metro Area, Texas, 2009–2018



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

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

Race/ Ethnicity	Age at Death	Average Annual Percent Change 2009-2018
NH White	20–49 Years	0.0
	50–64 Years	-2.0*
	65 Years and Older	0.1
NH Black	20–49 Years	-1.6
	50–64 Years	-3.0*
	65 Years and Older	-1.6
Hispanic	20–49 Years	-2.5*
	50–64 Years	-1.1
	65 Years and Older	0.0

Non-Hispanic (NH) White

Mortality rates decreased among those ages 50–64 years at death by an average of 2.0% per year. Rates remained stable for the other age groups.

NH Black

Mortality rates decreased among those ages 50–64 years at death by an average of 3.0% per year. There were non-significant decreases in rates among the other age groups.

Hispanic

Mortality rates decreased among those ages 20–49 years at death by 2.5% per year. Among those ages 50–64 years at death there was a non-significant decrease. Rates remained stable among those ages 65 years and older at death.

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.

Disparities in Breast Cancer Mortality Rates

- Each year from 2009 – 2018, the breast cancer mortality rate was significantly higher in non-Hispanic (NH) Black women than in NH white women.
- The breast cancer mortality rate ratio between NH Black women and NH white women has decreased from 1.58 in 2009 to 1.45 in 2018, indicating that the disparity in mortality rates is lessening.

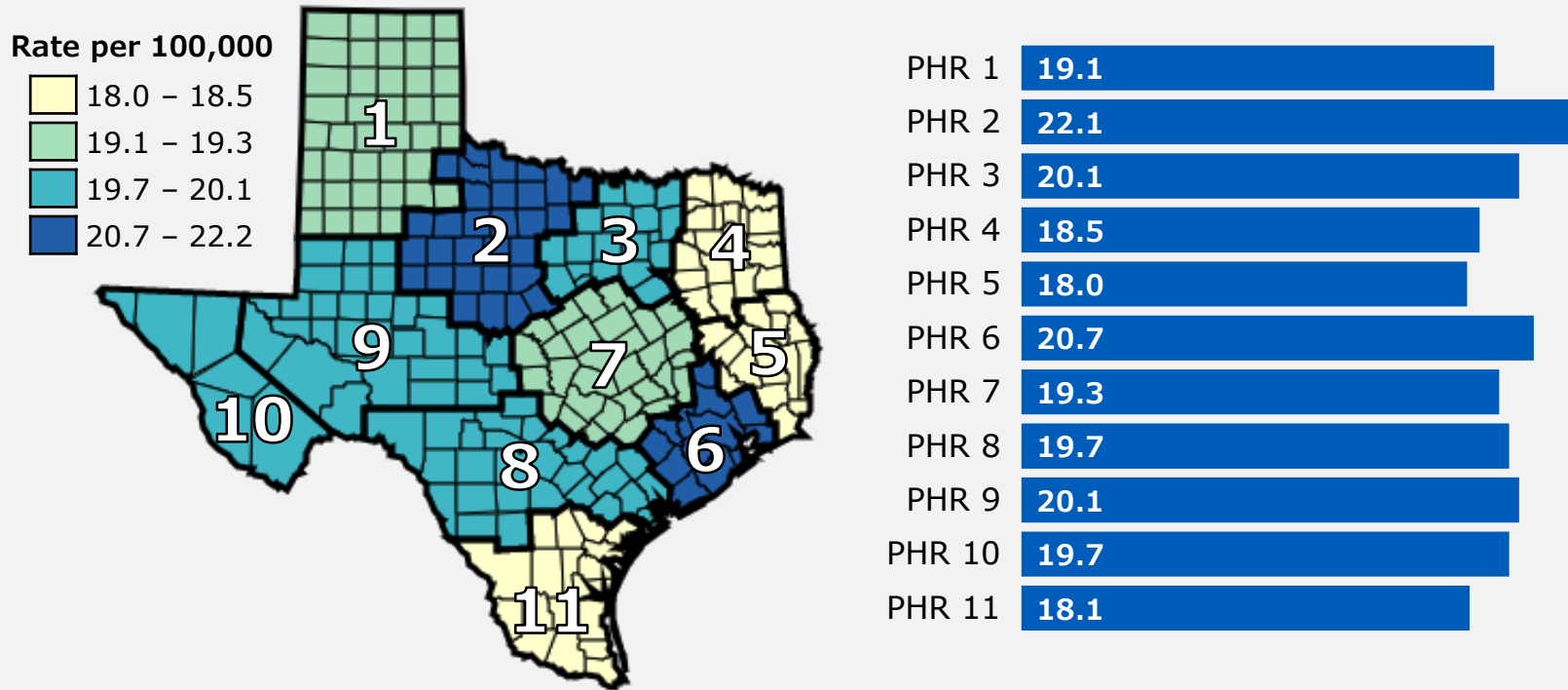
Year of Death	Non-Hispanic White	Non-Hispanic Black	Rate Ratio*
2009	21.5	34.1	1.58
2010	20.7	32.7	1.55
2011	20.4	32.6	1.60
2012	20.6	34.3	1.67
2013	20.5	28.8	1.41
2014	20.3	27.1	1.33
2015	20.5	28.6	1.40
2016	20.2	28.4	1.41
2017	20.0	28.3	1.41
2018	20.5	29.8	1.45

Rate ratios were calculated using SEER*Stat. *Refer to Technical Notes

Breast Cancer Mortality Rates by Public Health Region

From 2014 to 2018, breast cancer mortality rates were highest in Public Health Region (PHR) 2, and were lowest in PHRs 4, 5, and 11.

Mortality Rates of Breast Cancer by PHR, Texas, 2014–2018



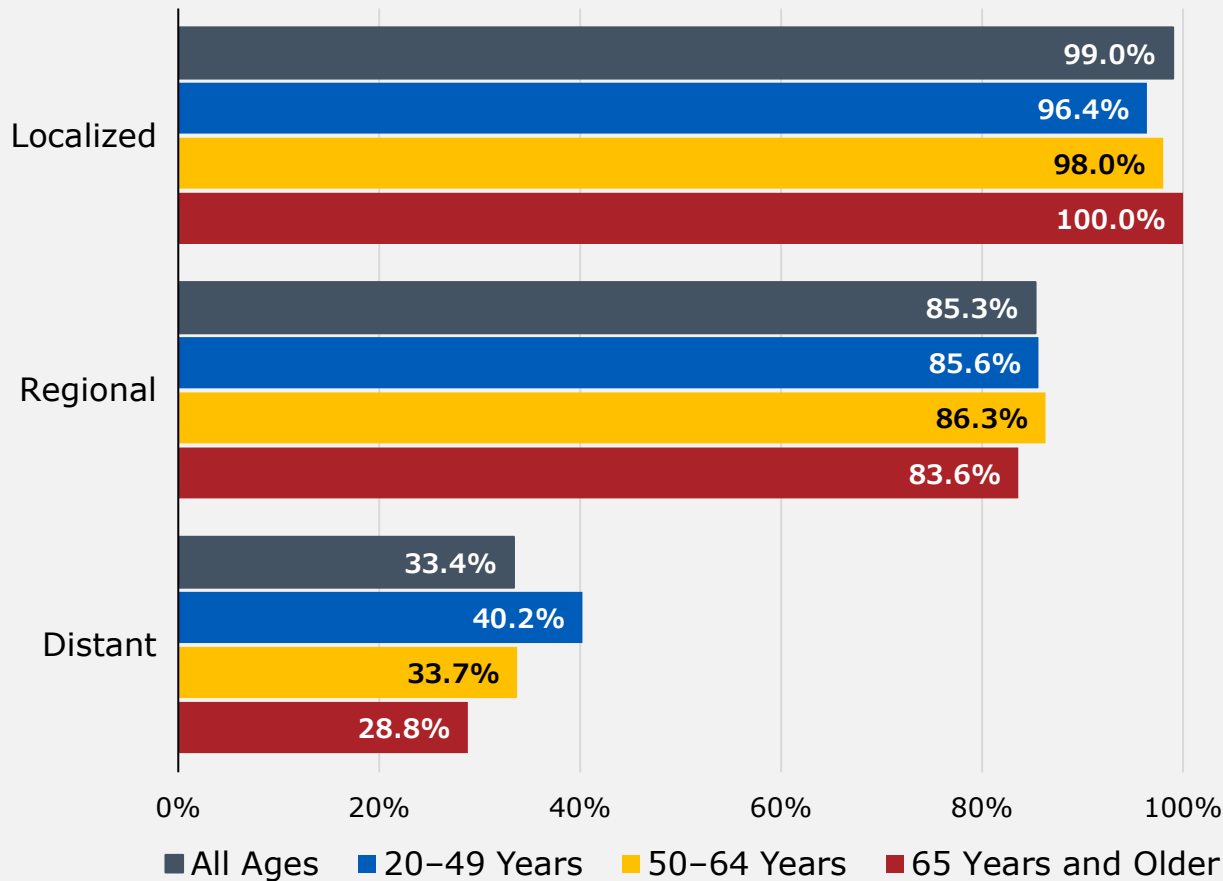
Source: Web Query Tool. Texas Cancer Registry. <https://www.cancer-rates.info/tx/>

Female Breast Cancer Survival

5-year survival rates by race/ethnicity, age, and stage at diagnosis

Breast Cancer Survival by Stage and Age at Diagnosis

5-year Relative Breast Cancer Survival
by Stage and Age at Diagnosis, Texas, 2008–2017

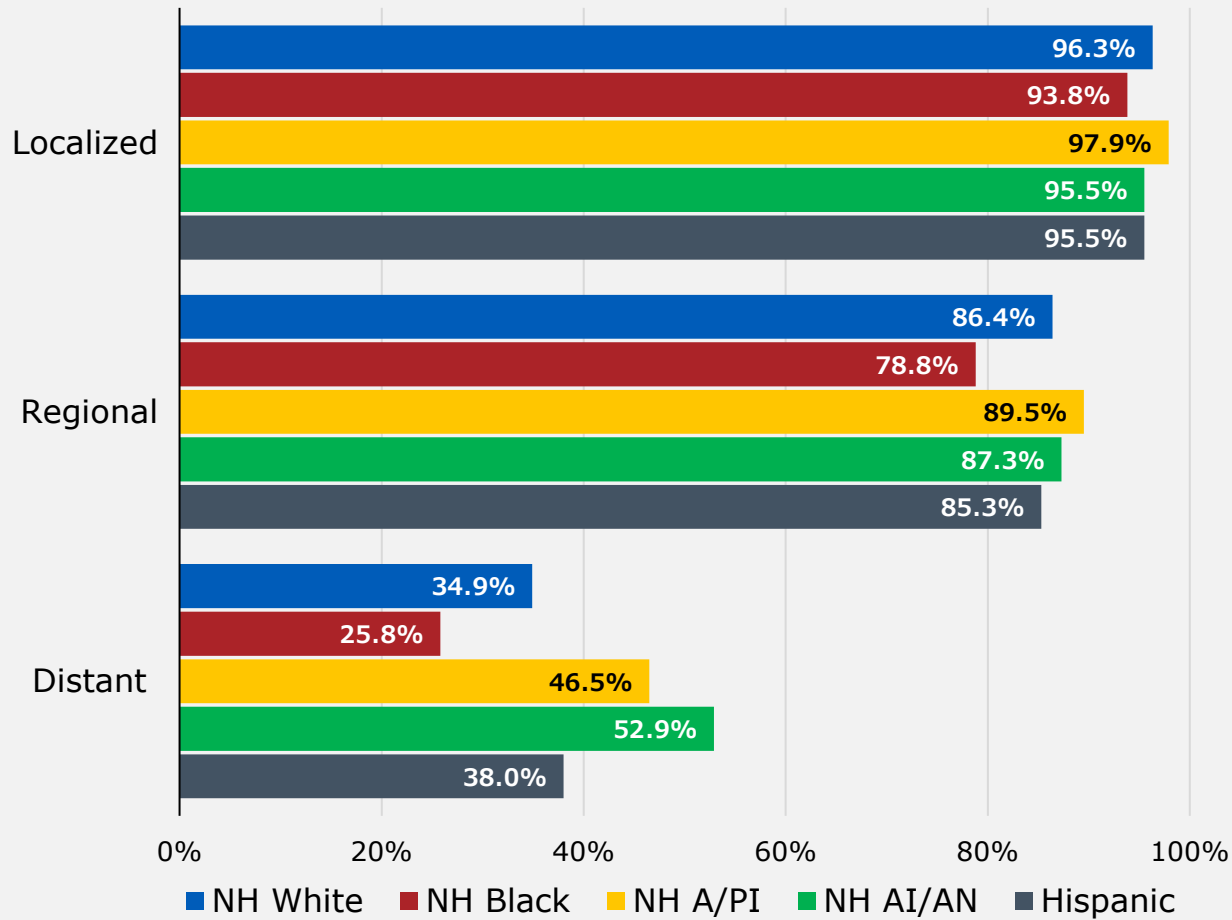


- For patients diagnosed at the localized stage, 5-year relative survival was highest for ages 65 years and older.
- For patients diagnosed at the regional stage, 5-year relative survival was similar for ages 20–49 years and 50–64 years. Survival was lower for ages 65 years and older.
- For patients diagnosed at the distant stage, 5-year relative survival was highest for patients diagnosed at ages 20–49 years and lowest for ages 65 years and older.

Relative survival presents cancer survival in the absence of other causes of death by comparing the survival among patients with cancer to a comparable population without cancer. Tumors diagnosed between 2008 and 2017 were included, with survival follow-up through December 2018. 5.8% of breast cancer cases were reported to TCR with an unknown stage.

Breast Cancer Survival by Stage at Diagnosis and Race/Ethnicity

5-year Cause-Specific Breast Cancer Survival by Stage at Diagnosis and Race/Ethnicity, 2009–2018



- For localized stage, survival was highest for non-Hispanic Asian/Pacific Islander (NH A/PI) and lowest for NH Black women.
- For regional stage, survival was highest for NH A/PI and lowest for NH Black women.
- For distant stage, survival was highest for NH American Indian/Alaska Native (AI/AN), although confidence intervals were large due to small sample size. The lowest was for NH Black women.

Cause-specific survival estimates the percentage of patients diagnosed between 2009 and 2018 that did not die from breast cancer within five years of diagnosis. Individuals who died of other causes are not included. 5.8% of breast cancer cases were reported to TCR with an unknown stage.

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 $50 \times 1.01 = 50.5$ in 1991 and $50.5 \times 1.01 = 51.005$ 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 Incidence Data: Texas Cancer Registry (www.dshs.texas.gov/tcr) SEER*Stat Database, 1995-2018 Incidence, Texas statewide, 2020 NPCR-CSS submission, cutoff 11/8/2020. Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, created March 2021.
- Texas Mortality Data: Texas Cancer Registry (www.dshs.texas.gov/tcr) SEER*Stat Database, 1990-2018 Mortality, Texas statewide. Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, created January 2021.
- 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, 2020 submission (2001–2018). United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute, released June 2021. 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).

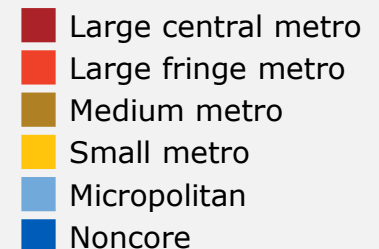
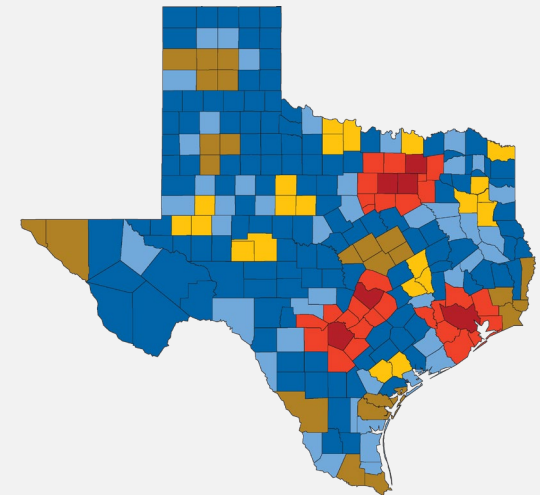
Technical Notes

- 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](https://www.cdc.gov/nchs/data_access/urban_rural.htm)

Additional Breast Cancer Resources

- Centers for Disease Control and Prevention: <https://www.cdc.gov/cancer/nbccedp/index.htm>
- National Cancer Institute: <https://www.cancer.gov/types/breast>
- American Cancer Society: <https://www.cancer.org/research/cancer-facts-statistics/breast-cancer-facts-figures.html>
- Texas Breast and Cervical Cancer Services: <https://hhs.texas.gov/doing-business-hhs/provider-portals/health-services-providers/womens-health-services/breast-cervical-cancer-services>