

CANCER IN TENNESSEE

2011-2015

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Division of Population Health Assessment
Tennessee Cancer Registry

This document presents cancer incidence and mortality information for the entire state of Tennessee focusing on the five-year period between 2011 and 2015, with comparisons to national rates. The report is made possible through data collected by the Tennessee Cancer Registry (TCR) as well as cancer registries nationwide. The TCR is dedicated to the collection and use of quality data for the purpose of decreasing the incidence and mortality of cancer in Tennessee.

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CANCER IN TENNESSEE REPORT

This report contains cancer incidence and mortality data for the entire state of Tennessee from 2011 through 2015, with some comparisons to national rates. Data collected by the Tennessee Cancer Registry (TCR) as well as cancer registries nationwide made the creation of this report possible. This report published by the TCR is meant to serve as a reference for researchers and the general public. For additional information and publications, we encourage you to visit our website at <https://www.tn.gov/health/health-program-areas/statistics.html>

It is important to note that cancer data in this report is dynamic and it is possible that even after the standard reporting delay, cases may still be reported to the TCR, which may have a minor statistical impact on the most recent year of diagnosis.

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The mission of the Tennessee Department of Health is to protect, promote and improve the health and prosperity of people in Tennessee.

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The Tennessee Cancer Registry is dedicated to the collection and use of quality data for the purpose of decreasing the incidence and mortality of cancer in Tennessee.

TABLE OF CONTENTS

TENNESSEE CANCER REGISTRY	1
WHO WE ARE	1
WHAT WE DO.....	1
OUR PURPOSE	1
WHAT IS CANCER?	2
WHAT IS CANCER INCIDENCE?	2
WHAT IS CANCER MORTALITY?	2
EXECUTIVE SUMMARY	3
CANCER AND CANCER RISK FACTORS	5
IMPACT OF CANCER IN THE UNITED STATES	5
IMPACT OF CANCER IN TENNESSEE.....	6
<i>Demographics of Cancer Patients in Tennessee, 2011-2015</i>	7
<i>Common Cancers in Tennessee By Gender, 2011-2015</i>	9
CANCER SCREENING AND RISK FACTOR PREVALENCE, 2014.....	10
<i>Cigarette Smoking Prevalence In Tennessee</i>	12
<i>Smoking and Cancer</i>	13
CANCER SURVIVAL IN TENNESSEE.....	15
LEADING CAUSES OF DEATH IN TENNESSEE, 2015	18
YEARS OF POTENTIAL LIFE LOST TO CANCER, TENNESSEE, 2011-2015	20
TENNESSEE IN COMPARISON TO THE UNITED STATES	24
CANCER MORTALITY HISTORICAL TREND, 1975-2015	24
CANCER INCIDENCE AND MORTALITY RANKINGS IN TENNESSEE, 2011-2015.....	25
CANCER INCIDENCE AND MORTALITY IN TENNESSEE, 2011-2015	27
CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED.....	27
MOST COMMON CANCERS IN TENNESSEE, 2011-2015	31
LUNG CANCER.....	31
PROSTATE CANCER	36
FEMALE BREAST CANCER	41
COLON AND RECTUM (COLORECTAL) CANCER	46
MELANOMA (SKIN) CANCER.....	51
PANCREATIC CANCER	56
CHILDHOOD CANCER.....	61
APPENDICES	67
APPENDIX I. CANCER INCIDENCE AND MORTALITY, BY SITE, TENNESSEE, 2011-2015	67
APPENDIX II. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY GENDER, RACE AND RESIDENT REGION, TENNESSEE, 2011-2015	69
APPENDIX III. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	70
APPENDIX IV. LUNG CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015.....	72
APPENDIX V. PROSTATE CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	74
APPENDIX VI. FEMALE BREAST CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	76
APPENDIX VII. COLORECTAL CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	78
APPENDIX VIII. MELANOMA OF THE SKIN INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	80
APPENDIX IX. PANCREATIC CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015	82
APPENDIX X. CHILDHOOD CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015.....	84
APPENDIX XI. CANCER INCIDENCE AND MORTALITY OF COMMON CANCERS, THREE-YEAR MOVING AVERAGE, TENNESSEE, 2011-2015	86

APPENDIX XII. NUMBER OF DEATHS AND YEARS OF POTENTIAL LIFE LOST, BY GENDER AND RACE, TENNESSEE, 2011-2015.....	87
APPENDIX XIII. NUMBER OF DEATHS AND YEARS OF POTENTIAL LIFE LOST, BY CANCER SITE, TENNESSEE, 2011-2015	87
APPENDIX XIV. COUNTY MAPS OF INCIDENCE AND MORTALITY RATES OF ALL CANCER SITES COMBINED AND COMMON CANCERS	89
1. Tennessee Counties and Regional Groupings	89
2. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, All Sites Combined, Tennessee, 2011-2015	90
3. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Lung, Tennessee, 2011-2015	91
4. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Prostate, Tennessee, 2011-2015	92
5. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Female Breast, Tennessee, 2011-2015 .	93
6. Age-Adjusted Cancer Incidence and Mortality Rates By Resident County, Colon and Rectum, Tennessee, 2011-2015	94
7. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Melanoma of the Skin, Tennessee, 2011-2015	95
8. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Pancreas, Tennessee, 2011-2015	96
9. Age-Adjusted Cancer Incidence and Mortality Rates by Resident County, Childhood Cancer (0-19 Years of Age), Tennessee, 2011-2015.....	97
TECHNICAL NOTES	98
STATISTICAL METHODS	98
SOFTWARE USED FOR CALCULATION	98
EXPLANATION OF TERMS.....	99
DATA SOURCES	103
ADDITIONAL RESOURCES	104
REFERENCES.....	105

TENNESSEE CANCER REGISTRY

WHO WE ARE

The Tennessee Cancer Registry (TCR) was established in 1983 by the Tennessee General Assembly with the passage of [Tennessee Code Annotated \(T.C.A.\) § 68-1-1001](#) and is responsible for collecting information on all reportable cancer diagnoses in Tennessee, including non-residents diagnosed and/or treated in TN. The TCR has continuously achieved “Gold Certification,” the highest level of certification by the North American Association of Central Cancer Registries (NAACCR), since the 2005 diagnosis year. More information on NAACCR certification criteria and certification levels can be found at

<https://www.naacr.org/certification-criteria/>.



WHAT WE DO

In collaboration with local health care facilities and cancer registrars, TCR staff identify new cases of cancer through routine, systematic review of medical records, hospital discharge lists, state vital records and other sources. Information regarding patient characteristics, cancer diagnosis, and first-course treatment is ascertained primarily from specific statements in the medical record and other sources such as death certificates and physician reports.

OUR PURPOSE

The purpose of the TCR is:

- To collect accurate information on cancer cases diagnosed and/or treated in TN annually.
- To increase awareness of cancer in TN.
- To promote and assist hospital cancer registries in each facility to accurately code cancer abstracts.
- To provide information to the public regarding cancer incidence and mortality in TN.
- To serve as a data repository for those requesting information on cancer, its effects, treatment, risk factors, and prevention.
- To support epidemiological research into the causes, distribution, prevention, and treatment of cancer.

WHAT IS CANCER?

Cancer is a group of more than 100 diseases characterized by uncontrolled growth and spread of abnormal cells. An individual can be diagnosed with cancer at any time in their life, but persons 55 years of age and older are at a higher risk of developing cancer. About 40-50% of all cancer cases might be potentially preventable with better lifestyle choices, such as increasing physical activity, incorporating better nutrition, and abstaining from tobacco products (Islami et al., 2018).

WHAT IS CANCER INCIDENCE?

Cancer incidence is defined as the number of new cancers diagnosed in the population at risk. The **cancer incidence rate** is the number of new cases of cancer diagnosed in a specified population during a specified time period, usually expressed as the number of new cases per 100,000 persons at risk. That is,

$$\text{Cancer Incidence Rate} = \left(\frac{\text{Number of New Cases of Cancer}}{\text{Population at Risk}} \right) * 100,000$$

The numerator of the incidence rate is the number of newly diagnosed cancer cases and the denominator is the size of the population at risk. The number of new cancers may include multiple primary cancers occurring in one patient, and the primary site reported is the site of origin not the metastatic site, which is the distant site to which the cancer has spread. The incidence rate does not include cancer recurrences and can be computed for a given cancer primary site, group of cancers or for all cancers combined.

WHAT IS CANCER MORTALITY?

Cancer mortality is defined as the number of deaths from cancer in the population at risk. The **cancer mortality rate** is defined as the number of deaths with cancer as the underlying cause of death in a specified at-risk population during a given time period, usually expressed as the number of deaths due to cancer per 100,000 persons at risk. That is,

$$\text{Cancer Mortality Rate} = \left(\frac{\text{Number of Cancer Deaths}}{\text{Population at Risk}} \right) * 100,000$$

The numerator of the mortality rate is the number of cancer deaths and the denominator is the size of the population at risk. The mortality rate can be computed for a given cancer site or for all cancers combined.

EXECUTIVE SUMMARY

This report contains cancer incidence (i.e., newly diagnosed cancer cases) and mortality (i.e., deaths due to cancer) data for the entire state TN from 2011 through 2015, with some comparisons to national rates. Data collected by the TCR as well as cancer registries nationwide made the creation of this report possible. The report published by the TCR is meant to serve as a reference for researchers and the general public. For additional information and publications from the TCR, please visit <https://www.tn.gov/content/tn/health/health-program-areas/tcr/tennessee-cancer-registry-data.html>. It is important to note that cancer data in this report is dynamic and it is possible that even after the standard ~2 year reporting delay, cases may be reported that may have a minor impact on the most recent years of diagnosis.

- From 2011-2015, 175,571 Tennesseans were diagnosed with cancer and 69,358 Tennesseans died from cancer.
- Cancer was the second leading cause of death and resulted in nearly 580,000 years of potential life lost in Tennesseans during the 5-year period covered by this report.
- From 2011-2015, TN experienced the 19th highest cancer incidence rate and the 7th highest cancer mortality rate in the United States (US). Much of TN's observed cancer incidence and mortality disparities relative to other states is due to a greater cancer burden among TN's male population, who experience respectively the 11th and 7th highest cancer incidence and mortality burden compared to males in all other US states, whereas TN females experience, respectively, the 29th highest cancer incidence burden and the 7th highest cancer mortality burden in the US. Lung cancer was the most common type of cancer diagnosis and the most common cause of cancer deaths among Tennesseans, whereas nationally, breast cancer is the most common cause of cancer diagnosis and lung cancer is the most common cause of death. The fact that lung cancer is the leading type of newly diagnosed cancer in Tennesseans could be largely due to the greater prevalence of smoking in Tennesseans compared to the national average. According to the TN Behavioral Risk Factor Surveillance Survey, in 2015, 21.9% of TN adults 18 years of age and older were current smokers compared to only 17.5 % nationally. Smoking is the major cause of at least 80% of all lung cancers in the US, but is also a known cause for many other types of cancer including: oropharyngeal, laryngeal, colorectal, esophageal, stomach, urinary bladder, kidney, pancreatic, liver and uterine cervix cancers. Note that some cancers caused by smoking are in the top 10 of all cancers affecting Tennesseans as newly diagnosed cases and/or

cancer deaths. Through substantially reducing the prevalence of smoking, TN could potentially prevent considerable numbers of both new cancer cases and cancer deaths.

- The 10 most common types of cancers newly diagnosed in TN residents during the 2011-2015 period in descending number order (counts in parentheses): lung (29253), female breast (24547), prostate (21329), colorectal (15133), melanoma of the skin (7476), urinary bladder (7274), kidney and renal pelvis (6690), non-Hodgkin lymphoma (NHL; 6603), leukemias (5057), and oropharyngeal cancer (4860).
- The 10 most common types of cancers principally leading to death in Tennesseans from 2011 to 2015 in descending number order (counts in parentheses): lung (21688), colorectal (5977), female breast (4532), pancreas (4213), prostate (2826), liver and intrahepatic bile duct (2647), leukemias (2517), NHL (2260), brain and other nervous system (1731), and esophagus (1606).
- Cancer also demonstrates geographic disparities in TN, see [Maps](#) and [Appendices](#). For all new cases of cancer (incidence) combined, the following are the top 5 Tennessee counties in descending order by age-adjusted rate (rate in parentheses): Hancock County (553.8), Claiborne County (538.4), Benton County (533.8), Trousdale County (530.9), and Marion County (529.9). The following are the top 5 Tennessee counties in descending order for overall cancer mortality by age-adjusted rate (rate in parentheses): Trousdale County (264.0), Cheatham County (240.4), Scott County (238.6), Claiborne County (236.6), and Hancock County (236.2). Regionally in TN, the East region displays the highest overall cancer incidence rate (477.2) of all regions in TN, whereas the Northwest region displays the highest overall cancer mortality rate (200.8).

CANCER AND CANCER RISK FACTORS

IMPACT OF CANCER IN THE UNITED STATES

On average, two out of every five individuals in the US will contract some type of invasive cancer in their lifetime (about a 38.5% lifetime risk). In the US, men have a 39.7% probability and women have a 37.7% probability of developing invasive cancer in their lifetime (Howlader et. al., 2017). In the US, one in four men (22.0%) and one out of five women (18.8%) are at risk of dying from cancer in their lifetime. The following tables lists lifetime risks of developing and dying from certain cancers for males and females in the US from 2012 to 2014 in decreasing order (Tables 1A and 1B):

Table 1A: Lifetime Risk of Developing and Dying from Select Cancers, Males, U.S., 2012 - 2014

Male Site	Risk of Developing		Risk of Dying	
	%	One in	%	One in
Prostate	14.0	7	2.6	39
Lung and bronchus	7.2	14	6.3	16
Colon and rectum	4.7	21	2.0	50
Bladder (includes in situ)	3.8	26	0.9	109
Melanoma of the skin	2.6	38	0.4	233

Note. Adapted from the [SEER Cancer Statistics Review – Lifetime Risk](#), by the National Cancer Institute, 2017.

Table 1B: Lifetime Risk of Developing and Dying from Select Cancers, Females, U.S., 2012 - 2014

Female Site	Risk of developing		Risk of dying from	
	%	One in	%	One in
Breast	12.3	8	2.7	37
Lung and bronchus	6.0	17	4.9	20
Colon and rectum	4.4	23	1.8	55
Uterine corpus	2.8	36	0.6	172
Non-Hodgkin lymphoma	1.9	53	0.7	147

Note. Adapted from the [SEER Cancer Statistics Review – Lifetime Risk](#), by the National Cancer Institute, 2017.

The direct medical cost, which is the total health care expenditure for cancer in the US in 2010, was \$124.6 billion or about \$80,136 per cancer diagnosis. By 2020, overall cancer costs could reach \$157.8 billion (in 2010 dollars) based only on increases in population; however, if costs of cancer care also increase annually by 2%, the total cost for cancer care in 2020 could reach as high as \$186.7 billion (NCI, 2013). The cancer sites with the highest costs in 2010 dollars were: breast cancer (\$16.5 billion), followed by colorectal cancer (\$14.1 billion), lung cancer (\$12.1 billion), lymphoma (\$12.1 billion), and prostate cancer (\$11.9 billion) (Mariotto, 2011).

IMPACT OF CANCER IN TENNESSEE

On average, one out of every two individuals in TN will contract some type of invasive cancer in their lifetime, and approximately 579,613 years of potential life were lost by TN residents due to premature cancer deaths from 2011-2015. In TN, men have a 65.6% probability of developing an invasive cancer in their lifetime, whereas women in TN have a 54.7% probability of developing an invasive cancer in their lifetime. In TN, one in four men (27.2%) and one in five women (18.5%) are at risk of dying from cancer in their lifetime. The following table lists lifetime risks of developing and dying from certain cancer for males in Tennessee (TN) from 2011-2015 in decreasing order (Tables 2A and 2B):

Table 2A: Lifetime Risk of Developing and Dying from Select Cancers, Males, Tennessee, 2012 - 2015

Male Site	Risk of Developing		Risk of Dying From	
	%	One in	%	One in
Prostate	15.9%	6	2.6%	38
Lung and Bronchus	13.0%	8	10.3%	10
Colon and Rectum	6.2%	16	2.6%	38
Melanoma of the Skin	5.6%	18	0.7%	143
Bladder (includes in situ)	4.9%	20	1.0	100

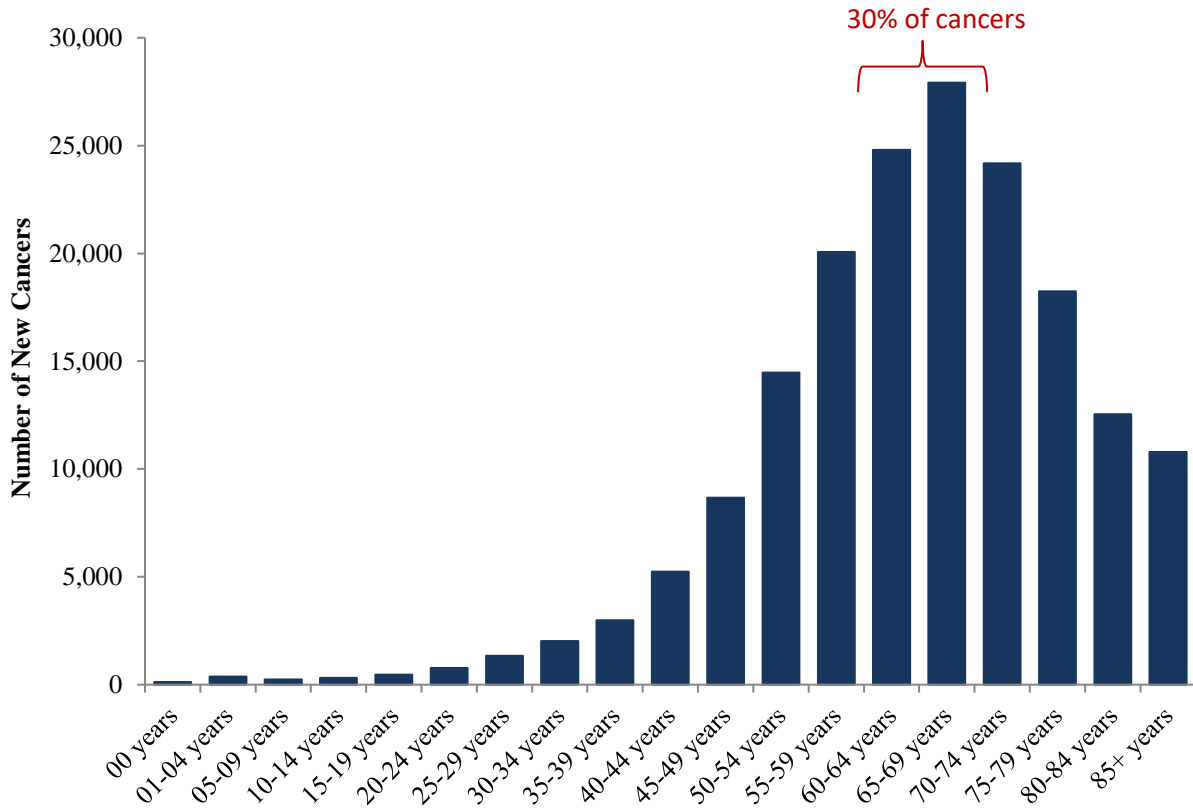
Table 2B: Lifetime Risk of Developing and Dying from Select Cancers, Females, Tennessee, 2012 - 2015

Female Site	Risk of Developing		Risk of Dying From	
	%	One in	%	One in
Breast	17.4%	6	2.7%	37
Lung and Bronchus	8.5%	12	6.0%	17
Colon and Rectum	4.7%	21	1.8%	57
Melanoma of the Skin	2.8%	36	0.7%	154
Uterine Corpus	2.8%	36	0.6%	174

EVERY DAY IN TENNESSEE...

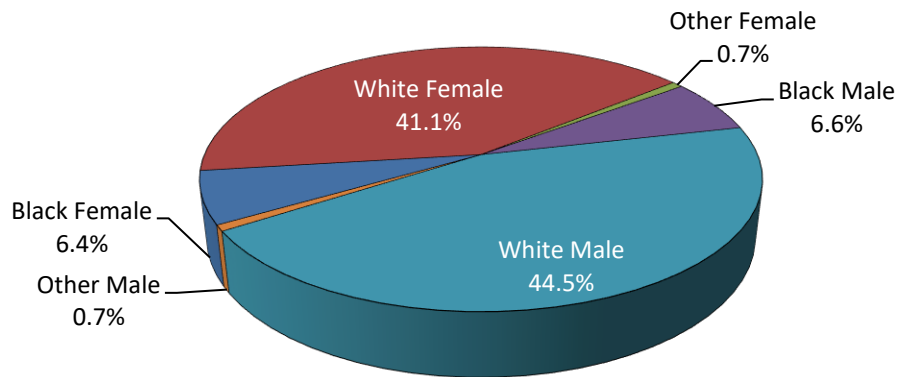
- ❖ **96** people are diagnosed with cancer
- ❖ **16** people are diagnosed with lung cancer
- ❖ **14** women are diagnosed with breast cancer
- ❖ **12** men are diagnosed with prostate cancer
- ❖ **8** people are diagnosed with colorectal cancer
- ❖ **38** people die from cancer

Figure 1. Cancer Incidence, By Age at Diagnosis, Tennessee, 2011-2015



- Aging is the most important risk factor for cancer overall, as well as for many individual cancer primary sites.
- The median age of cancer diagnosis in TN is 65 years, which means that half of all cancer cases occur in Tennesseans below this age and half in Tennesseans above this age.
- Approximately 30% of new cancer cases are diagnosed in Tennesseans aged 60 to 69 years (Figure 1).
- Although the risk of most cancers increases as an individual becomes older, there are some cancer types more common in younger people, e.g. leukemia and lymphoma.

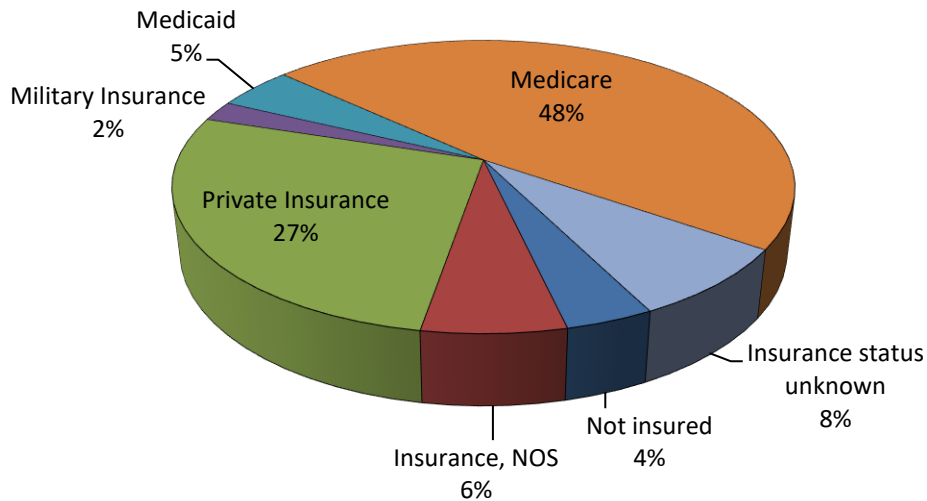
Figure 2. Cancer Incidence, By Race and Sex, Tennessee, 2011-2015



From 2011 to 2015 (Figure 2):

- 150,207 white individuals and 22,772 black individuals were diagnosed with cancer in TN.
- White Tennesseans accounted for 86% of all new cancer diagnoses, while blacks accounted for 13% of all new cancer diagnoses.

Figure 3. Insurance Coverage Among Cancer Patients, Tennessee, 2011-2015

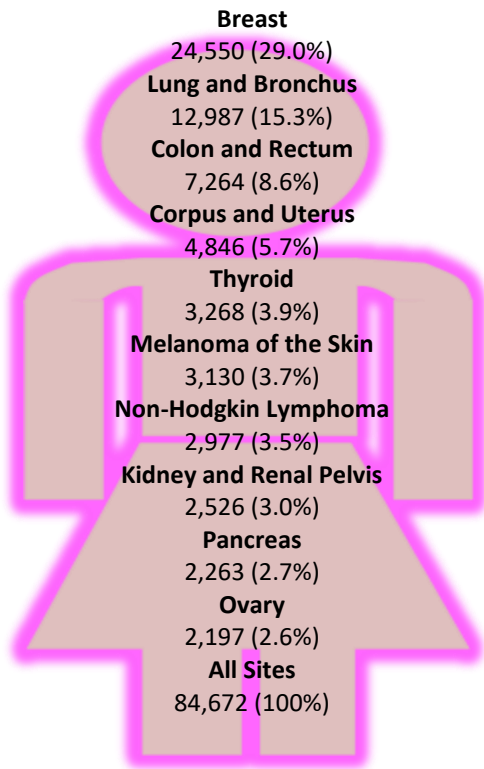


- Among those individuals with known insurance status, 88% of Tennesseans had insurance coverage at the time of their initial cancer diagnosis. For 6% of the insured, there was no additional information on type of insurance, hence these are labeled Insurance, Not Otherwise Specified (Insurance, NOS) (Figure 3).

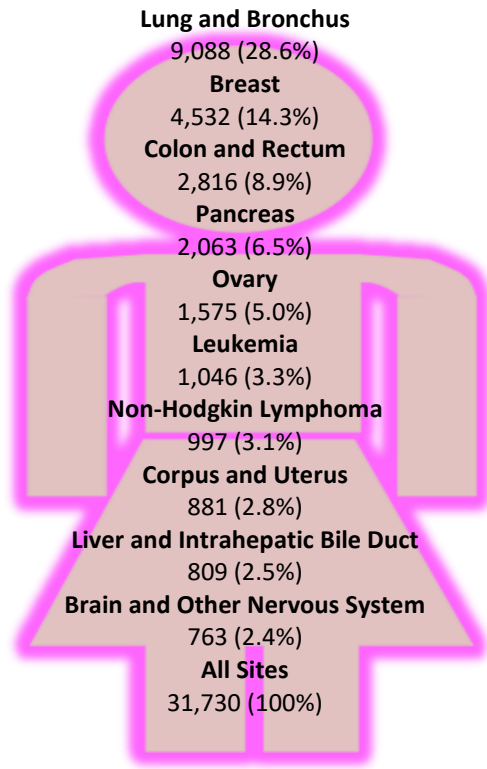
[Data Source](#)

COMMON CANCERS IN TENNESSEE BY GENDER, 2011-2015

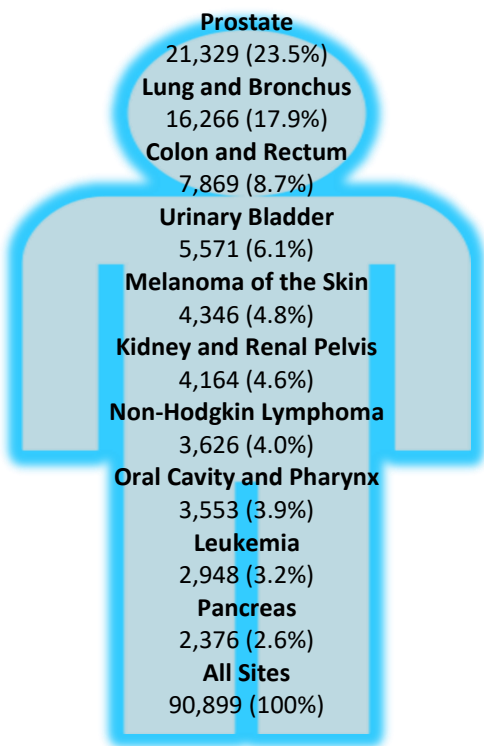
New Cancers in Women



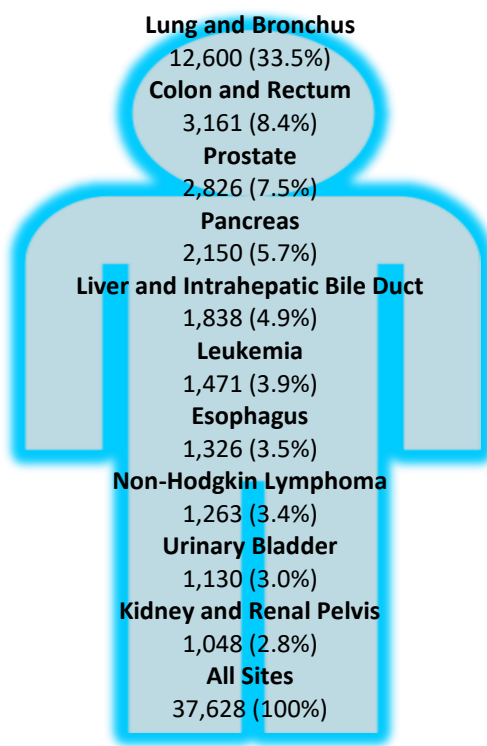
Cancer Deaths in Women

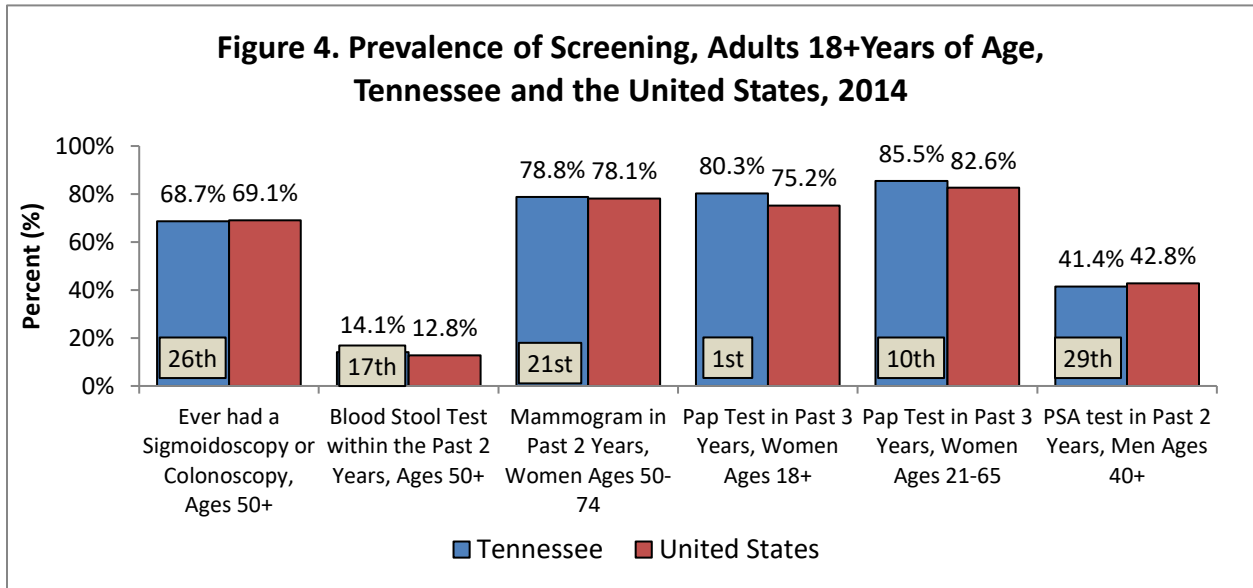


New Cancers in Men



Cancer Deaths in Men



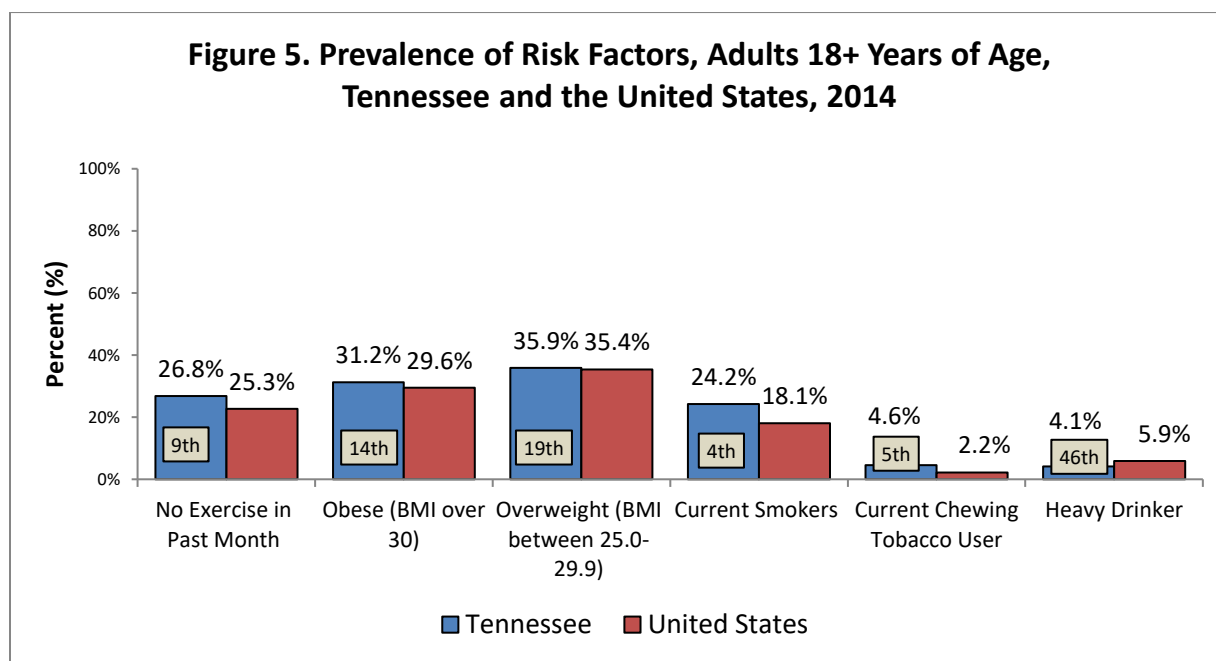


Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services. CDC, 2018.

In 2014 (Figure 4):

- Nearly 70% (68.7%) of the TN population, 50 years of age and older, received a sigmoidoscopy or colonoscopy, which is the 26th highest rate in the US.
- 14.1% of Tennesseans 50 years of age and older received a blood stool test within the past two years, which is the 17th highest rate in the US.
- Nearly 80% (78.8%) of TN women between 50 and 74 years of age indicated they received a mammogram within the past two years, which is the 21st highest rate in the US.
- 80.3% of TN women aged 18 years of age and older had received a Pap test within the past three years, which is the highest rate in the US.
- 85.5% of TN women between 21 and 65 years of age had received a Pap test within the past three years, which is the 10th highest rate in the US.
- 41.4% of TN men 40 years of age and older received a prostate-specific antigen (PSA) test within the past two years, which is the 29th highest rate in the US.

CANCER SCREENING AND RISK FACTOR PREVALENCE, 2014, CONTINUED



Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services. CDC. 2018.

In 2014 (Figure 5):

- Over a quarter (26.8%) of Tennesseans had not exercised in the past month.
- TN had the 9th lowest exercise participation rate in comparison to other states in the US.
- 31.2% of Tennesseans and 29.6% of Americans were considered obese with a body mass index (BMI) of 30 or more.
- In comparison with other states in the US, TN had the 14th largest obese population.
- Roughly one out of every three Tennesseans was considered overweight (i.e., BMI between 25.0 and 29.9).
- Approximately two out of every three Tennesseans were considered either overweight or obese.
- Roughly a quarter (24.2%) of Tennesseans identified themselves as current smokers.
- In comparison with all other states in the US, TN had the 4th largest current smoker population.
- 4.6% of Tennesseans and 2.2% of Americans identified themselves as a current chewing tobacco user.
- 4.1% of Tennesseans identified themselves as heavy drinkers (i.e., adult men having more than two drinks per day and adult women having more than one drink per day).

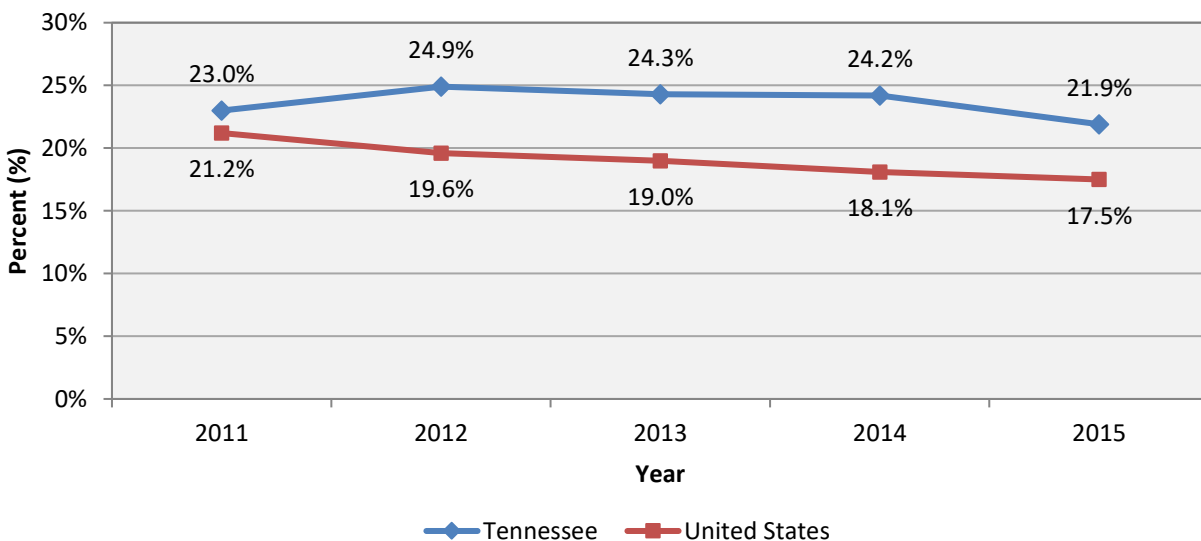
CIGARETTE SMOKING PREVALENCE IN TENNESSEE

According to the BRFSS, in 2015, nearly a quarter (21.9%) of Tennesseans identified themselves as current smokers while 17.5% of the US population identified themselves as current smokers (Figure 6). Consequently, the state of TN had the 7th highest population of current smokers (tied with Louisiana) and 4th highest lung cancer incidence rate (76.6 cases per 100,000) in the US in 2015. From 2011 to 2015, the overall percentage of current smokers in TN decreased by 4.8%.

One in ten Tennesseans will be diagnosed with lung cancer in their lifetime. In TN, white women had higher lung cancer incidence and mortality rates than black women during the period 2011 through 2015. Conversely, black men had significantly higher lung cancer incidence and mortality rates than white men in TN during the same time period.

Smoking can cause cancer almost anywhere in the body. Nearly a third (32.9%) of cancer deaths are attributable to cigarette smoking (Lortet-Tieulent, 2016). Approximately \$276.9 million is spent each year by the tobacco industry for marketing expenditures in Tennessee, which equates to roughly 3.0% of the annual tobacco industry's marketing expenditures nationwide (U.S. Federal Trade Commission, 2016). According to the 2017 National Youth Risk Behavior Survey, about 14.0% of high school students in TN stated they had smoked cigarettes or cigars on at least 1 day during the 30 days prior to being surveyed. Among TN high school students, 11.8% of women and 15.5% of men indicated they had smoked cigarettes or cigars on at least 1 day during the 30 days prior to being surveyed. Furthermore, 2.0% of all high school students in TN stated they had used cigarettes on a daily basis for the 30 days prior to being surveyed.

Figure 6. Prevalence of Current Cigarette Use Among Adults, Tennessee and United States, 2011-2015



Source: Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, CDC, 2018.

[Data Source](#)

SMOKING AND CANCER

WHY ARE CIGARETTES BAD FOR YOUR BODY?

Tobacco smoke is made up of over 7,000 chemicals and at least 250 of them are harmful to the body. Furthermore, about 70 of the chemicals found in cigarette smoke are linked to cancer development (NCCDPHP, 2017). Every time an individual smokes, these chemicals damage the body in ways that may lead to disease and death.

HOW IS SMOKING RELATED TO CANCER?

Once tobacco smoke has damaged cells, they may grow uncontrollably and become cancer, however, because cells are tiny, it may be many years before a lump or tumor is discovered.

DNA is a cell's "instruction manual"; it controls a cell's growth and function and poisons in tobacco smoke can destroy or change DNA causing a cell to multiply out of control and develop into a cancerous tumor.

The body's immune system protects the body from cancer by sending out "tumor fighters" to attack and kill cancer cells, however, new research indicates that the poisons in cigarette smoke weaken tumor fighters, resulting in cells that keep multiplying without being stopped. For this reason, smoking not only causes cancer but blocks your body's ability to fight it (U.S. Department of Health and Human Services, 2010).

IMPACT OF SMOKING

People who smoke cigarettes are 15 to 30 times more likely to get lung cancer or die from lung cancer than people who do not smoke. Even smoking a few cigarettes a day or smoking occasionally increases the risk of lung cancer and the more years a person smokes and the more cigarettes smoked each day, the more risk increases. Tobacco use accounts for at least 30% of all cancer deaths, causing 87% of lung cancer deaths in men and 70% of lung cancer deaths in women (American Cancer Society, 2015).

FIGURE 7. SMOKING RISKS

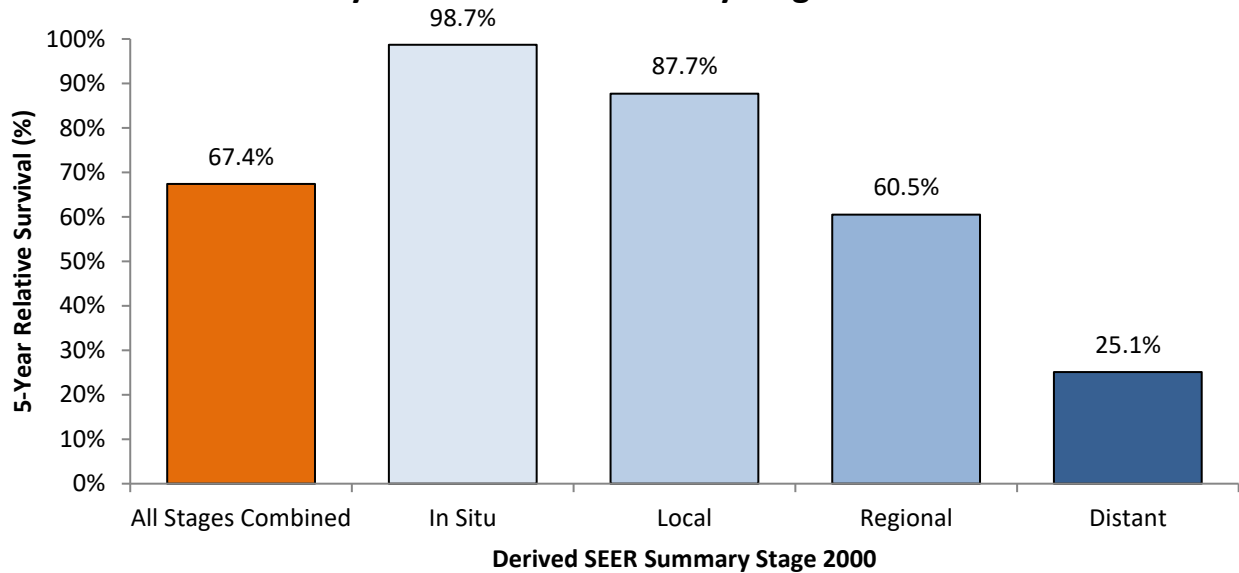


Nearly **ONE** in 6 American adults currently smoke cigarettes.



Nearly **ONE** in 5 deaths are attributed to cigarette smoking.

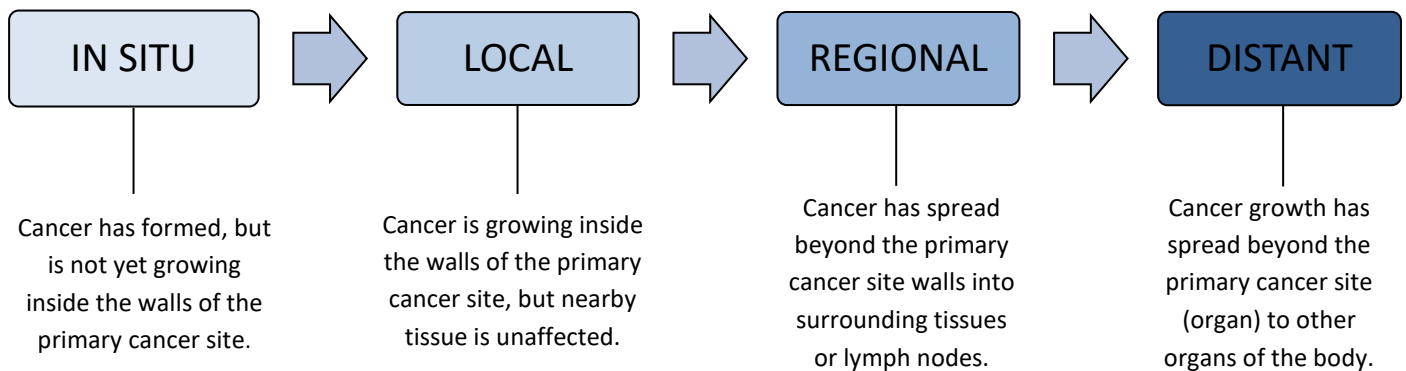
Figure 8. Five-Year Relative Survival (%) in Tennessee, 2009-2015, By Derived SEER Summary Stage 2000



From 2009 to 2015 (Figure 8):

- About 67.4% of TN cancer patients survived 5 years compared to the TN population without cancer. This means that about 67 Tennessee cancer patients will survive 5 years whereas 100 Tennesseans without cancer will survive the same 5-year period.
- The relative cancer survival rates were higher for individuals diagnosed with cancer in the early stages (i.e., in situ and localized) as opposed to the late stages (i.e., regional and distant).
- It should be noted that 53.6% of all cancer patients in TN are diagnosed in the early stages.

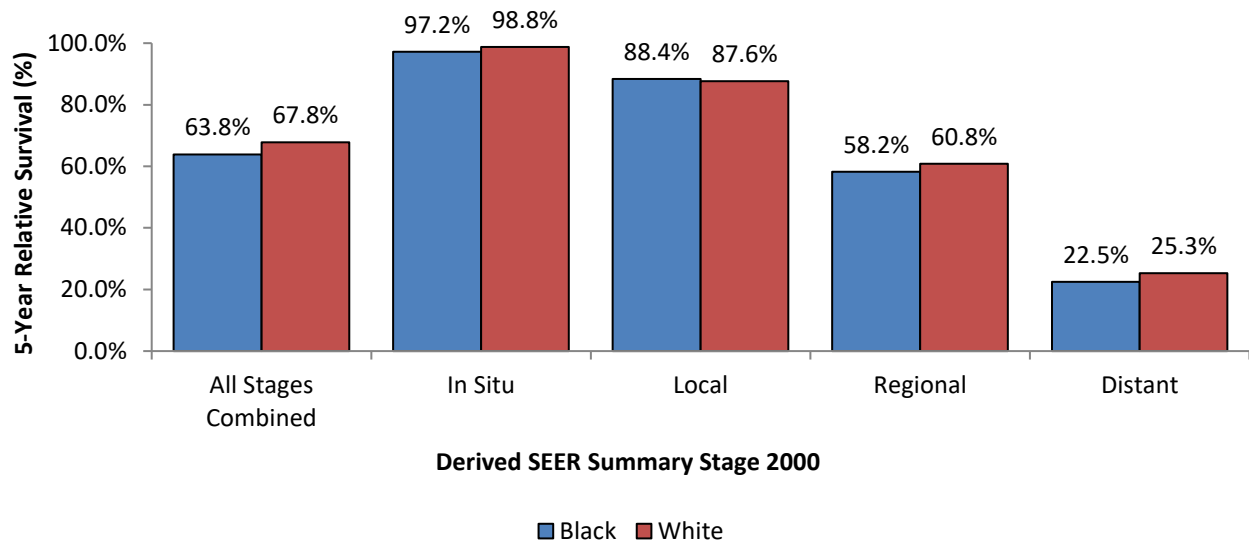
Figure 9. STAGES OF CANCER



For more information on SEER Summary Stage 2000 please visit: <https://training.seer.cancer.gov/ss2k/staging/categories/>.

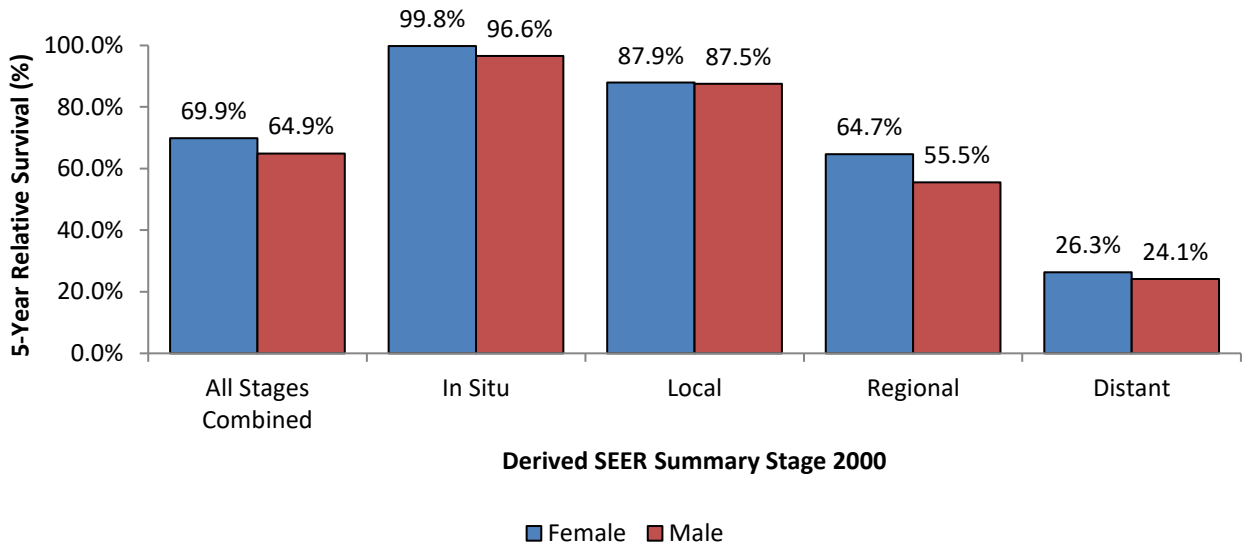
[Data Source](#)

Figure 10. Five-Year Relative Survival (%) in Tennessee, 2009-2015, By Race and Derived SEER Summary Stage 2000



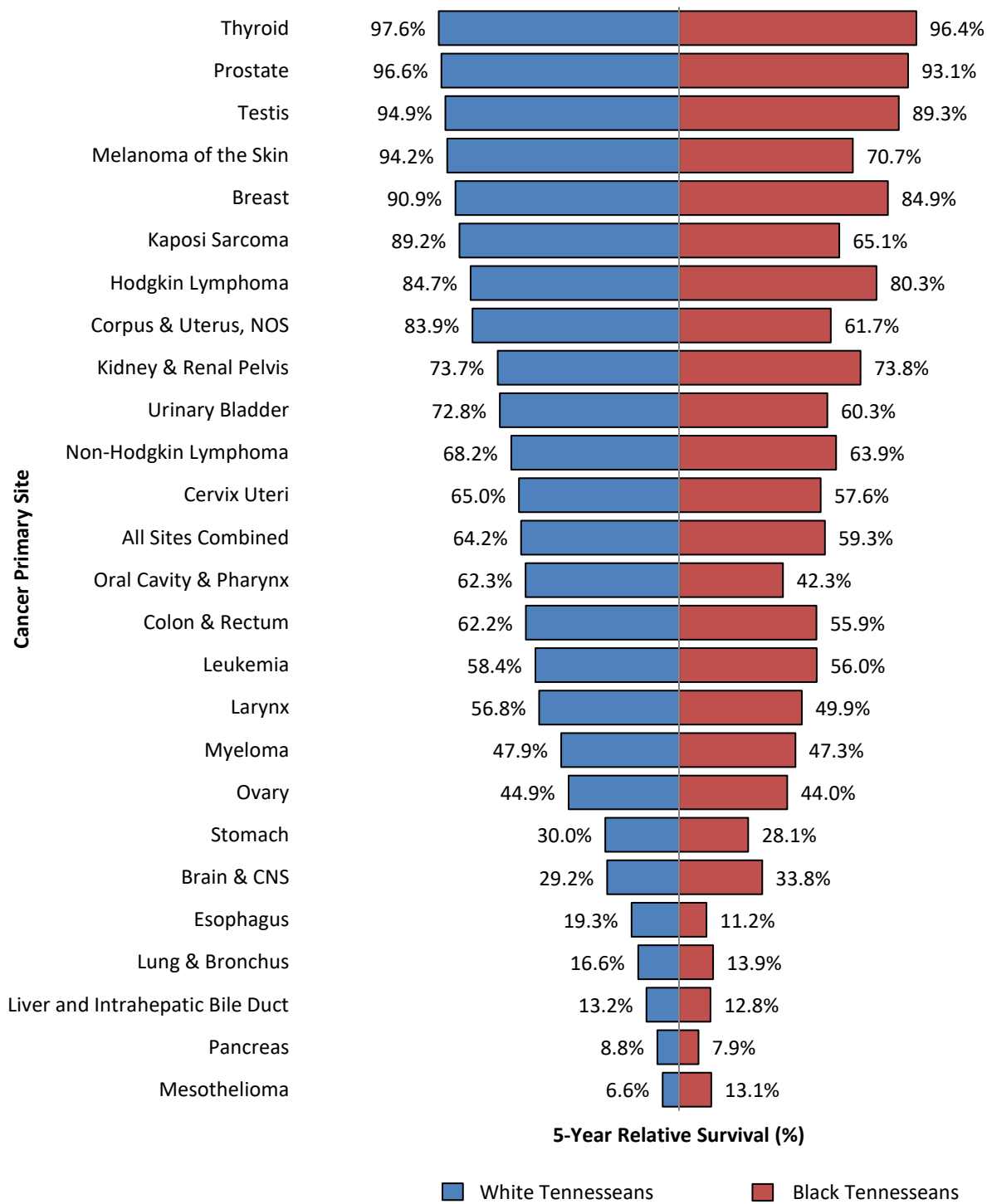
- Lower cancer survival rates among black Tennesseans could be partially attributed to the fact that black Tennesseans are significantly more likely to be diagnosed with cancer in the late stages (i.e., regional or distant) when treatment is less effective (Figure 10).

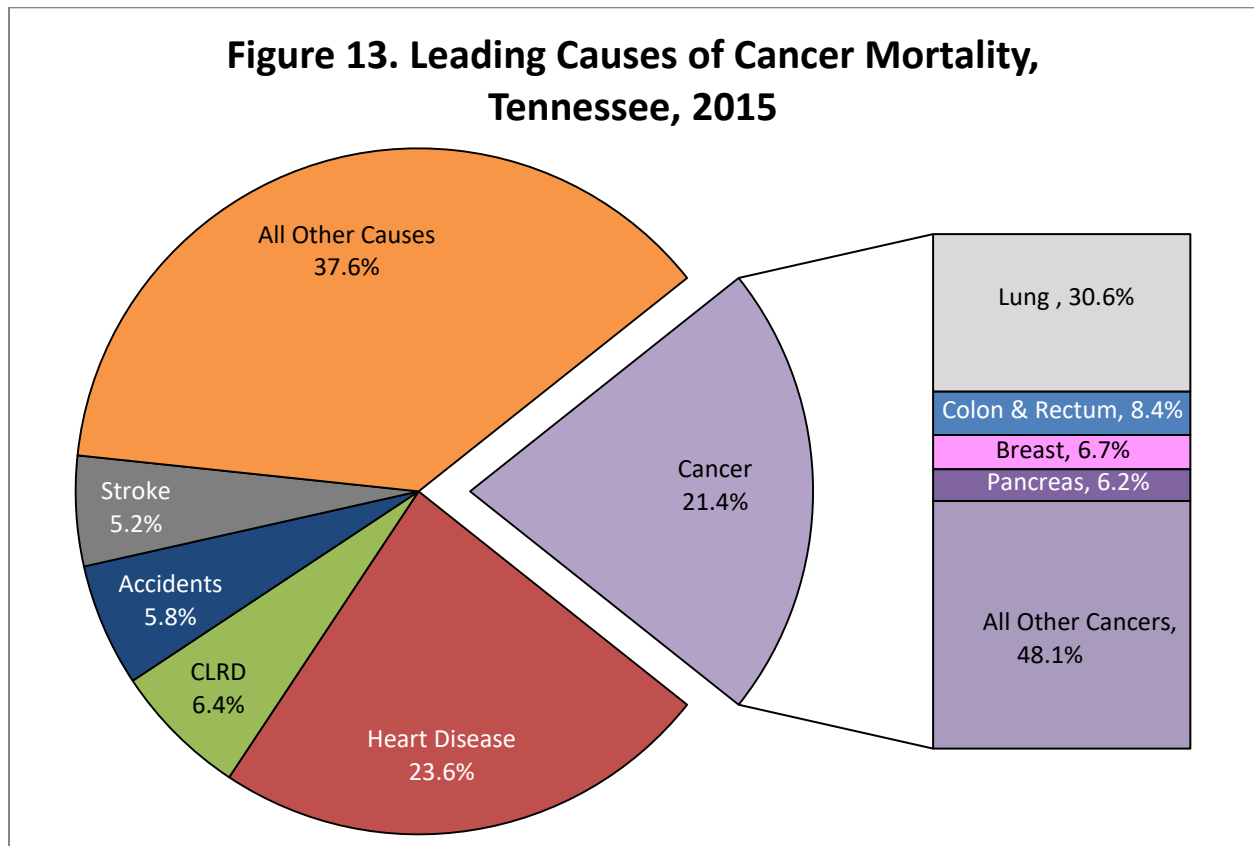
Figure 11. Five-Year Relative Survival (%) in Tennessee, 2009-2015, By Sex and Derived SEER Summary Stage 2000



- Lower survival rates among TN men could be partially attributed to the fact that they are significantly more likely to be diagnosed with cancer in the late stages (i.e., regional or distant) when treatment is less effective (Figure 11).

**Figure 12. Five-Year Relative Survival (%) in Tennessee, 2009-2015
Both Sexes, By Race and Cancer Primary Site**



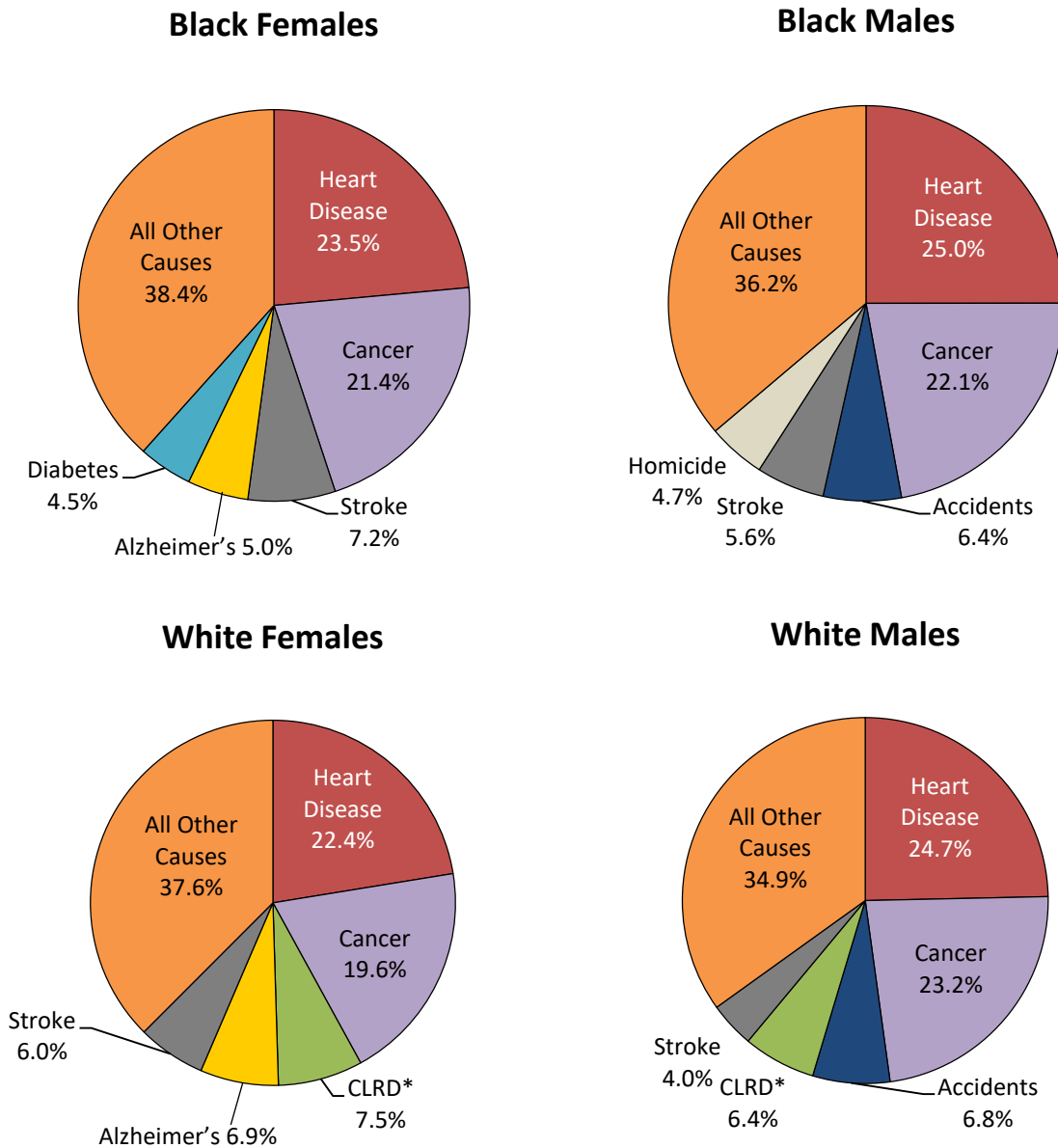


*CLRD represents all Chronic Lower Respiratory Diseases combined.

In 2015 (Figure 13):

- Following heart disease (15,671 deaths), cancer (14,174 deaths) was the second leading cause of death among Tennesseans.
- Lung cancer (4,341 deaths) was the leading cause of cancer deaths among Tennesseans.

Figure 14. Leading Causes of Cancer Mortality, by Race and Sex, Tennessee, 2015



*CLRD represents all Chronic Lower Respiratory Diseases combined.

- Following heart disease, cancer was the second leading cause of death for men and females in TN. Cancer was the second leading cause of death among all TN cohorts in 2015 (Figure 14).

[Data Source](#)

YEARS OF POTENTIAL LIFE LOST TO CANCER, TENNESSEE, 2011-2015

Years of potential life lost (YPLL) is an estimate of premature mortality and measures the average years a person would have lived had they not died from cancer. While statistics that include all mortalities are dominated by deaths of the elderly, YPLL emphasizes deaths of younger persons that could have been prevented. For this report, YPLL was calculated for each individual by subtracting the age at death in years from the assumed life expectancy, which for this report, was 75 years of age. From 2011 to 2015, approximately 2,772,085 YPLL were lost among TN residents, and cancer (579,613 YPLL) accounted for over a fifth (21.4%) of all deaths and 20.9% of all YPLL in TN between 2011 and 2015 (Figure 15). The **average years of potential life lost** is the average YPLL and was 8.4 years for TN from 2011 to 2015 (Figure 16).

Figure 15. Years of Potential Life Lost, By Cause of Death, Tennessee, 2011-2015

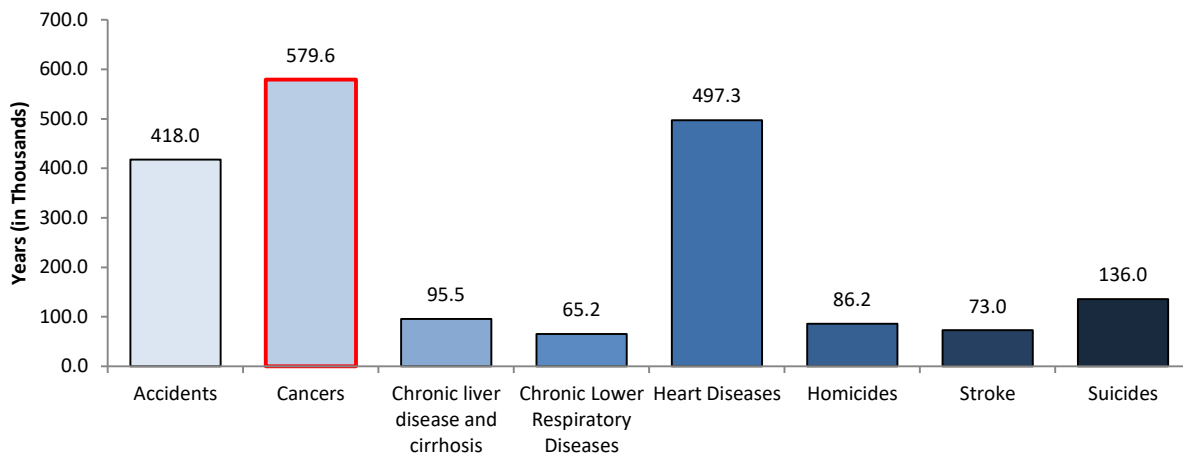
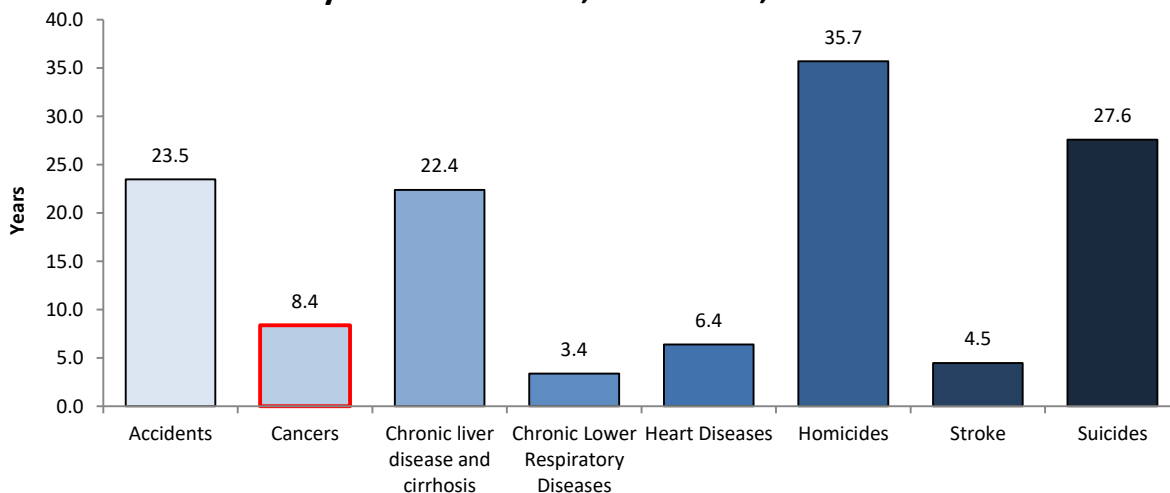
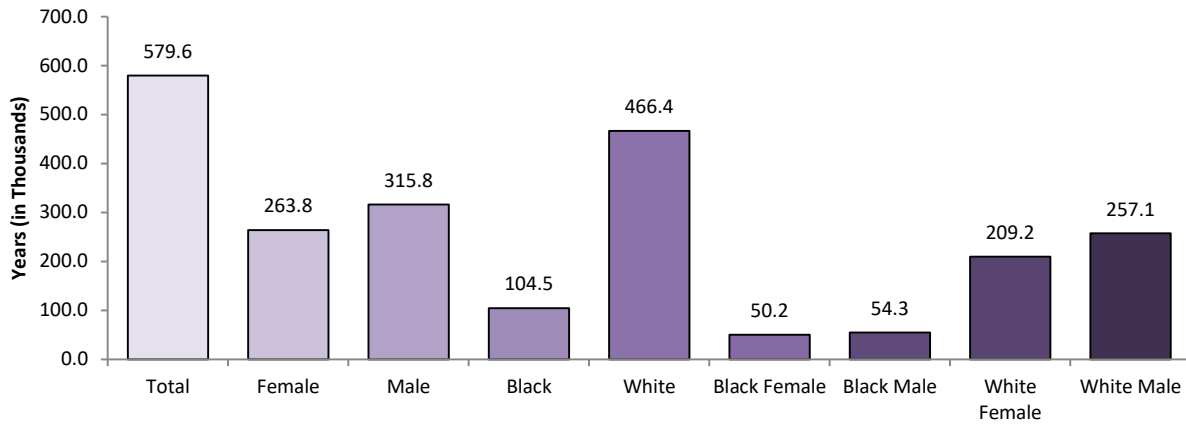


Figure 16. Average Years of Potential Life Lost, By Cause of Death, Tennessee, 2011-2015



[Data Source](#)

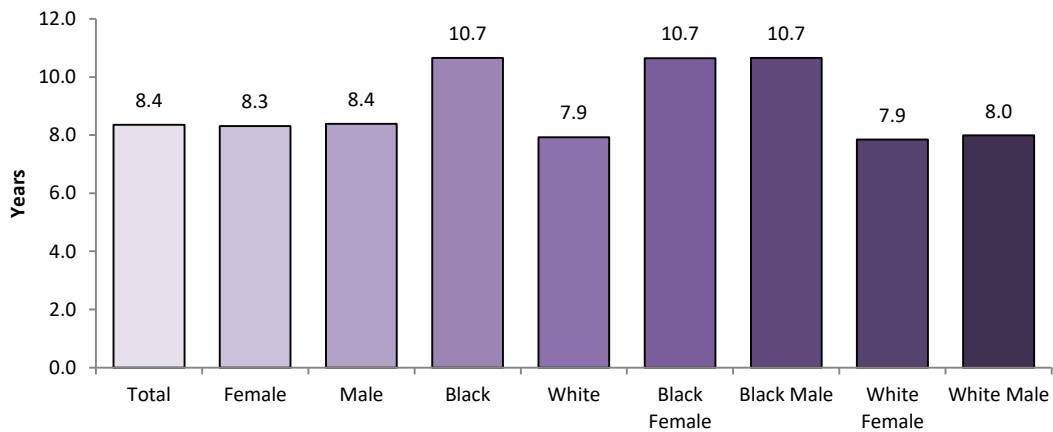
Figure 17. Total Years of Potential Life Lost to Cancer, By Gender and Race, Tennessee, 2011-2015



From 2011 to 2015 (Figure 17):

- A total of 579,613 years of potential life lost (YPLL) were lost due to premature cancer deaths (deaths before 75 years of age) for all Tennesseans.
- TN women lost 263,776 YPLL and TN men lost 315,834 YPLL in total.
- Black Tennesseans lost 104,496 YPLL and white Tennesseans lost 466,368 YPLL in total.

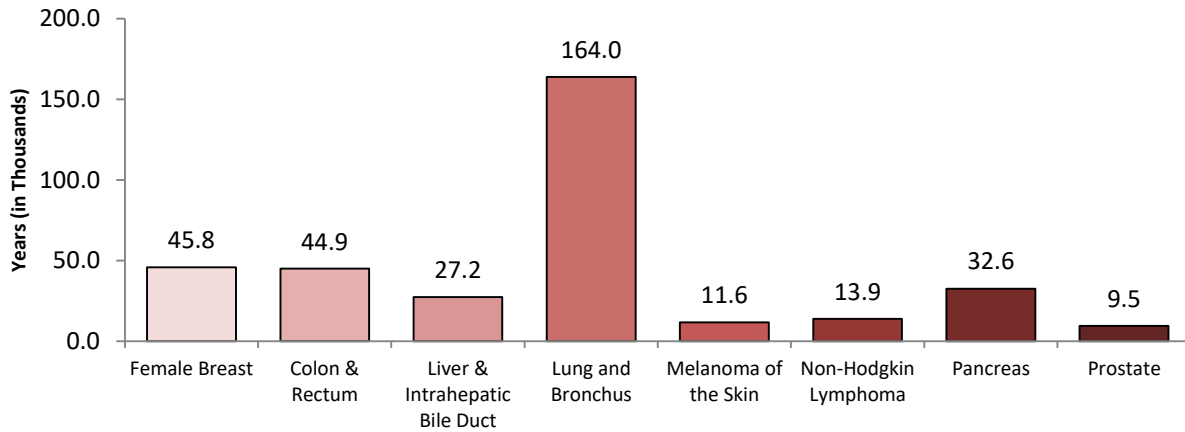
Figure 18. Average Years of Potential Life Lost to Cancer, By Gender and Race, Tennessee, 2011-2015



From 2011 to 2015 (Figure 18):

- On average, each Tennessean who died from cancer lost an estimated 8.4 years of life.
- On average, each black Tennessean who died from cancer during this period lost an estimated 10.7 years of life and each white Tennessean who died from cancer lost an estimated 7.9 years of life.

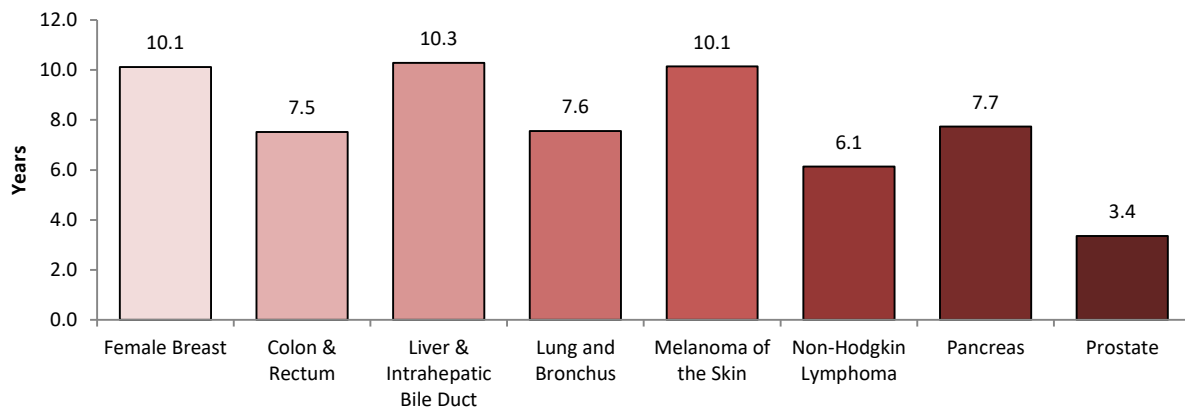
Figure 19. Total Years of Potential Life Lost to Cancer, By Common Cancer Site, Tennessee, 2011-2015



From 2011 to 2015 (Figure 19):

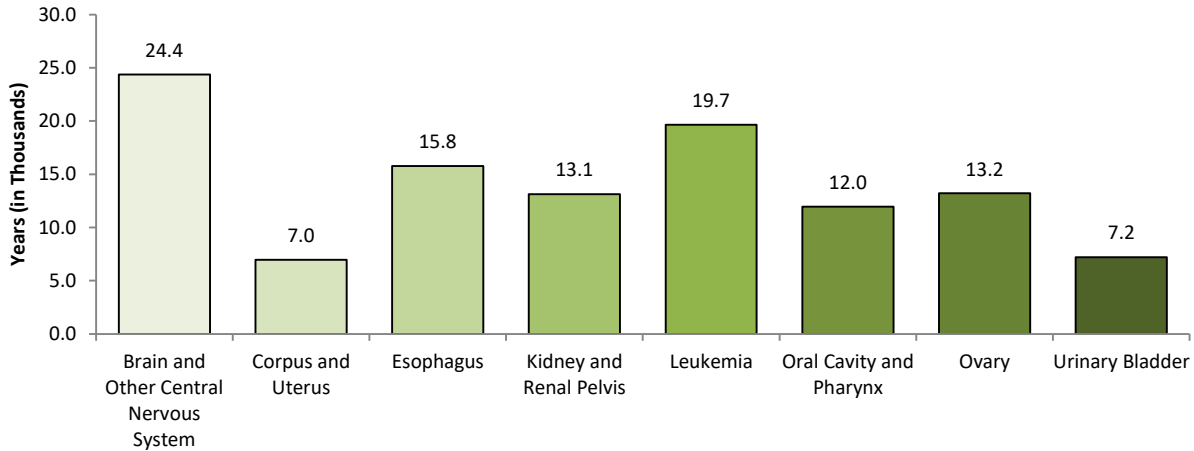
- Lung cancer (163,992 YPLL) accounted for the most years of potential life lost for a specific cancer site followed by female breast cancer (45,820 YPLL), colorectal cancer (44,924 YPLL), pancreatic cancer (32,564 YPLL), liver & intrahepatic bile duct cancer (27,212 YPLL), Non-Hodgkin (NH) lymphoma (13,874 YPLL), and prostate cancer (9,497 YPLL).
- The eight most common causes of cancer death represented 12.6% of the total YPLL in TN and 60.3% of the total YPLL due to cancer from 2011 to 2015.

Figure 20. Average Years of Potential Life Lost to Cancer, By Common Cancer Site, Tennessee, 2011-2015



- From 2011-2015, liver cancer, female breast cancer and melanoma of the skin represented the highest AYPLL of the most common causes of cancer death (Figure 20).

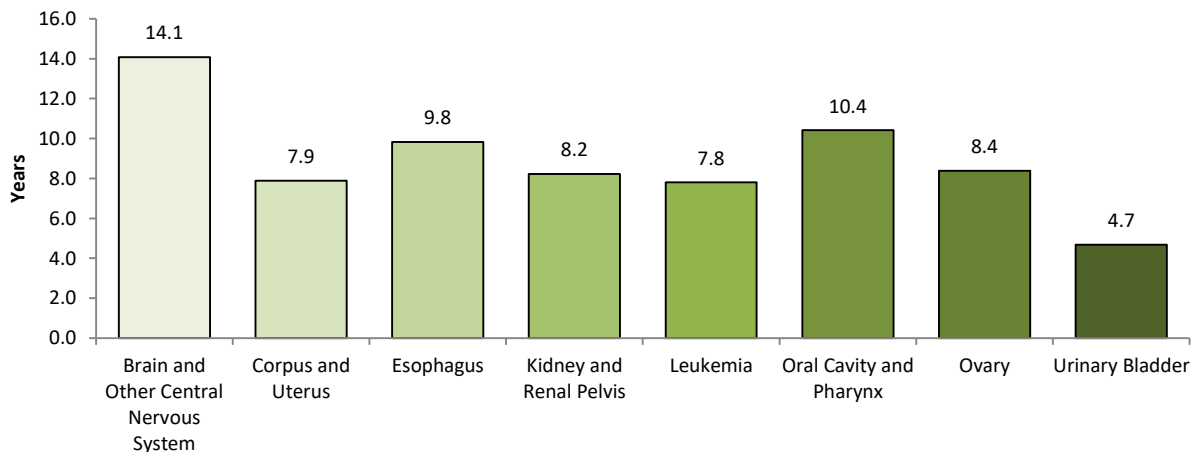
Figure 21. Total Years of Potential Life Lost to Cancer, By Cancer Site, Tennessee, 2011-2015



From 2011 to 2015 (Figure 21):

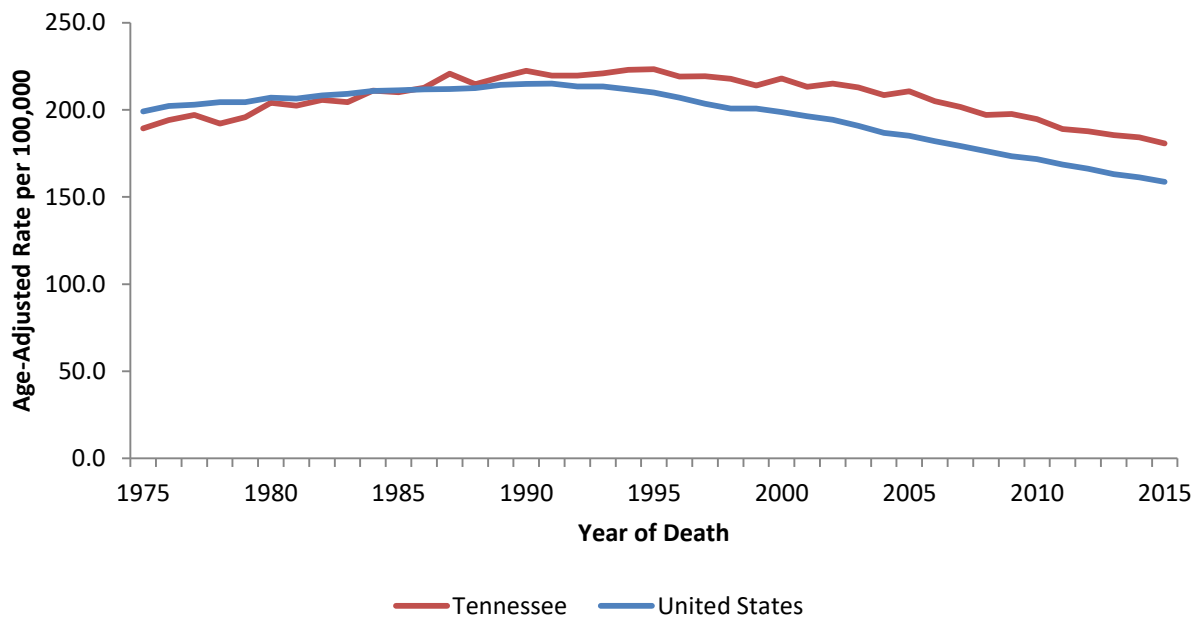
- Outside of the most common cancers, presented on the previous page, brain and other central nervous system (CNS) cancers (24,375 YPLL) accounted for the most years of potential life lost for a specific cancer site followed by leukemia (19,653 YPLL), esophageal cancer (15,787 YPLL), ovarian cancer (13,210 YPLL), kidney cancer (13,129 YPLL), oral cavity and pharynx cancer (11,956 years YPLL), urinary bladder cancer (7,210 YPLL), and uterine cancer (6,966 YPLL).
- The eight cancers above accounted for 4.1% of the total YPLL in TN and 19.4% of the total YPLL due to cancer from 2011 to 2015.

Figure 22. Average Years of Potential Life Lost to Cancer, By Cancer Site, Tennessee, 2011-2015



- During 2011-2015, outside of the most common cancers, brain and other central nervous system (CNS) cancers represented the highest AYPLL due to cancer (Figure 22).

Figure 23. Cancer Mortality, All Sites Combined, Tennessee and United States, 1975-2015

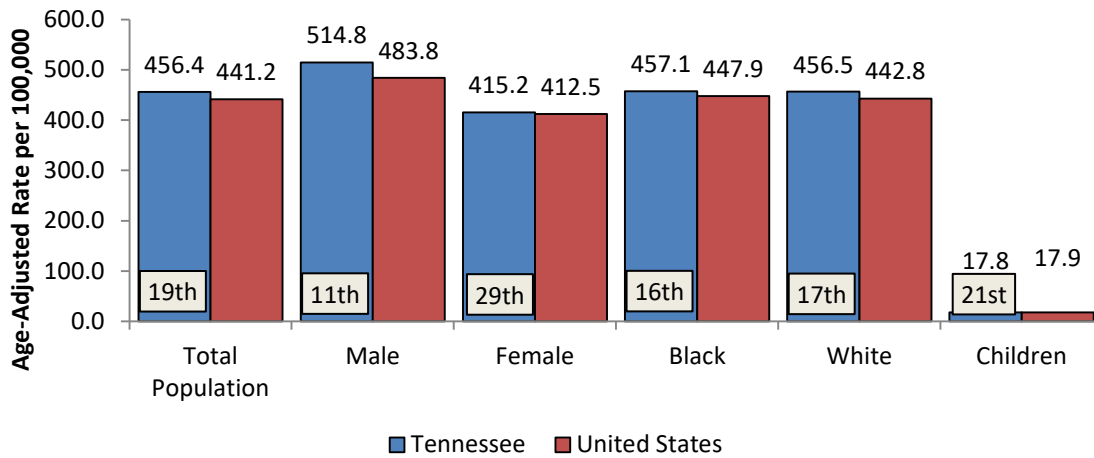


Data Source: National Cancer Institute (2018). State Cancer Profiles. Retrieved from <http://statecancerprofiles.cancer.gov/index.html>

Figure 23:

- In 1975, the cancer mortality rate in US was 5.2% higher than the TN rate, and in 2015, the cancer mortality rate in TN was 13.9% higher than the US rate.
- The cancer mortality rate peaked in the US in 1991 at 215.1 deaths per 100,000 Americans and peaked in TN in 1995 at 223.3 deaths per 100,000.
- From 1975 to 2015, the cancer mortality rate among Tennesseans fell by 4.5%, while the cancer mortality rate among Americans fell by 20.3%.
- From 2011 to 2015, the cancer mortality rate among Tennesseans fell by 4.4%, whereas the cancer mortality rate among Americans fell by 5.9%.

Figure 24. Incidence Rate and Tennessee National Rankings, All Sites Combined, Tennessee and United States, 2011-2015

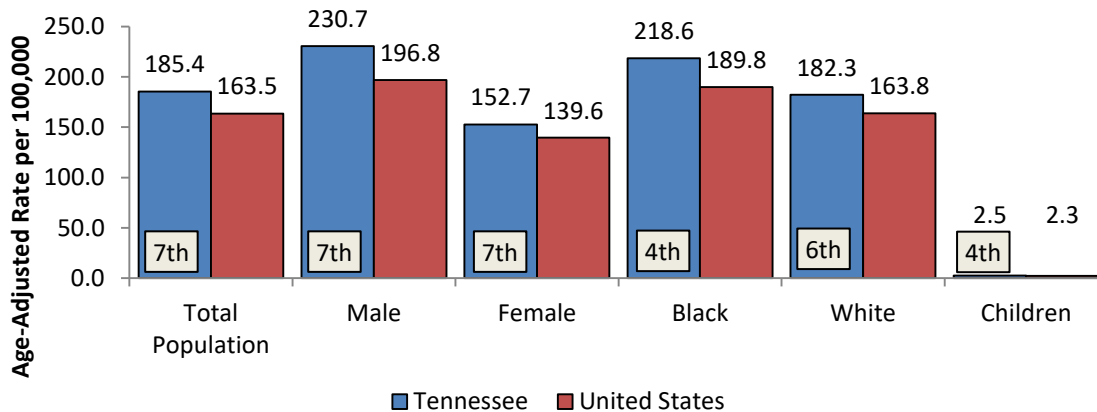


Source: National Cancer Institute (2018). State Cancer Profiles. Retrieved from <http://statecancerprofiles.cancer.gov/index.html>

From 2011 to 2015 (Figure 24):

- In TN, all black, all white, all men and the total population had statistically significantly higher cancer incidence rates compared to US rates.
- TN had the 19th highest cancer incidence rate among all US states.

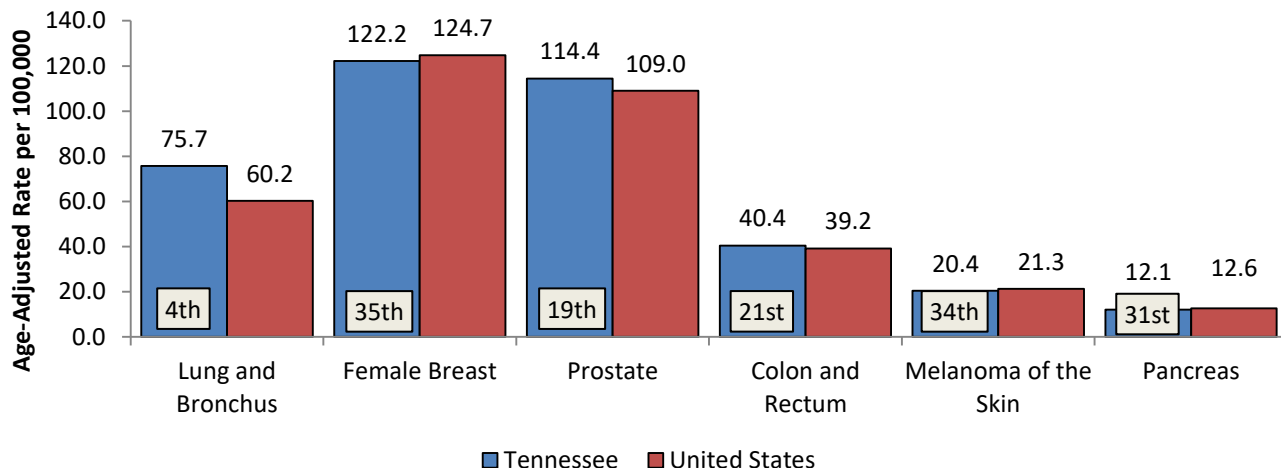
Figure 25. Mortality Rate and Tennessee National Rankings, All Sites Combined, Tennessee and United States, 2011-2015



Source: National Cancer Institute (2018). State Cancer Profiles. Retrieved from <http://statecancerprofiles.cancer.gov/index.html>

- From 2011 to 2015, TN had the 7th highest cancer mortality rate among all US states. All Tennesseans, including whites, blacks, men, and women experienced statistically significantly higher cancer mortality rates than the corresponding US mortality rates (Figure 25).

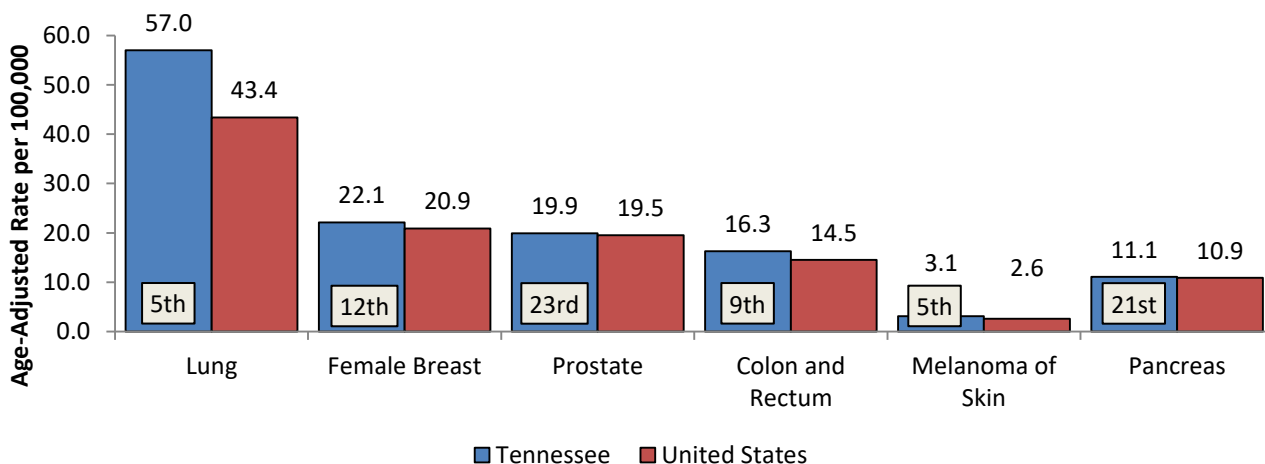
Figure 26. Incidence Rate and Tennessee National Rankings, By Site, Tennessee and United States, 2011-2015



Source: National Cancer Institute (2018). State Cancer Profiles. Retrieved from <http://statecancerprofiles.cancer.gov/index.html>

- The cancer incidence rates in TN during 2011-2015 for lung cancer, prostate cancer and colorectal cancer were statistically significantly higher than the US site-specific cancer incidence rates (Figure 26).

Figure 27. Mortality Rate and Tennessee National Rankings, By Site, Tennessee and United States, 2011-2015



Source: National Cancer Institute (2018). State Cancer Profiles. Retrieved from <http://statecancerprofiles.cancer.gov/index.html>

- In TN during 2011-2015, the cancer mortality rates for lung cancer, female breast cancer, colorectal cancer, and melanoma of the skin were statistically significantly higher than the US site-specific cancer mortality rates (Figure 27).

Note: Rates presented on pages 25 & 26 were retrieved from State Cancer Profiles and will differ from rates presented elsewhere in this report due to the availability of more current data.

CANCER INCIDENCE AND MORTALITY IN TENNESSEE, 2011-2015

CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED

TABLE 3. ALL SITES COMBINED CANCER INCIDENCE AND MORTALITY, TENNESSEE, 2011-2015

Gender*	Race	Incidence				Mortality				M:I
		Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio‡
Both	All Races†	175,571	463.7	461.5	465.9	69,358	184.6	183.2	186.0	0.40
	Black	22,772	464.2	457.9	470.6	9,805	216.8	212.3	221.3	0.47
	White	150,207	463.9	461.5	466.3	58,813	180.5	179.0	182.0	0.39
Female	All Races†	84,672	421.1	418.2	424.0	31,730	152.0	150.4	153.8	0.36
	Black	11,228	402.4	394.7	410.1	4,709	176.4	171.3	181.7	0.44
	White	72,141	425.2	422.0	428.4	26,652	148.5	146.7	150.3	0.35
Male	All Races†	90,899	523.9	520.4	527.4	37,628	229.7	227.3	232.2	0.44
	Black	11,544	561.6	550.3	573.0	5,096	284.2	275.6	292.9	0.51
	White	78,066	518.8	515.0	522.5	32,161	224.1	221.5	226.6	0.43
Age at Diagnosis or Death										
	0-19	1,531	18.4	17.5	19.3	204	2.5	2.1	2.8	0.14
	20-44	12,382	122.8	120.6	124.9	1,901	19.1	18.2	19.9	0.16
	45-64	68,006	723.5	718.0	729.0	21,161	220.0	217.0	223.0	0.30
	65+	93,652	2,001.5	1,988.6	2,014.5	46,092	1,013.2	1,003.9	1,022.6	0.51
Year of Diagnosis or Death										
	2011	34,648	476.7	471.6	481.8	13,461	187.7	184.5	190.9	0.39
	2012	34,709	468.2	463.2	473.2	13,632	186.0	182.8	189.2	0.40
	2013	34,956	462.0	457.0	466.9	13,938	185.4	182.3	188.6	0.40
	2014	34,906	451.7	446.9	456.6	14,153	184.0	180.9	187.1	0.41
	2015	36,352	461.1	456.3	466.0	14,174	180.2	177.2	183.3	0.39

*Excludes hermaphrodites and transsexuals.

**Total counts are from 2011 to 2015.

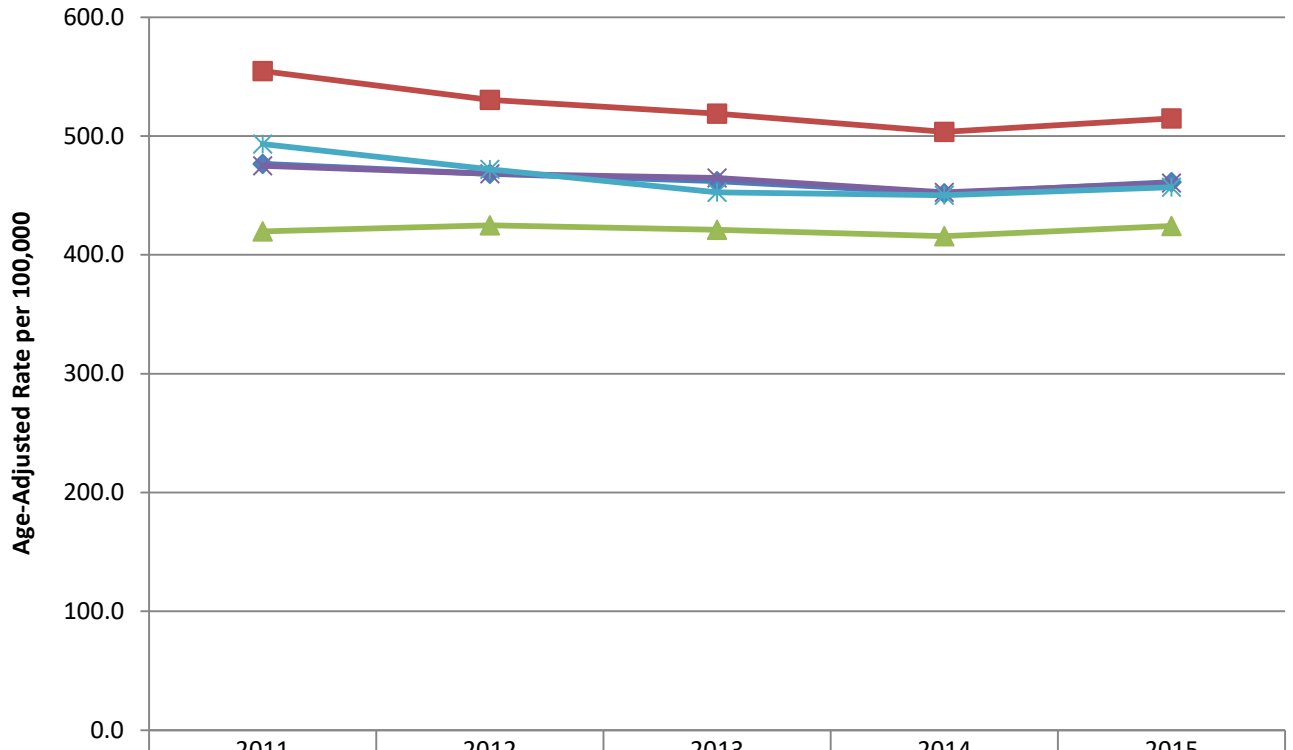
***Rates are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84, 85+).

Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Includes blacks, whites, other races, and those cases missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

Figure 28. Cancer Incidence, All Sites Combined, By Gender and Race, Tennessee, 2011-2015



	2011	2012	2013	2014	2015
All Races Incidence	476.7	468.2	462.0	451.7	461.1
Male Incidence	554.6	530.3	518.9	503.5	514.7
Female Incidence	419.8	425.0	421.0	415.6	424.3
White Incidence	475.0	468.3	464.6	452.6	460.4
Black Incidence	493.2	472.0	452.6	450.2	456.8

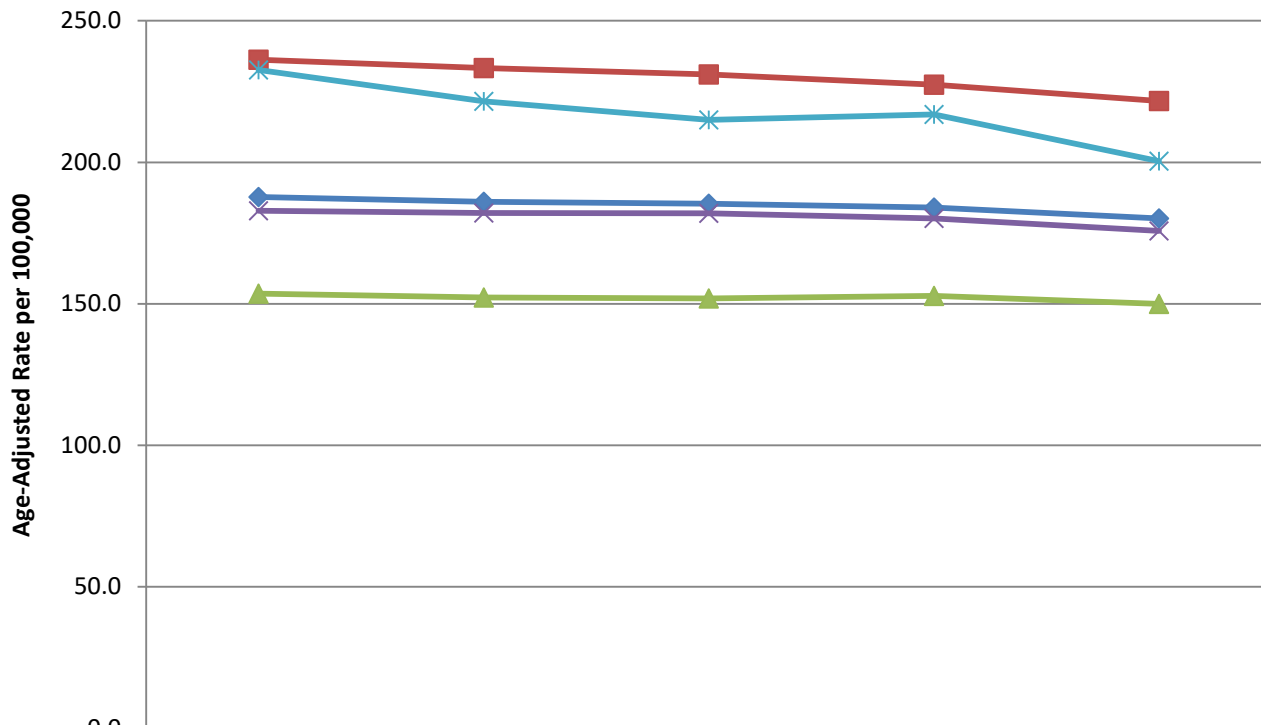
Year of Diagnosis

While not statistically significant, from 2011 to 2015 in TN (see Figure 28):

- The cancer incidence rate fell by 1.0% per year.
- The cancer incidence rate fell by 2.0% per year among men and 0.1% per year among women.
- The cancer incidence rate declined by 2.0% per year for blacks and declined by 1.0 % for whites.

[Data Source](#)

Figure 29. Cancer Mortality, All Sites Combined, By Gender and Race, Tennessee, 2011-2015



	2011	2012	2013	2014	2015
All Races Mortality	187.7	186.0	185.4	184.0	180.2
Male Mortality	236.2	233.3	231.1	227.4	221.7
Female Mortality	153.6	152.2	151.9	152.8	150.0
White Mortality	182.9	182.1	182.0	180.1	175.7
Black Mortality	232.6	221.5	215.0	216.9	200.4

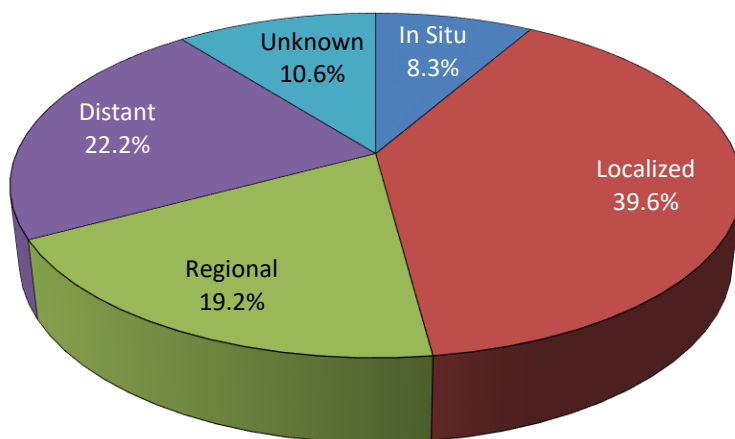
Year of Death

From 2011 to 2015, the following were statistically significant in TN (Figure 29):

- The cancer mortality rate decreasing by 1.4% per year.
- The cancer mortality rate among men declining by 1.7% per year and by 1.2% for women.
- The cancer mortality rate of blacks declining by 2.3% per year and by 1.2% for whites.

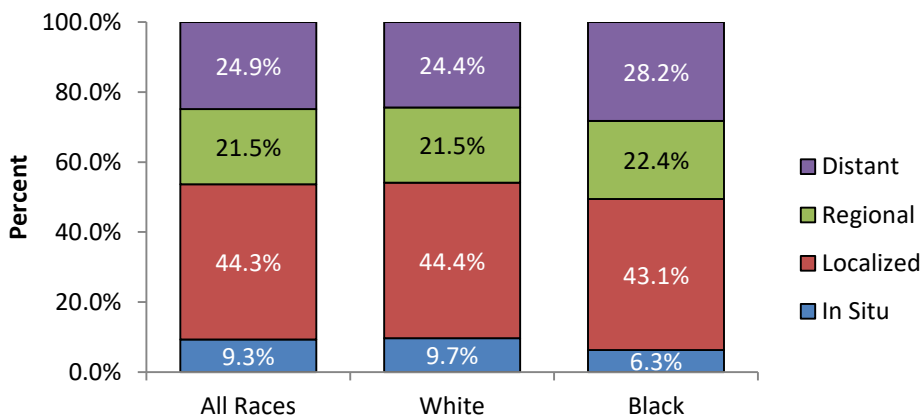
[Data Source](#)

Figure 30. Cancer Stage, All Sites Combined, Tennessee, 2011-2015



- Including cancers with unknown stage, 47.9% of new all cancer cases were confined to the organ of origin, otherwise known as *in situ* or localized stage; 19.2% were diagnosed at regional stage; and 22.2% at a distant stage (Figure 30).

Figure 31. Cancer Stage, All Sites Combined, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 31):

- Among Tennesseans with cancers diagnosed of known stage, 9.3%, 44.3%, 21.5%, and 24.9% of cases were diagnosed at the *in situ*, localized, regional, and distant stage, respectively.
- 50.6% of blacks were diagnosed at late stages (i.e., at the regional or distant stage) compared to 45.9% of whites, and this difference was statistically significant, which may partially explain why blacks have a higher cancer mortality rate compared to whites.

MOST COMMON CANCERS IN TENNESSEE, 2011-2015

LUNG CANCER

Incidence

- TN had the fourth highest incidence rate in the U.S during 2011 – 2015.
- From 2011 through 2015, lung cancer accounted for 16.7% of all new cancers and was the leading cause of cancer incidence in TN. During this time period, there were 29,253 cases of newly diagnosed lung cancer among Tennesseans, resulting in an age-adjusted rate of 75.8 cases per 100,000 Tennesseans.
- The lung cancer incidence rate was relatively stable during this time period, despite a minor fluctuation in rates in between 2013 and 2015.

Mortality

- TN had the fifth highest lung cancer mortality rate in the US during 2011-2015.
- From 2011 through 2015, lung cancer accounted for nearly a third (31.3%) of all cancer mortalities with 21,688 Tennesseans dying from lung cancer, resulting in an age-adjusted rate of 56.7 cases per 100,000 Tennesseans. The mortality-to-incidence ratio for lung cancer among Tennesseans was 0.75, making it one of the deadliest cancers in TN.
- The lung cancer mortality rate decreased on average by 2.3% per year from 2011 to 2015, a change that was statistically significant.
- From 2011-2015, Tennesseans had a 10.5% probability of developing lung cancer and a 7.8% probability of dying from lung cancer during their lifetime. In other words, roughly one in ten Tennesseans will develop lung cancer and one in thirteen Tennesseans will die of lung cancer during their lifetime.

Survival

- Tennesseans that died of lung cancer died on average 7.6 years earlier than expected.
- Only 20.8% of lung cancer cases with known stage information were diagnosed in early stages (i.e., *in situ* or local stages).
- Stage at diagnosis appears to greatly influence survival; roughly half (49.4%) of lung cancer patients diagnosed in the localized stage (i.e. early stage) survived 5 years or more after their initial diagnosis.

Health Disparities

- Overall in TN, men had higher lung cancer incidence and mortality rates than women.
- Black Tennesseans were more likely to be diagnosed with lung cancer in the late stages (i.e., regional and distant) than white Tennesseans and this finding was statistically significant. Based on 2009-2015 data, approximately 16.6% (17 out of 100) white lung cancer patients and 13.9% (14 out of 100) black lung cancer patients survived 5 years or more after their initial diagnosis.
- White women had significantly higher lung cancer incidence rates than black women, while black men had significantly higher incidence and mortality rates than white men.

Screening

In recent years, the National Lung Screening Trial has illustrated that a lung cancer screening test can help lower the risk of dying from this disease in certain individuals (NLSTRT, 2011). Thus, the US Preventive Services Taskforce recently gave low-dose computed tomography screening for lung cancer a grade of “B” for certain individuals: adults aged 55-80 years with a 30 pack-year history of smoking and who currently smoke or quit smoking within the past 15 years. It should be noted a pack year is defined as smoking an average of 1 pack of cigarettes per day for 1 year.

LUNG AND BRONCHUS CANCER, CONTINUED

TABLE 4. CANCER INCIDENCE AND MORTALITY, LUNG AND BRONCHUS, TENNESSEE 2011-2015

Gender	Race	Incidence				Mortality				M:I
		Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio ‡
Both*	All Races†	29,253	75.8	74.9	76.7	21,688	56.7	56.0	57.5	0.75
	Black	3,318	71.3	68.8	73.9	2,623	58.4	56.0	60.8	0.82
	White	25,709	76.9	76.0	77.9	18,875	56.8	56.0	57.6	0.74
Female	All Races†	12,987	61.7	60.7	62.8	9,088	43.0	42.1	43.9	0.70
	Black	1,396	51.4	48.7	54.3	1,061	40.5	38.0	43.1	0.79
	White	11,485	63.7	62.5	64.9	7,936	43.6	42.7	44.6	0.68
Male	All Races†	16,266	94.4	92.9	95.9	12,600	74.8	73.4	76.2	0.79
	Black	1,922	102.3	97.3	107.4	1,562	86.3	81.7	91.1	0.84
	White	14,224	94.1	92.5	95.7	10,939	73.9	72.4	75.3	0.79
Age at Diagnosis or Death										
	0-19	^	^	^	^	^	^	^	^	~
	20-44	419	4.3	3.9	4.7	220	2.3	2.0	2.6	0.53
	45-64	9,948	102.8	100.7	104.8	6,681	68.4	66.8	70.1	0.67
	65+	18,878	406.9	401.0	412.8	14,786	321.9	316.7	327.2	0.79
Year of Diagnosis or Death										
	2011	5,592	76.2	74.2	78.2	4,289	58.9	57.1	60.7	0.77
	2012	5,741	76.0	74.1	78.1	4,327	58.2	56.4	60.0	0.77
	2013	5,822	75.6	73.6	77.6	4,302	56.3	54.6	58.0	0.74
	2014	5,881	74.5	72.6	76.4	4,429	56.5	54.8	58.2	0.76
	2015	6,217	76.8	74.9	78.8	4,341	54.1	52.5	55.8	0.70

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

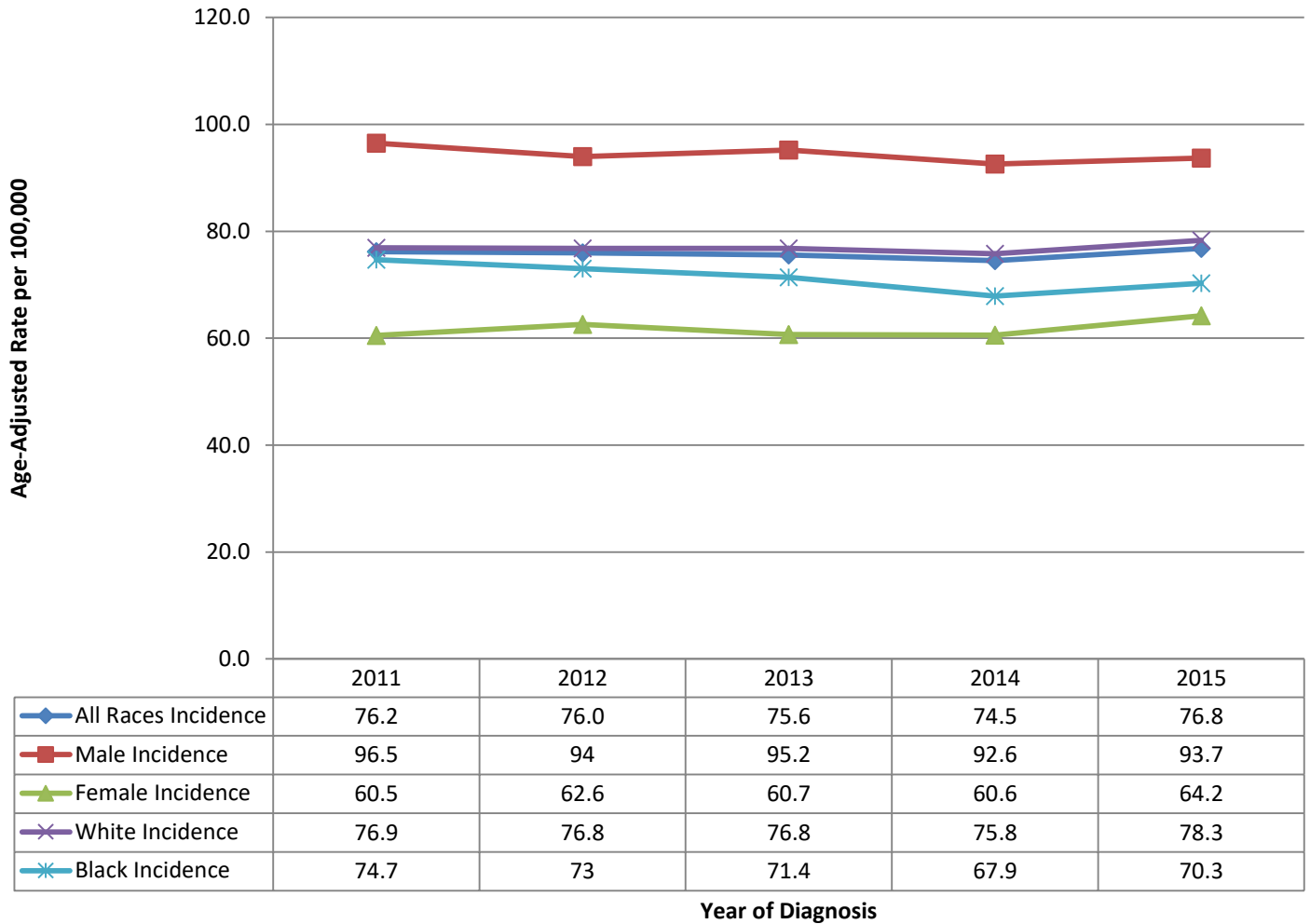
**Total counts are from 2011 to 2015.

***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+). Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

Figure 32. Cancer Incidence, Lung and Bronchus, By Gender and Race, Tennessee, 2011-2015

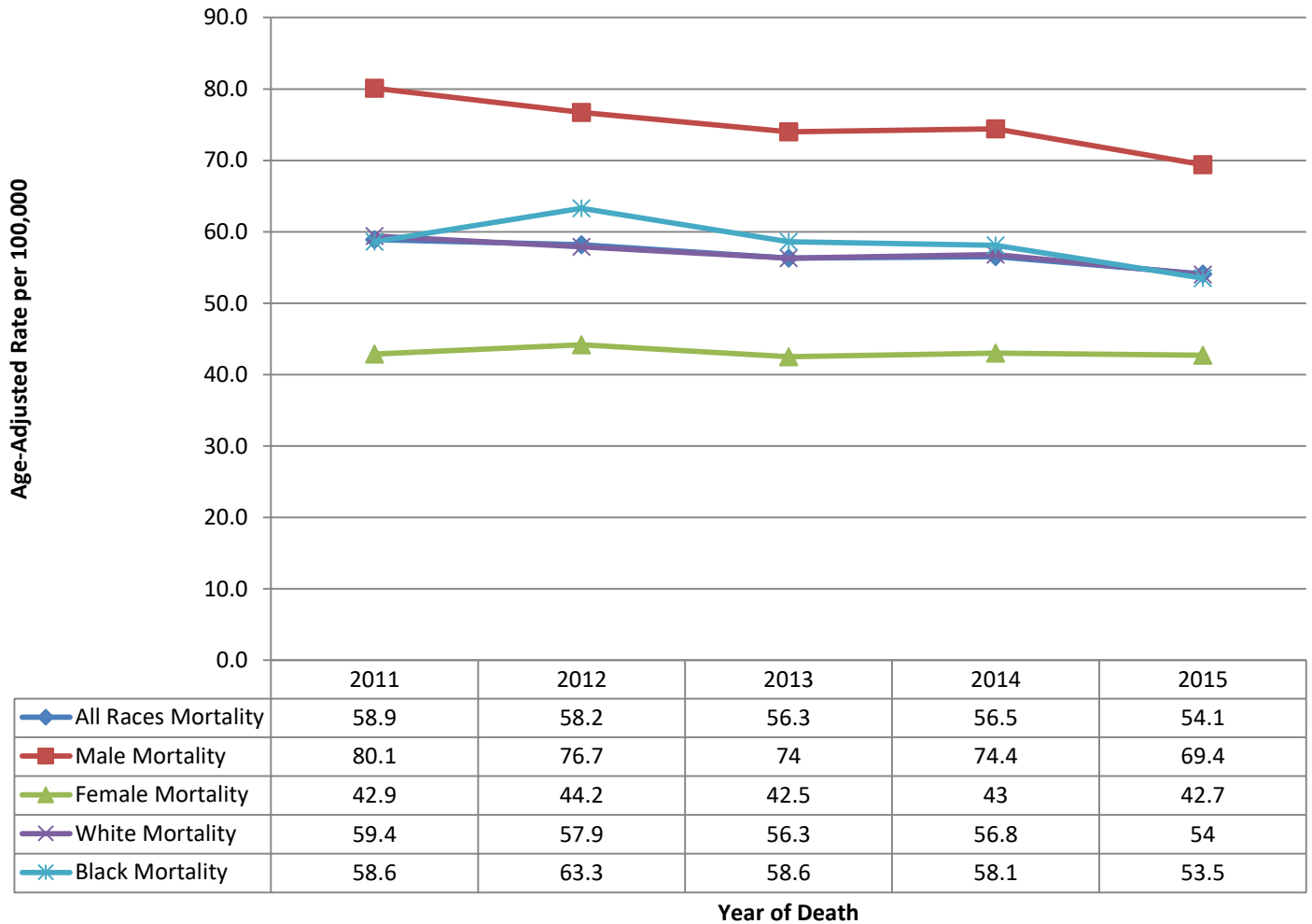


While not statistically significant, from 2011 to 2015, the lung cancer incidence rate in TN (Figure 32):

- Remained relatively stable for the total population.
- *Decreased* by 0.7% per year for men and *increased* by 0.9% per year for women.
- *Increased* among whites by 0.3% per year and decreased among blacks 1.9% per year.

[Data Source](#)

Figure 33. Cancer Mortality, Lung and Bronchus, By Gender and Race, Tennessee, 2011-2015

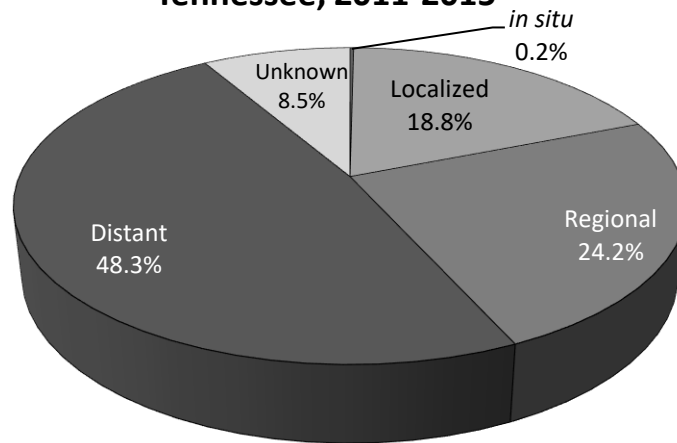


From 2011 to 2015, the lung cancer mortality rate in TN (Figure 33):

- *Decreased* on average by 2.0% per year and this change was statistically significant.
- *Decreased* among men by 3.1% per year and this change was statistically significant.
- *Decreased* among women by 0.4% per year, but this change was not statistically significant.
- *Decreased* among whites by 2.1% per year and decreased among blacks by 2.7% per year and these changes were statistically significant.

[Data Source](#)

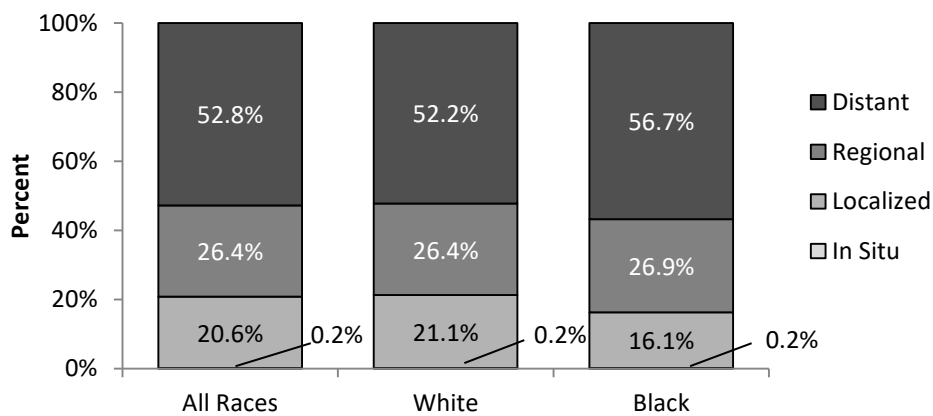
Figure 34. Cancer Stage, Lung and Bronchus, Tennessee, 2011-2015



In TN from 2011 to 2015 (Figure 34):

- 0.2% of all lung cancer cases were diagnosed at the *in situ* stage.
- One in five cases (18.8%) was diagnosed at the local stage, one in four cases (24.2%) were diagnosed at the regional stage and almost half of new cases (48.3%) were diagnosed at the distant stage.
- 8.5% of cases had unknown stage information.

Figure 35. Cancer Stage, Lung and Bronchus, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

- In TN, black patients had a higher proportion (83.6%) of cases diagnosed at late stages than white patients (78.6%), and this difference was statistically significant (Figure 35).

[Data Source](#)

PROSTATE CANCER

Incidence:

- TN had the nineteenth highest incidence rate in the US from 2011-2015.
- From 2011-2015, prostate cancer accounted for nearly a quarter (23.5%) of new cancer cases among TN men, and was the leading cause of cancer incidence (21,329 cases).
- Prostate cancer incidence rates fell on average by 6.4% per year from 2011 to 2015, but this change was not statistically significant.

Mortality

- TN had the twenty-third highest mortality rate in the US from 2011-2015.
- From 2011 to 2015, prostate cancer accounted for 7.5% of deaths due to cancer, and was the third leading cause of cancer mortality among TN men.
- From 2011 to 2015, prostate cancer accounted for 2,826 deaths, resulting in an age-adjusted rate of 19.8 per 100,000 TN men. The mortality-to-incidence ratio of prostate cancer was 0.17, which may partially be attributed to screening methods and steadily improving treatment options.
- Prostate cancer mortality rates fell 3.7% per year from 2011-2015, and this was statistically significant.
- In TN during 2011 to 2015, white men had a 14.8% probability of developing and a 2.3% probability of dying from prostate cancer in their lifetime. Black men in TN had a 24.2% probability of developing and a 5.8% probability of dying from prostate cancer in their lifetime during the same time period.

Survival

- TN men that died of prostate cancer died on average 3.4 years earlier than expected.
- Based on 2009-2015 data, approximately 96.1% of men in TN survived 5 years or more after their initial diagnosis of prostate cancer. This means that 96 out of 100 TN men were still alive 5 years after being diagnosed with prostate cancer.
- Only 24.8% of TN men diagnosed with prostate cancer at the distant stage survived 5 years or more after their initial diagnosis. Roughly four out of five (81.4%) cases with known stage information were diagnosed at early stages, which may be partially attributable to prostate cancer screening methods and the slow progressive course prostate cancer typically displays compared to most other cancers.

Health Disparities

During 2011 to 2015, black men were disproportionately affected by this disease compared to white men; black men experienced a mortality rate that is roughly two and a half times higher compared to white men.

Screening

The US Preventive Services Taskforce (USPSTF) does not recommend population-based screening for prostate cancer for men 70 years or older. The USPSTF provides a “C” grade for Prostate Specific Antigen (PSA) screening among men, who are 55-69 years of age. According to the 2014 Behavioral Risk Factor Surveillance Survey, 41.4% of TN men over 40 years of age had a PSA screening during the past two years.

PROSTATE CANCER, CONTINUED

TABLE 4. CANCER INCIDENCE AND MORTALITY, PROSTATE, TENNESSEE, 2011-2015

		Incidence				Mortality				M:I
Gender	Race	Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio ‡
Male	All Races†	21,329	114.6	113	116.2	2,826	19.8	19	20.6	0.17
	Black	3,839	179.2	173.1	185.5	618	44.4	40.7	48.3	0.25
	White	17,182	105.8	104.2	107.5	2,187	17.3	16.6	18	0.16
Age at Diagnosis or Death										
	0-19	^	^	^	^	^	^	^	^	^
	20-44	122	2.6	2.1	3.1	^	^	^	^	^
	45-64	8,871	186.3	182.4	190.3	381	7.7	6.9	8.5	0.04
	65+	12,335	571.9	561.5	582.4	2,440	142.8	137	148.6	0.25
Year of Diagnosis or Death										
	2011	4,863	138.9	134.9	143	574	21.7	19.9	23.6	0.16
	2012	4,237	117.2	113.6	120.9	545	19.9	18.2	21.7	0.17
	2013	4,096	109.8	106.4	113.3	541	18.6	17	20.3	0.17
	2014	3,879	101.1	97.9	104.5	580	19.6	18	21.3	0.19
	2015	4,254	108.1	104.8	111.5	586	19.3	17.8	21	0.18

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

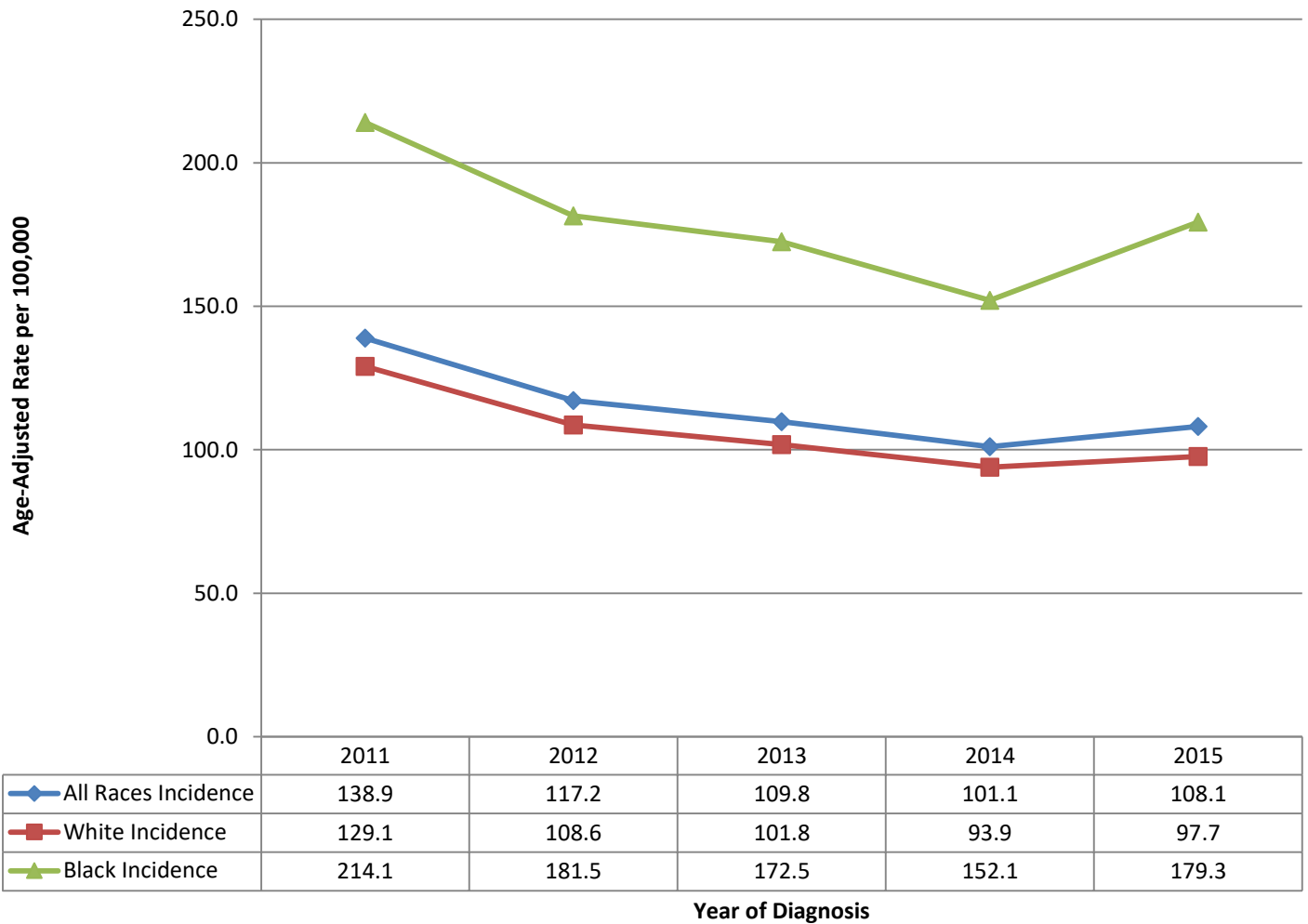
**Total counts are from 2011 to 2015.

***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+). Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those cases missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

Figure 36. Cancer Incidence, Prostate, By Race, Tennessee, 2011-2015

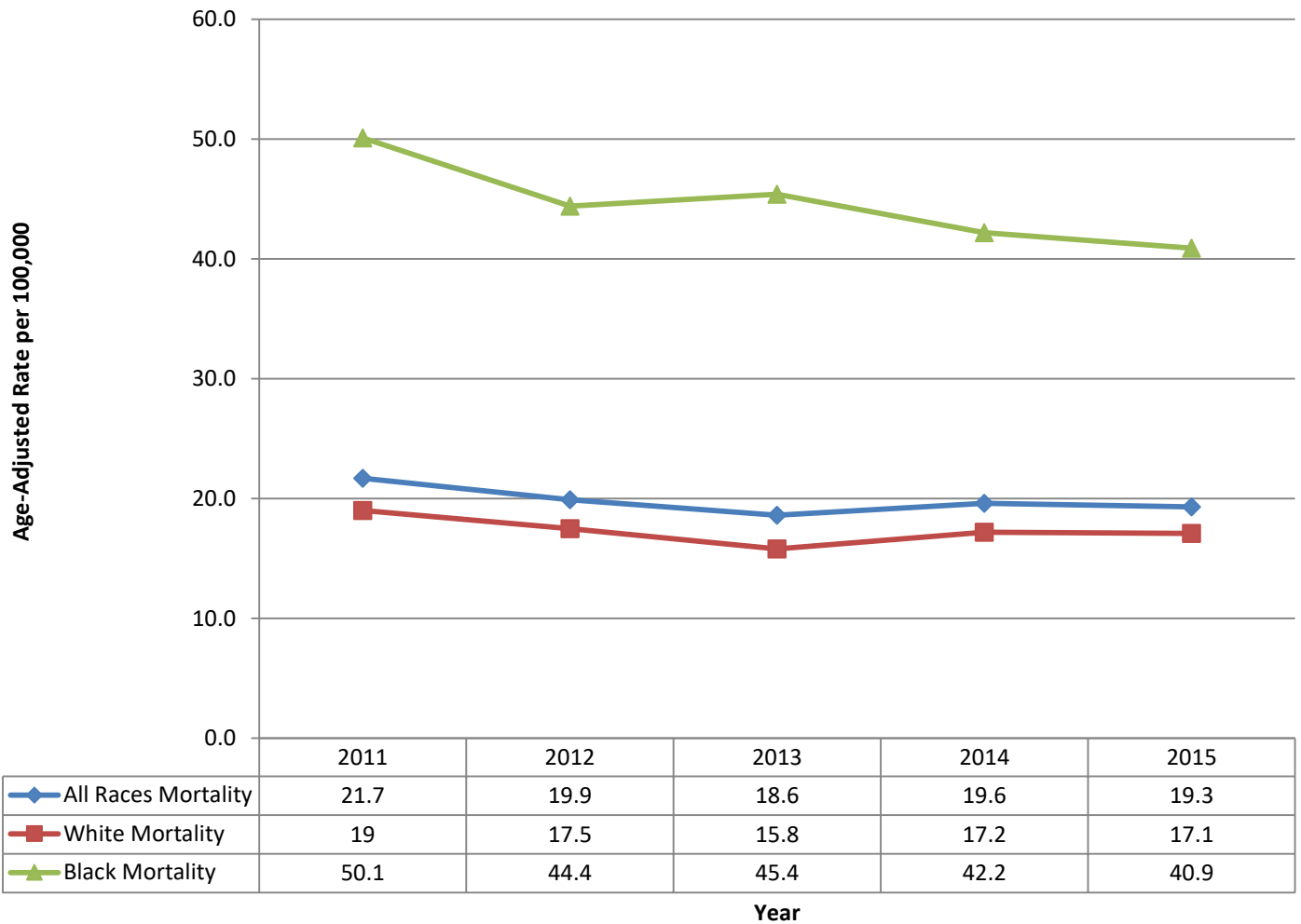


From 2011 – 2015, the prostate cancer incidence rate in TN (Figure 36):

- *Decreased* by 6.4% per year, but this change was not statistically significant.
- *Decreased* among whites by 6.9% per year and this change was statistically significant.
- *Decreased* among blacks by 5.0% per year but this change was not statistically significant.

[Data Source](#)

**Figure 37. Cancer Mortality, Prostate,
By Race, Tennessee, 2011-2015**

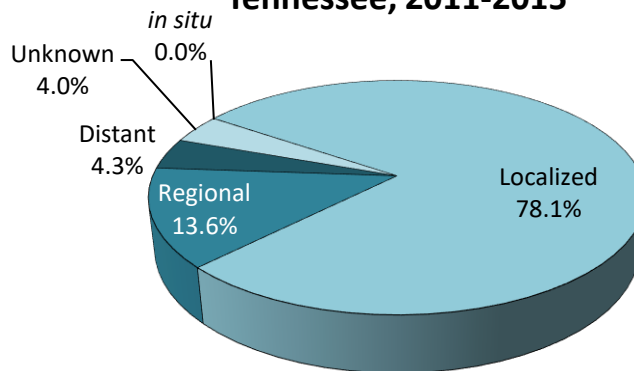


From 2011 – 2015, the prostate cancer mortality rate in TN (Figure 37):

- *Decreased* by 3.7% per year and this change was statistically significant.
- *Decreased* among whites by 3.8% per year and decreased among blacks by 5.4%, and these changes were statistically significant.

PROSTATE CANCER, CONTINUED

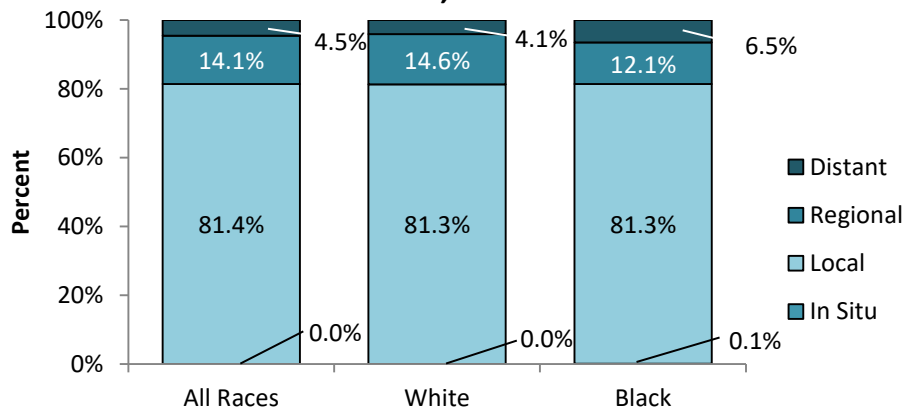
Figure 38. Cancer Stage, Prostate, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 38):

- Less than 11 prostate cancer cases were diagnosed at the *in situ* stage.
- About four out of every five cases (78.1%) were diagnosed at the local stage, 13.6% of cases were diagnosed at the regional stage and 4.3% of cases were diagnosed at the distant stage.
- 4.0% of cases had unknown stage information.

Figure 39. Cancer Stage, Prostate, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 39):

- Among cases with known stage information, only 18.6% were diagnosed at late stages (i.e., regional or distant stage).
- A slightly higher percentage of white patients were diagnosed at late stages (18.7%) than black patients (18.6%), but this difference was not statistically significant.
- Early diagnosis of prostate cancer is believed to contribute to a low mortality-to-incidence ratio.

FEMALE BREAST CANCER

Incidence

- TN women experienced the thirty-fifth highest breast cancer incidence rate in the US during 2011-2015.
- From 2011 through 2015, breast cancer represented 29.0% of new female cancer cases and was the leading cause of cancer incidence (24,550 cases) in TN.
- Incidence rates increased on average by 0.1% per year and this change was not statistically significant.

Mortality

- TN women experienced the twelfth highest breast cancer mortality rate in the US during 2011-2015.
- From 2011 through 2015, breast cancer represented 14.3% of female cancer deaths and was the second leading cause of cancer mortality (4,532 cases) in TN women. Mortality rates decreased on average by 1.6% per year during 2011-2015 and these changes were statistically significant. Early detection and effective treatment options contributed to the low mortality-to-incidence ratio of breast cancer (0.18).
- TN women, who died of breast cancer, died 10.1 years earlier than expected. From 2011-2015, TN women had a 17.4% lifetime risk of developing breast cancer and a 2.7% lifetime risk of dying from breast cancer.

Survival

- Based on 2009-2015 female breast cancer data in TN, approximately 91.0% of whites and 85.2% of blacks diagnosed with breast cancer survived 5 years or more after their initial diagnosis. This means that 91 out of 100 white TN women and 85 out of 100 black TN women are still alive 5 years after being diagnosed with breast cancer.
- Only a quarter (24.6%) of TN women diagnosed with breast cancer in the distant stage (i.e., late stage) survived 5 years or more after their initial diagnosis.
- Nearly three quarters (71.2%) of new cases with known stage information were diagnosed at early stages when treatment is more effective.

Health Disparities

- Breast cancer mortality rates of black women were significantly higher than those of white women in TN.
- Black women are significantly more likely than white women to be diagnosed with breast cancer in the late stages (i.e., regional and distant) when treatment is more difficult, which may partially explain the significantly higher breast cancer mortality rates of black women compared to white women in TN.

Screening

- Nearly four out of five TN women (78.8%), 50-74 years of age, received a mammogram in the past two years, which led to the high percentage of early stage breast cancers observed statewide.
- The US Preventative Services Taskforce (USPSTF) recommends biennial screening mammography for women 50-74 years as there is a moderate certainty that the net benefit of screening is moderate to substantial. However, the decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take patient context into account, including the patient's perceived value regarding specific benefits and harms. Of all of the age groups, women aged 60 to 69 years are most likely to avoid breast cancer death through mammography screening (USPSTF, 2016).

FEMALE BREAST CANCER, CONTINUED

TABLE 6. CANCER INCIDENCE AND MORTALITY, FEMALE BREAST, TENNESSEE, 2011-2015

		Incidence				Mortality				M:I
Gender	Race	Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio ‡
Female	All Races †	24,550	122.5	121	124.1	4,532	21.9	21.2	22.6	0.18
	Black	3,613	126.4	122.2	130.7	874	31.1	29	33.3	0.25
	White	20,567	121.7	120	123.4	3,609	20.4	19.7	21.1	0.17
Age at Diagnosis or Death										
	0-19	^	^	^	^	^	^	^	^	^
	20-44	2,385	48.2	46.3	50.2	248	5	4.4	5.7	0.10
	45-64	11,164	237.2	232.8	241.8	1,649	34.1	32.4	35.8	0.14
	65+	11,000	413.4	405.6	421.3	2,635	98.9	95.1	102.7	0.24
Year of Diagnosis or Death										
	2011	4,719	121	117.5	124.6	862	21.5	20.1	23	0.18
	2012	4,833	122.7	119.2	126.3	905	22.4	20.9	23.9	0.18
	2013	5,079	126.4	122.9	130.0	924	22.2	20.8	23.7	0.18
	2014	4,824	119.2	115.8	122.8	906	21.5	20	22.9	0.18
	2015	5,095	123.2	119.8	126.8	935	21.9	20.5	23.4	0.18

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

**Total counts are from 2011 to 2015.

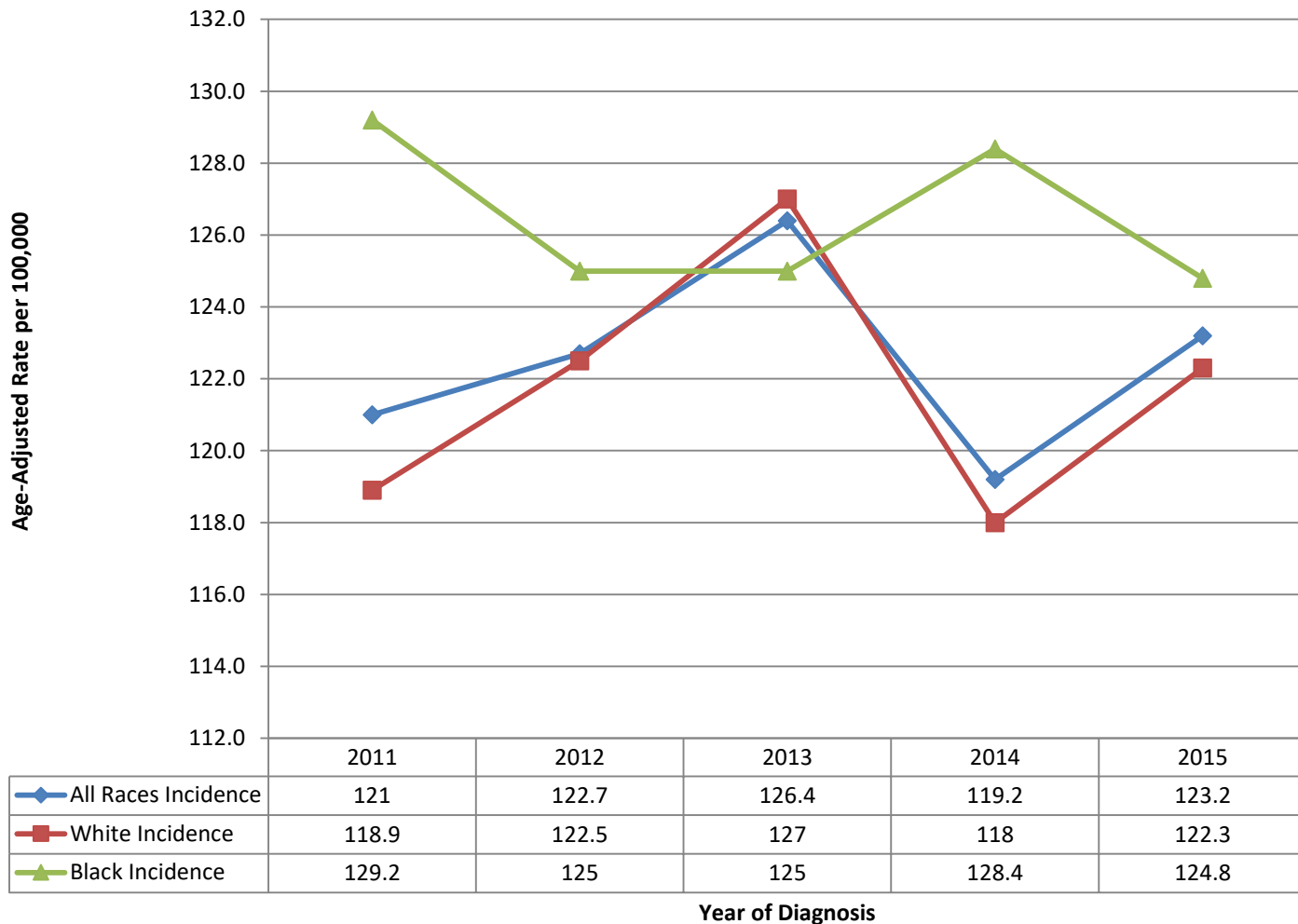
***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+).

Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

Figure 40. Cancer Incidence, Female Breast, By Race, Tennessee, 2011-2015

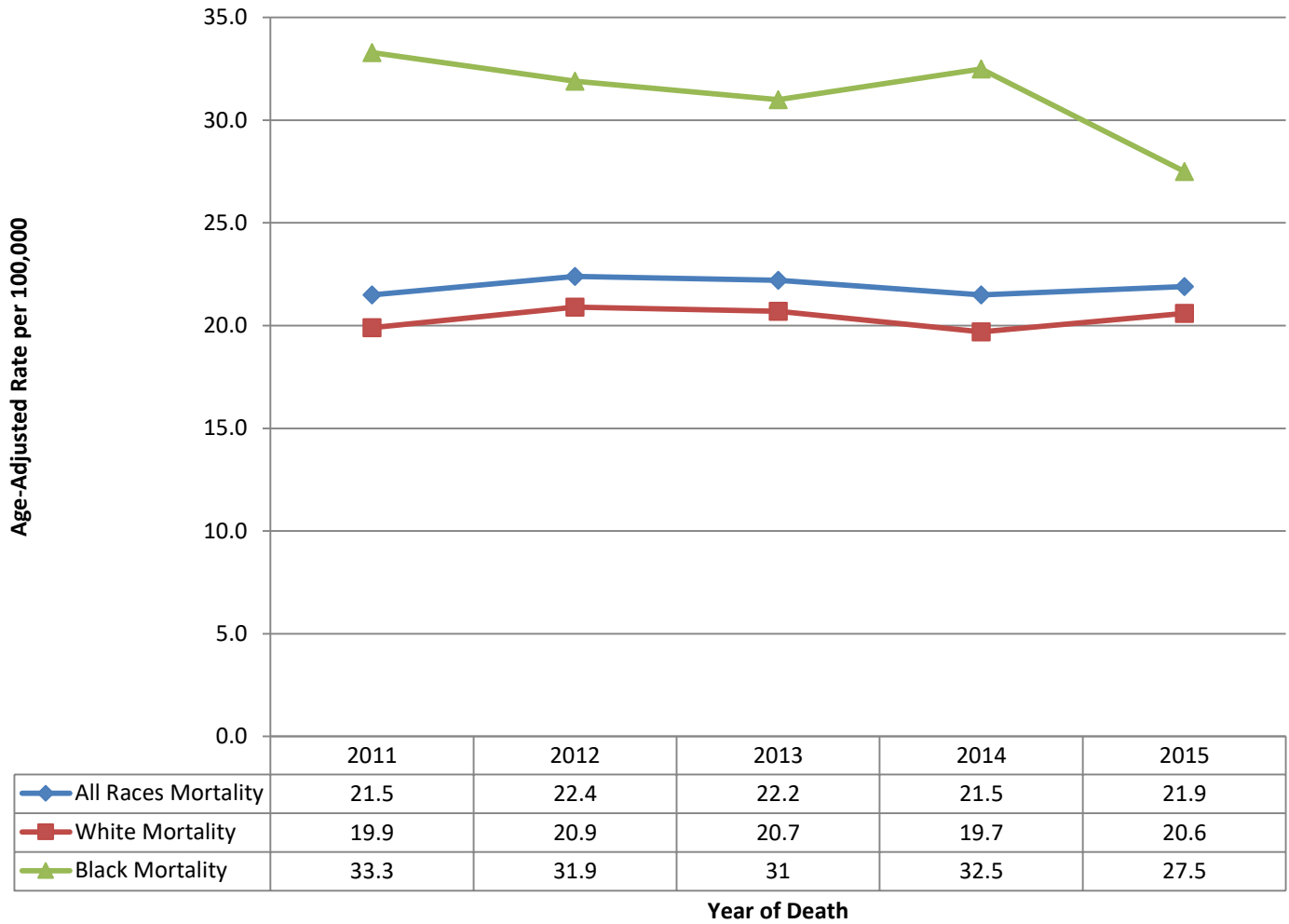


From 2011 – 2015, the female breast cancer incident rate in TN (Figure 40):

- *Increased* by 0.1% per year, but this change was not statistically significant.
- *Increased* among whites by 0.2% per year and decreased among blacks by 0.4%, but these changes were not statistically significant.

[Data Source](#)

Figure 41. Cancer Mortality, Female Breast, By Race, Tennessee, 2011-2015

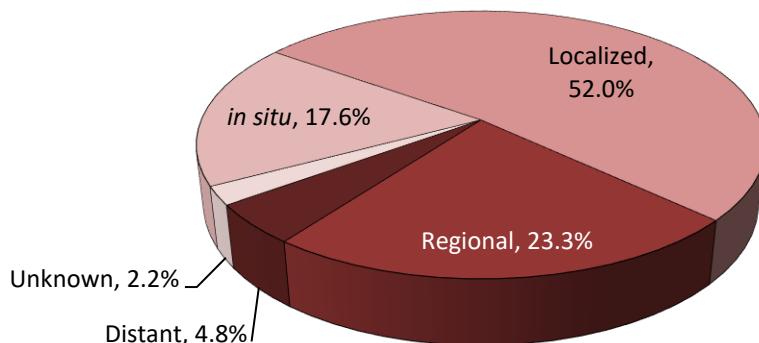


From 2011 – 2015, the female breast cancer mortality rate in TN (Figure 41):

- *Decreased* by 1.6% per year and this change was statistically significant.
- *Increased* among whites by 1.7% per year and decreased among blacks by 2.8% per year, and these changes were statistically significant.

[Data Source](#)

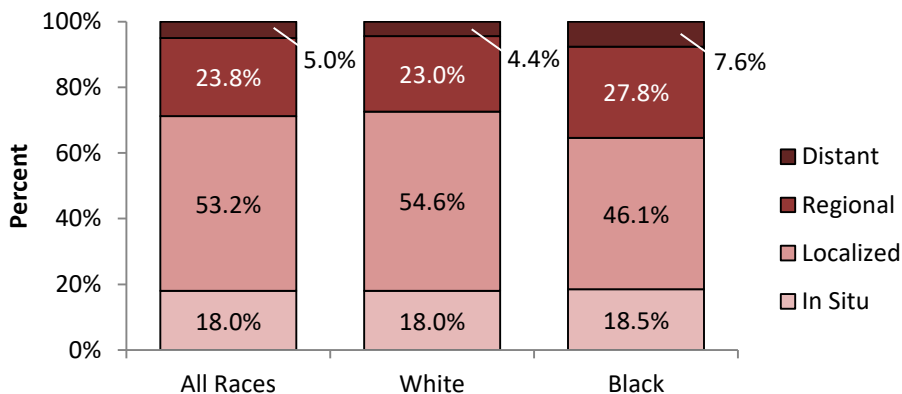
Figure 42. Cancer Stage, Female Breast, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 42):

- Nearly one in five (17.6%) female breast cancer cases were diagnosed at the *in situ* stage.
- More than half of cases (52.0%) were diagnosed at the local stage, one in four cases (23.3%) at the regional stage and 4.8% of cases at the distant stage.
- 2.2% of cases had unknown stage information.

Figure 43. Cancer Stage, Female Breast, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 43):

- Among those cancer cases with known stage, 28.8% were diagnosed at late stages (i.e., regional or distant stages).
- Black women had a higher proportion (35.4%) of cases diagnosed at late stages than white women (27.4%) and this difference was statistically significant, which may partially explain the significantly higher breast cancer mortality rate among black women compared to white women in TN.

COLON AND RECTUM (COLORECTAL) CANCER

Incidence

- During 2011-2015, TN experienced the twenty-first highest colorectal incidence rate in the US and was the fourth leading cause of cancer incidence in TN (15,133 cases; 8.6% of all new cancer cases).
- The colorectal cancer incidence rate fell on average by 0.6% per year from 2011 to 2015, but this change was not statistically significant.

Mortality

- TN experienced the ninth highest mortality rate in the US for colorectal cancer during 2011-2015.
- During 2011-2015, colorectal cancer accounted for 8.6% of all cancer deaths and was the second leading cause of cancer mortality (5,977 cases) in TN.
- During the same time period, the colorectal cancer mortality rate fell on average by 1.7% per year and this decrease was statistically significant.
- Tennesseans who died of colorectal cancer died on average 7.5 years earlier than expected. From 2011-2015, Tennesseans had a 5.3% or a one in nineteen probability of developing colorectal cancer and a 2.1% probability of dying from colorectal cancer in their lifetime.

Survival

- Based on 2009-2015 data, approximately 61.4% of colorectal cancer patients survived 5 years or more after their initial diagnosis. This means that 61 out of 100 Tennesseans were still alive 5 years after being diagnosed with colorectal cancer.
- Less than half (41.3%) of the cases with known stage information were diagnosed at early stages in TN when treatment is generally more effective.

Health Disparities

- In TN, blacks experienced significantly greater incidence and mortality rates for colorectal cancer compared to whites, while TN men experienced significantly greater incidence and mortality rates for colorectal cancer than TN women.
- A slightly higher percentage of black patients (60.2%) were diagnosed with colorectal cancer at late stages than white patients (58.7%), but this difference was not statistically significant.

Screening

- Regular colorectal cancer screening can identify lesions before they become cancer and find colorectal cancer early, when it is highly curable. The screening methodology for colorectal cancer recommended by most healthcare professionals is the colonoscopy.
- The US Preventive Services Taskforce (USPSTF) recommends colorectal cancer screening using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at the age of 50 and continuing until the age of 75. However, the USPSTF has recommended adults over the age of 76 take into account their overall health and prior screening history to determine whether to undergo colorectal screening.
- According to the Behavioral Risk Factor Survey System (BRFSS), in 2014 roughly two thirds (68.7%) of Tennesseans 50 years of age or older indicated they had a colorectal endoscopy in their lifetime, while 14.1% indicated they had a blood stool test within the past two years.

COLON AND RECTUM CANCER, CONTINUED

TABLE 7. CANCER INCIDENCE AND MORTALITY, COLON AND RECTUM, TENNESSEE, 2011-2015

		Incidence				Mortality				M:I
Gender	Race	Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio ‡
Both*	All Races †	15,133	40.4	39.8	41.1	5,977	16.1	15.7	16.6	0.40
	Black	2,259	47.6	45.6	49.7	999	22.8	21.3	24.3	0.48
	White	12,651	39.4	38.7	40.1	4,913	15.3	14.9	15.7	0.39
Female	All Races †	7,264	35.6	34.8	36.5	2,816	13.5	13	14.1	0.38
	Black	1,122	41.1	38.7	43.7	476	18.5	16.8	20.2	0.45
	White	6,041	34.7	33.9	35.7	2,303	12.8	12.3	13.4	0.37
Male	All Races †	7,869	46.3	45.3	47.4	3,161	19.5	18.8	20.2	0.42
	Black	1,137	57.5	53.9	61.3	523	29.7	27	32.7	0.52
	White	6,610	44.9	43.8	46.1	2,610	18.4	17.7	19.2	0.41
Age at Diagnosis or Death										
	0-19	14	0.2	0.1	0.3	^	^	^	^	^
	20-44	948	9.6	9	10.2	223	2.3	2	2.6	0.24
	45-64	5,710	61.6	60	63.3	1,812	19.1	18.2	20	0.31
	65+	8,461	183.6	179.6	187.6	3,942	87.5	84.8	90.3	0.48
Year of Diagnosis or Death										
	2011	2,924	40.8	39.3	42.4	1,242	17.5	16.5	18.5	0.45
	2012	3,048	41.6	40.1	43.1	1,181	16.3	15.4	17.3	0.41
	2013	2,897	38.7	37.3	40.2	1,212	16.3	15.4	17.3	0.44
	2014	3,148	41.4	39.9	42.9	1,149	15.2	14.3	16.1	0.38
	2015	3,116	39.8	38.4	41.3	1,193	15.4	14.5	16.3	0.40

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

**Total counts are from 2011 to 2015.

***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+).

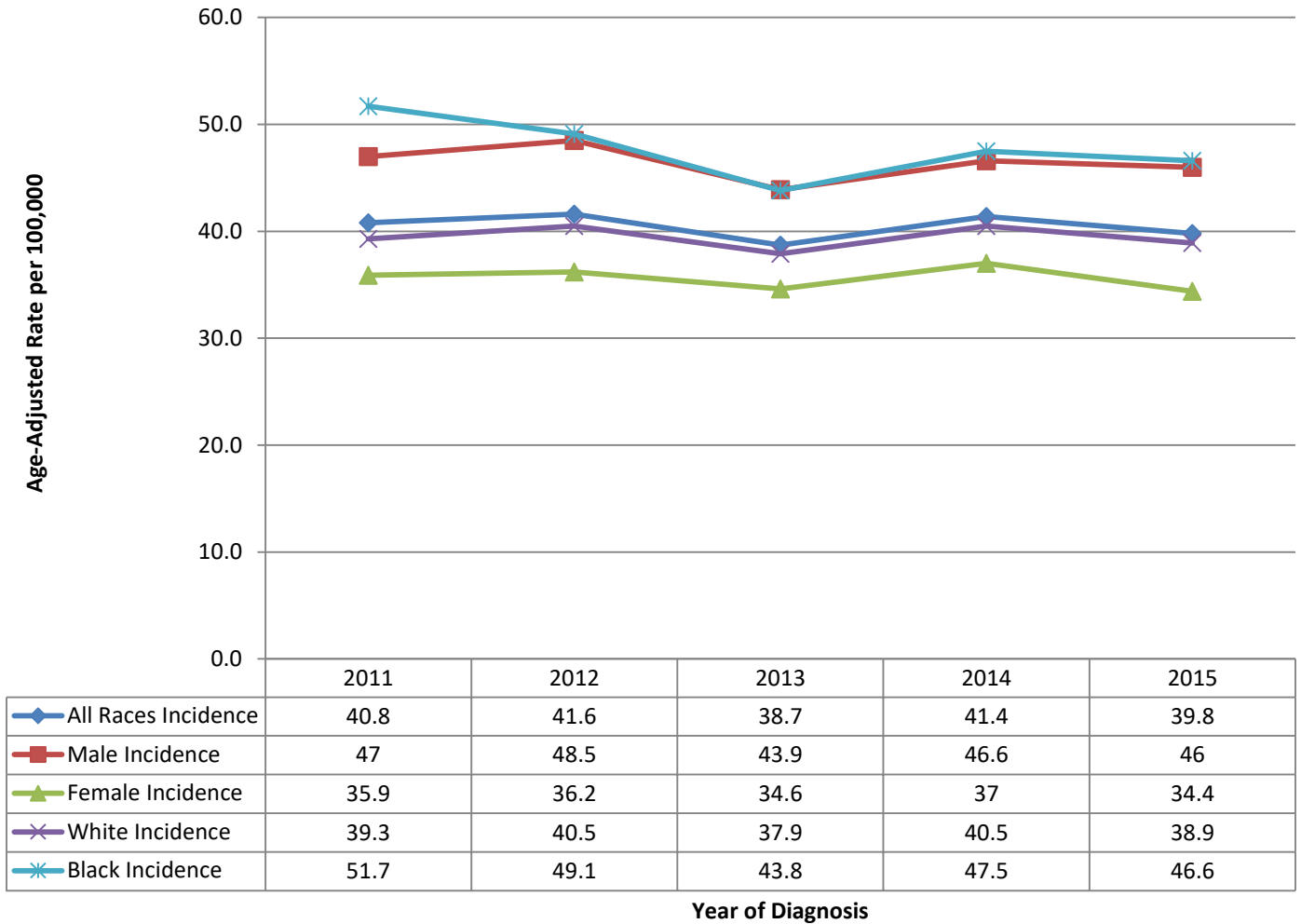
Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those cases missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

[Data Source](#)

Figure 44. Cancer Incidence, Colon and Rectum, By Gender and Race, Tennessee, 2011-2015

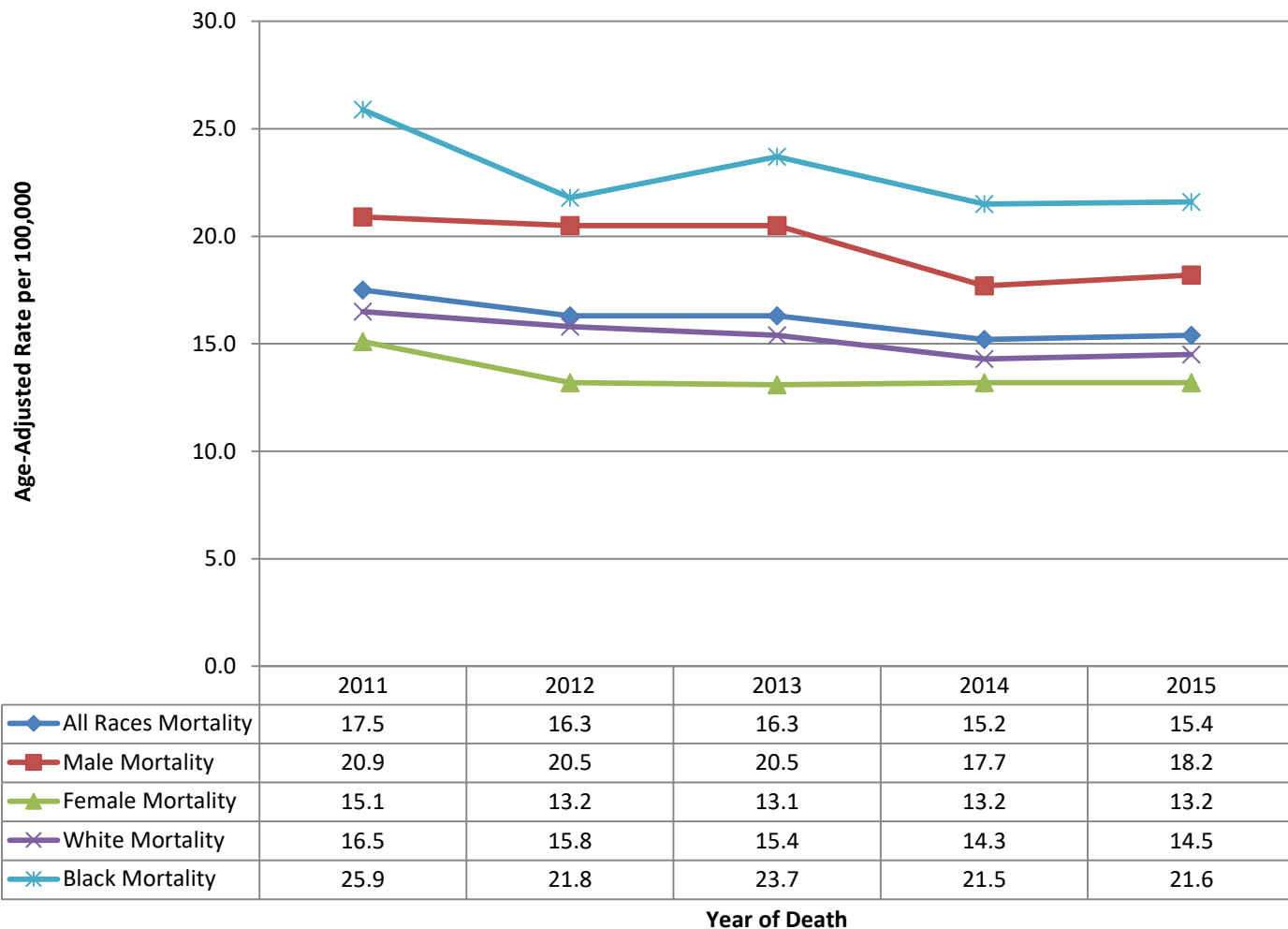


From 2011 – 2015, the colorectal cancer incident rate in TN (Figure 44):

- *Decreased* by 0.6% per year, but this change was not statistically significant.
- *Decreased* among men by 0.8% per year, and *decreased* among women by 0.6%, but these changes were not statistically significant.
- *Decreased* among whites by 0.2% per year and *decreased* among blacks by 2.4%, but these changes were not statistically significant.

[Data Source](#)

Figure 45. Cancer Mortality, Colon and Rectum, By Gender and Race, Tennessee, 2011-2015

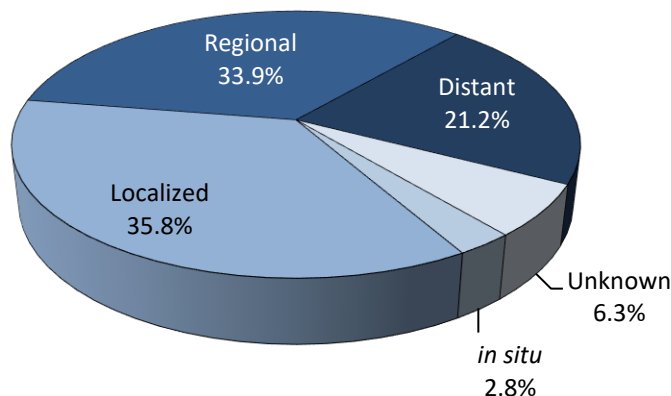


From 2011 – 2015, the colorectal cancer mortality rate in TN (Figure 45):

- *Decreased* by 1.7% per year and this change was statistically significant.
- *Decreased* among men by 1.8% per year and *decreased* among women by 1.7%, and these changes were statistically significant.
- *Decreased* among whites by 1.6% per year and *decreased* among blacks by 3.1%, and these changes were statistically significant.

[Data Source](#)

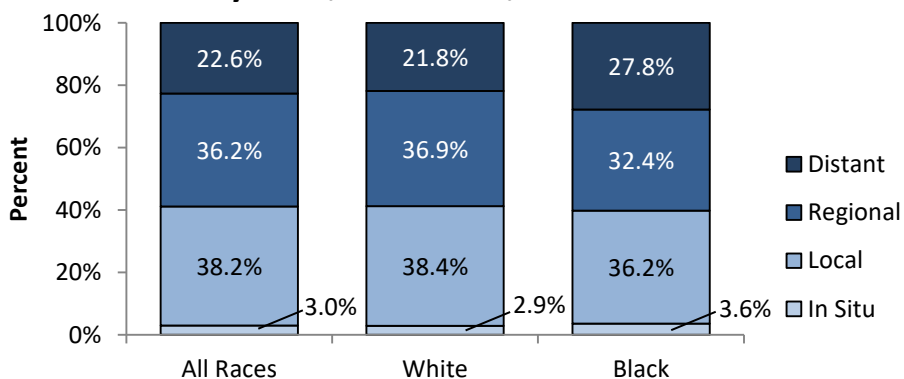
Figure 46. Cancer Stage, Colon and Rectum, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 46):

- 2.8% of the colorectal cancer incidence cases were diagnosed at the *in situ* stage.
- 35.8% of new cases were diagnosed at the localized stage, 33.9% at the regional stage and 21.2% at the distant stage.
- 6.3% of new cases had unknown stage information.

Figure 47. Cancer Stage, Colon and Rectum, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 47):

- Among those cases in TN with known stage, 58.8% were diagnosed at either the regional or distant stage (i.e., late stages).
- Black Tennesseans (60.2%) had a higher proportion of cases diagnosed at late stages than white Tennesseans (58.7%), but this difference was not statistically significant.

MELANOMA (SKIN) CANCER

Incidence

- TN experienced the thirty-fourth highest incidence rate of melanoma in the US from 2011 – 2015.
- From 2011 through 2015, melanoma represented 4.3% of all new cancer cases and was the fifth leading cause of cancer incidence in TN. During this same time period, there were 7,476 new cases of melanoma diagnoses among Tennesseans, which resulted in an age-adjusted rate of 20.4 per 100,000.
- From 2011 to 2015, melanoma incidence rates increased on average by 1.0% per year and mortality rates increased on average by 0.2% per year, but these trends were not statistically significant.

Mortality

- TN experienced the fifth highest melanoma mortality rate in the US from 2011 – 2015.
- From 2011 through 2015, melanoma represented 1.6% of all cancer deaths and was the fifteenth leading cause of cancer mortality in TN. During the same time period, 1,139 Tennesseans died from melanoma resulting in an age-adjusted rate of 3.1 per 100,000.
- Tennesseans dying of melanoma died on average 10.1 years earlier than expected.
- From 2011-2015 Tennesseans had a 4.0% or a one in twenty-five probability of developing melanoma and a 0.3% probability of dying from melanoma in their lifetime.

Survival

- Based on 2009-2015 data, approximately 94.1% of melanoma patients survived 5 years or more after their initial diagnosis. This means that 94 out of 100 Tennesseans were still alive 5 years after being diagnosed.
- Only 10.1% of melanoma cases were diagnosed at the late stages from 2011 to 2015. 52.4% of Tennesseans diagnosed with melanoma in the late stages (i.e. regional and distant) survived 5 years or more after their initial diagnosis.

Health Disparities

- From 2011 to 2015 in TN, melanoma incidence rates in whites were about twenty-five times higher than blacks. That said, black individuals experience a much higher mortality-to-incidence ratio for this disease (i.e., black individuals survive for a much shorter time than white individuals).
- A higher percentage of blacks in TN (26.0%) were diagnosed with melanoma at late stages than whites (10.2%) and this finding was statistically significant, which may partially explain the high mortality-to-incidence ratio for melanoma among black Tennesseans.

Screening

- The US Preventive Services Taskforce (USPSTF) recommends advising individuals ages 10 to 24 years about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer. However, the USPSTF has stated that there is currently insufficient evidence to recommend general population-based screening for skin cancer, grade of “I”, which means the Taskforce considers there to be insufficient available evidence to assess the balance of benefits and harms of visual skin examination by a clinician to screen for skin cancer in adults.

MELANOMA OF THE SKIN CANCER, CONTINUED

TABLE 8. CANCER INCIDENCE AND MORTALITY, MELANOMA OF THE SKIN, TENNESSEE, 2011-2015

		Incidence				Mortality				M:I
Gender	Race	Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio‡
Both*	All Races †	7,476	20.4	20.0	20.9	1,139	3.1	2.9	3.3	0.15
	Black	42	0.9	0.7	1.3	20	0.4	0.2	0.6	0.44
	White	7,277	23.5	22.9	24.0	1,107	3.5	3.3	3.7	0.15
Female	All Races †	3,130	16.4	15.8	17.0	343	1.7	1.5	1.9	0.10
	Black	21	0.8	0.5	1.2	^	^	^	^	^
	White	3,024	19.3	18.5	20.0	330	2.0	1.7	2.2	0.10
Male	All Races †	4,346	26.0	25.3	26.9	796	4.9	4.6	5.3	0.19
	Black	21	1.0	0.6	1.6	11	0.4	0.2	0.8	0.40
	White	4,253	29.3	28.4	30.3	777	5.5	5.1	5.9	0.19
Age at Diagnosis or Death										
	0-19	33	0.4	0.3	0.6	^	^	^	^	^
	20-44	1,032	10.2	9.6	10.8	80	0.8	0.6	1.0	0.08
	45-64	2,895	31.7	30.5	32.9	378	4.0	3.6	4.5	0.13
	65+	3,516	75.6	73.1	78.2	681	15.0	13.9	16.2	0.20
Year of Diagnosis or Death										
	2011	1,450	20.6	19.6	21.7	221	3.2	2.8	3.6	0.16
	2012	1,419	19.9	18.8	21.0	213	2.9	2.6	3.4	0.15
	2013	1,504	20.5	19.4	21.6	245	3.3	2.9	3.8	0.16
	2014	1,435	19.2	18.2	20.2	215	2.9	2.5	3.3	0.15
	2015	1,668	21.9	20.9	23.0	245	3.1	2.7	3.5	0.14

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

**Total counts are from 2011 to 2015.

***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+).

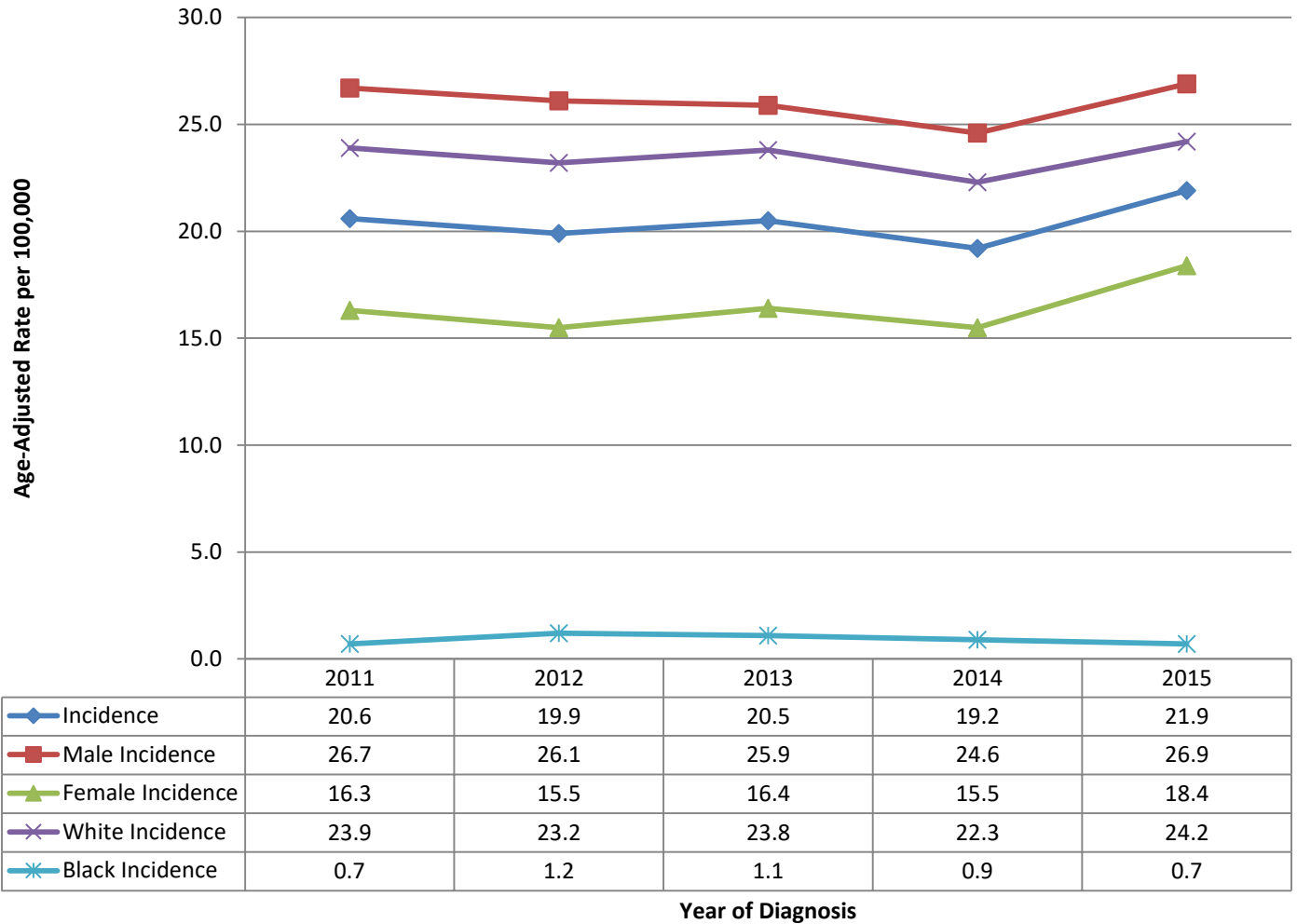
Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those cases missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

[Data Source](#)

Figure 48. Cancer Incidence, Melanoma of the Skin, By Gender and Race, Tennessee, 2011-2015

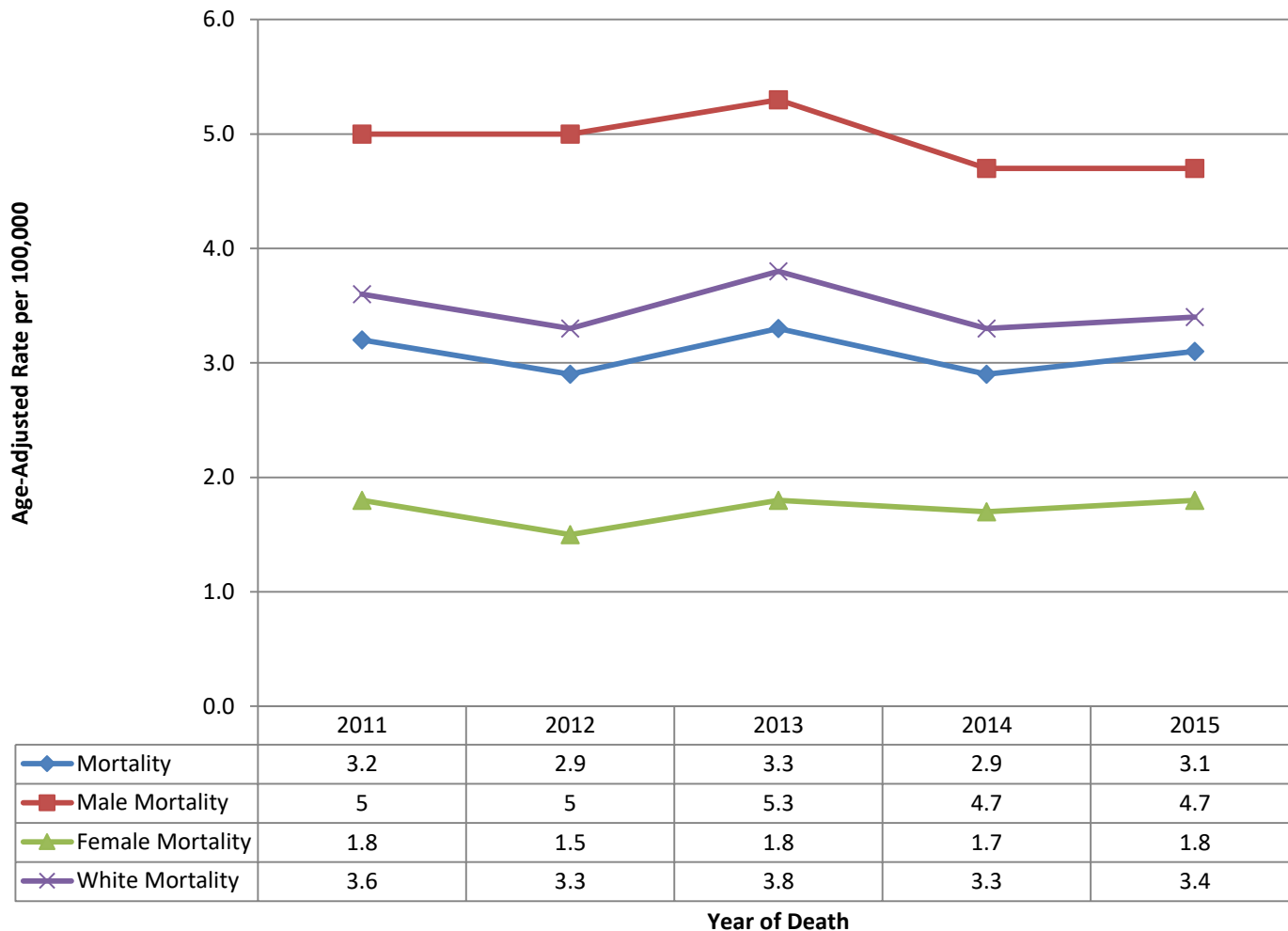


From 2011 – 2015, the melanoma incident rate in TN (Figure 48):

- *Increased* by 1.0% per year, but this change was not statistically significant.
- *Decreased* among men by 0.3% per year and *increased* among women by 2.6%, but these changes were not statistically significant.
- *Decreased* among whites by 0.1% per year and *decreased* among blacks by 4.1%, but these changes were not statistically significant.

[Data Source](#)

Figure 49. Cancer Mortality, Melanoma of the Skin, By Gender and Race, 2011-2015

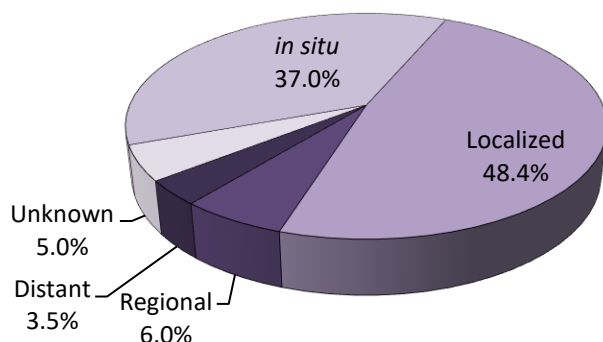


From 2011 – 2015, the melanoma mortality rate in TN (Figure 49):

- *Increased* by 0.2% per year, but this change was not statistically significant.
- *Increased* among men by 0.8% per year and *decreased* among women by 1.1% per year, and these changes were statistically significant.
- *Increased* among whites by 0.2% per year, but this change was not statistically significant.
- The trend in the mortality rate for melanoma among blacks was unstable due to the small number of deaths; therefore, no trends were calculated.

[Data Source](#)

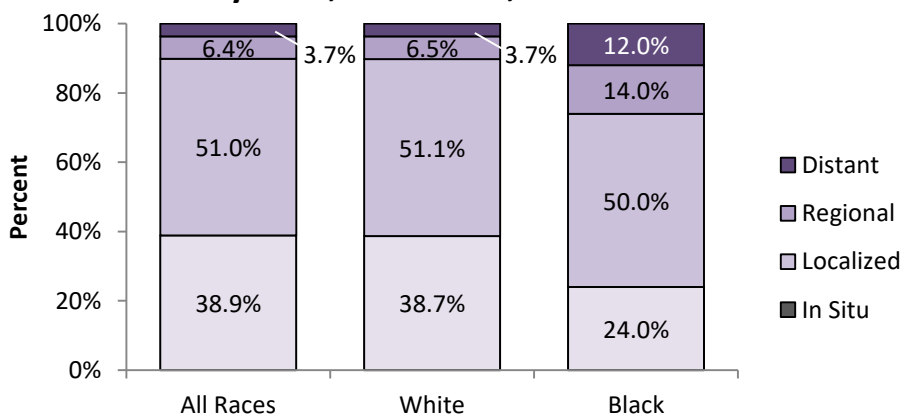
Figure 50. Cancer Stage, Melanoma of the Skin, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 50):

- About one-third (37.0%) of new melanoma skin cancer cases were diagnosed at the *in situ* stage.
- Roughly one-half of cases (48.4%) were diagnosed at the local stage, 6.0% at the regional stage and 3.5% at the distant stage.
- 5.0% of cases had unknown stage information.

Figure 51. Cancer Stage, Melanoma of the Skin, By Race, Tennessee, 2011-2015



Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 51):

- Among those with known stage, only one in ten (10.1%) was diagnosed at the regional or distant stage (i.e., late stages), which may partially explain why melanoma was not as deadly compared to other common cancers.
- Black Tennesseans (26.0%) had a higher proportion of cases diagnosed at late stages than white Tennesseans (10.2%) and this difference was statistically significant. However, please note this comparison may be statistically unstable since there were less than fifty black Tennesseans diagnosed with melanoma between 2011 and 2015.

PANCREATIC CANCER

Incidence

- TN had the thirty-first highest pancreatic cancer incidence rate in the US from 2011 to 2015.
- From 2011 to 2015 in TN, pancreatic cancer accounted for 4,639 cases or 2.6% of all new cancer cases, was the twelfth leading cause of cancer incidence and an individual had a 1.6% probability of developing pancreatic cancer in their lifetime.
- Pancreatic cancer occurs with increased frequency among persons with long-standing (i.e., over 5 years) diabetes (Everhart, 1995). According to the 2015 US Diabetes Surveillance System, roughly one out of every nine (11.4%) Tennesseans had been diagnosed with diabetes, which ranked TN as the state with the sixth largest proportion of individuals diagnosed with diabetes when compared to other US states (CDC, 2018). The high prevalence of diabetes in TN could partially explain the higher than average mortality rate of pancreatic cancer among Tennesseans. The relationship between high blood sugar levels/diabetes and pancreatic cancer is complex. While some patients with long-standing diabetes may be at elevated risk for the development of pancreatic cancer, many individuals may develop diabetes during the pre-clinical stages of pancreatic cancer before it is diagnosed in the clinical setting.

Mortality

- TN had the twenty-first highest pancreatic cancer mortality rate in the US from 2011-2015.
- From 2011 to 2015 in TN, pancreatic cancer was responsible for 4,213 deaths or 6.1% of all cancer deaths in TN, was the fourth leading cause of cancer mortality in TN and an individual had a 1.5% probability of dying from pancreatic cancer in their lifetime. Pancreatic cancer was the deadliest form of cancer in TN with a mortality-to-incidence ratio of 0.92.
- From 2011 to 2015, pancreatic cancer incidence and mortality rates slightly increased, but these changes were not statistically significant. Tennesseans who died of pancreatic cancer died on average 7.7 years earlier than expected.

Survival

- Based on 2009-2015 data, approximately 8.8% of Tennesseans survived 5 years or more after their initial diagnosis of pancreatic cancer. This means roughly 9 pancreatic cancer patients were still alive 5 years after being diagnosed for every 100 Tennesseans not diagnosed with the condition.
- Earlier diagnosis at the in situ stage improved the 5-year relative survival to 86.3%.

Screening

- Currently, there is no generally accepted population-based screening method for pancreatic cancer.

The US Preventive Services Task Force recommends against routine screening for pancreatic cancer using abdominal palpation, ultrasonography, or serologic markers as the harms of screening exceed any potential benefits. Thus, only 14.9% of pancreatic cancer cases with known stage information are diagnosed at early stages (i.e., in situ and localized) in TN. Black Tennesseans display higher pancreatic cancer incidence and mortality rates when compared to white Tennesseans and this finding was statistically significant. In addition, TN men display significantly higher pancreatic cancer incidence and mortality rates than TN women.

PANCREATIC CANCER, CONTINUED

TABLE 9. CANCER INCIDENCE AND MORTALITY, PANCREAS, TENNESSEE, 2011-2015

		Incidence				Mortality				M:I
Gender	Race	Count**	Rate***	Lower CI	Upper CI	Count**	Rate***	Lower CI	Upper CI	Ratio ‡
Both*	All Races†	4,639	12.1	11.8	12.5	4,213	11.1	10.7	11.4	0.92
	Black	725	16.0	14.8	17.2	625	13.9	12.8	15.1	0.87
	White	3,863	11.7	11.3	12	3,534	10.7	10.3	11	0.91
Female	All Races †	2,263	10.7	10.3	11.2	2,063	9.8	9.3	10.2	0.92
	Black	386	14.9	13.4	16.5	328	12.6	11.2	14	0.85
	White	1,850	10.2	9.8	10.7	1,704	9.3	8.9	9.8	0.91
Male	All Races †	2,376	13.8	13.2	14.4	2,150	12.6	12	13.1	0.91
	Black	339	17.2	15.2	19.4	297	15.6	13.7	17.7	0.91
	White	2,013	13.4	12.8	14	1,830	12.2	11.7	12.8	0.91
Age at Diagnosis or Death										^
	0-19	^	^	^	^	^	^	^	^	
	20-44	128	1.3	1.1	1.5	68	0.7	0.5	0.9	0.54
	45-64	1,617	16.8	15.9	17.6	1,336	13.6	12.9	14.4	0.81
	65+	2,891	62.7	60.4	65	2,807	61.4	59.1	63.8	0.98
Year of Diagnosis or Death										
	2011	863	11.7	11	12.6	783	10.8	10	11.6	0.92
	2012	874	11.7	11	12.6	786	10.5	9.8	11.3	0.90
	2013	943	12.4	11.6	13.3	853	11.3	10.6	12.1	0.91
	2014	978	12.4	11.6	13.2	917	11.7	10.9	12.5	0.94
	2015	981	12.3	11.5	13.1	874	10.9	10.2	11.6	0.89

^Statistic not displayed due to fewer than 11 cases. Other counts may be offset so suppressed numbers cannot be derived.

*Excludes hermaphrodites and transsexuals.

**Total counts are from 2011 to 2015.

***Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9,..., 80-84,85+).

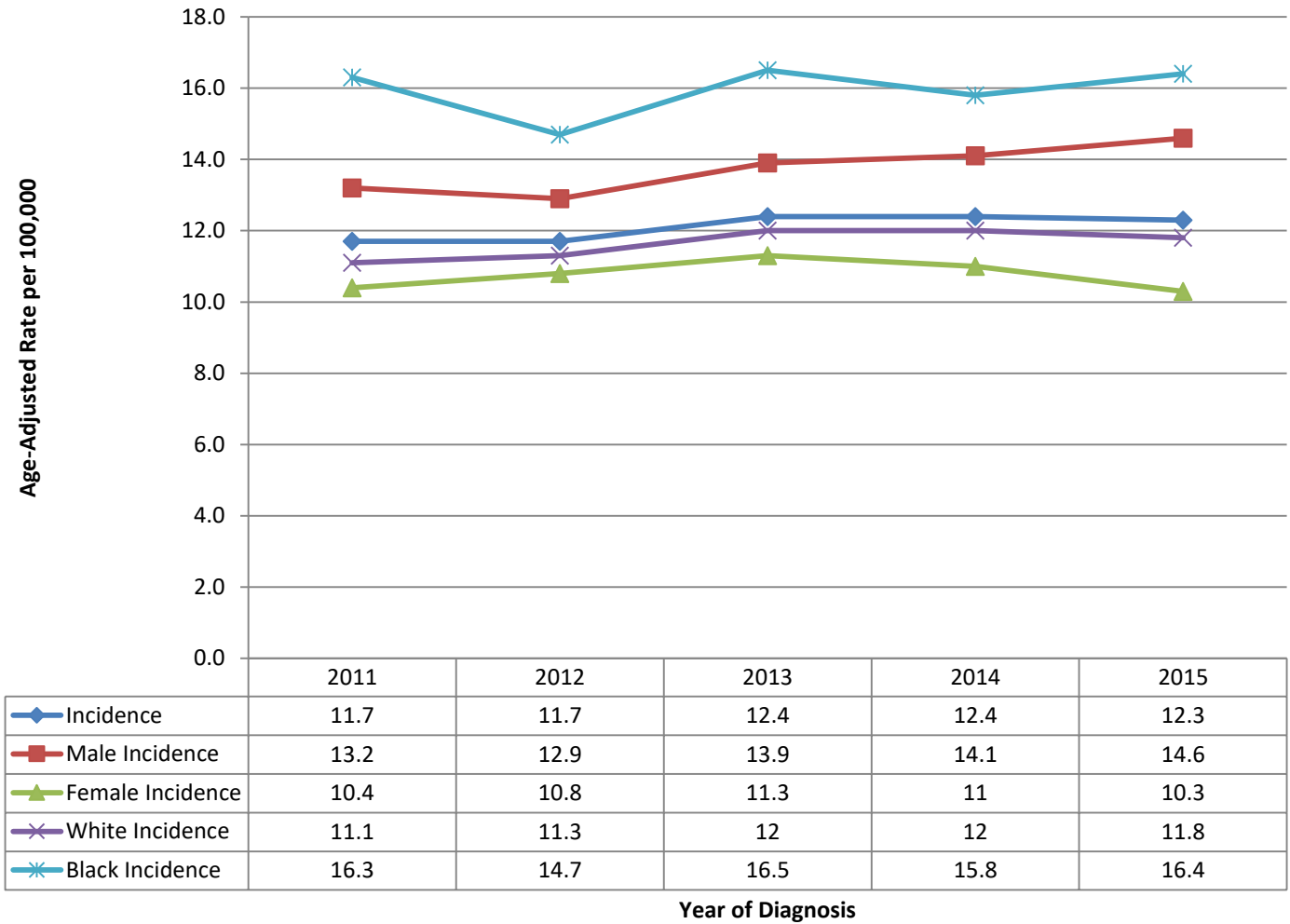
Rates are for invasive cancer only unless otherwise specified.

†Includes blacks, whites, other races, and those missing race information.

‡Mortality-to-incidence ratio. See Technical Notes for details.

[Data Source](#)

**Figure 52. Cancer Incidence, Pancreas,
By Gender and Race, Tennessee, 2011-2015**

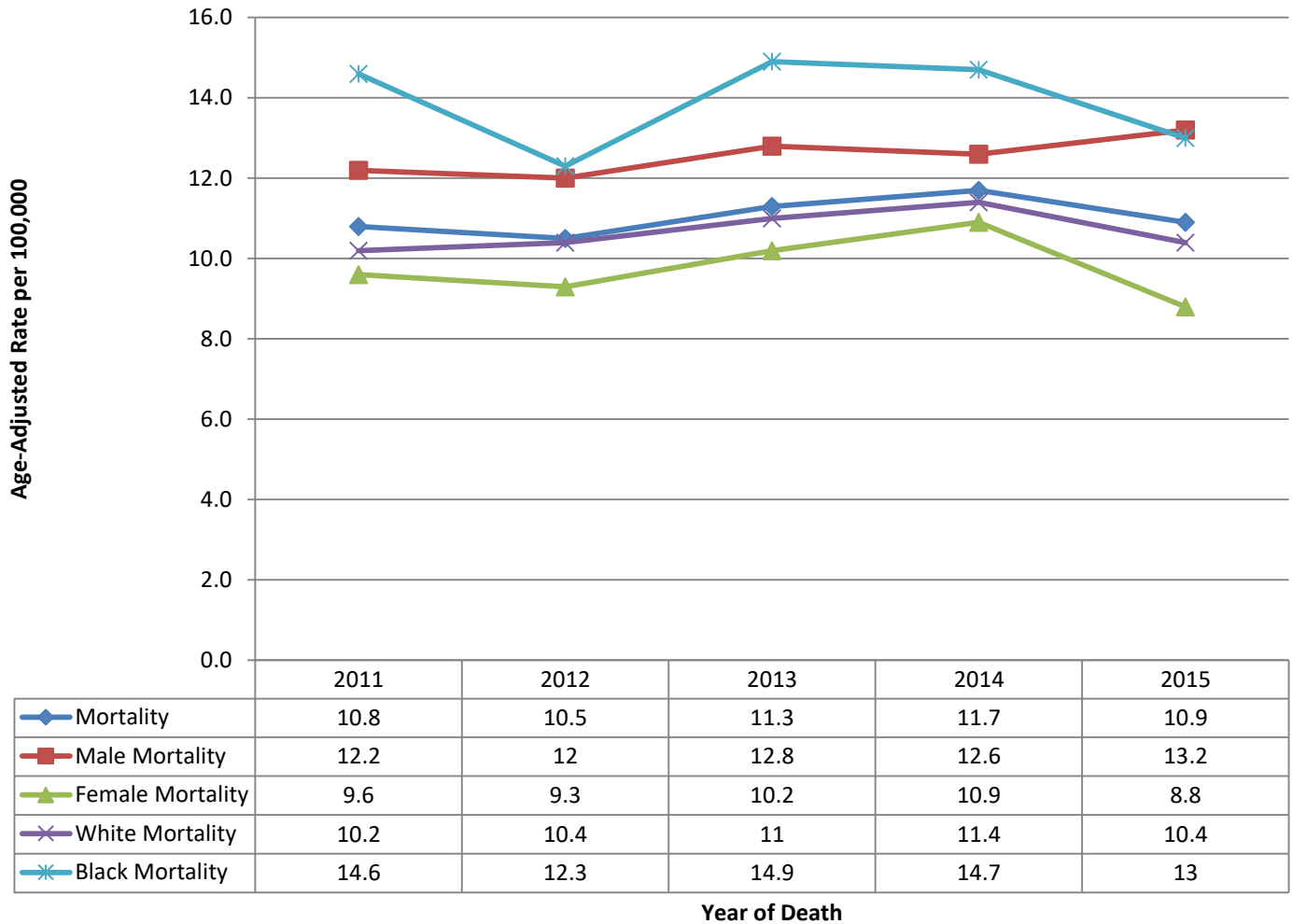


From 2011 – 2015, the pancreatic cancer incident rate in TN (Figure 52):

- *Increased* by 1.4% per year, but this change was not statistically significant.
- *Increased* in men by 3.0% per year and this change was statistically significant.
- *Decreased* in women by 0.1% per year, but this change was not statistically significant.
- *Increased* in whites by 1.8% per year and *increased* by 0.8% in blacks, but these changes were not statistically significant.

[Data Source](#)

**Figure 53. Cancer Mortality, Pancreas,
By Gender and Race, Tennessee, 2011-2015**

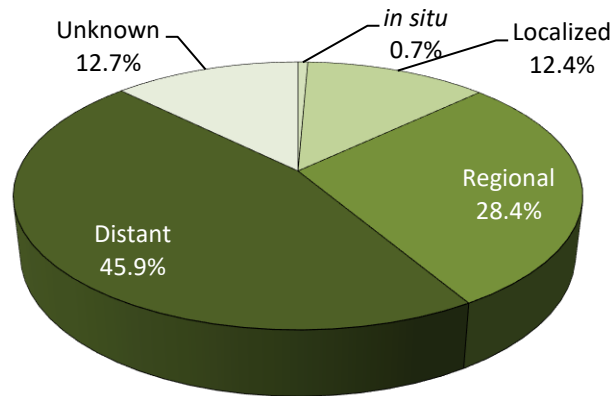


From 2011 – 2015 (Figure 53), the pancreatic cancer mortality rate in TN:

- *Increased* by 0.1% per year, but this change was not statistically significant.
- *Decreased* among men by 0.2% per year and *increased* among women by 0.2%, but these changes were not statistically significant.
- *Increased* among whites by 0.3% per year and *decreased* among blacks by 0.8% and these changes were statistically significant.

[Data Source](#)

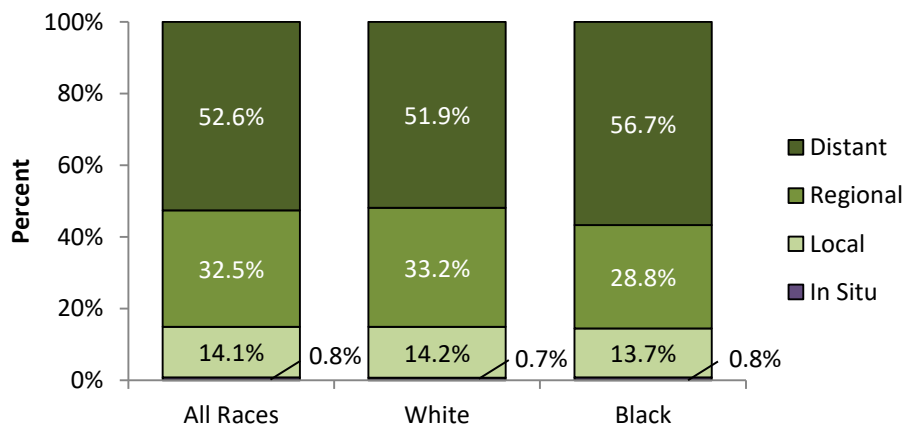
Figure 54. Cancer Stage, Pancreas, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 54):

- Less than 50 cases of pancreatic cancer cases (0.7%) were diagnosed at the *in situ* stage.
- 12.4% were diagnosed at the local stage, 28.4% at the regional stage and 45.9% at the distant stage.
- 12.7% of cases had unknown stage information.

Figure 55. Cancer Stage, Pancreas, By Race, Tennessee, 2011-2015



From 2011 to 2015 (Figure 55):

- Among cases with known stage, 85.1% of Tennesseans were diagnosed at late stages (i.e., regional or distant stage).
- There was no significant difference in percentage of cases diagnosed at late stages between blacks (85.5%) and whites (85.1%).

CHILDHOOD CANCER

The distributions of cancers that develop in children are often quite different compared to the distribution of cancers occurring in adults. Childhood cancers are the result of DNA changes in cells that take place very early in life, sometimes even before birth. Unlike many cancers in adults, childhood cancers are not strongly linked to lifestyle or environmental risk factors (American Cancer Society, 2017). The early diagnosis of childhood cancer has often been hampered by nonspecific symptoms that are similar to those of more common childhood diseases.

Incidence

- TN had the twenty-first highest childhood cancer incidence rate in the US from 2011 to 2015.
- There were 1,531 new invasive cancer cases in children less than 20 years of age in TN during 2011-2015 and the age-adjusted incident rate for childhood cancers was 184.0 per 1,000,000 children
- The leading cause of cancer incidence among children less than twenty years of age in TN was leukemia, followed by central nervous system tumors, lymphomas, melanomas, and soft tissue sarcomas. These five causes of cancer incidence represented 76.2% of all childhood cancer cases from 2011 to 2015.

Mortality

- TN had the fourth highest childhood cancer mortality rate of all states in the US from 2011 to 2015.
- There were 204 deaths due to cancer in children less than 20 years of age in TN and the mortality rate was 24.5 per 1,000,000 children.
- Only 43.3% of all new cases with known stage information are diagnosed at early stages of cancer.

Survival

Based on 2009-2015 data, approximately 85.1% of children in TN diagnosed with cancer survived 5 years or more after their initial diagnosis of pancreatic cancer. This means that 85 out of 100 children in TN are still alive 5 years after being diagnosed with cancer.

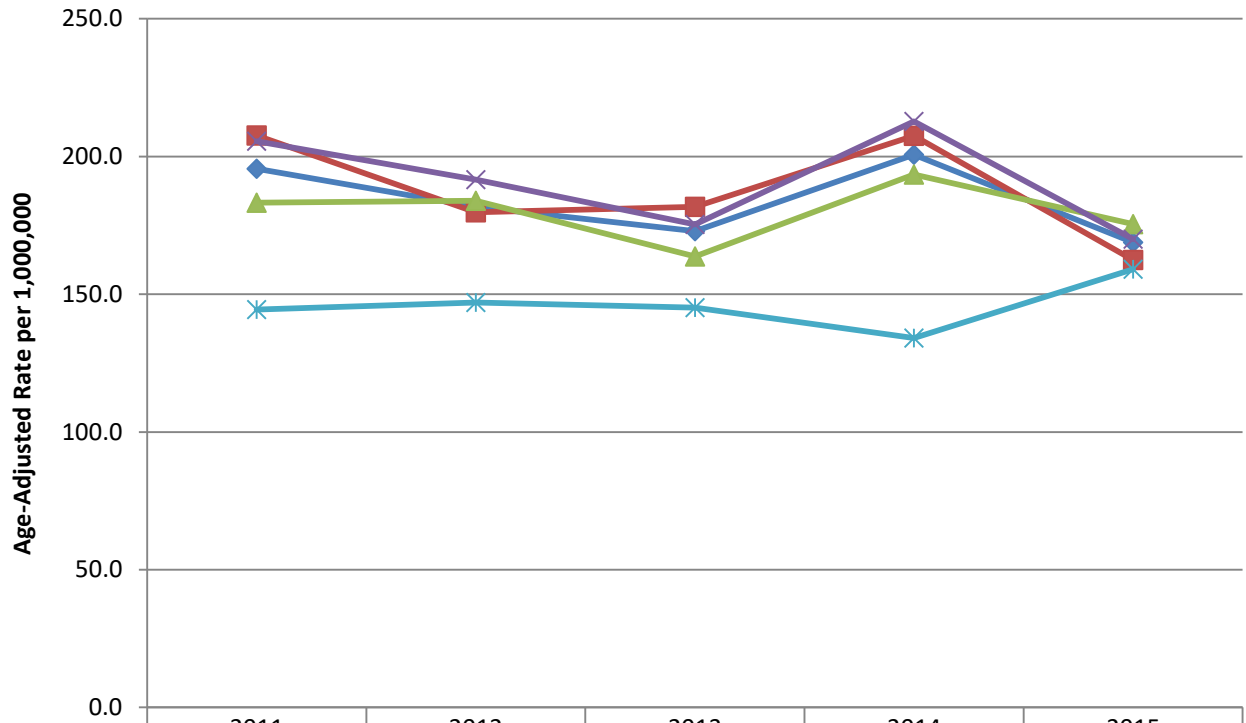
Health Disparities

- Cancer incidence rate among white children was significantly higher than the rate among black children. Of the 1,531 new invasive cancer cases in children less than twenty years of age in TN from 2011 to 2015, black children accounted for roughly one out of every five (17.4%) childhood cancer cases, while white children accounted for almost four out of every five childhood cancer cases (78.1%).
- The cancer mortality rate among white children was slightly higher than the rate among black children, but this difference was not statistically significant.

Screening

No effective screening methods for childhood-related cancers have been discovered.

Figure 56. Childhood Cancer Incidence, By Gender and Race, Tennessee, 2011-2015



	2011	2012	2013	2014	2015
All Races Incidence	195.6	181.8	172.9	200.7	168.9
Male Incidence	207.6	179.8	181.7	207.5	162.5
Female Incidence	183.2	183.9	163.7	193.5	175.5
White Incidence	205.6	191.6	175.4	212.8	170
Black Incidence	144.5	147	145.1	134.1	159.1

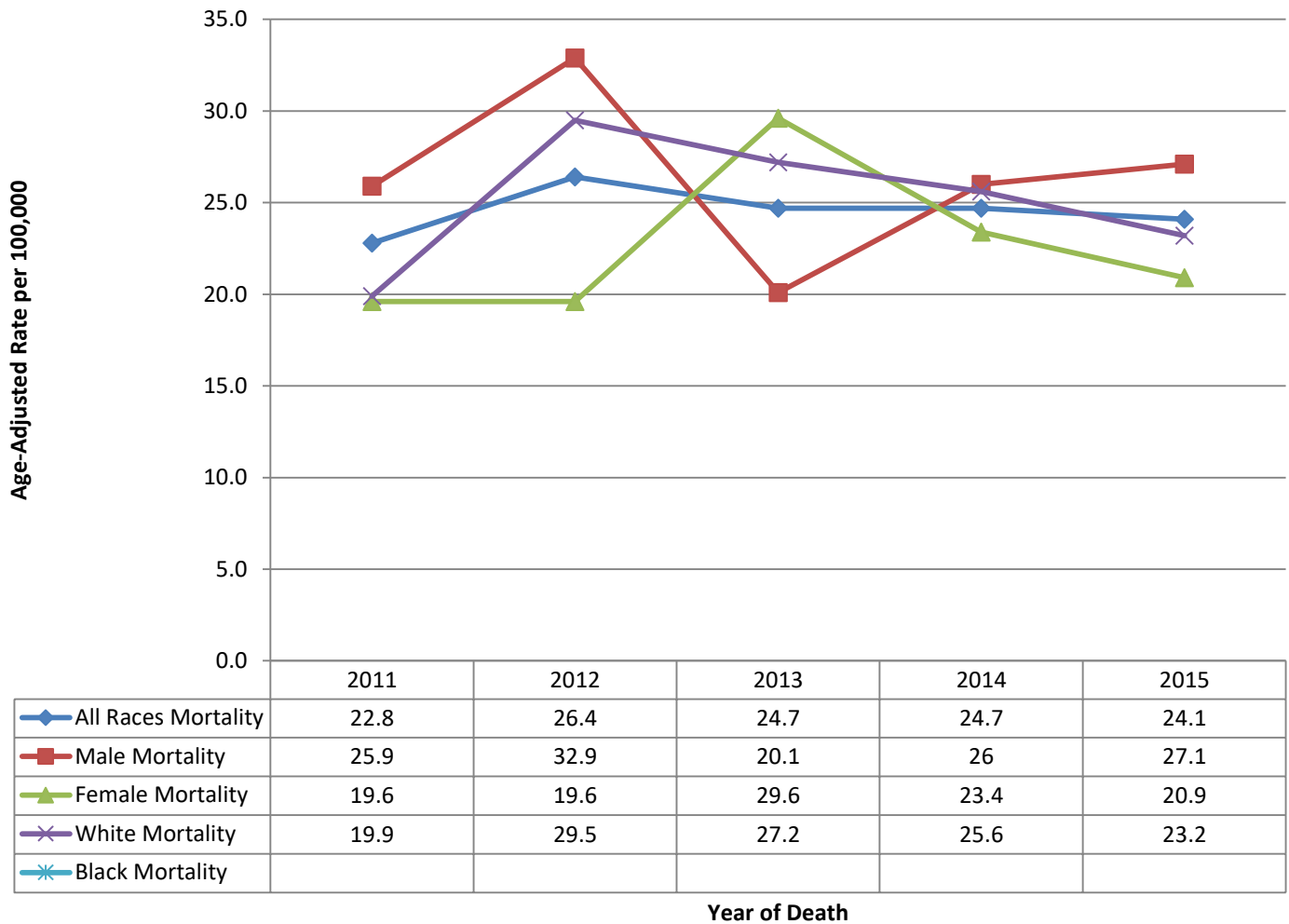
Year of Diagnosis

From 2011 – 2015 (Figure 56), the childhood cancer incidence rate among children less than 20 years of age in TN:

- *Decreased* by 1.8% per year, but this change was not statistically significant.
- *Decreased* by 3.2% per year among males and *decreased* by 0.3% among females, but these changes were not statistically significant.
- *Decreased* among white children by 2.5% per year and *increased* by 1.2% per year for black children, but these changes were not statistically significant.

[Data Source](#)

Figure 57. Childhood Cancer Mortality, By Gender and Race, Tennessee, 2011-2015

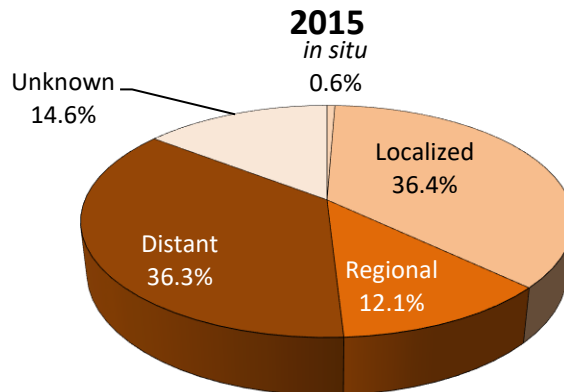


From 2011–2015 (Figure 57), the childhood cancer mortality rate among children less than 20 years of age in TN:

- *Decreased* by 1.2% per year and this change was statistically significant.
- *Decreased* by 1.7% per year among males and this change was statistically significant.
- *Decreased* by 0.5% per year among females, but this change was not statistically significant.
- *Decreased* by 1.2% per year among white children and this change was statistically significant.
- Was statistically unstable among black children and therefore not included in the figure above.

[Data Source](#)

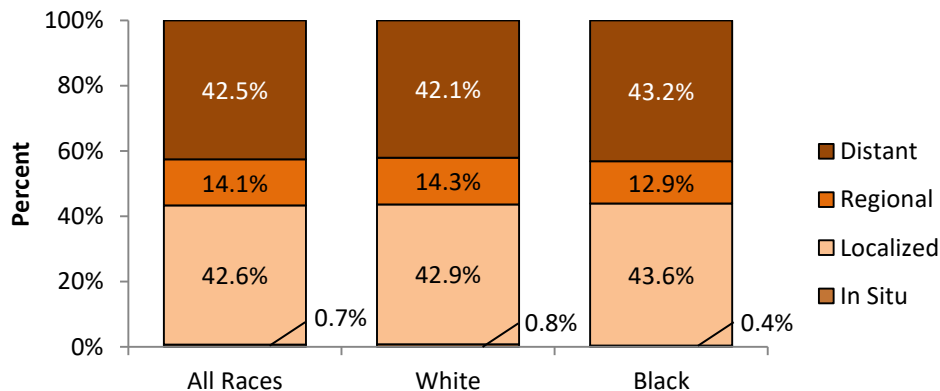
Figure 58. Cancer Stage, All Sites Combined, Children 0-19 Years of Age, Tennessee, 2011-2015



In TN from 2011 – 2015 (Figure 58):

- Less than 50 cases (0.6%) of all childhood cancer cases were diagnosed at the *in situ* stage.
- 36.4% of cases were diagnosed at the local stage, 12.1% of cases at the regional stage and 36.3% at the distant stage.
- 14.6% of cases had unknown stage information.

Figure 59. Cancer Stage, All Sites Combined, Children 0-19 Years of Age, Tennessee, 2011-2015



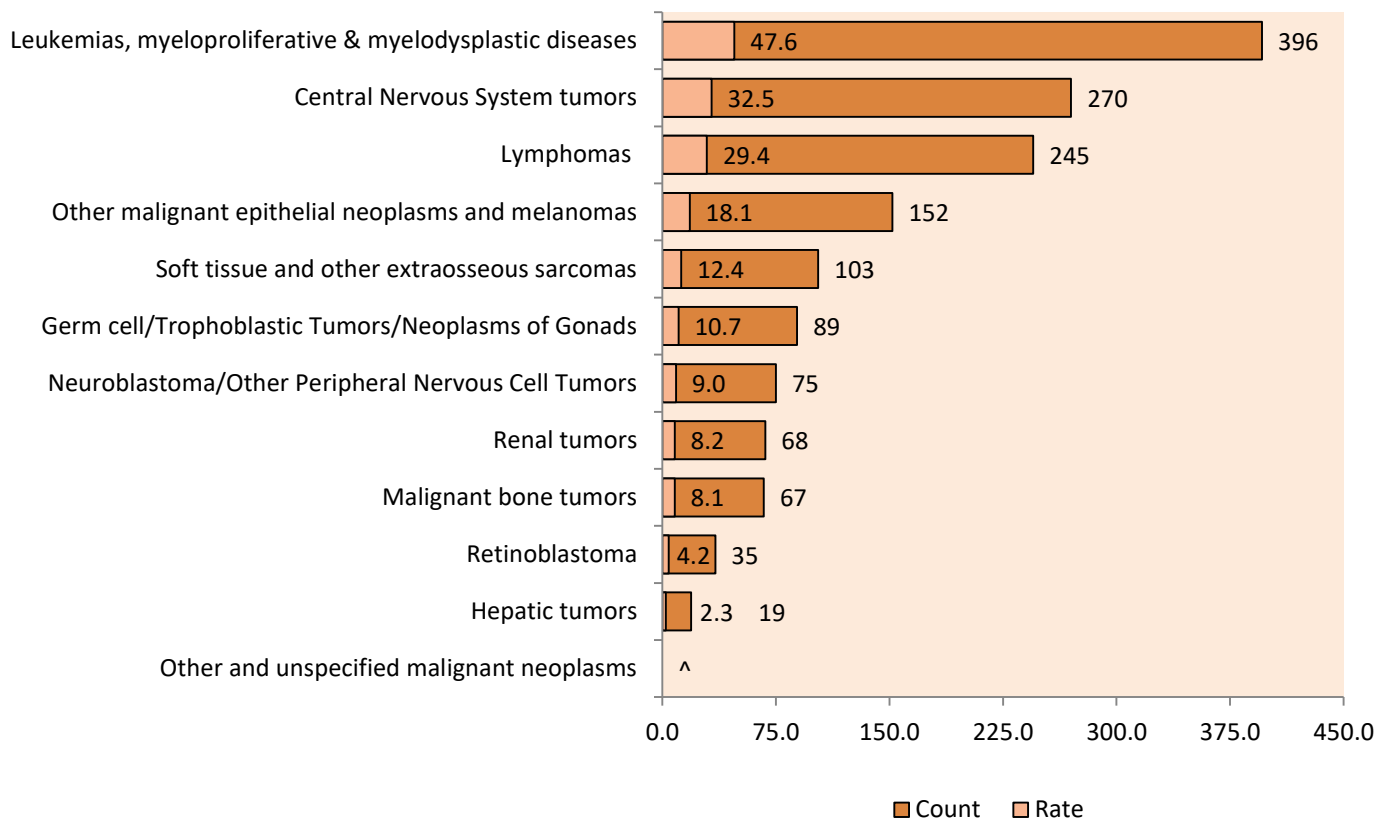
Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

From 2011 to 2015 (Figure 59):

- There was no statistically significant difference in the percentage of cases diagnosed at late stages (i.e., regional or distant stage) between black and white children.
- Overall, 56.6% of children diagnosed with cancer in TN were diagnosed at late stages.

[Data Source](#)

Figure 60. Leading Causes of Cancer Incidence, Children 0-19 Years of Age, 2011-2015



^Statistic not displayed due to fewer than 11 cases.

Note: Rates are per 1,000,000. Figure above excludes 4 cases not classified by the International Classification of Childhood Cancers (ICCC).

From 2011 to 2015 (Figure 60):

- Leukemia was the leading cause of cancer incidence among children less than 20 years of age in Tennessee, representing over a quarter (25.9%) of the childhood cancer cases in Tennessee.
- The second leading cause of childhood cancer incidence was cancer of the central nervous system, followed by lymphomas, other malignant epithelial neoplasms and melanomas, and soft tissue sarcomas.
- The five described above leading causes of cancer accounted for 76.2% of all new childhood cancer diagnoses.

APPENDICES

APPENDICES

APPENDIX I. CANCER INCIDENCE AND MORTALITY, BY SITE, TENNESSEE, 2011-2015

Primary Cancer Site	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
All Sites	175,571	463.7	461.5	465.9	69,358	184.6	183.2	186.0	0.40
Oral Cavity and Pharynx	4,860	12.6	12.2	13.0	1,148	3.0	2.8	3.2	0.24
Lip	221	0.6	0.5	0.7	^	^	^	^	^
Tongue	1,517	3.9	3.7	4.1	271	0.7	0.6	0.8	0.18
Salivary Gland	468	1.3	1.2	1.4	105	0.3	0.2	0.3	0.23
Floor of Mouth	210	0.5	0.5	0.6	^	^	^	^	^
Gum and Other Mouth	692	1.8	1.7	2.0	170	0.5	0.4	0.5	0.28
Nasopharynx	191	0.5	0.5	0.6	73	0.2	0.2	0.3	0.40
Tonsil	998	2.5	2.4	2.7	124	0.3	0.3	0.4	0.12
Oropharynx	216	0.5	0.5	0.6	102	0.3	0.2	0.3	0.60
Hypopharynx	252	0.6	0.5	0.7	49	0.1	0.1	0.2	0.17
Other Oral Cavity and Pharynx	95	0.2	0.2	0.3	235	0.6	0.5	0.7	3.00
Digestive System	30,135	79.4	78.5	80.3	16,359	43.2	42.5	43.9	0.54
Esophagus	1,818	4.7	4.4	4.9	1,606	4.1	3.9	4.4	0.87
Stomach	2,206	5.9	5.6	6.1	1,098	3.0	2.8	3.2	0.51
Small Intestine	975	2.6	2.4	2.7	150	0.4	0.3	0.5	0.15
Colon and Rectum	15,133	40.4	39.8	41.1	5,977	16.1	15.7	16.6	0.40
Colon excluding Rectum	10,949	29.3	28.8	29.9	4,899	13.3	12.9	13.6	0.45
Cecum	2,488	6.7	6.4	6.9	^	^	^	^	^
Appendix	384	1.1	1.0	1.2	^	^	^	^	^
Ascending Colon	2,104	5.7	5.4	5.9	^	^	^	^	^
Hepatic Flexure	528	1.4	1.3	1.5	^	^	^	^	^
Transverse Colon	1,023	2.7	2.6	2.9	^	^	^	^	^
Splenic Flexure	307	0.8	0.7	0.9	^	^	^	^	^
Descending Colon	673	1.8	1.7	1.9	^	^	^	^	^
Sigmoid Colon	2,642	7.0	6.8	7.3	^	^	^	^	^
Large Intestine, NOS	800	2.2	2.0	2.3	^	^	^	^	^
Rectum and Rectosigmoid Junction	4,184	11.1	10.7	11.4	1,078	2.9	2.7	3.1	0.26
Rectosigmoid Junction	994	2.6	2.5	2.8	^	^	^	^	^
Rectum	3,190	8.4	8.2	8.8	^	^	^	^	^
Anus, Anal Canal and Anorectum	834	2.2	2.0	2.3	113	0.3	0.2	0.4	0.14
Liver and Intrahepatic Bile Duct	3,119	7.8	7.5	8.1	2,647	6.7	6.5	7.0	0.86
Liver	2,781	6.9	6.6	7.2	2,085	5.3	5.0	5.5	0.77
Intrahepatic Bile Duct	338	0.9	0.8	1.0	562	1.5	1.4	1.6	1.67
Gallbladder	285	0.8	0.7	0.9	134	0.3	0.3	0.4	0.38
Other Biliary	606	1.6	1.5	1.8	161	0.4	0.4	0.5	0.25
Pancreas	4,639	12.1	11.8	12.5	4,213	11.1	10.7	11.4	0.92
Retroperitoneum	130	0.4	0.3	0.4	17	0.1	0.0	0.1	0.25
Peritoneum, Omentum and Mesentery	206	0.5	0.5	0.6	93	0.2	0.2	0.3	0.40
Other Digestive Organs	184	0.5	0.4	0.6	150	0.4	0.3	0.5	0.80
Respiratory System	31,291	81.1	80.1	82.0	22,309	58.3	57.5	59.1	0.72
Nose, Nasal Cavity and Middle Ear	260	0.7	0.6	0.8	52	0.1	0.1	0.2	0.14
Larynx	1,716	4.4	4.2	4.6	512	1.3	1.2	1.4	0.30
Lung and Bronchus	29,253	75.8	74.9	76.7	21,688	56.7	56.0	57.5	0.75
Pleura	^	^	^	^	29	0.1	0.1	0.1	^
Trachea, Mediastinum and Other Respiratory Organs	52	0.1	0.1	0.2	28	0.1	0.0	0.1	1.00
Bones and Joints	285	0.8	0.8	1.0	128	0.4	0.3	0.4	0.50
Soft Tissue including Heart	1,154	3.2	3.1	3.4	495	1.4	1.2	1.5	0.44
Skin excluding Basal and Squamous	7,979	21.8	21.3	22.3	^	^	^	^	^
Melanoma of the Skin	7,476	20.4	20.0	20.9	1,139	3.1	2.9	3.3	0.15
Other Non-Epithelial Skin	503	1.4	1.3	1.5	^	^	^	^	^

APPENDIX I. CANCER INCIDENCE AND MORTALITY, BY SITE, TENNESSEE, 2011-2015, CONTINUED

Breast	24,825	66.3	65.4	67.1	4,582	12.3	11.9	12.7	0.19
Female Genital System	9403	25.3	24.7	25.8	3218	8.7	8.4	9.0	0.34
Cervix Uteri	1,473	4.4	4.2	4.6	529	1.5	1.3	1.6	0.34
Corpus and Uterus, NOS	4,846	12.5	12.1	12.8	883	2.3	2.2	2.5	0.18
Corpus Uteri	4661	12.0	11.6	12.3	310	0.8	0.7	0.9	0.07
Uterus, NOS	185	0.5	0.4	0.6	573	1.5	1.4	1.6	3.00
Ovary	2197	6.0	5.7	6.2	1576	4.2	4.0	4.4	0.70
Vagina	125	0.3	0.3	0.4	50	0.1	0.1	0.2	0.33
Vulva	611	1.7	1.6	1.8	121	0.3	0.3	0.4	0.18
Other Female Genital Organs	151	0.4	0.3	0.5	59	0.2	0.1	0.2	0.50
Male Genital System	22311	55.3	54.6	56.0	2,907	8.0	7.8	8.3	0.14
Prostate	21,329	52.2	51.5	52.9	2,826	7.8	7.5	8.1	0.15
Testis	785	2.6	2.4	2.7	36	0.1	0.1	0.2	0.04
Penis	166	0.4	0.4	0.5	37	0.1	0.1	0.1	0.25
Other Male Genital Organs	31	0.1	0.1	0.1	^	^	^	^	^
Urinary System	14,301	37.8	37.2	38.5	3219	8.7	8.4	9.0	0.23
Urinary Bladder	7274	19.3	18.8	19.7	1542	4.2	4.0	4.5	0.22
Kidney and Renal Pelvis	6,690	17.6	17.2	18.1	1,597	4.2	4.0	4.5	0.24
Ureter	224	0.6	0.5	0.7	37	0.1	0.1	0.1	0.17
Other Urinary Organs	113	0.3	0.2	0.4	43	0.1	0.1	0.2	0.33
Eye and Orbit	345	0.9	0.8	1.1	47	0.1	0.1	0.2	0.11
Brain and Other Nervous System	2,287	6.4	6.2	6.7	1,731	4.7	4.5	4.9	0.73
Brain	2,165	6.1	5.8	6.3	^	^	^	^	^
Cranial Nerves Other Nervous System	122	0.4	0.3	0.4	^	^	^	^	^
Endocrine System	4663	13.6	13.2	14.0	231	0.6	0.6	0.7	0.04
Thyroid	4420	12.9	12.5	13.3	136	0.4	0.3	0.4	0.03
Other Endocrine including Thymus	243	0.7	0.6	0.8	95	0.3	0.2	0.3	0.43
Lymphoma	7,488	20.5	20.0	20.9	2,405	6.6	6.3	6.9	0.32
Hodgkin Lymphoma	885	2.7	2.5	2.9	145	0.4	0.3	0.5	0.15
Hodgkin - Nodal	877	2.7	2.5	2.9	^	^	^	^	^
Hodgkin - Extranodal	^	^	^	^	^	^	^	^	^
Non-Hodgkin Lymphoma	6603	17.8	17.3	18.2	2260	6.2	5.9	6.5	0.35
NHL - Nodal	4,636	12.4	12.1	12.8	^	^	^	^	^
NHL - Extranodal	1,967	5.3	5.1	5.6	^	^	^	^	^
Myeloma	2404	6.3	6.0	6.6	1,380	3.7	3.5	3.9	0.59
Leukemias	5,057	14.0	13.6	14.4	2517	6.9	6.7	7.2	0.49
Lymphocytic Leukemia	2496	6.9	6.6	7.1	692	1.9	1.8	2.1	0.28
Acute Lymphocytic Leukemia	496	1.6	1.4	1.7	126	0.4	0.3	0.4	0.25
Chronic Lymphocytic Leukemia	1876	5.0	4.7	5.2	524	1.5	1.3	1.6	0.30
Other Lymphocytic Leukemia	124	0.3	0.3	0.4	42	0.1	0.1	0.2	0.33
Myeloid and Monocytic Leukemia	2300	6.4	6.1	6.7	1,275	3.5	3.3	3.7	0.55
Acute Myeloid Leukemia	1,515	4.2	4.0	4.4	1047	2.8	2.7	3.0	0.67
Acute Monocytic Leukemia	74	0.2	0.2	0.3	^	^	^	^	^
Chronic Myeloid Leukemia	624	1.8	1.6	1.9	140	0.4	0.3	0.5	0.22
Other Myeloid/Monocytic Leukemia	87	0.2	0.2	0.3	81	0.2	0.2	0.3	1.00
Other Leukemia	261	0.7	0.6	0.8	550	1.5	1.4	1.7	2.14
Other Acute Leukemia	93	0.3	0.2	0.3	197	0.5	0.5	0.6	1.67
Aleukemic, Subleukemic and NOS	168	0.5	0.4	0.5	353	1.0	0.9	1.1	2.00
Mesothelioma	271	0.7	0.6	0.8	^	^	^	^	^
Kaposi Sarcoma	65	0.2	0.2	0.3	^	^	^	^	^
Miscellaneous	6447	17.4	17.0	17.9	5,036	13.5	13.1	13.9	0.78

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+).

Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

APPENDIX II. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY GENDER, RACE AND RESIDENT REGION, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Total Population									
Tennessee	175,564	463.7	461.4	465.9	69,358	184.6	183.2	186.0	0.40
East Region	36,242	477.2	472.2	482.3	14,188	185.3	182.2	188.4	0.39
Mid-Cumberland Region	41,615	459.0	454.5	463.5	15,112	175.5	172.6	178.4	0.38
Northeast Region	16,019	463.6	456.2	471.1	6,574	184.3	179.8	188.9	0.40
Northwest Region	7,734	465.0	454.4	475.8	3,430	200.8	194.0	207.8	0.43
South Central Region	10,954	456.6	447.9	465.4	4,562	188.8	183.2	194.4	0.41
Southeast Region	19,802	467.7	461.0	474.4	7,788	182.0	177.9	186.1	0.39
Southwest Region	32,268	457.6	452.5	462.7	13,110	190.8	187.5	194.1	0.42
Upper-Cumberland Region	10,808	463.2	454.2	472.3	4,594	193.3	187.6	199.1	0.42
Male									
Tennessee	90,898	523.9	520.4	527.4	31,730	152.0	150.4	153.8	0.29
East Region	18,925	534.1	526.3	542.0	6,391	151.7	147.9	155.5	0.28
Mid-Cumberland Region	21,203	519.8	512.5	527.2	7,036	146.0	142.6	149.5	0.28
Northeast Region	8,248	507.4	496.2	518.8	3,035	155.9	150.3	161.7	0.31
Northwest Region	4,106	533.0	516.4	550.1	1,521	160.5	152.3	169.1	0.30
South Central Region	5,692	510.0	496.4	523.8	2,014	152.6	145.9	159.5	0.30
Southeast Region	10,359	529.3	518.8	539.9	3,549	149.9	144.9	155.1	0.28
Southwest Region	16,499	528.1	519.8	536.6	6,201	158.3	154.3	162.4	0.30
Upper-Cumberland Region	5,794	524.1	510.2	538.2	1,983	155.0	148.0	162.2	0.30
Female									
Tennessee	84,666	421.0	418.1	423.9	37,628	229.7	227.3	232.2	0.55
East Region	17,317	436.3	429.6	443.1	7,797	230.4	225.1	235.7	0.53
Mid-Cumberland Region	20,412	417.0	411.2	422.9	8,076	217.3	212.3	222.3	0.52
Northeast Region	7,771	433.7	423.7	443.9	3,539	223.1	215.6	230.8	0.51
Northwest Region	3,628	416.0	402.0	430.4	1,909	257.5	245.8	269.6	0.62
South Central Region	5,262	419.3	407.7	431.1	2,548	238.6	229.1	248.4	0.57
Southeast Region	9,443	423.5	414.7	432.4	4,239	227.2	220.2	234.3	0.54
Southwest Region	15,769	409.3	402.8	415.9	6,909	238.1	232.2	244.0	0.58
Upper-Cumberland Region	5,014	416.8	404.9	429.1	2,611	242.4	232.9	252.1	0.58
Black									
Tennessee	22,771	464.2	457.9	470.6	9,805	216.8	212.3	221.3	0.47
East Region	1,224	441.5	416.4	467.7	531	204.2	186.7	222.9	0.46
Mid-Cumberland Region	5,446	456.0	443.2	469.1	2,232	207.4	198.3	216.7	0.45
Northeast Region	209	337.1	291.3	387.8	112	185.9	151.8	225.1	0.55
Northwest Region	781	486.0	451.6	522.4	326	209.9	187.2	234.6	0.43
South Central Region	566	380.3	348.8	413.9	283	199.6	176.4	225.0	0.52
Southeast Region	1,943	469.9	448.5	492.0	770	196.9	182.8	211.8	0.42
Southwest Region	12,442	475.6	466.9	484.5	5,504	229.0	222.6	235.5	0.48
Upper-Cumberland Region	148	534.0	449.7	629.2	47	175.3	127.7	234.1	0.33
White									
Tennessee	150,201	463.9	461.5	466.3	58,813	180.5	179.0	182.0	0.39
East Region	34,637	479.0	473.9	484.2	13,521	184.8	181.6	188.0	0.39
Mid-Cumberland Region	35,240	460.7	455.8	465.7	12,619	171.5	168.5	174.6	0.37
Northeast Region	15,699	466.4	458.9	474.0	6,410	183.9	179.4	188.6	0.39
Northwest Region	6,852	459.3	448.1	470.7	3,081	199.6	192.4	206.9	0.43
South Central Region	10,292	461.1	452.0	470.3	4,243	188.0	182.3	193.8	0.41
Southeast Region	17,579	467.4	460.3	474.5	6,948	181.2	176.9	185.6	0.39
Southwest Region	19,258	446.1	439.7	452.6	7,477	171.3	167.4	175.3	0.38
Upper-Cumberland Region	10,561	462.0	452.9	471.2	4,514	193.5	187.8	199.4	0.42

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+).

Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX III. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	175,564	463.7	461.4	465.9	69,358	184.6	183.2	186.0	0.40
East Region	36,242	477.2	472.2	482.3	14,188	185.3	182.2	188.4	0.39
Anderson County	2,441	474.6	455.3	494.6	965	179.2	167.7	191.3	0.38
Blount County	4,017	484.7	469.4	500.4	1,414	168.1	159.3	177.3	0.35
Campbell County	1,412	505.4	478.6	533.5	615	217.8	200.6	236.4	0.43
Claiborne County	1,131	538.4	506.3	572.0	498	236.6	215.8	259.1	0.44
Cocke County	1,153	479.9	451.3	509.9	547	220.3	201.7	240.3	0.46
Grainger County	760	489.4	453.9	527.2	327	219.6	195.6	245.9	0.45
Hamblen County	1,865	469.3	447.8	491.6	773	189.2	175.9	203.3	0.40
Jefferson County	1,614	461.6	438.6	485.6	604	168.9	155.4	183.4	0.37
Knox County	11,754	466.5	457.9	475.1	4,455	177.6	172.3	183.0	0.38
Loudon County	1,945	496.6	473.1	521.1	716	173.8	160.7	187.8	0.35
Monroe County	1,393	453.0	428.5	478.6	593	192.2	176.5	209.0	0.42
Morgan County	643	469.1	432.6	507.9	238	179.4	156.8	204.6	0.38
Roane County	1,852	467.3	445.3	490.2	766	186.0	172.8	200.2	0.40
Scott County	688	528.5	488.8	570.6	310	238.6	212.3	267.5	0.45
Sevier County	2,963	485.2	467.3	503.7	1,104	184.4	173.4	196.0	0.38
Union County	611	521.3	479.2	566.1	263	232.2	204.2	263.2	0.45
Mid-Cumberland Region	41,615	459.0	454.5	463.5	15,112	175.5	172.6	178.4	0.38
Cheatham County	1,152	526.4	495.1	559.2	484	240.4	218.5	263.9	0.46
Davidson County	14,541	456.2	448.6	463.8	5,674	184.2	179.4	189.2	0.40
Dickson County	1,497	501.5	475.9	528.1	586	201.1	184.9	218.4	0.40
Houston County	283	508.0	448.1	574.2	131	228.7	190.2	273.5	0.45
Humphreys County	647	508.6	469.0	551.0	271	211.7	186.8	239.5	0.42
Montgomery County	3,234	446.2	430.4	462.3	1,230	187.9	177.3	199.1	0.42
Robertson County	1,799	481.0	458.5	504.4	673	186.9	172.7	202.0	0.39
Rutherford County	5,562	453.3	441.0	465.8	1,898	169.9	162.1	178.0	0.37
Stewart County	466	513.2	466.3	564.0	197	216.5	186.6	250.2	0.42
Sumner County	4,494	461.8	448.1	475.8	1,520	160.6	152.5	169.1	0.35
Trousdale County	253	530.9	465.9	603.0	119	264.0	217.6	317.6	0.50
Williamson County	4,483	439.8	426.5	453.4	1,185	126.4	119.0	134.1	0.29
Wilson County	3,204	455.5	439.4	472.1	1,144	170.8	160.8	181.4	0.37
Northeast Region	16,019	463.6	456.2	471.1	6,574	184.3	179.8	188.9	0.40
Carter County	1,708	436.4	415.2	458.5	720	175.1	162.3	188.8	0.40
Greene County	2,219	465.6	445.7	486.2	900	183.8	171.8	196.6	0.39
Hancock County	259	553.8	485.6	629.8	112	236.2	193.1	287.1	0.43
Hawkins County	1,912	502.5	479.4	526.5	758	196.9	182.8	211.9	0.39
Johnson County	567	447.1	409.7	487.3	274	213.6	188.6	241.5	0.48
Sullivan County	5,216	466.1	453.1	479.4	2,107	179.8	172.0	187.8	0.39
Unicoi County	648	482.4	444.4	523.2	286	196.9	174.3	222.2	0.41
Washington County	3,490	450.4	435.2	466.0	1,417	179.9	170.5	189.7	0.40
Northwest Region	7,734	465.0	454.4	475.8	3,430	200.8	194.0	207.8	0.43
Benton County	652	533.8	491.7	579.0	296	234.7	208.0	264.5	0.44
Carroll County	973	501.2	469.1	535.0	443	221.3	200.7	243.6	0.44
Crockett County	406	441.7	398.7	488.2	156	163.1	138.2	191.6	0.37
Dyer County	1,010	439.1	411.8	467.7	427	181.9	164.8	200.4	0.41
Gibson County	1,452	458.1	434.4	482.9	662	202.9	187.5	219.3	0.44
Henry County	1,194	494.6	465.7	524.9	493	199.4	181.7	218.5	0.40
Lake County	199	456.3	394.2	525.9	97	220.4	178.3	270.1	0.48
Obion County	954	447.5	418.7	477.8	453	211.4	192.0	232.4	0.47
Weakley County	894	430.0	401.4	460.2	403	185.7	167.7	205.2	0.43

APPENDIX III. ALL SITES COMBINED CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE,
2011-2015, CONTINUED

South Central Region	10,954	456.6	447.9	465.4	4,562	188.8	183.2	194.4	0.41
Bedford County	1,174	455.6	429.4	483.0	457	182.0	165.5	199.9	0.40
Coffee County	1,550	469.6	446.0	494.1	653	193.6	178.8	209.3	0.41
Giles County	877	441.2	411.5	472.8	386	192.2	173.0	213.0	0.44
Hickman County	704	476.0	440.7	513.4	296	199.4	176.9	224.2	0.42
Lawrence County	1,198	448.4	422.8	475.3	520	189.4	173.3	206.8	0.42
Lewis County	388	493.2	443.1	547.7	167	203.5	172.9	238.4	0.41
Lincoln County	866	386.2	360.1	413.9	410	180.4	163.0	199.3	0.47
Marshall County	921	500.2	467.6	534.7	373	204.8	184.0	227.3	0.41
Maury County	2,313	466.1	446.8	486.0	887	180.7	168.8	193.3	0.39
Moore County	198	443.9	381.7	514.3	60	121.9	92.6	159.1	0.27
Perry County	282	509.9	449.4	577.0	123	217.1	179.4	261.2	0.43
Wayne County	483	432.7	394.1	474.3	230	201.4	175.9	230.0	0.47
Southeast Region	19,802	467.7	461.0	474.4	7,788	182.0	177.9	186.1	0.39
Bledsoe County	403	446.6	402.8	494.3	148	165.4	139.1	195.6	0.37
Bradley County	2,757	454.5	437.4	472.1	1,100	182.8	172.0	194.1	0.40
Franklin County	1,300	470.0	444.0	497.4	522	182.5	166.9	199.3	0.39
Grundy County	434	469.0	424.1	517.7	196	208.3	179.3	241.0	0.44
Hamilton County	9,845	464.1	454.8	473.6	3,672	170.5	164.9	176.2	0.37
McMinn County	1,577	446.5	424.1	469.9	673	186.6	172.5	201.6	0.42
Marion County	1,006	529.9	496.5	565.3	446	232.7	211.0	256.2	0.44
Meigs County	404	493.1	443.5	547.2	171	214.3	181.7	251.5	0.43
Polk County	568	495.3	454.0	539.8	245	206.7	181.0	235.4	0.42
Rhea County	1,014	490.3	459.6	522.6	404	192.9	174.1	213.3	0.39
Sequatchie County	494	507.9	462.3	557.1	211	220.9	191.1	254.3	0.43
Southwest Region	32,268	457.6	452.5	462.7	13,110	190.8	187.5	194.1	0.42
Chester County	439	432.1	391.7	475.7	187	177.5	152.6	205.5	0.41
Decatur County	405	450.0	405.4	498.9	194	208.9	179.6	242.4	0.46
Fayette County	1,182	441.7	415.8	469.0	399	151.8	136.8	168.1	0.34
Hardeman County	793	487.1	453.1	523.2	317	197.2	175.7	220.7	0.40
Hardin County	834	446.0	414.8	479.0	362	187.5	168.1	208.8	0.42
Haywood County	525	467.6	427.1	511.1	213	186.8	161.9	214.6	0.40
Henderson County	825	473.6	441.0	508.1	358	205.7	184.5	228.8	0.43
Lauderdale County	742	487.9	452.8	525.2	307	204.9	182.2	229.7	0.42
McNairy County	840	472.6	440.0	507.1	374	202.2	181.9	224.4	0.43
Madison County	2,501	438.8	421.3	456.8	971	170.8	160.1	182.1	0.39
Shelby County	21,624	459.3	453.1	465.7	8,758	193.3	189.2	197.5	0.42
Tipton County	1,558	473.6	449.8	498.3	670	210.0	194.0	227.0	0.44
Upper-Cumberland Region	10,808	463.2	454.2	472.3	4,594	193.3	187.6	199.1	0.42
Cannon County	427	463.3	419.5	510.9	189	202.4	174.2	234.3	0.44
Clay County	261	431.5	378.2	491.2	127	199.5	165.6	239.7	0.46
Cumberland County	2,296	460.1	439.7	481.4	895	172.0	160.2	184.6	0.37
DeKalb County	527	424.9	388.4	464.2	218	177.4	154.1	203.5	0.42
Fentress County	613	495.0	454.7	538.2	259	210.9	185.2	239.6	0.43
Jackson County	376	446.7	400.2	497.8	160	186.4	157.5	219.9	0.42
Macon County	665	488.8	451.5	528.4	291	215.0	190.6	241.9	0.44
Overtown County	766	505.6	469.3	544.2	332	216.1	193.0	241.5	0.43
Pickett County	176	434.3	366.9	512.1	72	157.1	121.8	202.2	0.36
Putnam County	1,972	456.0	435.6	477.1	871	200.2	187.0	214.2	0.44
Smith County	529	452.9	414.1	494.6	213	188.9	163.7	217.0	0.42
Van Buren County	172	419.9	356.0	493.3	67	159.6	121.9	206.8	0.38
Warren County	1,129	457.7	430.9	485.9	500	199.7	182.4	218.4	0.44
White County	899	504.2	470.7	539.6	400	218.1	196.9	241.2	0.43

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+).

Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX IV. LUNG CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	7,476	20.4	20.0	20.9	1,139	3.1	2.9	3.3	0.15
East Region	1,941	26.9	25.7	28.2	252	3.4	3.0	3.9	0.13
Anderson County	121	25.5	20.9	30.7	13	2.7	1.4	4.7	0.11
Blount County	245	31.1	27.2	35.4	33	4.1	2.8	5.9	0.13
Campbell County	43	16.9	12.1	23.1	^	^	^	^	^
Claiborne County	48	24.6	18.0	33.1	^	^	^	^	^
Cocke County	62	27.6	20.8	35.9	^	^	^	^	^
Grainger County	49	32.8	23.9	44.1	^	^	^	^	^
Hamblen County	122	33.1	27.3	39.7	12	3.3	1.7	5.9	0.10
Jefferson County	104	32.5	26.3	39.7	^	^	^	^	^
Knox County	621	25.3	23.3	27.4	85	3.4	2.7	4.2	0.13
Loudon County	128	34.5	28.2	41.8	14	3.7	2.0	6.7	0.11
Monroe County	58	19.9	14.9	26.1	^	^	^	^	^
Morgan County	30	24.0	16.1	34.7	^	^	^	^	^
Roane County	81	21.6	16.9	27.3	16	4.0	2.3	6.8	0.19
Scott County	23	18.4	11.5	28.0	^	^	^	^	^
Sevier County	175	29.6	25.2	34.5	24	4.3	2.7	6.5	0.15
Union County	31	30.3	20.3	43.7	^	^	^	^	^
Mid-Cumberland Region	1,646	18.3	17.4	19.3	272	3.2	2.8	3.6	0.17
Cheatham County	37	15.8	11.0	22.2	^	^	^	^	^
Davidson County	475	14.9	13.6	16.4	87	2.8	2.2	3.4	0.19
Dickson County	47	16.0	11.6	21.5	11	4.1	2.0	7.5	0.26
Houston County	13	22.9	11.8	41.1	^	^	^	^	^
Humphreys County	23	20.3	12.6	31.3	^	^	^	^	^
Montgomery County	122	16.6	13.7	19.9	24	3.5	2.2	5.3	0.21
Robertson County	65	17.9	13.7	22.9	14	4.0	2.2	6.9	0.22
Rutherford County	213	16.9	14.7	19.4	37	3.3	2.3	4.5	0.20
Stewart County	16	17.9	10.0	30.1	^	^	^	^	^
Sumner County	225	24.5	21.4	28.1	30	3.3	2.2	4.8	0.13
Trousdale County	^	^	^	^	^	^	^	^	^
Williamson County	249	25.0	21.9	28.4	33	3.8	2.6	5.4	0.15
Wilson County	157	23.6	20.0	27.8	23	3.2	2.0	4.9	0.14
Northeast Region	996	30.5	28.5	32.5	126	3.6	3.0	4.4	0.12
Carter County	99	26.9	21.6	33.1	11	2.9	1.4	5.5	0.11
Greene County	116	24.8	20.4	30.1	22	4.4	2.7	6.8	0.18
Hancock County	^	^	^	^	^	^	^	^	^
Hawkins County	117	32.4	26.6	39.2	16	4.5	2.5	7.5	0.14
Johnson County	18	15.0	8.7	24.6	^	^	^	^	^
Sullivan County	351	33.1	29.6	36.9	42	3.6	2.6	5.0	0.11
Unicoi County	40	31.3	21.9	43.8	^	^	^	^	^
Washington County	245	33.9	29.6	38.5	20	2.8	1.7	4.4	0.08
Northwest Region	247	16.0	14.0	18.2	49	2.9	2.2	3.9	0.18
Benton County	15	16.6	8.9	28.3	^	^	^	^	^
Carroll County	27	14.8	9.6	22.0	^	^	^	^	^
Crockett County	18	18.9	11.0	30.6	^	^	^	^	^
Dyer County	36	16.9	11.8	23.7	^	^	^	^	^
Gibson County	33	10.8	7.3	15.3	13	3.9	2.1	6.9	0.36
Henry County	48	22.3	16.1	30.3	^	^	^	^	^
Lake County	^	^	^	^	^	^	^	^	^
Obion County	38	19.6	13.6	27.3	^	^	^	^	^
Weakley County	26	13.1	8.3	19.6	^	^	^	^	^

APPENDIX IV. LUNG CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015,
CONTINUED

South Central Region	387	16.7	15.0	18.5	84	3.6	2.9	4.5	0.22
Bedford County	45	17.7	12.9	23.9	12	4.9	2.5	8.6	0.28
Coffee County	63	20.1	15.3	25.9	^	^	^	^	^
Giles County	35	18.0	12.3	25.7	^	^	^	^	^
Hickman County	19	12.2	7.2	19.6	^	^	^	^	^
Lawrence County	41	15.5	11.0	21.3	14	5.5	2.9	9.4	0.35
Lewis County	15	20.1	10.8	34.4	^	^	^	^	^
Lincoln County	30	13.0	8.7	19.0	^	^	^	^	^
Marshall County	25	14.4	9.2	21.5	^	^	^	^	^
Maury County	83	17.8	14.0	22.2	14	2.9	1.6	5.0	0.16
Moore County	^	^	^	^	^	^	^	^	^
Perry County	^	^	^	^	^	^	^	^	^
Wayne County	18	15.5	9.1	25.3	^	^	^	^	^
Southeast Region	928	23.0	21.5	24.6	140	3.5	2.9	4.1	0.15
Bledsoe County	16	19.1	10.8	31.8	^	^	^	^	^
Bradley County	95	16.4	13.2	20.2	23	3.9	2.4	5.9	0.24
Franklin County	53	19.7	14.5	26.2	^	^	^	^	^
Grundy County	^	^	^	^	^	^	^	^	^
Hamilton County	549	27.1	24.8	29.5	61	3.0	2.3	3.8	0.11
McMinn County	68	20.8	16.0	26.7	12	3.8	1.9	6.9	0.18
Marion County	45	24.5	17.6	33.4	^	^	^	^	^
Meigs County	17	19.8	11.0	33.6	^	^	^	^	^
Polk County	18	15.9	9.2	26.1	^	^	^	^	^
Rhea County	38	19.7	13.7	27.6	^	^	^	^	^
Sequatchie County	19	22.0	13.0	35.3	^	^	^	^	^
Southwest Region	775	11.2	10.4	12.1	136	2.0	1.7	2.4	0.18
Chester County	^	^	^	^	^	^	^	^	^
Decatur County	16	18.6	10.1	32.2	^	^	^	^	^
Fayette County	31	12.6	8.3	18.4	^	^	^	^	^
Hardeman County	11	7.1	3.5	13.1	^	^	^	^	^
Hardin County	29	14.6	9.6	21.7	^	^	^	^	^
Haywood County	14	11.4	6.1	19.9	^	^	^	^	^
Henderson County	27	18.1	11.8	26.6	^	^	^	^	^
Lauderdale County	23	15.4	9.7	23.4	^	^	^	^	^
McNairy County	24	14.1	8.8	21.7	^	^	^	^	^
Madison County	71	13.4	10.4	17.0	^	^	^	^	^
Shelby County	485	10.3	9.4	11.3	84	1.8	1.5	2.3	0.17
Tipton County	35	11.3	7.8	15.8	^	^	^	^	^
Upper-Cumberland Region	540	24.5	22.4	26.8	80	3.5	2.7	4.4	0.14
Cannon County	21	21.6	13.2	33.9	^	^	^	^	^
Clay County	12	19.0	9.7	35.6	^	^	^	^	^
Cumberland County	147	31.4	25.9	37.8	16	2.8	1.6	5.0	0.09
DeKalb County	22	19.1	11.7	29.6	^	^	^	^	^
Fentress County	27	25.3	16.2	37.9	^	^	^	^	^
Jackson County	17	22.3	12.6	37.2	^	^	^	^	^
Macon County	28	21.0	13.8	30.9	^	^	^	^	^
Overton County	29	23.0	15.2	33.4	^	^	^	^	^
Pickett County	^	^	^	^	^	^	^	^	^
Putnam County	90	22.1	17.7	27.3	11	2.5	1.2	4.6	0.11
Smith County	18	16.8	9.8	27.0	^	^	^	^	^
Van Buren County	11	24.8	12.0	47.9	^	^	^	^	^
Warren County	63	27.0	20.6	34.8	14	6.1	3.3	10.4	0.23
White County	49	28.3	20.7	38.1	^	^	^	^	^

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+).

Rates are for invasive cancer only (except bladder cancer which is invasive and in situ) or unless otherwise specified.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

†Mortality incidence ratio. See Technical Notes for details.

APPENDIX V. PROSTATE CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	21,329	114.6	113.0	116.2	2,826	19.8	19.0	20.6	0.17
East Region	4,283	111.3	107.9	114.8	510	17.0	15.5	18.5	0.15
Anderson County	311	118.3	105.3	132.7	31	13.4	9.0	19.2	0.11
Blount County	457	106.8	97.0	117.3	33	9.4	6.5	13.4	0.09
Campbell County	136	97.4	81.2	116.4	26	23.1	14.7	34.6	0.24
Claiborne County	113	103.9	84.9	126.4	14	16.6	8.8	28.7	0.16
Cocke County	101	79.5	64.3	97.7	21	22.6	13.6	35.4	0.28
Grainger County	91	107.4	85.9	133.5	^	^	^	^	^
Hamblen County	192	100.1	86.2	115.7	34	22.0	15.1	31.0	0.22
Jefferson County	175	93.9	80.2	109.6	21	14.0	8.5	21.8	0.15
Knox County	1,508	124.1	117.7	130.7	167	17.4	14.8	20.3	0.14
Loudon County	252	114.3	100.1	130.4	30	17.0	11.2	25.0	0.15
Monroe County	146	90.6	75.8	107.7	24	21.3	13.3	32.2	0.24
Morgan County	73	99.0	76.9	126.1	^	^	^	^	^
Roane County	210	98.4	85.2	113.5	23	13.8	8.7	21.1	0.14
Scott County	86	130.1	103.3	162.1	12	19.7	9.7	35.6	0.15
Sevier County	359	114.9	102.9	127.9	52	22.9	16.8	30.3	0.20
Union County	73	114.8	88.8	146.8	^	^	^	^	^
Mid-Cumberland Region	5,144	118.8	115.4	122.2	587	18.6	17.1	20.2	0.16
Cheatham County	122	112.3	91.9	136.0	15	20.5	10.8	34.7	0.18
Davidson County	1,686	115.9	110.2	121.8	234	20.6	17.9	23.5	0.18
Dickson County	177	123.5	105.3	144.0	27	25.7	16.6	37.7	0.21
Houston County	27	89.8	58.6	134.3	^	^	^	^	^
Humphreys County	92	142.6	114.3	176.7	14	23.8	12.9	41.1	0.17
Montgomery County	391	117.9	106.0	130.8	40	16.7	11.7	22.9	0.14
Robertson County	216	118.0	102.2	135.7	19	15.9	9.4	24.8	0.13
Rutherford County	667	114.5	105.5	124.1	87	23.1	18.3	28.7	0.20
Stewart County	47	97.1	70.8	131.4	^	^	^	^	^
Sumner County	572	117.9	108.1	128.4	47	13.5	9.8	18.1	0.11
Trousdale County	28	105.0	68.6	155.9	^	^	^	^	^
Williamson County	716	141.1	130.3	152.6	48	13.9	10.1	18.5	0.10
Wilson County	403	108.7	97.9	120.4	39	14.8	10.2	20.7	0.14
Northeast Region	1,608	90.8	86.3	95.4	255	18.3	16.1	20.8	0.20
Carter County	144	69.7	58.5	82.6	25	15.7	10.1	23.5	0.23
Greene County	219	92.3	80.0	106.1	45	23.3	16.7	31.6	0.25
Hancock County	27	102.6	66.8	154.4	^	^	^	^	^
Hawkins County	175	86.7	73.9	101.3	22	15.6	9.6	23.9	0.18
Johnson County	47	67.1	48.6	91.2	12	23.7	11.7	42.9	0.35
Sullivan County	547	97.0	89.0	105.8	84	18.5	14.7	23.1	0.19
Unicoi County	66	97.7	75.1	126.0	11	19.2	9.4	35.7	0.20
Washington County	383	95.7	86.1	106.1	54	17.4	13.0	22.8	0.18
Northwest Region	1,021	124.3	116.7	132.4	162	23.8	20.2	27.9	0.19
Benton County	98	158.8	127.9	196.2	^	^	^	^	^
Carroll County	144	149.3	125.5	176.8	22	28.2	17.5	43.4	0.19
Crockett County	48	112.0	81.9	150.2	^	^	^	^	^
Dyer County	106	94.8	77.0	115.6	23	26.1	16.3	39.5	0.28
Gibson County	175	113.7	97.3	132.3	37	27.2	19.1	37.7	0.24
Henry County	189	153.2	131.7	177.9	20	20.4	12.2	32.3	0.13
Lake County	16	67.1	37.6	112.2	^	^	^	^	^
Obion County	125	118.1	97.7	141.9	18	20.6	11.9	33.4	0.17
Weakley County	120	117.4	96.9	141.2	25	28.5	18.2	42.5	0.24

APPENDIX V. PROSTATE CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015,
CONTINUED

South Central Region	1,158	95.8	90.3	101.7	146	15.7	13.2	18.6	0.16
Bedford County	133	103.3	86.0	123.1	15	16.5	9.1	27.2	0.16
Coffee County	148	87.6	73.9	103.4	28	20.9	13.8	30.4	0.24
Giles County	86	83.2	66.1	104.0	11	13.0	6.3	24.0	0.16
Hickman County	68	93.8	72.3	119.9	^	^	^	^	^
Lawrence County	117	88.9	73.2	107.2	16	14.0	7.9	23.2	0.16
Lewis County	29	71.3	47.0	105.1	^	^	^	^	^
Lincoln County	82	73.7	58.2	92.3	16	18.8	10.5	31.1	0.26
Marshall County	109	122.4	99.5	149.1	^	^	^	^	^
Maury County	278	111.7	98.5	126.3	33	19.1	12.9	27.0	0.17
Moore County	21	80.6	49.6	128.5	^	^	^	^	^
Perry County	34	115.4	78.8	165.4	^	^	^	^	^
Wayne County	53	93.6	69.8	123.6	^	^	^	^	^
Southeast Region	2,341	110.9	106.4	115.7	341	20.6	18.5	23.0	0.19
Bledsoe County	45	94.9	68.3	129.3	^	^	^	^	^
Bradley County	275	92.5	81.7	104.5	48	21.0	15.3	28.1	0.23
Franklin County	123	86.8	71.9	104.3	30	26.2	17.5	37.9	0.30
Grundy County	39	75.9	53.6	106.0	^	^	^	^	^
Hamilton County	1,354	132.9	125.7	140.4	184	22.6	19.4	26.2	0.17
McMinn County	167	92.6	78.7	108.4	29	19.7	13.0	28.7	0.21
Marion County	108	106.5	86.7	130.0	13	18.5	9.5	32.3	0.17
Meigs County	40	91.3	63.6	128.5	^	^	^	^	^
Polk County	54	84.6	63.0	112.6	^	^	^	^	^
Rhea County	89	80.3	64.0	99.8	11	10.9	5.2	20.5	0.14
Sequatchie County	47	89.1	64.5	121.3	^	^	^	^	^
Southwest Region	4,545	136.8	132.7	141.1	639	25.6	23.5	27.7	0.19
Chester County	48	98.5	72.2	131.8	^	^	^	^	^
Decatur County	31	65.3	44.0	95.4	^	^	^	^	^
Fayette County	185	130.2	111.4	151.7	13	13.1	6.8	22.9	0.10
Hardeman County	103	125.4	101.5	153.5	17	29.1	16.6	46.8	0.23
Hardin County	91	95.7	76.6	118.9	12	14.7	7.3	26.9	0.15
Haywood County	63	116.8	88.7	151.5	^	^	^	^	^
Henderson County	80	89.8	70.6	113.0	^	^	^	^	^
Lauderdale County	88	125.0	99.4	155.3	^	^	^	^	^
McNairy County	88	95.5	76.0	119.1	13	18.5	9.4	32.5	0.19
Madison County	345	125.8	112.5	140.3	44	18.9	13.6	25.6	0.15
Shelby County	3,220	149.1	143.7	154.6	471	29.8	27.0	32.7	0.20
Tipton County	203	130.2	112.1	150.4	26	21.7	13.9	32.2	0.17
Upper-Cumberland Region	1,212	101.1	95.4	107.2	186	19.4	16.7	22.5	0.19
Cannon County	54	116.2	86.7	153.5	^	^	^	^	^
Clay County	26	81.7	52.8	124.3	^	^	^	^	^
Cumberland County	336	121.9	108.7	136.6	31	12.0	8.1	17.7	0.10
DeKalb County	64	104.2	79.3	135.1	^	^	^	^	^
Fentress County	55	86.9	64.6	115.4	12	25.4	12.4	46.0	0.29
Jackson County	36	76.1	52.4	109.1	^	^	^	^	^
Macon County	66	103.0	78.7	132.6	^	^	^	^	^
Overton County	71	86.2	67.0	110.2	^	^	^	^	^
Pickett County	15	60.3	33.3	109.6	^	^	^	^	^
Putnam County	175	82.5	70.5	96.0	43	25.2	18.2	34.1	0.31
Smith County	70	118.7	91.3	152.2	^	^	^	^	^
Van Buren County	18	78.2	45.6	130.5	^	^	^	^	^
Warren County	133	111.8	93.2	133.3	16	16.1	9.1	26.4	0.14
White County	93	100.3	80.5	123.9	25	35.5	22.8	53.0	0.35

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude females, hermaphrodites, and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX VI. FEMALE BREAST CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	24,547	122.5	120.9	124.1	4,532	21.9	21.2	22.6	0.18
East Region	4,929	124.4	120.8	128.1	833	20.3	18.9	21.7	0.16
Anderson County	356	131.2	117.3	146.4	67	22.5	17.2	29.1	0.17
Blount County	526	122.9	112.3	134.4	59	13.5	10.2	17.6	0.11
Campbell County	180	121.6	103.9	141.8	26	18.0	11.6	27.1	0.15
Claiborne County	135	127.1	105.8	151.8	30	27.9	18.5	40.7	0.22
Cocke County	139	114.6	95.5	136.8	33	26.2	17.7	37.6	0.23
Grainger County	82	103.5	81.6	130.0	20	26.3	15.6	42.2	0.25
Hamblen County	266	123.2	108.4	139.6	38	16.4	11.5	22.8	0.13
Jefferson County	209	119.8	103.3	138.4	28	14.9	9.8	22.1	0.12
Knox County	1,735	129.3	123.1	135.7	297	21.2	18.8	23.8	0.16
Loudon County	263	133.7	116.7	152.8	41	18.8	13.2	26.5	0.14
Monroe County	159	99.2	83.6	117.0	35	23.2	15.9	32.9	0.23
Morgan County	77	119.9	93.7	151.6	12	18.1	9.1	33.1	0.15
Roane County	247	123.2	107.4	140.8	45	21.5	15.5	29.6	0.17
Scott County	79	121.2	95.4	152.0	21	30.7	18.8	47.7	0.25
Sevier County	411	126.6	114.2	140.1	68	21.7	16.7	27.8	0.17
Union County	65	106.0	81.2	136.5	13	22.1	11.7	38.7	0.21
Mid-Cumberland Region	6,239	126.4	123.2	129.6	1,052	21.4	20.1	22.8	0.17
Cheatham County	161	137.5	116.5	161.4	22	19.5	12.0	30.1	0.14
Davidson County	2,186	124.9	119.7	130.4	412	22.9	20.7	25.3	0.18
Dickson County	192	124.1	106.8	143.5	33	20.2	13.8	28.7	0.16
Houston County	39	144.2	100.1	201.9	^	^	^	^	^
Humphreys County	81	131.1	103.0	165.2	18	26.8	15.7	43.8	0.20
Montgomery County	443	109.0	99.0	119.8	87	23.4	18.6	28.9	0.21
Robertson County	254	125.9	110.6	142.9	50	25.2	18.6	33.4	0.20
Rutherford County	868	128.3	119.7	137.3	138	21.0	17.6	24.8	0.16
Stewart County	49	110.9	80.8	149.4	12	29.8	14.8	54.1	0.27
Sumner County	651	125.1	115.5	135.3	91	17.4	13.9	21.4	0.14
Trousdale County	20	78.5	47.3	123.9	^	^	^	^	^
Williamson County	847	149.5	139.3	160.2	105	19.1	15.5	23.3	0.13
Wilson County	448	119.3	108.3	131.2	69	18.9	14.7	24.1	0.16
Northeast Region	2,144	120.1	114.9	125.6	376	19.5	17.6	21.7	0.16
Carter County	244	122.6	107.0	140.0	52	22.3	16.6	29.7	0.18
Greene County	281	112.3	98.9	127.1	46	17.6	12.8	24.0	0.16
Hancock County	33	128.1	87.0	185.1	^	^	^	^	^
Hawkins County	220	109.8	95.2	126.2	45	20.7	15.1	28.2	0.19
Johnson County	76	125.0	96.9	159.6	13	20.0	10.5	36.4	0.16
Sullivan County	741	126.1	116.8	136.0	125	19.3	16.0	23.3	0.15
Unicoi County	80	122.3	95.6	154.9	^	^	^	^	^
Washington County	469	119.1	108.2	130.8	80	19.4	15.3	24.3	0.16
Northwest Region	1,041	120.0	112.5	127.8	217	23.5	20.3	27.0	0.20
Benton County	75	123.5	95.7	158.0	17	28.1	15.7	47.7	0.23
Carroll County	106	98.7	80.2	120.8	24	21.1	13.4	32.4	0.21
Crockett County	55	111.2	82.7	146.8	14	26.5	14.1	46.3	0.24
Dyer County	143	118.8	99.6	140.8	27	19.8	12.9	29.3	0.17
Gibson County	205	124.9	107.7	144.1	42	23.5	16.7	32.4	0.19
Henry County	157	121.5	102.4	143.7	32	24.0	16.1	35.2	0.20
Lake County	25	137.6	87.1	208.8	^	^	^	^	^
Obion County	157	141.5	119.5	166.8	31	27.3	18.3	39.7	0.19
Weakley County	118	103.6	85.3	125.2	25	22.0	13.8	33.6	0.21

APPENDIX VI. FEMALE BREAST CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015, CONTINUED

South Central Region	1,411	112.8	106.8	119.0	259	19.9	17.5	22.5	0.18
Bedford County	163	117.3	99.6	137.3	22	15.2	9.4	23.4	0.13
Coffee County	192	111.8	96.0	129.5	31	17.0	11.4	24.5	0.15
Giles County	100	92.5	74.6	113.9	21	20.1	12.1	32.0	0.22
Hickman County	99	135.8	109.7	166.6	28	37.7	24.7	55.6	0.28
Lawrence County	150	108.4	91.2	128.1	25	16.6	10.6	25.0	0.15
Lewis County	44	110.1	78.7	150.8	^	^	^	^	^
Lincoln County	120	100.5	82.6	121.5	30	24.7	16.4	36.2	0.25
Marshall County	126	129.9	107.6	155.6	20	20.9	12.6	32.8	0.16
Maury County	304	115.4	102.4	129.7	57	20.4	15.4	26.7	0.18
Moore County	33	150.9	101.6	218.2	^	^	^	^	^
Perry County	30	112.8	74.3	165.7	^	^	^	^	^
Wayne County	50	90.3	65.9	121.8	^	^	^	^	^
Southeast Region	2,576	115.5	110.9	120.2	506	22.0	20.1	24.1	0.19
Bledsoe County	37	87.9	60.9	124.3	^	^	^	^	^
Bradley County	361	111.9	100.4	124.4	79	25.0	19.7	31.3	0.22
Franklin County	169	118.2	100.2	138.7	30	19.7	13.0	28.9	0.17
Grundy County	55	112.0	83.0	148.9	16	31.2	17.3	53.3	0.28
Hamilton County	1,347	118.7	112.3	125.5	259	22.1	19.4	25.1	0.19
McMinn County	197	107.0	92.1	123.9	37	19.6	13.7	27.6	0.18
Marion County	128	130.4	107.7	156.7	27	26.2	17.0	39.3	0.20
Meigs County	40	100.5	70.5	140.0	^	^	^	^	^
Polk County	56	99.6	74.5	131.2	15	23.8	13.2	41.1	0.24
Rhea County	123	118.2	97.4	142.4	18	15.3	9.0	25.0	0.13
Sequatchie County	63	113.8	86.5	148.0	12	24.2	12.1	44.2	0.21
Southwest Region	4,793	124.6	121.0	128.3	1,037	26.1	24.5	27.8	0.21
Chester County	50	95.2	69.7	127.1	12	21.1	10.7	38.2	0.22
Decatur County	38	82.5	56.7	117.6	^	^	^	^	^
Fayette County	176	128.9	109.8	150.8	34	24.7	17.0	35.2	0.19
Hardeman County	96	122.9	98.5	151.9	21	25.6	15.5	40.4	0.21
Hardin County	92	97.2	77.3	121.1	14	12.7	6.8	22.7	0.13
Haywood County	94	160.0	128.1	197.7	18	28.4	16.6	45.9	0.18
Henderson County	93	98.9	79.4	122.2	30	32.3	21.6	46.9	0.33
Lauderdale County	89	112.2	89.4	139.2	16	19.8	11.2	32.8	0.18
McNairy County	90	92.1	73.4	114.7	22	24.3	14.8	38.1	0.26
Madison County	365	121.1	108.6	134.6	60	18.9	14.3	24.5	0.16
Shelby County	3,418	129.7	125.3	134.2	760	28.2	26.2	30.3	0.22
Tipton County	192	111.0	95.6	128.3	41	23.3	16.6	31.9	0.21
Upper-Cumberland Region	1,400	117.2	110.9	123.9	252	20.2	17.7	23.0	0.17
Cannon County	55	116.1	86.7	153.3	^	^	^	^	^
Clay County	37	129.2	87.6	185.3	^	^	^	^	^
Cumberland County	285	121.9	106.5	139.1	39	16.0	10.9	23.0	0.13
DeKalb County	77	110.7	86.8	140.0	12	16.3	8.3	30.0	0.15
Fentress County	84	128.5	101.1	161.7	16	23.5	13.2	39.9	0.18
Jackson County	56	126.6	94.2	168.3	^	^	^	^	^
Macon County	61	86.6	65.8	112.2	15	21.8	12.0	36.6	0.25
Overton County	82	104.4	82.4	131.1	15	20.9	11.5	35.5	0.20
Pickett County	21	103.5	60.4	169.9	^	^	^	^	^
Putnam County	292	128.9	114.0	145.3	48	19.9	14.6	26.7	0.15
Smith County	67	112.7	86.8	144.4	14	23.5	12.7	40.5	0.21
Van Buren County	24	107.9	68.3	166.8	^	^	^	^	^
Warren County	138	106.2	88.7	126.4	29	20.8	13.8	30.4	0.20
White County	121	131.8	108.3	159.3	30	32.1	21.2	47.0	0.24

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude males, hermaphrodites, and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX VII. COLORECTAL CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	15,133	40.4	39.8	41.1	5,977	16.1	15.7	16.6	0.40
East Region	2,835	37.9	36.5	39.4	1,135	15.1	14.2	16.0	0.40
Anderson County	203	39.9	34.4	46.0	74	14.5	11.3	18.5	0.36
Blount County	307	38.8	34.4	43.6	119	15.0	12.4	18.0	0.39
Campbell County	115	43.0	35.3	52.1	55	19.7	14.7	25.9	0.46
Claiborne County	97	49.1	39.6	60.5	37	18.3	12.8	25.7	0.37
Cocke County	97	40.2	32.4	49.5	42	15.8	11.3	21.7	0.39
Grainger County	70	45.5	35.2	58.3	38	25.6	17.9	35.8	0.56
Hamblen County	177	44.1	37.8	51.3	61	15.0	11.4	19.4	0.34
Jefferson County	128	37.0	30.8	44.4	44	12.7	9.2	17.3	0.34
Knox County	892	35.6	33.2	38.1	365	14.5	13.0	16.1	0.41
Loudon County	109	28.1	22.8	34.4	37	8.3	5.8	11.7	0.30
Monroe County	95	30.2	24.3	37.4	41	13.5	9.6	18.6	0.45
Morgan County	52	40.4	30.0	53.4	17	13.0	7.5	21.2	0.32
Roane County	155	39.7	33.4	46.9	54	13.5	10.1	17.9	0.34
Scott County	59	45.8	34.6	59.6	28	21.1	13.9	31.0	0.46
Sevier County	233	38.8	33.9	44.4	98	16.7	13.5	20.5	0.43
Union County	46	40.8	29.6	55.1	25	23.3	15.0	34.9	0.57
Mid-Cumberland Region	3,452	38.8	37.5	40.2	1,275	14.9	14.1	15.8	0.38
Cheatham County	87	39.9	31.6	49.8	33	16.5	11.2	23.5	0.41
Davidson County	1,179	37.9	35.7	40.2	469	15.4	14.0	16.9	0.41
Dickson County	162	55.6	47.2	65.1	61	22.1	16.8	28.5	0.40
Houston County	26	49.0	31.2	73.8	13	25.7	13.2	45.8	0.52
Humphreys County	56	43.3	32.5	57.0	21	17.2	10.5	26.9	0.40
Montgomery County	252	35.7	31.3	40.6	114	17.4	14.3	21.0	0.49
Robertson County	159	43.5	36.9	51.1	63	17.3	13.2	22.3	0.40
Rutherford County	505	41.8	38.1	45.7	166	14.9	12.6	17.4	0.36
Stewart County	52	60.6	44.7	80.7	19	20.4	12.2	32.9	0.34
Sumner County	377	38.8	34.9	43.0	119	12.7	10.5	15.3	0.33
Trousdale County	34	70.0	48.0	99.2	13	31.3	16.5	54.1	0.45
Williamson County	309	30.8	27.3	34.6	101	10.7	8.6	13.0	0.35
Wilson County	254	36.2	31.7	41.1	83	12.1	9.6	15.2	0.33
Northeast Region	1,315	38.0	35.9	40.2	555	15.8	14.5	17.3	0.42
Carter County	156	40.0	33.8	47.1	58	14.8	11.1	19.5	0.37
Greene County	185	39.0	33.4	45.4	73	15.2	11.9	19.4	0.39
Hancock County	20	44.4	26.7	70.5	^	^	^	^	^
Hawkins County	164	42.8	36.3	50.2	51	13.8	10.1	18.3	0.32
Johnson County	50	38.2	28.0	51.3	27	21.0	13.7	31.3	0.55
Sullivan County	400	35.9	32.3	39.7	180	15.6	13.4	18.2	0.43
Unicoi County	51	36.2	26.7	48.4	30	20.2	13.5	29.7	0.56
Washington County	289	37.0	32.8	41.6	128	16.4	13.7	19.6	0.44
Northwest Region	704	41.6	38.5	44.9	284	16.5	14.6	18.6	0.40
Benton County	58	43.2	32.5	56.9	24	18.1	11.5	27.9	0.42
Carroll County	72	36.6	28.4	46.7	36	16.9	11.8	23.8	0.46
Crockett County	41	42.2	30.0	58.1	12	12.0	6.1	21.8	0.28
Dyer County	96	41.3	33.3	50.8	31	14.1	9.5	20.2	0.34
Gibson County	142	44.0	36.9	52.1	59	17.8	13.5	23.2	0.40
Henry County	103	43.8	35.4	53.8	42	17.0	12.2	23.4	0.39
Lake County	19	43.3	25.9	68.8	^	^	^	^	^
Obion County	90	41.5	33.2	51.5	40	18.5	13.1	25.5	0.45
Weakley County	83	39.1	31.0	48.9	33	15.8	10.7	22.6	0.40

APPENDIX VII. COLORECTAL CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015, CONTINUED

South Central Region	1,057	44.3	41.6	47.2	421	17.6	16.0	19.4	0.40
Bedford County	115	45.3	37.3	54.6	50	20.3	14.9	26.9	0.45
Coffee County	151	45.3	38.3	53.3	72	21.4	16.7	27.2	0.47
Giles County	102	51.2	41.5	62.7	48	25.0	18.3	33.6	0.49
Hickman County	59	41.3	31.2	53.7	18	12.2	7.1	19.6	0.30
Lawrence County	96	36.3	29.3	44.6	33	11.8	8.1	16.8	0.33
Lewis County	33	39.0	26.3	56.3	13	16.1	8.4	28.6	0.41
Lincoln County	109	49.5	40.4	60.3	51	23.4	17.3	31.2	0.47
Marshall County	90	49.7	39.8	61.5	28	16.0	10.6	23.4	0.32
Maury County	200	40.5	34.9	46.7	67	13.4	10.3	17.1	0.33
Moore County	21	45.4	27.8	71.7	11	24.6	12.2	46.3	0.54
Perry County	32	61.1	40.6	88.9	^	^	^	^	^
Wayne County	49	43.7	32.2	58.3	20	17.3	10.5	27.3	0.40
Southeast Region	1,697	40.5	38.5	42.5	605	14.4	13.2	15.6	0.36
Bledsoe County	35	40.1	27.7	56.8	11	11.8	5.8	22.2	0.29
Bradley County	260	42.4	37.3	48.0	100	16.6	13.5	20.3	0.39
Franklin County	127	45.7	37.9	54.8	53	18.8	14.0	25.0	0.41
Grundy County	56	63.3	47.2	83.5	20	24.2	14.5	38.2	0.38
Hamilton County	794	37.6	35.0	40.4	255	11.8	10.4	13.4	0.31
McMinn County	140	40.6	34.0	48.3	47	13.0	9.5	17.5	0.32
Marion County	78	41.8	32.8	52.8	42	24.5	17.5	33.6	0.59
Meigs County	37	46.6	32.3	65.7	12	18.8	9.4	33.8	0.40
Polk County	32	31.9	21.6	45.8	12	11.2	5.7	20.2	0.35
Rhea County	94	46.3	37.2	57.0	35	17.9	12.3	25.3	0.39
Sequatchie County	44	44.5	32.0	60.8	18	19.0	11.1	31.0	0.43
Southwest Region	3,073	44.1	42.5	45.7	1,304	19.2	18.2	20.3	0.44
Chester County	43	41.6	29.8	56.7	16	15.3	8.6	25.3	0.37
Decatur County	45	49.3	35.5	67.4	17	19.2	10.7	32.6	0.39
Fayette County	120	45.8	37.7	55.3	52	20.4	15.2	27.1	0.45
Hardeman County	76	45.6	35.8	57.5	28	16.5	10.9	24.3	0.36
Hardin County	82	40.9	32.3	51.4	38	20.1	14.1	28.2	0.49
Haywood County	63	54.3	41.4	70.3	27	24.4	15.9	36.1	0.45
Henderson County	85	48.3	38.4	60.2	23	13.2	8.2	20.2	0.27
Lauderdale County	94	63.6	51.1	78.2	34	23.0	15.8	32.5	0.36
McNairy County	87	50.3	40.0	62.8	30	16.9	11.3	24.5	0.34
Madison County	239	41.9	36.6	47.7	92	16.1	12.9	19.9	0.38
Shelby County	1,998	43.0	41.1	45.0	888	19.8	18.5	21.2	0.46
Tipton County	141	43.6	36.5	51.6	59	19.5	14.8	25.4	0.45
Upper-Cumberland Region	992	43.3	40.6	46.2	398	17.3	15.6	19.1	0.40
Cannon County	40	45.5	32.2	62.8	19	21.2	12.5	34.0	0.47
Clay County	30	49.8	33.2	73.3	13	20.0	10.5	36.6	0.40
Cumberland County	187	38.7	32.8	45.5	72	14.8	11.4	19.1	0.38
DeKalb County	53	43.9	32.6	58.2	24	21.0	13.3	31.7	0.48
Fentress County	62	49.5	37.4	64.7	20	15.3	9.2	24.5	0.31
Jackson County	36	44.9	30.6	64.3	22	27.7	16.8	43.7	0.62
Macon County	53	39.1	29.1	51.5	23	17.6	11.0	26.8	0.45
Overton County	83	56.4	44.5	70.6	27	19.0	12.3	28.2	0.34
Pickett County	21	52.3	31.7	84.0	^	^	^	^	^
Putnam County	164	38.3	32.5	44.8	72	16.6	12.9	21.0	0.43
Smith County	62	55.1	41.9	71.2	20	19.4	11.7	30.4	0.35
Van Buren County	19	46.7	27.1	76.7	^	^	^	^	^
Warren County	107	45.1	36.8	54.9	41	16.2	11.6	22.3	0.36
White County	75	42.5	33.2	53.8	33	18.4	12.6	26.2	0.43

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX VIII. MELANOMA OF THE SKIN INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	7,476	20.4	20.0	20.9	1,139	3.1	2.9	3.3	0.15
East Region	1,941	26.9	25.7	28.2	252	3.4	3.0	3.9	0.13
Anderson County	121	25.5	20.9	30.7	13	2.7	1.4	4.7	0.11
Blount County	245	31.1	27.2	35.4	33	4.1	2.8	5.9	0.13
Campbell County	43	16.9	12.1	23.1	^	^	^	^	^
Claiborne County	48	24.6	18.0	33.1	^	^	^	^	^
Cocke County	62	27.6	20.8	35.9	^	^	^	^	^
Grainger County	49	32.8	23.9	44.1	^	^	^	^	^
Hamblen County	122	33.1	27.3	39.7	12	3.3	1.7	5.9	0.10
Jefferson County	104	32.5	26.3	39.7	^	^	^	^	^
Knox County	621	25.3	23.3	27.4	85	3.4	2.7	4.2	0.13
Loudon County	128	34.5	28.2	41.8	14	3.7	2.0	6.7	0.11
Monroe County	58	19.9	14.9	26.1	^	^	^	^	^
Morgan County	30	24.0	16.1	34.7	^	^	^	^	^
Roane County	81	21.6	16.9	27.3	16	4.0	2.3	6.8	0.19
Scott County	23	18.4	11.5	28.0	^	^	^	^	^
Sevier County	175	29.6	25.2	34.5	24	4.3	2.7	6.5	0.15
Union County	31	30.3	20.3	43.7	^	^	^	^	^
Mid-Cumberland Region	1,646	18.3	17.4	19.3	272	3.2	2.8	3.6	0.17
Cheatham County	37	15.8	11.0	22.2	^	^	^	^	^
Davidson County	475	14.9	13.6	16.4	87	2.8	2.2	3.4	0.19
Dickson County	47	16.0	11.6	21.5	11	4.1	2.0	7.5	0.26
Houston County	13	22.9	11.8	41.1	^	^	^	^	^
Humphreys County	23	20.3	12.6	31.3	^	^	^	^	^
Montgomery County	122	16.6	13.7	19.9	24	3.5	2.2	5.3	0.21
Robertson County	65	17.9	13.7	22.9	14	4.0	2.2	6.9	0.22
Rutherford County	213	16.9	14.7	19.4	37	3.3	2.3	4.5	0.20
Stewart County	16	17.9	10.0	30.1	^	^	^	^	^
Sumner County	225	24.5	21.4	28.1	30	3.3	2.2	4.8	0.13
Trousdale County	^	^	^	^	^	^	^	^	^
Williamson County	249	25.0	21.9	28.4	33	3.8	2.6	5.4	0.15
Wilson County	157	23.6	20.0	27.8	23	3.2	2.0	4.9	0.14
Northeast Region	996	30.5	28.5	32.5	126	3.6	3.0	4.4	0.12
Carter County	99	26.9	21.6	33.1	11	2.9	1.4	5.5	0.11
Greene County	116	24.8	20.4	30.1	22	4.4	2.7	6.8	0.18
Hancock County	^	^	^	^	^	^	^	^	^
Hawkins County	117	32.4	26.6	39.2	16	4.5	2.5	7.5	0.14
Johnson County	18	15.0	8.7	24.6	^	^	^	^	^
Sullivan County	351	33.1	29.6	36.9	42	3.6	2.6	5.0	0.11
Unicoi County	40	31.3	21.9	43.8	^	^	^	^	^
Washington County	245	33.9	29.6	38.5	20	2.8	1.7	4.4	0.08
Northwest Region	247	16.0	14.0	18.2	49	2.9	2.2	3.9	0.18
Benton County	15	16.6	8.9	28.3	^	^	^	^	^
Carroll County	27	14.8	9.6	22.0	^	^	^	^	^
Crockett County	18	18.9	11.0	30.6	^	^	^	^	^
Dyer County	36	16.9	11.8	23.7	^	^	^	^	^
Gibson County	33	10.8	7.3	15.3	13	3.9	2.1	6.9	0.36
Henry County	48	22.3	16.1	30.3	^	^	^	^	^
Lake County	^	^	^	^	^	^	^	^	^
Obion County	38	19.6	13.6	27.3	^	^	^	^	^
Weakley County	26	13.1	8.3	19.6	^	^	^	^	^

APPENDIX VIII. MELANOMA OF THE SKIN INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015, CONTINUED

South Central Region	387	16.7	15.0	18.5	84	3.6	2.9	4.5	0.22
Bedford County	45	17.7	12.9	23.9	12	4.9	2.5	8.6	0.28
Coffee County	63	20.1	15.3	25.9	^	^	^	^	^
Giles County	35	18.0	12.3	25.7	^	^	^	^	^
Hickman County	19	12.2	7.2	19.6	^	^	^	^	^
Lawrence County	41	15.5	11.0	21.3	14	5.5	2.9	9.4	0.35
Lewis County	15	20.1	10.8	34.4	^	^	^	^	^
Lincoln County	30	13.0	8.7	19.0	^	^	^	^	^
Marshall County	25	14.4	9.2	21.5	^	^	^	^	^
Maury County	83	17.8	14.0	22.2	14	2.9	1.6	5.0	0.16
Moore County	^	^	^	^	^	^	^	^	^
Perry County	^	^	^	^	^	^	^	^	^
Wayne County	18	15.5	9.1	25.3	^	^	^	^	^
Southeast Region	928	23.0	21.5	24.6	140	3.5	2.9	4.1	0.15
Bledsoe County	16	19.1	10.8	31.8	^	^	^	^	^
Bradley County	95	16.4	13.2	20.2	23	3.9	2.4	5.9	0.24
Franklin County	53	19.7	14.5	26.2	^	^	^	^	^
Grundy County	^	^	^	^	^	^	^	^	^
Hamilton County	549	27.1	24.8	29.5	61	3.0	2.3	3.8	0.11
McMinn County	68	20.8	16.0	26.7	12	3.8	1.9	6.9	0.18
Marion County	45	24.5	17.6	33.4	^	^	^	^	^
Meigs County	17	19.8	11.0	33.6	^	^	^	^	^
Polk County	18	15.9	9.2	26.1	^	^	^	^	^
Rhea County	38	19.7	13.7	27.6	^	^	^	^	^
Sequatchie County	19	22.0	13.0	35.3	^	^	^	^	^
Southwest Region	775	11.2	10.4	12.1	136	2.0	1.7	2.4	0.18
Chester County	^	^	^	^	^	^	^	^	^
Decatur County	16	18.6	10.1	32.2	^	^	^	^	^
Fayette County	31	12.6	8.3	18.4	^	^	^	^	^
Hardeman County	11	7.1	3.5	13.1	^	^	^	^	^
Hardin County	29	14.6	9.6	21.7	^	^	^	^	^
Haywood County	14	11.4	6.1	19.9	^	^	^	^	^
Henderson County	27	18.1	11.8	26.6	^	^	^	^	^
Lauderdale County	23	15.4	9.7	23.4	^	^	^	^	^
McNairy County	24	14.1	8.8	21.7	^	^	^	^	^
Madison County	71	13.4	10.4	17.0	^	^	^	^	^
Shelby County	485	10.3	9.4	11.3	84	1.8	1.5	2.3	0.17
Tipton County	35	11.3	7.8	15.8	^	^	^	^	^
Upper-Cumberland Region	540	24.5	22.4	26.8	80	3.5	2.7	4.4	0.14
Cannon County	21	21.6	13.2	33.9	^	^	^	^	^
Clay County	12	19.0	9.7	35.6	^	^	^	^	^
Cumberland County	147	31.4	25.9	37.8	16	2.8	1.6	5.0	0.09
DeKalb County	22	19.1	11.7	29.6	^	^	^	^	^
Fentress County	27	25.3	16.2	37.9	^	^	^	^	^
Jackson County	17	22.3	12.6	37.2	^	^	^	^	^
Macon County	28	21.0	13.8	30.9	^	^	^	^	^
Overton County	29	23.0	15.2	33.4	^	^	^	^	^
Pickett County	^	^	^	^	^	^	^	^	^
Putnam County	90	22.1	17.7	27.3	11	2.5	1.2	4.6	0.11
Smith County	18	16.8	9.8	27.0	^	^	^	^	^
Van Buren County	11	24.8	12.0	47.9	^	^	^	^	^
Warren County	63	27.0	20.6	34.8	14	6.1	3.3	10.4	0.23
White County	49	28.3	20.7	38.1	^	^	^	^	^

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+).

Rates are for invasive cancer only (except bladder cancer which is invasive and in situ) or unless otherwise specified.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX IX. PANCREATIC CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	4,638	12.1	11.8	12.5	4,213	11.1	10.7	11.4	0.92
East Region	962	12.4	11.6	13.2	870	11.1	10.4	11.9	0.90
Anderson County	51	9.3	6.9	12.4	45	8.1	5.9	11.0	0.87
Blount County	104	12.1	9.8	14.8	89	10.2	8.2	12.7	0.84
Campbell County	31	10.9	7.4	15.8	24	8.6	5.5	13.1	0.79
Claiborne County	26	13.2	8.5	19.8	23	11.7	7.3	17.8	0.89
Cocke County	40	15.6	11.0	21.7	34	12.8	8.8	18.3	0.82
Grainger County	22	15.8	9.8	24.5	16	12.2	6.9	20.2	0.77
Hamblen County	47	11.4	8.4	15.4	36	8.4	5.8	11.7	0.74
Jefferson County	45	11.8	8.5	16.0	40	11.0	7.8	15.2	0.93
Knox County	317	12.3	11.0	13.8	307	11.9	10.6	13.3	0.97
Loudon County	68	15.6	12.0	20.2	66	15.0	11.6	19.5	0.96
Monroe County	56	18.2	13.5	24.0	46	14.9	10.8	20.2	0.82
Morgan County	^	^	^	^	^	^	^	^	^
Roane County	42	10.7	7.6	14.8	43	10.6	7.6	14.6	0.99
Scott County	16	11.8	6.7	19.6	^	^	^	^	^
Sevier County	70	11.1	8.6	14.2	65	10.5	8.0	13.5	0.95
Union County	21	19.1	11.6	29.8	19	17.4	10.3	27.8	0.91
Mid-Cumberland Region	1,065	12.0	11.2	12.7	917	10.5	9.8	11.2	0.88
Cheatham County	35	15.2	10.4	21.5	31	14.5	9.6	20.9	0.95
Davidson County	414	13.4	12.1	14.8	360	11.7	10.5	13.0	0.87
Dickson County	34	11.6	8.0	16.3	30	10.3	6.9	14.8	0.89
Houston County	^	^	^	^	^	^	^	^	^
Humphreys County	^	^	^	^	^	^	^	^	^
Montgomery County	82	12.0	9.5	15.0	71	11.0	8.5	13.9	0.92
Robertson County	45	12.5	9.0	16.9	40	10.6	7.5	14.6	0.85
Rutherford County	116	9.7	8.0	11.7	106	9.2	7.5	11.2	0.95
Stewart County	15	16.1	8.9	27.6	^	^	^	^	^
Sumner County	111	11.1	9.1	13.4	91	9.3	7.4	11.5	0.84
Trousdale County	13	28.7	15.0	50.1	^	^	^	^	^
Williamson County	88	8.8	7.0	10.9	72	7.3	5.7	9.3	0.83
Wilson County	97	13.8	11.1	17.0	80	11.9	9.4	14.9	0.86
Northeast Region	441	12.2	11.0	13.4	408	11.3	10.2	12.5	0.93
Carter County	50	12.1	8.9	16.2	44	10.7	7.8	14.6	0.88
Greene County	49	9.8	7.2	13.1	43	8.9	6.4	12.2	0.91
Hancock County	^	^	^	^	11	22.9	11.2	43.2	^
Hawkins County	55	14.1	10.5	18.6	52	13.3	9.8	17.6	0.94
Johnson County	15	11.0	6.1	19.0	13	9.8	5.2	17.6	0.89
Sullivan County	141	12.0	10.1	14.3	122	10.3	8.5	12.3	0.86
Unicoi County	23	16.6	10.5	25.8	22	14.9	9.3	23.4	0.90
Washington County	99	12.0	9.8	14.8	101	12.6	10.3	15.5	1.05
Northwest Region	186	10.9	9.4	12.7	191	11.2	9.6	13.0	1.03
Benton County	20	15.6	9.3	25.2	17	14.0	7.9	23.5	0.90
Carroll County	18	8.7	5.1	14.2	25	12.0	7.7	18.2	1.38
Crockett County	^	^	^	^	^	^	^	^	^
Dyer County	21	9.2	5.7	14.2	20	8.9	5.4	13.9	0.97
Gibson County	41	12.4	8.8	17.1	44	13.0	9.4	17.7	1.05
Henry County	27	11.4	7.4	17.1	25	10.5	6.6	16.0	0.92
Lake County	^	^	^	^	^	^	^	^	^
Obion County	28	12.8	8.4	18.9	28	13.2	8.7	19.5	1.03
Weakley County	19	9.5	5.7	15.0	20	9.3	5.7	14.6	0.98

APPENDIX IX. PANCREATIC CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015,
CONTINUED

South Central Region	285	11.5	10.2	13.0	266	10.9	9.6	12.3	0.95
Bedford County	26	9.8	6.3	14.5	29	11.5	7.6	16.6	1.17
Coffee County	33	9.7	6.6	13.8	36	10.5	7.4	14.8	1.08
Giles County	24	12.2	7.6	18.7	24	12.1	7.6	18.6	0.99
Hickman County	26	17.0	11.0	25.4	19	12.0	7.1	19.2	0.71
Lawrence County	19	6.6	4.0	10.6	21	7.8	4.8	12.1	1.18
Lewis County	^	^	^	^	^	^	^	^	^
Lincoln County	30	13.5	9.0	19.5	23	10.4	6.5	15.8	0.77
Marshall County	28	15.1	9.9	22.1	26	13.9	9.0	20.7	0.92
Maury County	67	12.9	10.0	16.6	55	10.8	8.1	14.2	0.84
Moore County	^	^	^	^	^	^	^	^	^
Perry County	^	^	^	^	^	^	^	^	^
Wayne County	14	11.7	6.3	20.3	16	13.8	7.8	23.0	1.18
Southeast Region	528	12.1	11.1	13.2	459	10.4	9.5	11.4	0.86
Bledsoe County	15	14.7	8.2	25.4	11	12.2	5.9	23.0	0.83
Bradley County	63	9.9	7.6	12.8	50	8.0	5.9	10.7	0.81
Franklin County	33	11.7	8.0	16.8	29	9.9	6.5	14.5	0.85
Grundy County	13	14.3	7.3	25.8	^	^	^	^	^
Hamilton County	268	12.3	10.9	14.0	232	10.5	9.2	12.0	0.85
McMinn County	44	12.3	8.8	16.7	41	11.1	7.9	15.2	0.90
Marion County	39	19.2	13.5	26.8	37	17.7	12.3	24.9	0.92
Meigs County	11	12.6	6.0	24.2	12	14.1	7.0	26.3	1.12
Polk County	13	11.9	6.3	21.1	12	11.1	5.7	20.1	0.93
Rhea County	23	10.2	6.4	15.7	22	10.1	6.3	15.6	0.99
Sequatchie County	^	^	^	^	^	^	^	^	^
Southwest Region	890	12.8	11.9	13.7	828	12.0	11.2	12.9	0.94
Chester County	16	16.1	9.1	26.7	13	13.0	6.8	22.6	0.81
Decatur County	^	^	^	^	^	^	^	^	^
Fayette County	35	12.7	8.8	18.1	27	9.7	6.3	14.5	0.76
Hardeman County	22	13.6	8.4	21.1	16	10.8	6.1	17.8	0.79
Hardin County	19	10.5	6.2	17.0	18	9.6	5.5	15.8	0.91
Haywood County	17	14.9	8.5	24.6	17	13.9	8.0	22.9	0.93
Henderson County	21	12.0	7.4	18.7	21	12.9	7.9	20.1	1.08
Lauderdale County	20	12.7	7.7	19.8	17	10.8	6.2	17.5	0.85
McNairy County	24	13.3	8.4	20.3	23	12.7	7.9	19.6	0.95
Madison County	64	11.4	8.7	14.6	59	10.4	7.9	13.5	0.91
Shelby County	609	13.3	12.2	14.4	577	12.7	11.7	13.8	0.95
Tipton County	35	10.0	6.9	14.0	31	9.1	6.1	13.1	0.91
Upper-Cumberland Region	279	11.5	10.2	13.0	274	11.4	10.1	12.9	0.99
Cannon County	11	11.2	5.5	20.9	12	12.4	6.4	22.5	1.11
Clay County	^	^	^	^	^	^	^	^	^
Cumberland County	60	12.0	8.9	16.1	57	11.6	8.5	15.6	0.97
DeKalb County	15	10.4	5.7	18.0	^	^	^	^	^
Fentress County	16	11.9	6.7	20.2	14	10.3	5.5	18.1	0.87
Jackson County	^	^	^	^	^	^	^	^	^
Macon County	19	14.1	8.4	22.4	24	17.5	11.2	26.4	1.24
Overton County	23	14.7	9.2	22.7	16	10.1	5.7	17.0	0.69
Pickett County	^	^	^	^	^	^	^	^	^
Putnam County	49	11.0	8.1	14.7	49	11.0	8.1	14.7	1.00
Smith County	^	^	^	^	^	^	^	^	^
Van Buren County	^	^	^	^	^	^	^	^	^
Warren County	35	14.4	10.0	20.2	42	17.2	12.3	23.5	1.19
White County	21	12.0	7.3	18.8	23	12.4	7.8	19.0	1.03

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX X. CHILDHOOD CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015

	Incidence				Mortality				M:I
	Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
Tennessee	1,531	18.4	17.5	19.3	204	2.5	2.1	2.8	0.14
East Region	268	18.7	16.5	21.1	36	2.5	1.7	3.5	0.13
Anderson County	23	26.1	16.6	39.2	^	^	^	^	^
Blount County	28	19.4	12.9	28.1	^	^	^	^	^
Campbell County	^	^	^	^	^	^	^	^	^
Claiborne County	^	^	^	^	^	^	^	^	^
Cocke County	^	^	^	^	^	^	^	^	^
Grainger County	^	^	^	^	^	^	^	^	^
Hamblen County	21	26.5	16.4	40.5	^	^	^	^	^
Jefferson County	12	18.8	9.7	33.0	^	^	^	^	^
Knox County	90	16.3	13.1	20.1	15	2.7	1.5	4.5	0.17
Loudon County	14	25.5	13.9	42.7	^	^	^	^	^
Monroe County	12	21.9	11.3	38.3	^	^	^	^	^
Morgan County	^	^	^	^	^	^	^	^	^
Roane County	^	^	^	^	^	^	^	^	^
Scott County	^	^	^	^	^	^	^	^	^
Sevier County	23	20.9	13.2	31.3	^	^	^	^	^
Union County	^	^	^	^	^	^	^	^	^
Mid-Cumberland Region	421	17.1	15.5	18.8	53	2.2	1.6	2.9	0.13
Cheatham County	13	25.5	13.5	43.7	^	^	^	^	^
Davidson County	129	15.6	13.0	18.6	20	2.6	1.6	4.1	0.17
Dickson County	^	^	^	^	^	^	^	^	^
Houston County	^	^	^	^	^	^	^	^	^
Humphreys County	^	^	^	^	^	^	^	^	^
Montgomery County	57	20.1	15.2	26.1	^	^	^	^	^
Robertson County	16	17.4	10.0	28.3	^	^	^	^	^
Rutherford County	63	15.7	12.0	20.0	^	^	^	^	^
Stewart County	^	^	^	^	^	^	^	^	^
Sumner County	31	13.7	9.3	19.5	^	^	^	^	^
Trousdale County	^	^	^	^	^	^	^	^	^
Williamson County	58	20.3	15.4	26.4	^	^	^	^	^
Wilson County	28	17.4	11.5	25.1	^	^	^	^	^
Northeast Region	132	23.3	19.4	27.6	12	2.1	1.1	3.7	0.09
Carter County	17	28.2	16.4	45.1	^	^	^	^	^
Greene County	18	23.2	13.7	36.9	^	^	^	^	^
Hancock County	^	^	^	^	^	^	^	^	^
Hawkins County	14	20.9	11.4	35.3	^	^	^	^	^
Johnson County	^	^	^	^	^	^	^	^	^
Sullivan County	44	25.2	18.3	33.8	^	^	^	^	^
Unicoi County	^	^	^	^	^	^	^	^	^
Washington County	29	20.0	13.4	28.8	^	^	^	^	^
Northwest Region	52	16.4	12.2	21.5	^	^	^	^	^
Benton County	^	^	^	^	^	^	^	^	^
Carroll County	^	^	^	^	^	^	^	^	^
Crockett County	^	^	^	^	^	^	^	^	^
Dyer County	12	23.7	12.2	41.4	^	^	^	^	^
Gibson County	^	^	^	^	^	^	^	^	^
Henry County	^	^	^	^	^	^	^	^	^
Lake County	^	^	^	^	^	^	^	^	^
Obion County	^	^	^	^	^	^	^	^	^
Weakley County	^	^	^	^	^	^	^	^	^

APPENDIX X. CHILDHOOD CANCER INCIDENCE AND MORTALITY, BY RESIDENT COUNTY, TENNESSEE, 2011-2015,
CONTINUED

South Central Region	105	21.2	17.4	25.7	15	3.0	1.7	5.0	0.14
Bedford County	14	21.5	11.8	36.1	^	^	^	^	^
Coffee County	12	17.3	8.9	30.1	^	^	^	^	^
Giles County	^	^	^	^	^	^	^	^	^
Hickman County	^	^	^	^	^	^	^	^	^
Lawrence County	19	33.1	19.9	51.7	^	^	^	^	^
Lewis County	^	^	^	^	^	^	^	^	^
Lincoln County	11	27.3	13.6	48.9	^	^	^	^	^
Marshall County	^	^	^	^	^	^	^	^	^
Maury County	24	21.5	13.7	32.0	^	^	^	^	^
Moore County	^	^	^	^	^	^	^	^	^
Perry County	^	^	^	^	^	^	^	^	^
Wayne County	^	^	^	^	^	^	^	^	^
Southeast Region	154	18.8	15.9	22.0	18	2.2	1.3	3.5	0.12
Bledsoe County	^	^	^	^	^	^	^	^	^
Bradley County	26	19.9	13.0	29.2	^	^	^	^	^
Franklin County	^	^	^	^	^	^	^	^	^
Grundy County	^	^	^	^	^	^	^	^	^
Hamilton County	70	16.7	13.0	21.1	^	^	^	^	^
McMinn County	11	17.1	8.5	30.6	^	^	^	^	^
Marion County	^	^	^	^	^	^	^	^	^
Meigs County	^	^	^	^	^	^	^	^	^
Polk County	^	^	^	^	^	^	^	^	^
Rhea County	^	^	^	^	^	^	^	^	^
Sequatchie County	^	^	^	^	^	^	^	^	^
Southwest Region	317	17.3	15.5	19.3	55	3.0	2.3	3.9	0.17
Chester County	^	^	^	^	^	^	^	^	^
Decatur County	^	^	^	^	^	^	^	^	^
Fayette County	12	26.9	13.9	47.0	^	^	^	^	^
Hardeman County	^	^	^	^	^	^	^	^	^
Hardin County	^	^	^	^	^	^	^	^	^
Haywood County	^	^	^	^	^	^	^	^	^
Henderson County	^	^	^	^	^	^	^	^	^
Lauderdale County	^	^	^	^	^	^	^	^	^
McNairy County	^	^	^	^	^	^	^	^	^
Madison County	17	12.8	7.5	20.6	^	^	^	^	^
Shelby County	228	17.0	14.9	19.4	41	3.1	2.2	4.2	0.18
Tipton County	16	18.6	10.6	30.3	^	^	^	^	^
Upper-Cumberland Region	81	19.6	15.5	24.3	^	^	^	^	^
Cannon County	^	^	^	^	^	^	^	^	^
Clay County	^	^	^	^	^	^	^	^	^
Cumberland County	^	^	^	^	^	^	^	^	^
DeKalb County	^	^	^	^	^	^	^	^	^
Fentress County	^	^	^	^	^	^	^	^	^
Jackson County	^	^	^	^	^	^	^	^	^
Macon County	^	^	^	^	^	^	^	^	^
Overton County	^	^	^	^	^	^	^	^	^
Pickett County	^	^	^	^	^	^	^	^	^
Putnam County	15	15.8	8.8	26.2	^	^	^	^	^
Smith County	^	^	^	^	^	^	^	^	^
Van Buren County	^	^	^	^	^	^	^	^	^
Warren County	11	21.3	10.6	38.2	^	^	^	^	^
White County	^	^	^	^	^	^	^	^	^

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 1,000,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX XI. CANCER INCIDENCE AND MORTALITY OF COMMON CANCERS, THREE-YEAR MOVING AVERAGE, TENNESSEE, 2011-2015

Cancer Site	Year	Incidence				Mortality				M:I
		Count*	Rate**	Lower CI	Upper CI	Count*	Rate**	Lower CI	Upper CI	Ratio †
All Sites	2011-2013	104,313	468.8	465.9	471.7	41,031	186.3	184.5	188.2	0.40
	2012-2014	104,571	460.5	457.7	463.4	41,723	185.1	183.3	186.9	0.40
	2013-2015	106,214	458.2	455.4	461.0	42,265	183.2	181.4	185.0	0.40
Lung and Bronchus	2011-2013	17,155	75.9	74.8	77.1	12,918	57.7	56.7	58.8	0.76
	2012-2014	17,444	75.4	74.2	76.5	13,058	57.0	56.0	58.0	0.76
	2013-2015	17,920	75.6	74.5	76.8	13,072	55.6	54.6	56.6	0.74
Female Breast	2011-2013	14,631	123.4	121.4	125.5	2,691	22.0	21.2	22.9	0.18
	2012-2014	14,736	122.8	120.8	124.8	2,735	22.0	21.2	22.9	0.18
	2013-2015	14,998	122.9	120.9	125.0	2,765	21.9	21.0	22.7	0.18
Prostate	2011-2013	13,196	121.6	119.5	123.8	1,660	20.0	19.0	21.0	0.16
	2012-2014	12,212	109.2	107.2	111.2	1,666	19.4	18.4	20.3	0.18
	2013-2015	12,229	106.4	104.4	108.3	1,707	19.2	18.3	20.2	0.18
Colon and Rectum	2011-2013	8,869	40.4	39.5	41.2	3,635	16.7	16.2	17.3	0.41
	2012-2014	9,093	40.6	39.7	41.4	3,542	15.9	15.4	16.5	0.39
	2013-2015	9,161	40.0	39.1	40.8	3,554	15.6	15.1	16.2	0.39
Melanoma of the Skin	2011-2013	4,373	20.3	19.7	21.0	679	3.1	2.9	3.4	0.15
	2012-2014	4,358	19.8	19.2	20.5	673	3.1	2.8	3.3	0.16
	2013-2015	4,607	20.5	19.9	21.2	705	3.1	2.9	3.3	0.15
Pancreas	2011-2013	2,680	12.0	11.5	12.4	2,422	10.9	10.5	11.3	0.91
	2012-2014	2,795	12.2	11.7	12.7	2,556	11.2	10.8	11.6	0.92
	2013-2015	2,902	12.4	11.9	12.8	2,644	11.3	10.9	11.7	0.91

^Statistic not displayed due to fewer than 11 cases.

*Total counts exclude hermaphrodites and transsexuals.

**Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified.

†Mortality incidence ratio. See Technical Notes for details.

Note the case totals for each region may not sum up to the state total due to records missing resident county information.

APPENDIX XII. NUMBER OF DEATHS AND YEARS OF POTENTIAL LIFE LOST, BY GENDER AND RACE, TENNESSEE, 2011-2015

2011-2015 Number of Deaths and Years of Potential Life Lost to Cancer, by Gender and Race									
Gender	Race	2011	2012	2013	2014	2015	2011-2015 Total	YPLL*	AYPLL**
Both†	All Races‡	13,461	13,632	13,938	14,153	14,174	69,358	579,613	8.4
	Black	1,950	1,935	1,954	2,041	1,925	9,805	104,496	10.7
	White	11,430	11,591	11,876	11,983	11,933	58,813	466,368	7.9
Female	All Races‡	6,161	6,219	6,352	6,512	6,486	31,730	263,776	8.3
	Black Females	920	884	980	1,020	905	4,709	50,154	10.7
	White Females	5,197	5,280	5,313	5,435	5,427	26,652	209,229	7.9
Male	All Races‡	7,300	7,413	7,586	7,641	7,688	37,628	315,834	8.4
	Black Males	1,030	1,051	974	1,021	1,020	5,096	54,342	10.7
	White Males	6,233	6,311	6,563	6,548	6,506	32,161	257,136	8.0

*YPLL represents Years of Potential Life Lost.

**AYPLL represents Average Years of Potential Life Lost.

† Excludes hermaphrodites and transsexuals.

‡ Includes blacks, whites, other races, and those missing race information.

APPENDIX XIII. NUMBER OF DEATHS AND YEARS OF POTENTIAL LIFE LOST, BY CANCER SITE, TENNESSEE, 2011-2015

2011-2015 Number of Deaths and Years of Potential Life Lost to Cancer, by Primary Cancer Site									
Primary Cancer Site	2011	2012	2013	2014	2015	2011-2015 Total	YPLL*	AYPLL**	
Brain & Other CNS	320	332	383	380	316	1,731	24,375	14.1	
Female Breast	862	905	924	906	935	4,532	45,820	10.1	
Colorectal	1,242	1,181	1,212	1,149	1,193	5,977	44,924	7.5	
Corpus and Uterus	159	166	169	181	208	883	6,966	7.9	
Esophagus	313	307	323	336	327	1,606	15,787	9.8	
Kidney & Renal Pelvis	314	289	363	312	319	1,597	13,129	8.2	
Leukemia	502	542	505	518	450	2,517	19,653	7.8	
Liver & Intrahepatic Bile Duct	480	528	503	543	593	2,647	27,212	10.3	
Lung	4,289	4,327	4,302	4,429	4,341	21,688	163,992	7.6	
Melanoma of the Skin	221	213	245	215	245	1,139	11,554	10.1	
NH Lymphoma	431	430	441	471	487	2,260	13,874	6.1	
Oral Cavity and Pharynx	238	210	225	251	224	1,148	11,956	10.4	
Ovary	321	316	294	318	327	1,576	13,210	8.4	
Pancreas	783	786	853	917	874	4,213	32,564	7.7	
Prostate	574	545	541	580	586	2,826	9,497	3.4	
Stomach	211	247	220	202	218	1,098	10,034	9.1	
Urinary Bladder	267	306	324	317	328	1,542	7,210	4.7	

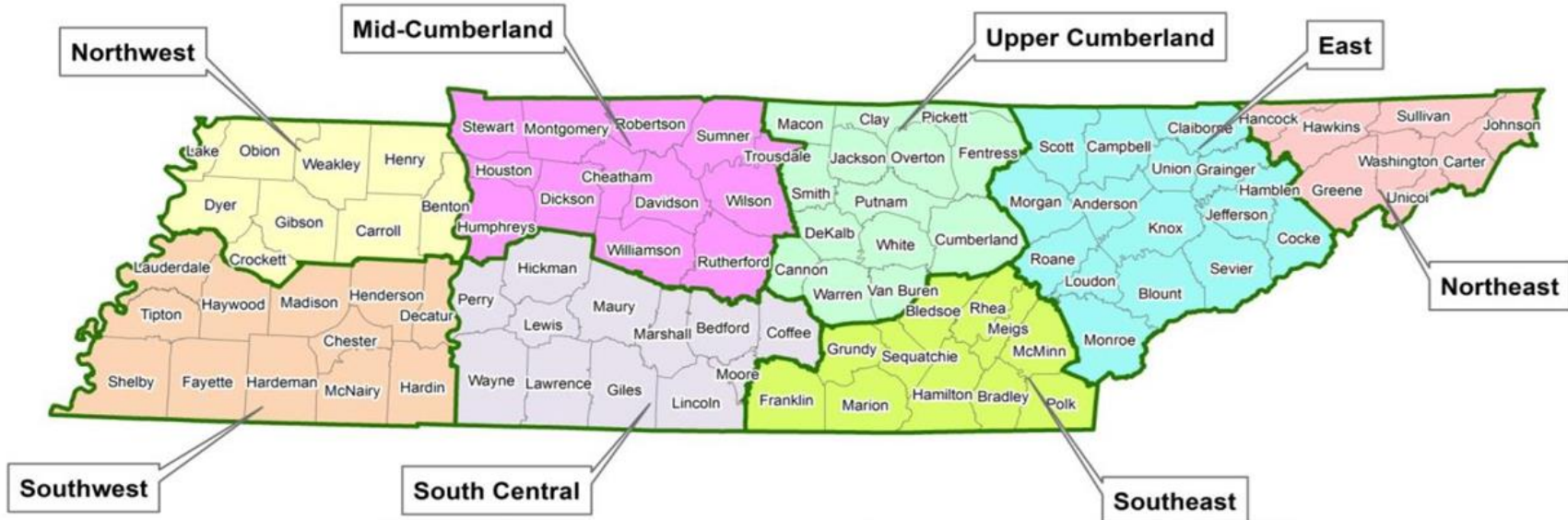
*YPLL represents Years of Potential Life Lost.

**AYPLL represents Average Years of Potential Life Lost.

MAPS

APPENDIX XIV. COUNTY MAPS OF INCIDENCE AND MORTALITY RATES OF ALL CANCER SITES COMBINED AND COMMON CANCERS

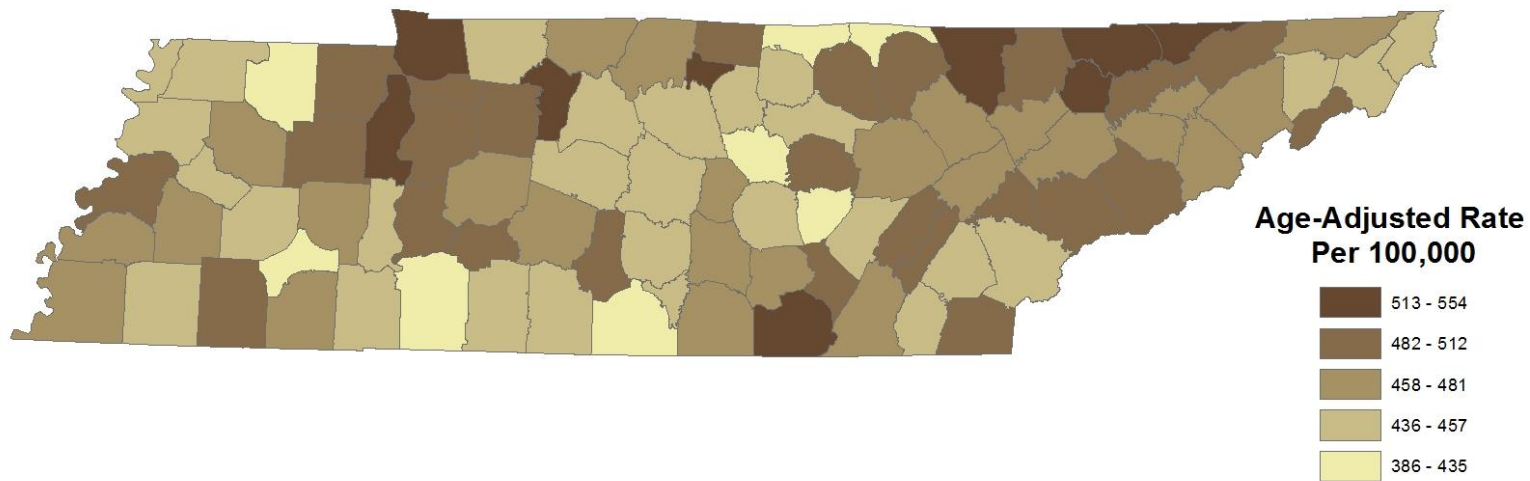
1. TENNESSEE COUNTIES AND REGIONAL GROUPINGS



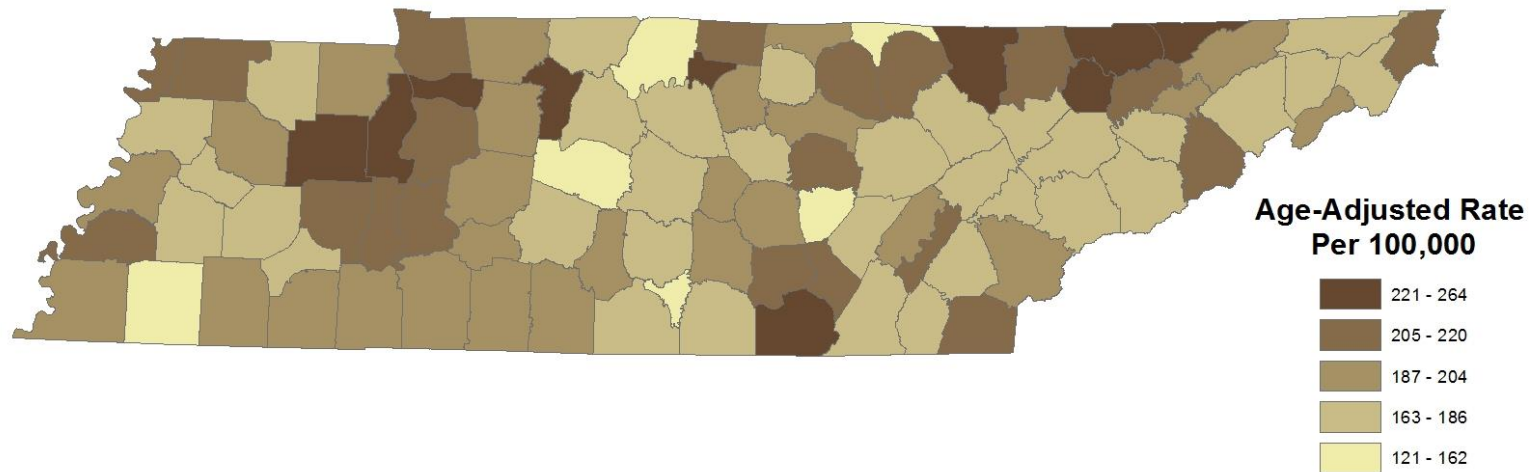
Northwest	Southwest	Mid-Cumberland	South Central	Upper-Cumberland	Southeast	East	Northeast
Benton	Chester	Cheatham	Bedford	Cannon	Bledsoe	Anderson	Carter
Carroll	Decatur	Davidson	Coffee	Clay	Bradley	Blount	Greene
Crockett	Fayette	Dickson	Giles	Cumberland	Franklin	Campbell	Hancock
Dyer	Hardeman	Houston	Hickman	DeKalb	Grundy	Claiborne	Hawkins
Gibson	Hardin	Humphreys	Lawrence	Fentress	Hamilton	Cocke	Johnson
Henry	Haywood	Montgomery	Lewis	Jackson	McMinn	Grainger	Sullivan
Lake	Henderson	Robertson	Lincoln	Macon	Marion	Hamblen	Unicoi
Obion	Lauderdale	Rutherford	Marshall	Overton	Meigs	Jefferson	Washington
Weakley	McNairy	Stewart	Maury	Pickett	Polk	Knox	
	Madison	Summer	Moore	Putnam	Rhea	Loudon	
	Shelby	Trousdale	Perry	Smith	Sequatchie	Monroe	
	Tipton	Williamson	Wayne	Van Buren		Morgan	
		Wilson		Warren		Roane	
				White		Scott	
						Sevier	
						Union	

2. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, ALL SITES COMBINED, TENNESSEE, 2011-2015

Incidence



Mortality

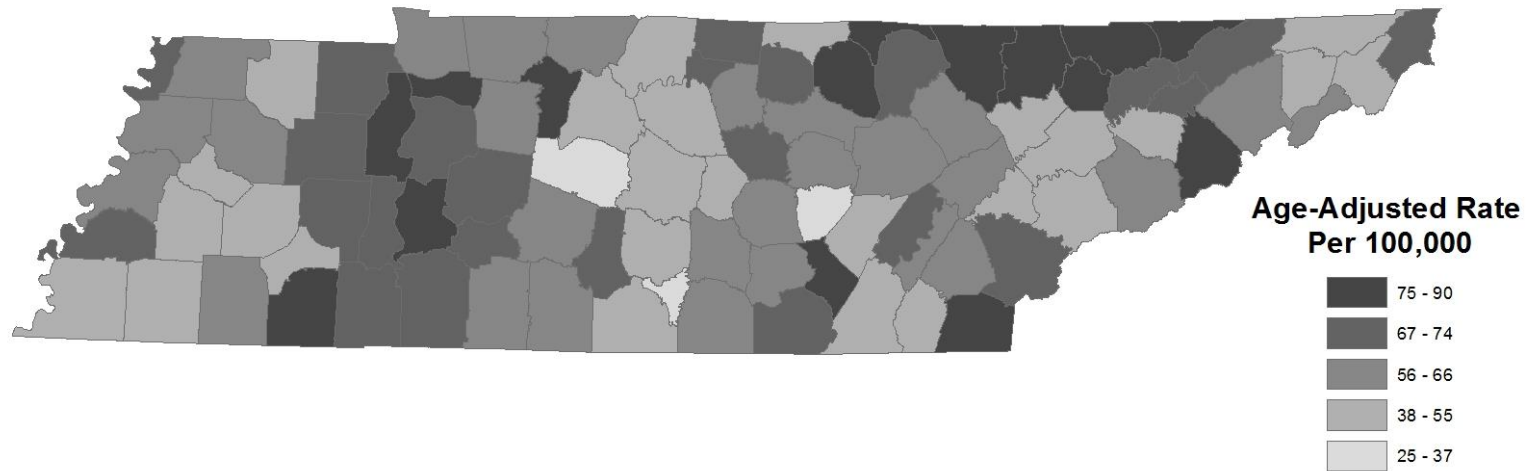


3. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, LUNG, TENNESSEE, 2011-2015

Incidence

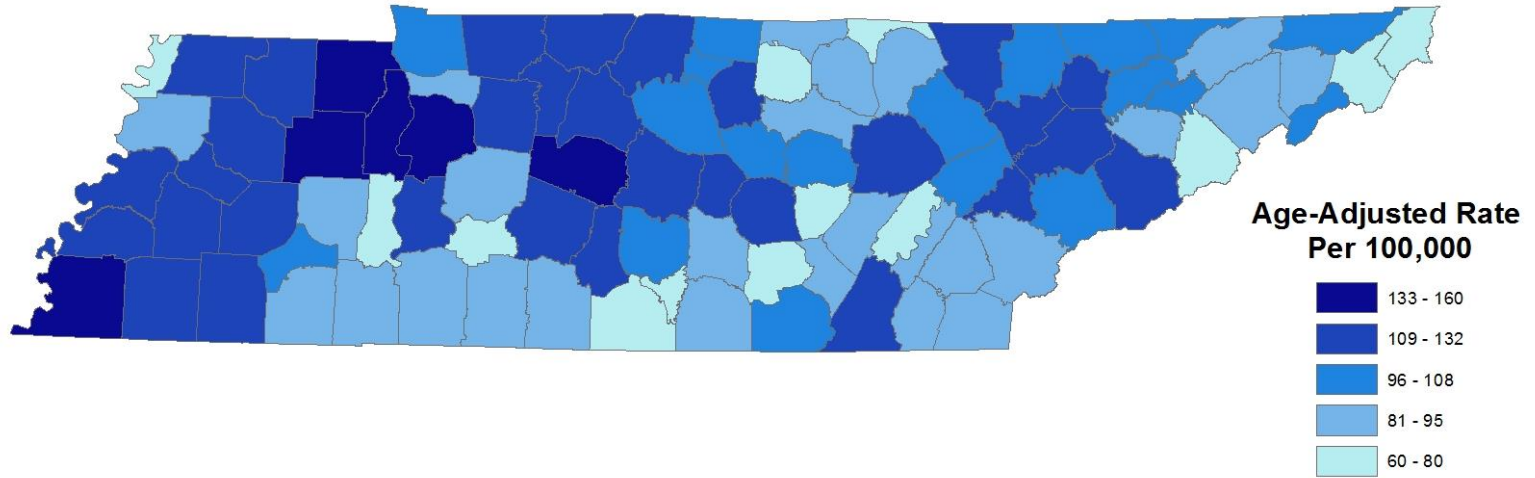


Mortality

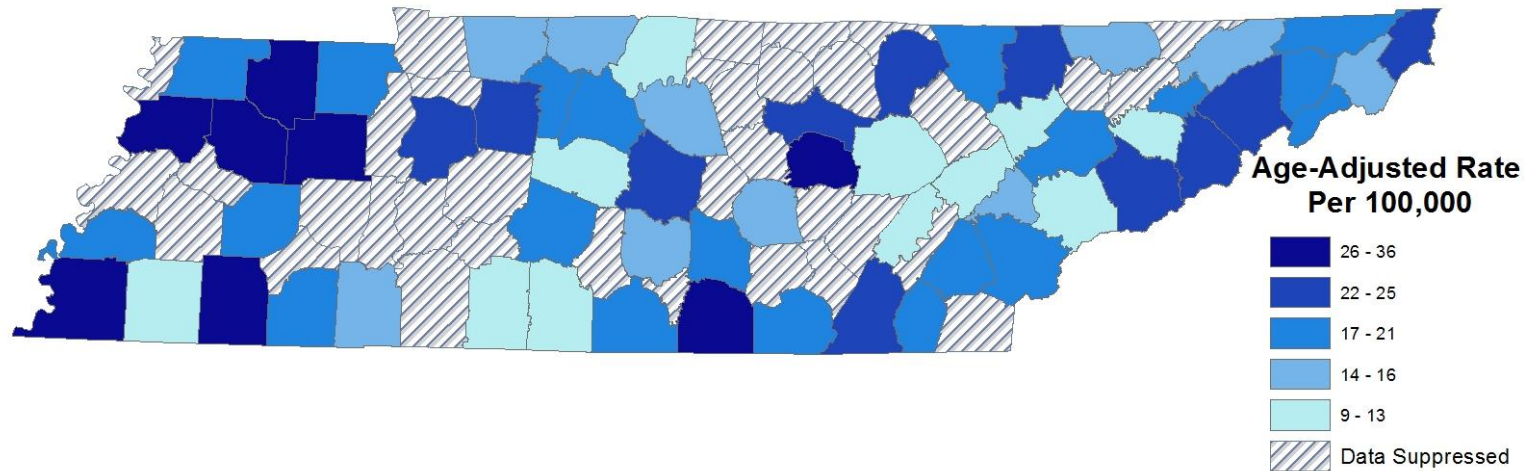


4. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, PROSTATE, TENNESSEE, 2011-2015

Incidence

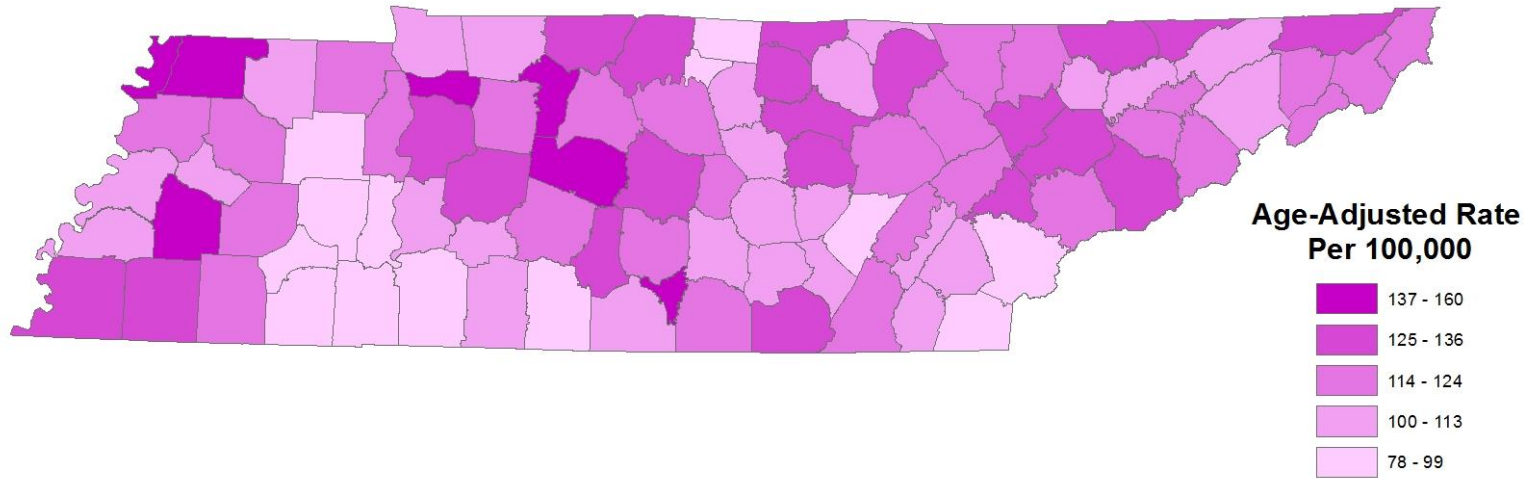


Mortality

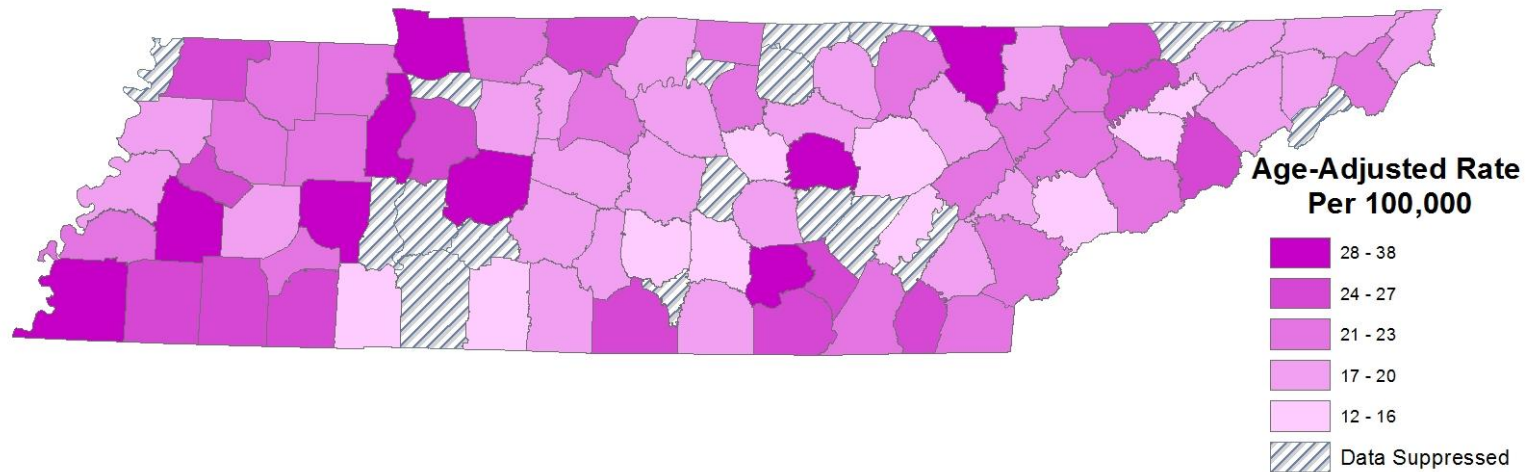


5. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, FEMALE BREAST, TENNESSEE, 2011-2015

Incidence

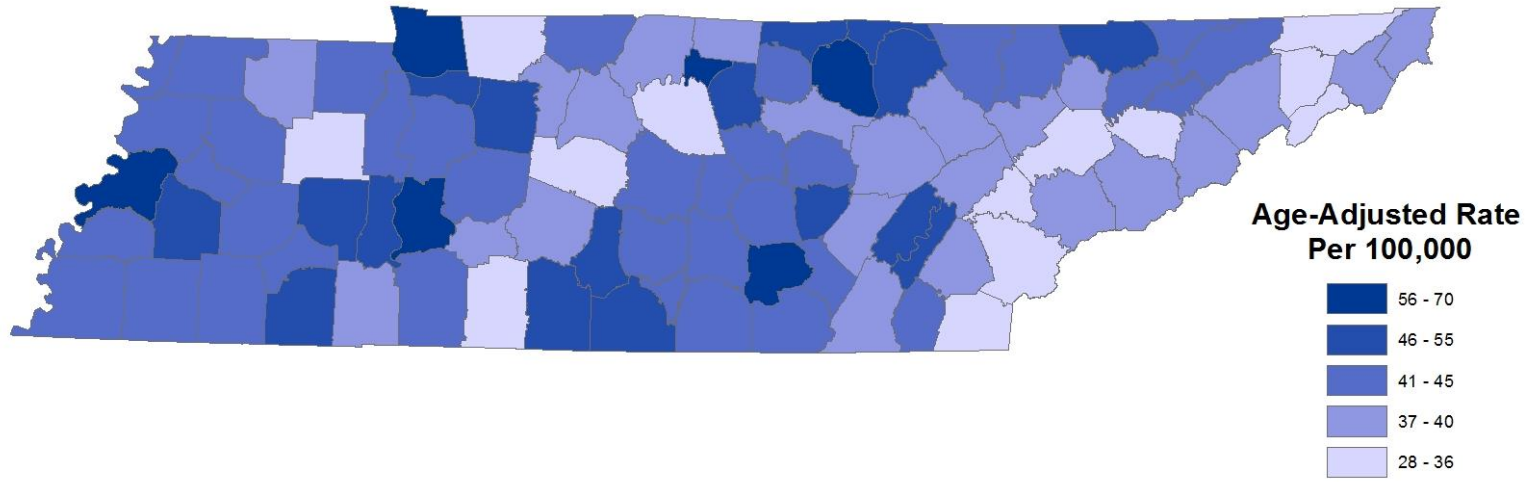


Mortality

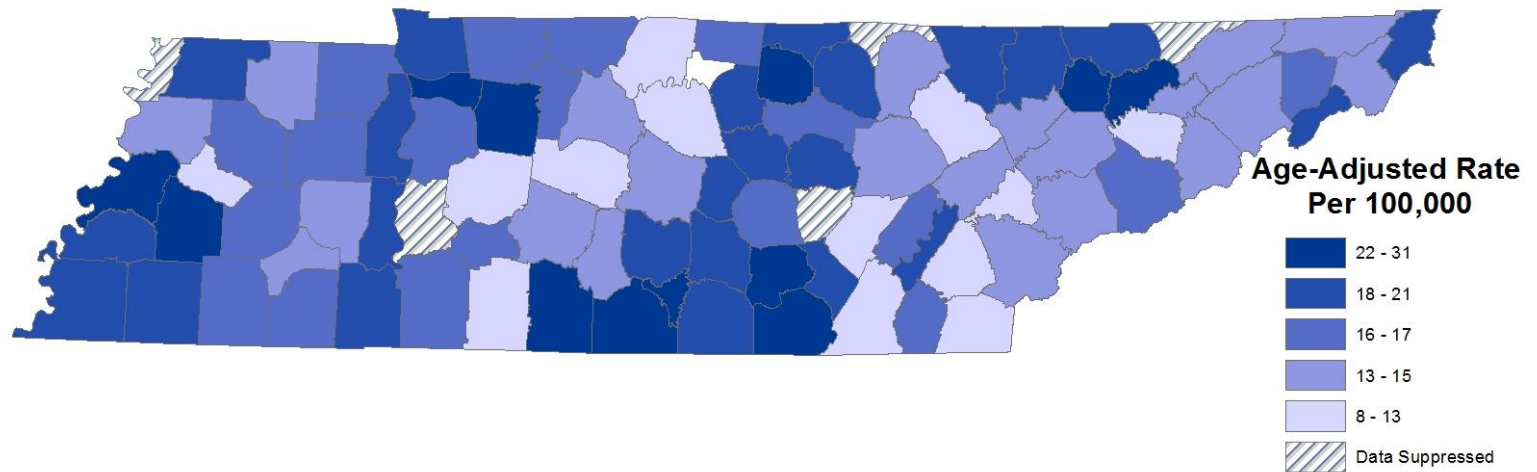


6. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, COLON AND RECTUM, TENNESSEE, 2011-2015

Incidence

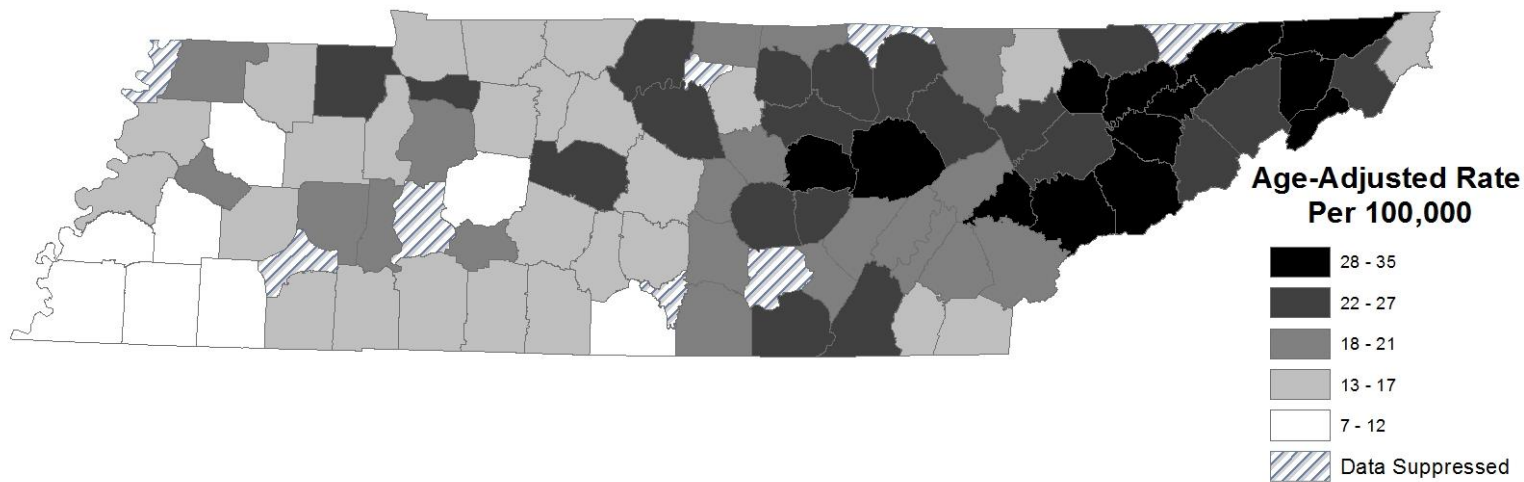


Mortality



7. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, MELANOMA OF THE SKIN, TENNESSEE, 2011-2015

Incidence

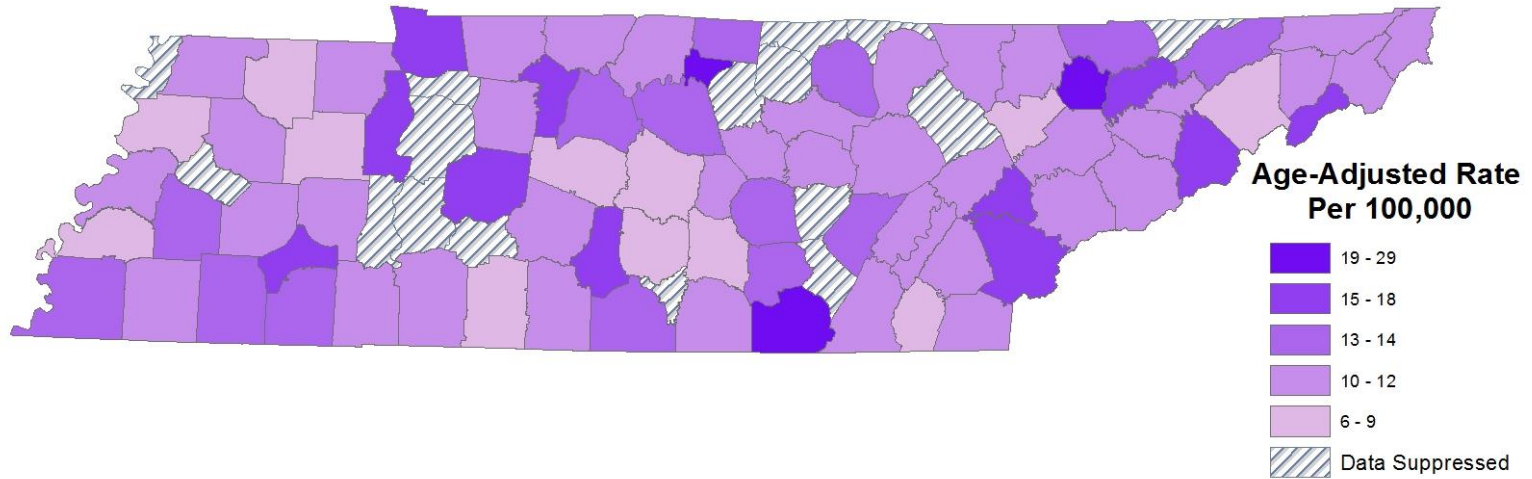


Mortality

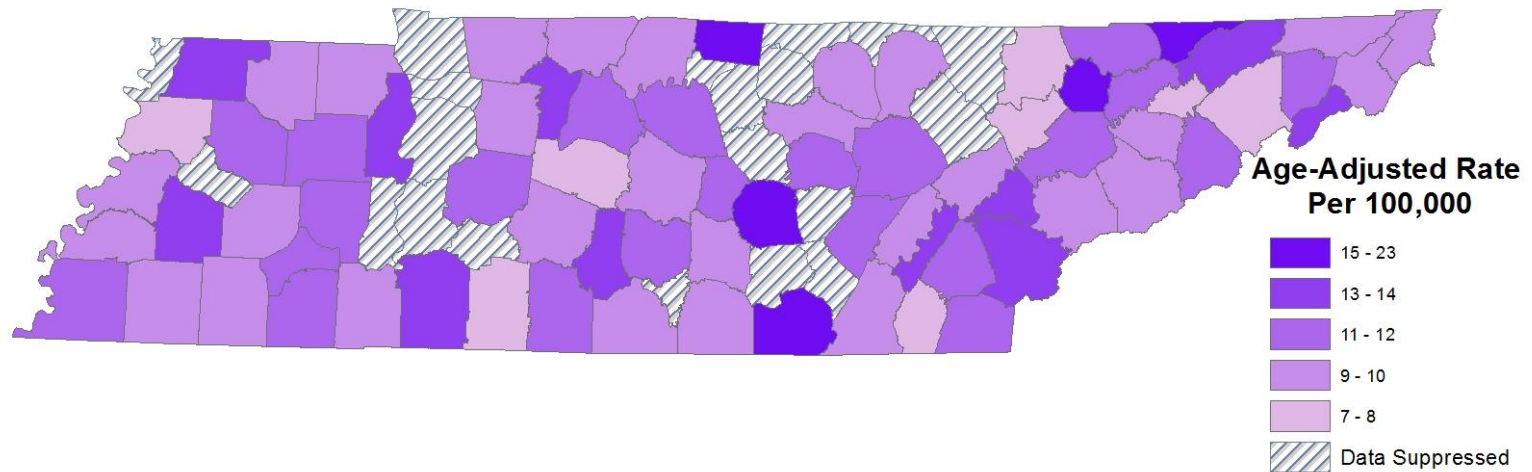


8. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, PANCREAS, TENNESSEE, 2011-2015

Incidence

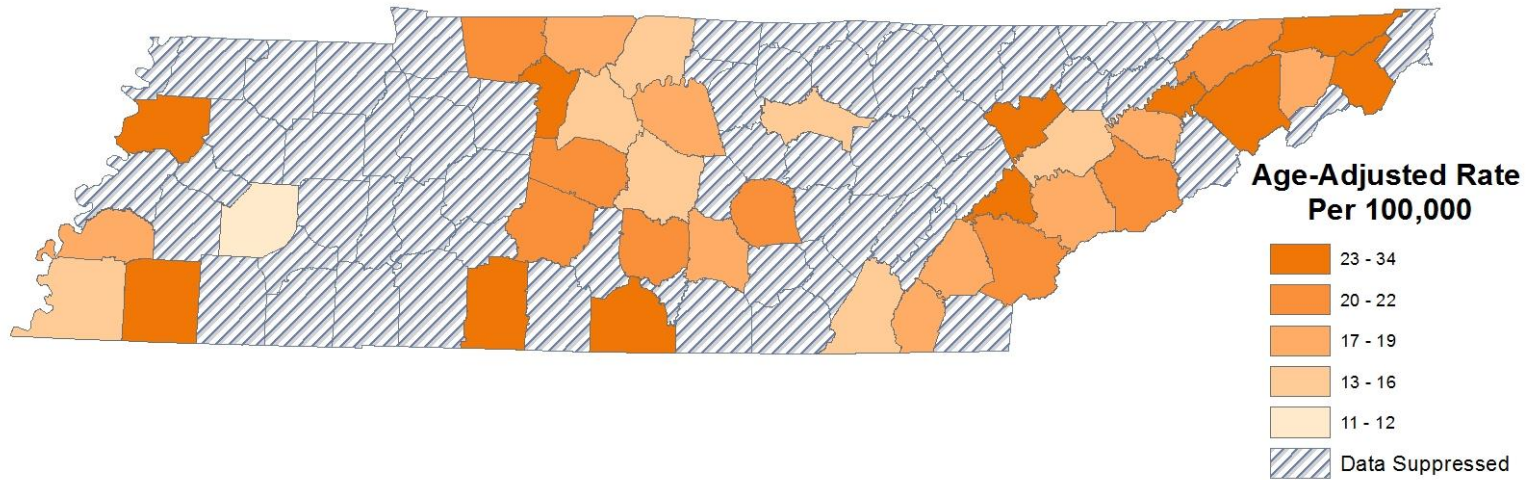


Mortality

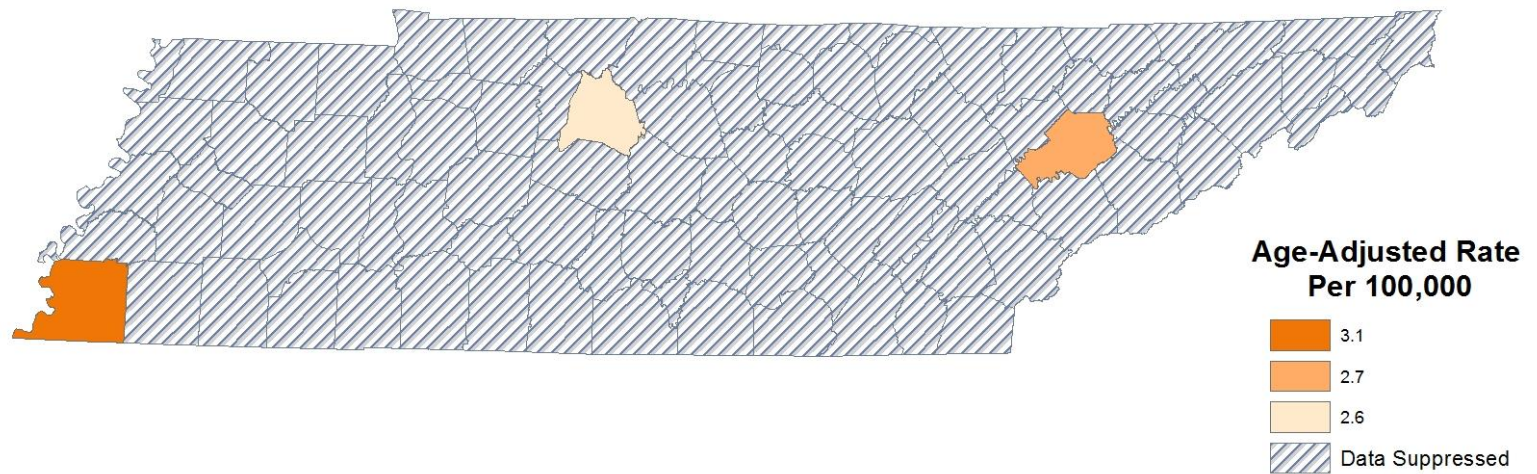


9. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, CHILDHOOD CANCER (0-19 YEARS OF AGE), TENNESSEE, 2011-2015

Incidence



Mortality



TECHNICAL NOTES

STATISTICAL METHODS

SAS 9.4 was used to calculate the years of potential life lost among Tennesseans. SEER*Prep 2.5.3 was used prepare cancer incidence and mortality data. SEER*Stat 8.3.5 was used for counting numbers of new cancer diagnoses and deaths due to cancer as well as calculating age-adjusted rates, confidence intervals, average annual percent changes, and survival rates. DevCan 6.7.5 was used to compute the probability of being diagnosed or dying of cancer from birth or conditional on a certain age.

Confidence intervals were used to test if the difference in incidence or mortality rates between two groups or two years (e.g. blacks vs. whites or 2011 vs. 2015) was statistically significant. If the 95% confidence intervals did not overlap, the difference was determined to be statistically significant. Therefore, this is a conservative test of significance and there is a greater probability of finding non-significant differences than traditional tests of significance.

Pearson's chi-squared test was used to test the differences in cancer diagnosed in the late stages (i.e., regional and distant) versus early stages (i.e., in situ and localized) between black and white Tennesseans.

Consumers of this data must use caution when interpreting the data in this report and consider that data published in this report is dynamic. It is possible even after the standard reporting delay, some new cases may be reported, which could influence cancer rates. Caution should also be used when interpreting rates based on only a small number of cases. In order to protect patient confidentiality and ensure the integrity of the data, statistics based on counts smaller than 11 have been suppressed. Additionally, the confidence intervals associated with some cancers are very large and caution should be used when interpreting the data.

SOFTWARE USED FOR CALCULATION

The following software was used to develop this report:

Age-Adjusted Rates and Confidence Intervals:

Surveillance Research Program, National Cancer Institute (2018). SEER*Stat (version 8.3.5) [Computer Software]. Calverton, MD. (<http://seer.cancer.gov/seerstat>)

Probability of Developing or Dying of Cancer:

DevCan: Probability of Developing or Dying of Cancer Software, Version 6.7.5. Statistical Research and Applications Branch, National Cancer Institute, 2017. (<http://surveillance.cancer.gov/devcan>)

Years of Potential Life Lost Calculation:

SAS Institute Inc. (2016). Base SAS® 9.4. Cary, NC: SAS Institute Inc.

Tennessee Resident County Maps:

Environmental Systems Research Institute (ESRI) (2014). ArcGIS Desktop: Release 10.3. Redlands, CA: ESRI.

EXPLANATION OF TERMS

Age-adjusted Rate

An age-adjusted incidence or mortality rate is a weighted average of the age-specific incidence or mortality rates, where the weights are the counts of persons in the corresponding age groups of a standard million population. Aging is an important risk factor for the development of cancer so, if one population has a significantly greater proportion of older people than another, one would expect a larger number of cancers in the older population. Therefore, rates must be age-adjusted to remove the confounding effect of age before comparisons are made between populations with different age distributions. In this report, incidence and mortality rates are age-adjusted to the 2000 US Standard Population with 19 age groups.

Average years of potential life lost

Average years of life lost is an average derived by dividing Years of Potential Life Lost (YPLL) by the actual number of deaths for each cancer site, over a defined time period. This provides a measure of the burden of cancer to the individual patient rather than the population as a whole. Effectively it shows, on average, how much a patient's life is likely to be shortened by their cancer.

$$\text{Average Years of Potential Life Lost} = \frac{\text{Years of Potential Life Lost during period}}{\text{Actual Number of Deaths during period}}$$

Cancer Coding

The Tennessee Cancer Registry uses the International Classification of Diseases for Oncology, 3rd Edition (ICD-O-3) to code site (topography), histology (morphology), and behavior (e.g. whether malignant or not) of incident cases. Cases are categorized according to the 2003 revised recodes of the Surveillance, Epidemiology and End Results (SEER) program of the National Cancer Institute (NCI). These recodes define standard groupings of primary cancer sites. Following CDC's National Program of Cancer Registries (NPCR) and SEER cancer registries' guidelines, the TCR considers as reportable all incident cases with a behavior code of 2 (in situ, noninvasive) or 3 (invasive, primary site only) in ICD-O-3 terminology with the exception of in situ cancer of the cervix. Benign brain tumors are also reportable but not included in this report. When reporting childhood cancers, the International Classification of Childhood Cancer, 3rd Edition (ICCC-3) is used. For cancer mortality data, the International Classification of Diseases, 10th Revision (ICD-10), is used.

Cancer Staging

Stage provides a measure of disease progression, detailing the degree to which the cancer has advanced. The SEER summary stage method is used in this report, which describes cancers in five stages:

1. *In situ**: Abnormal cells are present only in the layer of cells in which they originated.
2. *Localized*: Cancer is limited to the organ in which it began, without evidence of spread.
3. *Regional*: Cancer has spread beyond the primary site to nearby lymph nodes or organs and tissues.
4. *Distant*: Cancer has spread from the primary site to distant organs or distant lymph nodes.
5. *Unknown*: There is not enough information to determine the stage.

*Although in situ cancers are included in analyses of stage at diagnosis, these cancers (excepting *in situ* bladder cancer) are not included in incidence counts and rates to be consistent with national reporting.

Confidence Interval

A confidence interval is a range of values that has a specified probability of containing the true rate of interest in the population. The width of a confidence interval reflects the amount of variability in the estimated rate. In this report, 95% confidence intervals were calculated using a gamma distribution method developed by Fay and Feuer and modified by Tiwari, Clegg, and Zou.

Incidence

Incidence is defined as the number of new cancers diagnosed in the population at risk in the reference year. The population considered at risk for cancer in this report is the entire resident population of Tennessee in the reference year.

Incidence Rate

The cancer incidence rate is the number of new cases of cancer diagnosed in a specified population during a specified time period, usually expressed as the number of new cases per 100,000 persons at risk. That is,

$$\text{Incidence Rate} = \left(\frac{\text{Number of New Cases}}{\text{Population at Risk}} \right) * 100,000$$

The numerator of the incidence rate is the number of newly diagnosed cancer cases; the denominator of the incidence rate is the size of the population at risk. The number of new cancers may include multiple primary cancers occurring in one patient. The primary site reported is the site of origin and not the metastatic site, the distant site to which the cancer has spread. In general, the incidence rate does not include recurrences. The incidence rate can be computed for a given type of cancer or for all cancers combined. Incidence rates presented in this report are for invasive cancers and both invasive and in situ bladder cancer only, unless otherwise specified. When cancer stage was considered, cases diagnosed at any stage, including the in situ stage, were included in the analyses.

Median

The median is the middle value of an ordered set of numbers: half the values are greater than the median and half are less than the median. The median is less sensitive than the mean to extreme values, and is a better measure of central tendency for data with skewed distributions.

Mortality

Mortality is defined as the number of deaths from cancer in the population at risk in for the reference year. A cancer death is defined as a death for which cancer is determined to be the underlying cause of death based on the death certificate.

Mortality Rate

The cancer mortality rate is the number of deaths with cancer as the underlying cause of death in a specified at-risk population in a given time period, usually expressed as the number of deaths due to cancer per 100,000 persons at risk. That is,

$$\text{Mortality Rate} = \left(\frac{\text{Number of Cancer Deaths}}{\text{Population at Risk}} \right) * 100,000$$

Mortality-to-Incidence Ratio (M:I Ratio)

In this report, mortality-to-incidence ratio was calculated as the ratio of age-adjusted mortality and incidence rates. In a general sense, the higher the ratio, the higher fatality for the cancer or the lower the survival. However, for some cancers with very high fatality, e.g. pancreatic cancer, the M:I ratio may exceed 1 because the incidence and mortality cohorts are not exactly the same. In addition, the age-adjustment process may also make this possible because the age of a patient at death is likely greater than that at diagnosis; therefore, the patient may be accounted for at one age group for incidence and at an older age group for mortality.

$$\text{M:I Ratio} = \frac{\text{Mortality Rate}}{\text{Incidence Rate}}$$

Prevalence

Current cigarette use and cancer screening prevalence data from the Tennessee BRFSS are presented in this report (See [Cancer Screening and Risk Factor Prevalence](#) & [Cigarette Smoking Prevalence](#)). Prevalence is defined as the percentage of people exhibiting the behavior out of the total number in the defined population.

Race and Ethnicity

Cancer incidence and mortality can vary greatly by race and ethnicity. According to the 2010 US census (United States Census Bureau, 2010), non-Hispanic Whites account for 78.4 of Tennessee's population, and non-Hispanic Blacks represent 16.7% of Tennessee's population. Given Tennessee's small minority population, displaying detailed information by racial/ethnic group leads to some cell counts that are too small to display publicly and rates may be unstable.

Resident County

The resident county is the geographical variable that illustrates the county of residence at diagnosis.

Suppression of Rates and Counts

Due to concerns regarding statistical reliability, statistics were suppressed when there were less than 11 reported cases for any given cohort or cancer site. Counts or rates that were suppressed in this report are denoted by “^”.

Tennessee counties and regions

In this report, Tennessee's 95 counties are grouped into eight regions. Metropolitan counties are grouped into the regions where they are located.

Trends

Trend data should be interpreted with caution. Increases and decreases in rates over time may reflect changes in diagnostic methods or case reporting rather than genuine changes in cancer occurrence.

Years of potential life lost

Years of potential life lost (YPLL) is another indicator often used to describe disease burden. It is an estimate of the years a person would have lived if he or she had not died prematurely. YPLL highlights the loss to society as a result of deaths in childhood, adolescence and early adulthood and is calculated as the number of years of potential life lost by each death occurring before a predetermined end point, set at age 75 years in this report.

Years of Potential Life Lost

= Predetermined End Point Age

– Age of Decedent Who Died Prior to End Point Age

DATA SOURCES

Tennessee Cancer Registry (TCR) Incidence Data:

The cancer incidence data contains records of primary cancer cases first diagnosed among Tennessee residents between January 1, 2006 and December 31, 2015, and were reported to the TCR as of March 1, 2018. Cases with gender reported as hermaphrodite or transsexual were not included in this report. Cases with race other than white or black (2,581 cases) and unknown race (2,536 cases) were include in the “Total Population” category. A total of 7 cases with unknown age of diagnosis were excluded from all analyses except the calculation of the leading causes of cancer incidence and cancer by stage. A total of 5 cases could not be converted into a site recode value using the International Classification of Diseases for Oncology 3rd Edition (ICD-O-3) and World Health Organization (WHO) 2008 Definition and were included in the calculation of statistics concerning all cancer incidence primary sites combined. A total of 411 newly diagnosed cases did not have sufficient information regarding resident county at diagnosis and were excluded in the geographic analyses. These cases were included in the state level statistics, but excluded from county level statistics.

Mortality Data:

The cancer mortality data contains records of all mortalities among Tennessee residents. The record-level mortality data were obtained from the Death Statistical System provided by the Office of Population Health Assessment, Tennessee Department of Health. There were 37 mortality records missing gender information and 56 records contained invalid or unknown age at death values. These records were excluded from all analyses in this report except the calculation of the leading causes of cancer mortality. It should also be noted 4,189 deaths were of race other than white or black and 716 mortality records contained insufficient or unknown race information. These deaths and were included in the “Total Population” category.

Behavioral Risk Factor Surveillance System (BRFSS) Data:

BRFSS is a CDC-funded, state-administered, random-digit-dialed telephone survey of the US non-institutionalized population, 18 years of age and older that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. BRFSS was established in 1984 by the CDC; currently data are collected monthly in all 50 states, the District of Columbia, Puerto Rico, the US Virgin Islands, and Guam. Nationwide BRFSS data were the median for 50 states and Washington D.C.

State Cancer Profiles:

State Cancer Profiles is a web-based, comprehensive, and interactive data query system provided by the National Cancer Institute (NCI) and the CDC. Tennessee and United States cancer mortality trend data and Tennessee cancer rankings in cancer incidence and mortality were based on age-adjusted rates of 50 states and Washington D.C. obtained online from the following website: <https://statecancerprofiles.cancer.gov/>.

ADDITIONAL RESOURCES

More information can be found about the cancers discussed in this report at the American Cancer Society:

SPECIFIC CANCER SITE	WEBSITE
Lung Cancer	http://www.cancer.org/cancer/lungcancer/
Prostate Cancer	http://www.cancer.org/cancer/prostatecancer/
Breast Cancer	http://www.cancer.org/cancer/breastcancer/
Colorectal Cancer	http://www.cancer.org/cancer/colonandrectumcancer/
Melanoma Skin Cancer	http://www.cancer.org/cancer/skincancer-melanoma/
Pancreatic Cancer	http://www.cancer.org/cancer/pancreaticcancer/
Childhood Cancer	http://www.cancer.org/cancer/cancerinchildren/index

If interested, other sources of information and support from national cancer organizations include:

ORGANIZATION	WEBSITE
American Association for Cancer Research (AACR)	http://www.aacr.org/Pages/Home.aspx
American Cancer Society (ACS)	http://www.cancer.org/
American Society of Clinical Oncology (ASCO)	http://www.asco.org/
Cancer Research Network (CRN)	http://crn.cancer.gov/
Center for Cancer Research (CCR)	https://ccr.cancer.gov/
Centers for Disease Control & Prevention (CDC)	http://www.cdc.gov/cancer/dcpc/data/index.htm
Commission on Cancer (CoC)	https://www.facs.org/quality-programs/cancer/coc
Conquer Cancer Foundation	https://www.conquercancerfoundation.org/
International Agency for Research on Cancer	http://www.iarc.fr/
Journal of Clinical Oncology	http://jco.ascopubs.org/
National Cancer Informatics Program (NCIP)	http://cbit.nci.nih.gov/ncip
National Cancer Institute (NCI)	http://www.cancer.gov/
National Comprehensive Cancer Network (NCCN)	http://www.nccn.org/
National Program of Cancer Registries (NPCR)	http://www.cdc.gov/cancer/npcr/
North American Association of Central Cancer Registries (NAACCR)	http://www.naacr.org/

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