

CANCER IN TENNESSEE

2007-2011

From: The Tennessee Cancer Registry, a Gold-Certified Cancer Registry
Division of Policy, Planning and Assessment
Tennessee Department of Health
March 2015



TENNESSEE DEPARTMENT OF HEALTH ORGANIZATION

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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.***

ACKNOWLEDGMENTS

The Office of Cancer Surveillance acknowledges the contributions of the following organizations and individuals in making the publication of this report possible:

- Cancer registrars from healthcare facilities throughout the State of Tennessee who completed the large majority of cancer abstracts available in the TCR database.
- The staff of the Office of Health Statistics, Tennessee Department of Health, for providing cancer mortality data.
- The staff of the Tennessee Cancer Registry (TCR), Office of Cancer Surveillance, Tennessee Department of Health, who ensured the quality and completeness of Tennessee Cancer Registry data.

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This publication and additional data are available on the Tennessee Department of Health web site: <http://health.state.tn.us/data.htm>

This publication was supported by cooperative agreement number 5U58DP003901 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the views or opinions of the CDC.

Suggested citation: Chong F., Whiteside M.A. *Cancer in Tennessee. 2007-2011*. Office of Cancer Surveillance; Division of Policy, Planning & Assessment; Tennessee Department of Health. Nashville, Tennessee. December 2014.

EXECUTIVE SUMMARY

BACKGROUND

Cancer is a group of more than 100 diseases characterized by uncontrolled growth and spread of abnormal cells. It is the second leading cause of death nationally and in Tennessee (TN). About two-thirds of all cancer cases could potentially be prevented with better lifestyle choices, e.g. increasing physical activity, better nutrition, not using tobacco products. Early detection leading to diagnosing cancer early through screening is also important for cancer prevention. Currently accepted population-based cancer screening, when performed regularly and in a suitably targeted population, can successfully detect breast, colorectal, uterine cervix, and melanoma skin cancers. Population-based screening to detect prostate cancer is still controversial. This report presents cancer statistics for the State of TN for the period 2007-11.

TENNESSEE CANCER REGISTRY

The TN Cancer Registry (TCR) is legislatively mandated to collect all reportable cancer diagnoses in TN, including non-residents diagnosed and/or treated in TN, and to annually provide a statistical report to the TN General Assembly. During 2007-11, the TCR met the highest national standards of data completeness and quality; therefore, TCR data was gold-certified by the North American Association of Central Cancer Registries each and every year. For a North American cancer registry to be gold-certified, it must meet stringent criteria of data completeness and quality. Data must be at least 95% complete based on calculated estimates. In addition, data must meet certain quality criteria: the duplicates rate needs to be less than 1/1000 cases (currently 0/1000); data must have less than 3% death-certificate-only cases, which are not true incident cases (currently 2-2.9%); and data must meet completeness criteria for specific data elements key to performing public health cancer surveillance, which include race, sex, age at diagnosis and resident county at diagnosis.

TENNESSEE RANKINGS

Nationally, TN had the 18th highest cancer incidence rate (new cancer diagnoses) and the 7th highest cancer mortality rate (cancer deaths) in 2011. Among blacks, TN had the 14th highest cancer incidence and the 3rd highest cancer mortality rate. Among whites, TN had the 18th highest cancer incidence and the 7th highest cancer mortality rate. **Compared to residents of other states, TN residents experience a disproportionately higher share of the U.S. cancer burden in terms of both new cancer cases and deaths primarily due to cancer (see Report detail).**

OVERALL CANCER INCIDENCE AND MORTALITY

During 2007-11, 166,477 new cancer cases were diagnosed among TN residents, an incidence rate of 478.9 per 100,000; this number includes only invasive cancers, with the exception of urinary bladder cancer that includes both invasive and *in situ* cases. There were 66,602 deaths with cancer as the principal underlying cause of death in TN residents, resulting in a mortality rate of 194.9 per 100,000. Overall cancer incidence and mortality rates were higher in males than in females. Blacks had a similar cancer incidence experience compared to whites; however, blacks experienced significantly higher overall cancer mortality rates compared to whites leading to a higher mortality-to-incidence ratio generally suggestive of a greater cancer burden in blacks. Cancer incidence rates remained stable, whereas cancer mortality rates decreased statistically significantly from 2007-11.

IMPACT OF CANCER

Fifty-one percent of all cancers, or 56% of cancers with known stage information, were diagnosed at early stages, when treatment is usually more effective. About 561,000 years of potential life was lost in TN residents due to premature cancer deaths during 2007-11; therefore, on average, each person—who died of cancer—died 8.4 years earlier than the average lifespan (75 years of age used in this report). In the United States (U.S.) during 2009, the estimated cost in lost lifetime wages due to premature

cancer-related death was \$130 billion, or about \$229,000 per cancer death.¹ TN has about 13,320 annual cancer deaths, translating into annual losses of over \$3 billion in lost lifetime wages for all cancer deaths combined.

TOP 10 CAUSES OF CANCER INCIDENCE

The 10 most common incident cancers, by number of new cases, in TN and the U.S. in 2007-11 in decreasing order were:²

Rank	Tennessee	United States
1	Lung and Bronchus	Prostate
2	Prostate	Female Breast
3	Female Breast	Lung and Bronchus
4	Colon and Rectum	Colon and Rectum
5	Melanoma of the Skin	Urinary Bladder
6	Urinary Bladder	Melanoma of the Skin
7	Non-Hodgkin Lymphoma	Non-Hodgkin Lymphoma
8	Kidney and Renal Pelvis	Kidney and Renal Pelvis
9	Oral Cavity and Pharynx	Corpus and Uterus, NOS
10	Leukemia	Leukemia

Note in TN that lung and bronchus cancers were #1 and oral cavity and pharynx cancers rank #9. **These are mostly tobacco-related cancers present to a larger degree in states with a high prevalence of cigarette smoking.**

TOP 10 CAUSES OF CANCER MORTALITY

The following 10 cancers accounted for the greatest number of deaths, in decreasing order, in TN and the U.S. in 2007-11:³

¹ NHLBI FY 2012 Fact Book, Chapter 4, p51 and NVSR 60(3), p5.
^{2&3} Source: U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2011 Incidence and Mortality Web-based Report. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2014. Available at: www.cdc.gov/uscs.

Rank	Tennessee	United States
1	Lung and Bronchus	Lung and Bronchus
2	Colon and Rectum	Colon and Rectum
3	Female Breast	Female Breast
4	Pancreas	Pancreas
5	Prostate	Prostate
6	Leukemia	Leukemia
7	Non-Hodgkin Lymphoma	Non-Hodgkin Lymphoma
8	Liver and Intrahepatic Bile Duct	Liver and Intrahepatic Bile Duct
9	Brain and Other Nervous System	Ovary
10	Esophagus	Urinary Bladder

LUNG CANCER

Both lung cancer incidence (new cancer diagnoses) and mortality rates decreased from 2007-11, but only mortality rates decreased statistically significantly over the 5-year period. TN had the 4th highest incidence rate and 5th highest mortality rate in the U.S. in 2011. Lung cancer is the leading cause of cancer incidence and mortality in TN. Only 23% of lung cancers with known stage information were diagnosed in early stages. Males had higher incidence and mortality rates than females. White females had higher incidence and mortality rates compared to black females; however, black males had higher incidence and mortality rates compared to white males.

PROSTATE CANCER

Prostate cancer incidence and mortality rates decreased statistically significantly over the 5-year period, 2007-11. TN had the 19th highest incidence rate and the 22nd highest mortality rate in the U.S in 2011. Prostate cancer is the leading cause of new

cases and the 3rd leading cause of cancer deaths in TN males. About 86% of cases with known stage information are diagnosed at early stages, which is probably partially attributable to prostate cancer screening and to the slow progressive course prostate cancer typically displays compared to most other cancers. Black males are disproportionately affected by this disease compared to white males; black men experience a mortality rate that is almost 3 times as high as that for white men.

FEMALE BREAST CANCER

Female breast cancer incidence rates remained stable, whereas mortality rates decreased over the 5-year period covered by this report. TN females experienced the 38th highest breast cancer incidence rate and the 24th highest breast cancer mortality rate in the U.S in 2011. It is the leading cause of new cancer cases and the 2nd leading cause of cancer deaths in TN females. About 69% of new cases with known stage information are diagnosed at early stages when treatment is more effective. The high percentage of early stage disease is attributable to screening. Black women have statistically significantly higher incidence and mortality rates compared to white women.

COLORECTAL CANCER

Colorectal cancer incidence and mortality rates statistically significantly decreased from 2007 to 2011. TN experienced the 24th highest incidence rate and the 7th highest mortality rate in the U.S. for colorectal cancer in 2011. Colorectal cancer is the 4th leading cause of cancer incidence and the 2nd leading cause of cancer deaths in TN. Colorectal cancer screening is recommended for the early detection of this cancer. Only 47% of cases with known stage information are diagnosed at early stages in TN, which suggests that TN residents are not making effective use of proven colorectal cancer screening modalities known to significantly enhance early detection of colorectal cancer when treatment is far more effective and more likely to lead to complete cure of the disease. Blacks experience statistically significantly

greater incidence and mortality rates for this cancer compared to whites across both gender categories.

MELANOMA OF THE SKIN

Melanoma incidence and mortality rates were generally stable over the 5-year period covered by this report. Melanoma is the 5th leading cause of new cancer cases in TN; however, mortality rates are thankfully low for this very aggressive type of cancer. TN experienced the 27th highest incidence rate and the 14th highest mortality rate in the U.S in 2011 for this disease. Cancer screening is very effective at diagnosing melanoma in its early stages and 90% of all new cases during 2007-2011 were diagnosed at early stages, in those with known stage information. Whites experience much higher incidence and mortality rates for this cancer than their black counterparts; however, blacks experience a much higher mortality-incidence ratio for this disease, i.e. black patients survive for a much shorter time than white patients. This is at least partially attributable to the fact that blacks are over two times more likely than whites to be diagnosed at late stages with this cancer.

PANCREATIC CANCER

Pancreatic cancer is the 12th leading cause of new cancer cases and the 4th leading cause of cancer deaths in TN. Incidence and mortality rates were stable from 2007-11. TN experienced the 35th highest pancreatic cancer incidence rate and the 32nd highest pancreatic cancer mortality rate in the U.S in 2011. It is one of the most deadly forms of cancer in the U.S. and currently there is no effective screening method. Only about 15% of cases with known stage information are diagnosed at early stages in TN. Blacks display statistically significantly higher pancreatic cancer incidence and mortality rates compared to whites.

CHILDHOOD CANCER

There were 1,482 new invasive cancer cases and 202 deaths due to cancer in children less than 20 years of age in TN during 2007-

11. TN experienced the 10th highest childhood cancer incidence rate and the 19th highest childhood cancer mortality rate in the U.S in 2011.⁴ Only about 41% of all new cases with known stage information were diagnosed at early stages of the disease. There is currently no effective screening method/s for most childhood-related cancers. In general, white children tend to have higher cancer incidence and mortality rates compared to black children, with the exception that black males have higher mortality rates than white males. Any observed differences between blacks and whites were not statistically significant.

REGIONAL AND COUNTY DIFFERENCES

Cancer incidence and mortality rates varied by region and county. The 95 counties in TN are grouped into 8 regions by the TN Department of Health (TDH): Northwest, Southwest, South Central, Mid-Cumberland, Upper Cumberland, Southeast, East and Northeast (see map in appendix I). The East region had the highest overall cancer incidence rates, whereas the Northwest region displayed the lowest. The Northwest region displayed the highest overall cancer mortality rates, whereas the Southeast region displayed the lowest. Males had higher overall cancer incidence and mortality rates than females in all regions. Other noteworthy regional observations include (see maps and appendices):

1. The Northwest region—a largely non-metropolitan area of the state with limited healthcare access compared to other regions—displayed the highest overall mortality rates but the lowest overall incidence rates;
2. The East and Northeast regions in the Appalachians displayed the highest melanoma skin cancer incidence rates; however, the more rural Northwest region displayed a significantly higher mortality-to-incidence ratio at least partially due to lack of adequate healthcare access;

3. The Southwest region displayed the highest female breast cancer incidence and mortality rates of any region statewide, probably due to the presence of a greater number of black individuals who display a significantly higher burden of breast cancer compared to white women;
4. Lung cancer incidence rates were generally higher in the Appalachian Northeast, East and Upper Cumberland regions; however, the Northwest region displayed the highest lung cancer incidence rates. The Northwest region displayed the highest lung cancer mortality rates and the highest mortality-to-incidence ratio in TN.

At the county level, Rhea, Cheatham, Union, Scott, and Perry counties had the highest overall cancer incidence rates. The lowest overall cancer incidence rates were observed in Chester, Lake, Moore, Dyer and Carter counties. The highest overall cancer mortality rates were observed in Lake, Scott, Benton, Sequatchie and Fentress counties. The lowest overall cancer mortality rates were observed in Moore, Williamson, Bledsoe, Loudon and Chester counties.

GENERAL OBSERVATION

In general, the cancer diagnosis rates have remained stable or experienced slight decreases in the majority of cancer types assessed during the 5-year period. However, many specific cancer mortality rates have decreased during the same time. These decreases may be associated with earlier stage diagnoses and intervention, as well as improved options for treatment.

⁴ <http://statecancerprofiles.cancer.gov>. The mortality rate ranking was among the 35 states and the District of Columbia (D.C.) and the incidence rate was ranked among 49 states and D.C. that had data available.

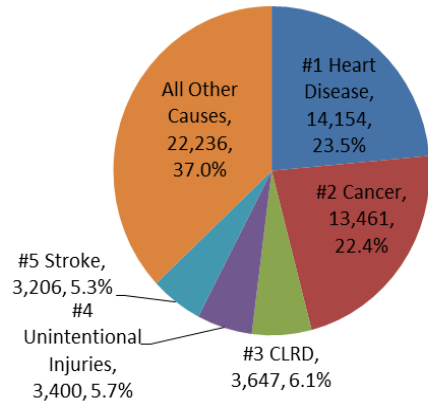
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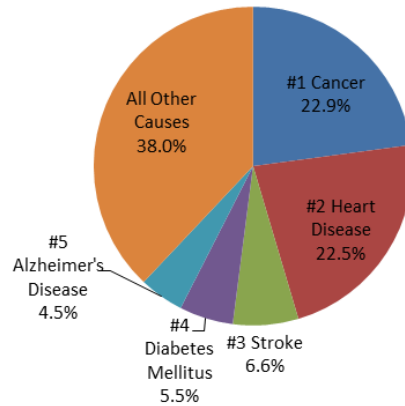
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TOP FIVE LEADING CAUSES OF DEATH IN TENNESSEE, 2011

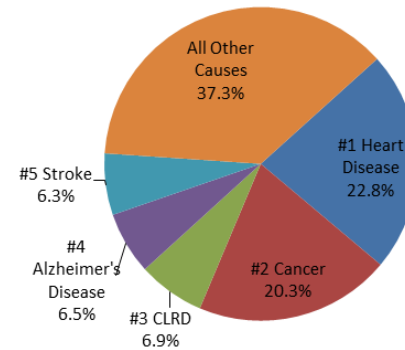
Total Population



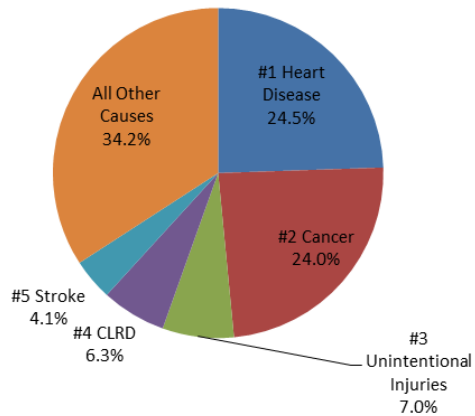
Black Females



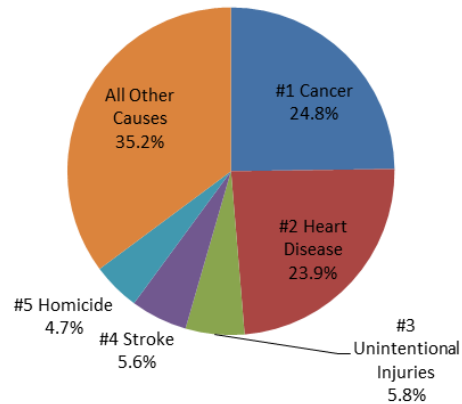
White Females



White Males



Black Males



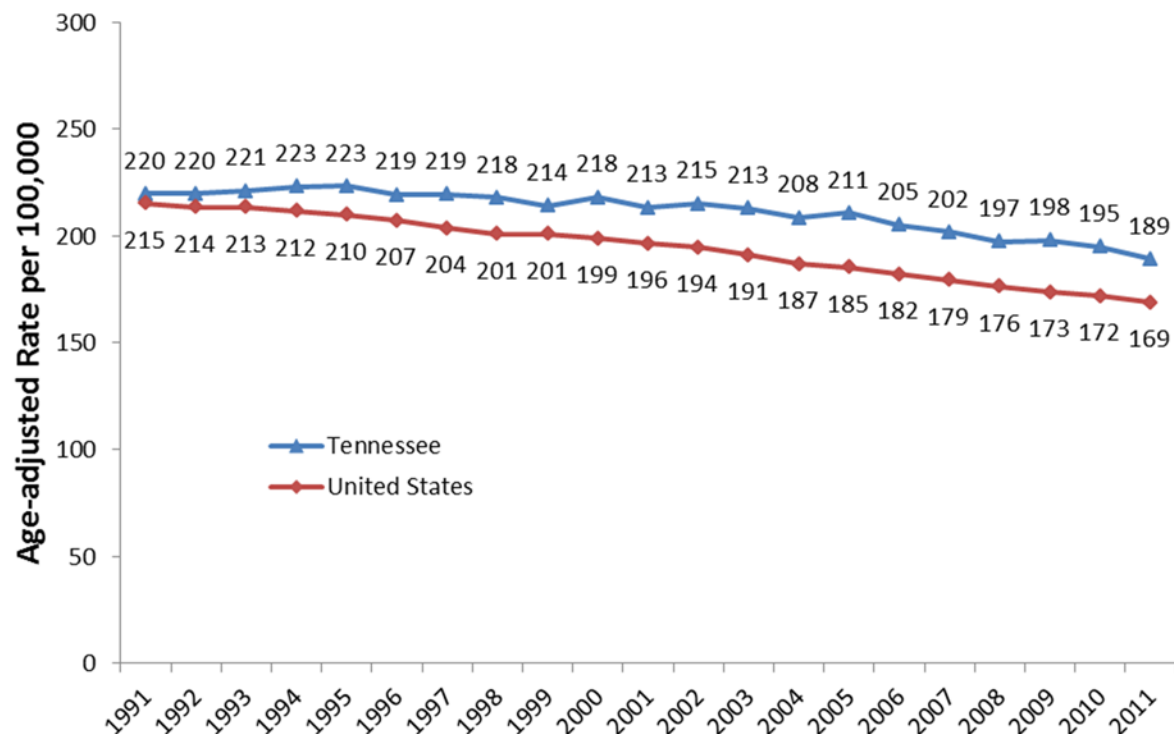
Note: CLRD stands for chronic lower respiratory diseases

- Heart disease was the 1st leading cause of death for all Tennesseans, claiming 14,154 lives in 2011
- Heart disease was the 1st leading cause of death among white males and white females, and the 2nd leading cause among black males and black females
- Cancer was the 2nd leading cause of death for all Tennesseans, claiming 13,461 lives in 2011
- Cancer was the 1st leading cause of death among black males and black females, and the 2nd leading cause for white males and white females.

TENNESSEE COMPARED TO THE UNITED STATES

CANCER MORTALITY TREND, 1991-2011

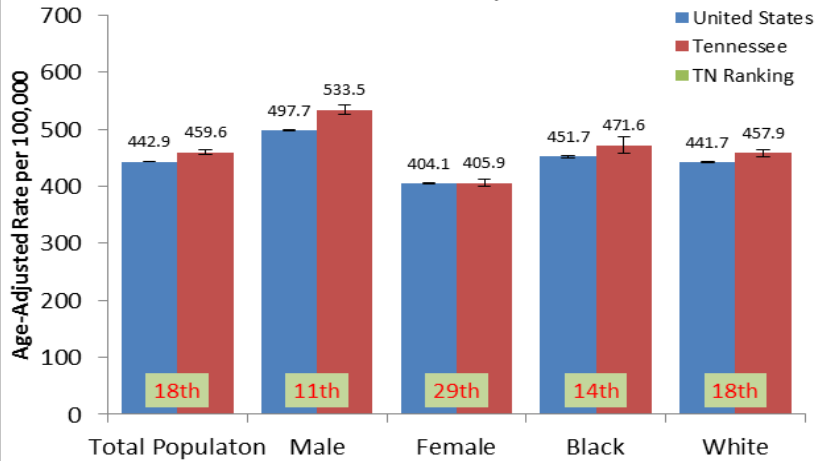
Cancer Mortality in Tennessee and the United States 1991-2011



Data source: statecancerprofiles.cancer.gov

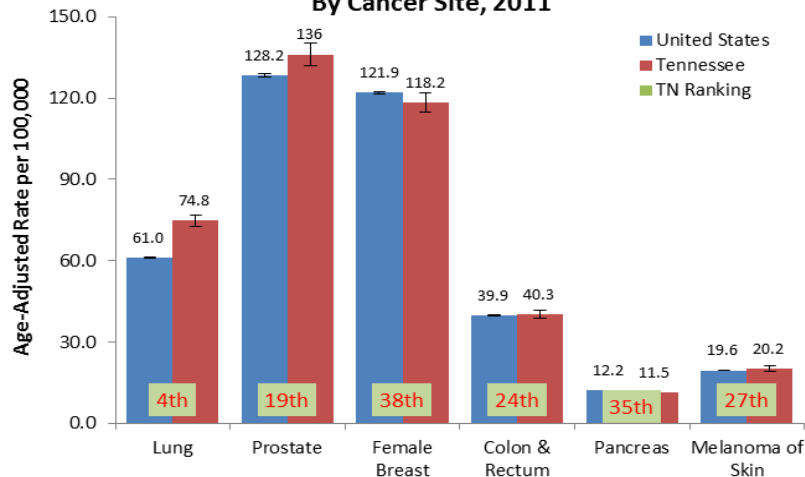
- The age-adjusted cancer mortality rate in Tennessee and the U.S. decreased over time, by 14.1% and 21.4%, respectively, from 1991 to 2011
- Cancer mortality in Tennessee was consistently higher than that in the U.S.
- The gap between Tennessee and the U.S. widened over time: cancer mortality in TN was 2.3% higher than in the U.S. in 1991 and 11.8% higher in 2011

**Incidence Rates for the United States and Tennessee
All Cancer Sites, 2011**



- The age-adjusted cancer incidence rate in Tennessee in 2011 was higher than that in the U.S. for the total population and for all gender and race groups examined; **all differences were statistically significant, except for females** (see Technical Notes for statistical method)
- Overall, the cancer incidence rate in Tennessee ranked 18th highest in the U.S.
- Tennessee males had the worst ranking, the 11th highest, among all gender and race groups examined

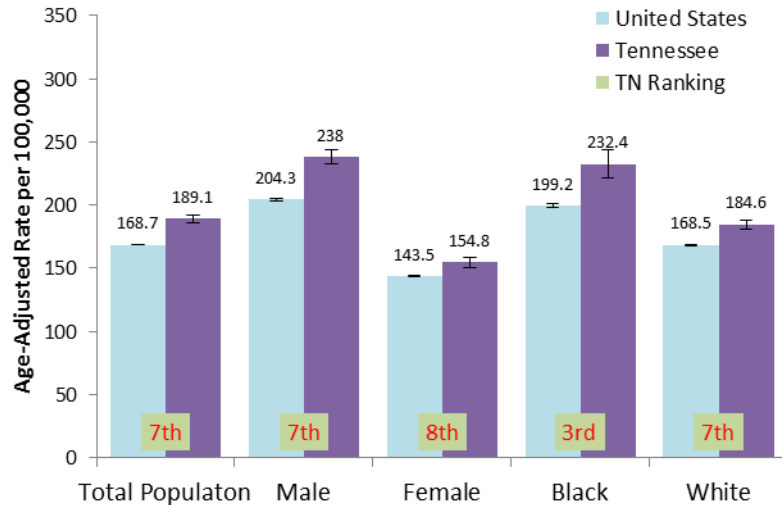
**Incidence Rates for the United States and Tennessee
By Cancer Site, 2011**



- Among common cancers, **Tennessee had statistically significantly higher than US average incidence rates for lung cancer and prostate cancer in 2011**
- The lung cancer incidence rate in Tennessee ranked 4th highest in the U.S.
- Prostate cancer ranked 19th highest
- Female breast cancer, colorectal cancer, pancreatic cancer and melanoma skin cancer ranked 38th, 24th, 35th, and 27th, respectively

⁵ Data source: statecancerprofiles.cancer.gov

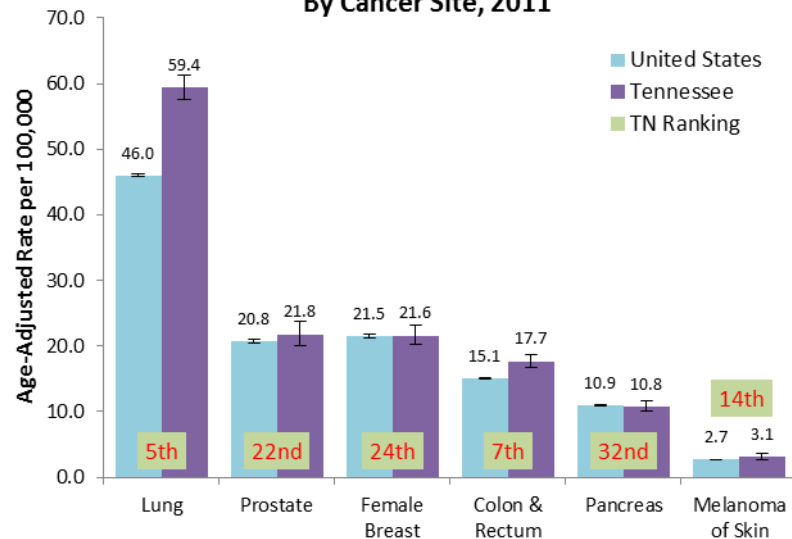
**Mortality Rates for the United States and Tennessee
All Cancer Sites, 2011**



- **The age-adjusted cancer mortality rate in Tennessee in 2011 was higher than that in the U.S. for the total population and for all gender and race groups examined; all differences were statistically significant**
- Tennessee’s cancer mortality ranked 7th highest in the U.S. for the total population, and between 3rd to 8th for all gender and race groups examined

- Tennessee’s lung cancer mortality rate ranked the 5th highest in the U.S. in 2011
- Tennessee ranked 14th highest for melanoma of the skin and 7th highest for colorectal cancer
- Prostate, female breast and pancreatic cancer ranked 22nd, 24th and 32nd, respectively
- **Colorectal and lung cancer mortality rates were statistically significantly higher in TN compared to the US**

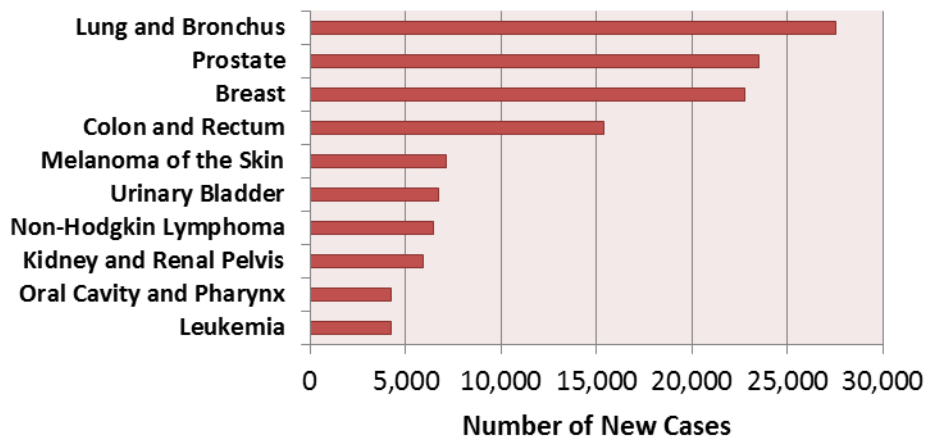
**Mortality Rates for the United States and Tennessee
By Cancer Site, 2011**



TYPES OF CANCERS IN TENNESSEE

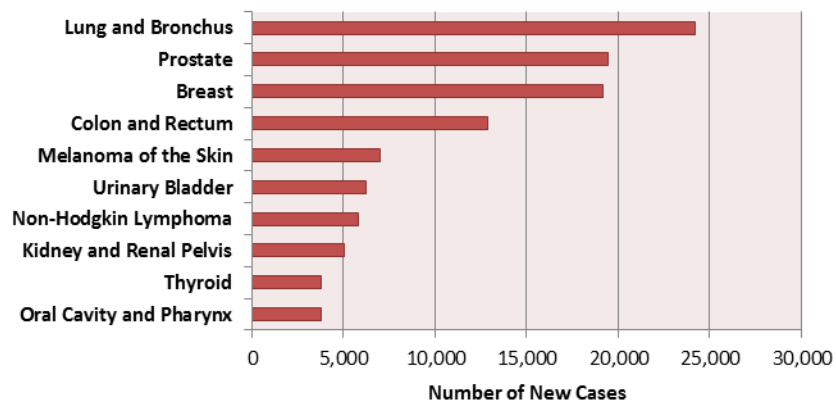
LEADING CAUSES OF CANCER INCIDENCE, 2007-2011

Total Population

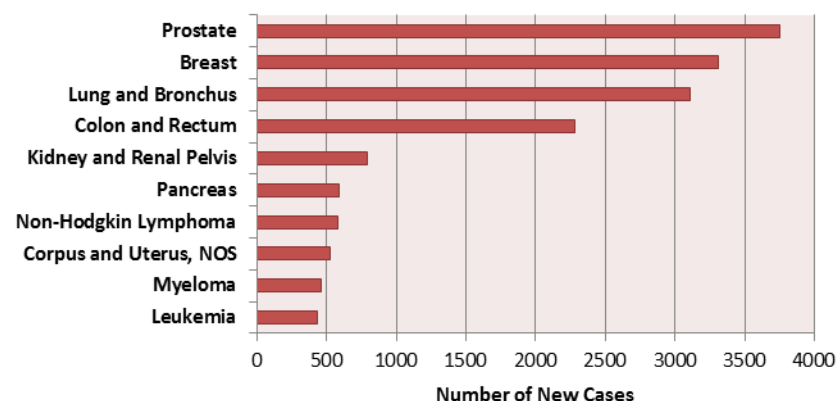


- Lung cancer was the 1st leading cause of cancer incidence in Tennessee in 2007-2011, followed by cancers of the prostate (2nd), breast (3rd, including cases among men and women), and colon and rectum (4th)
- Melanoma of the skin was the 5th leading cause of cancer incidence
- Among blacks, prostate cancer was the 1st leading cause of cancer incidence, followed by cancers of the breast (2nd), lung (3rd), colon and rectum (4th), and kidney (5th)

White

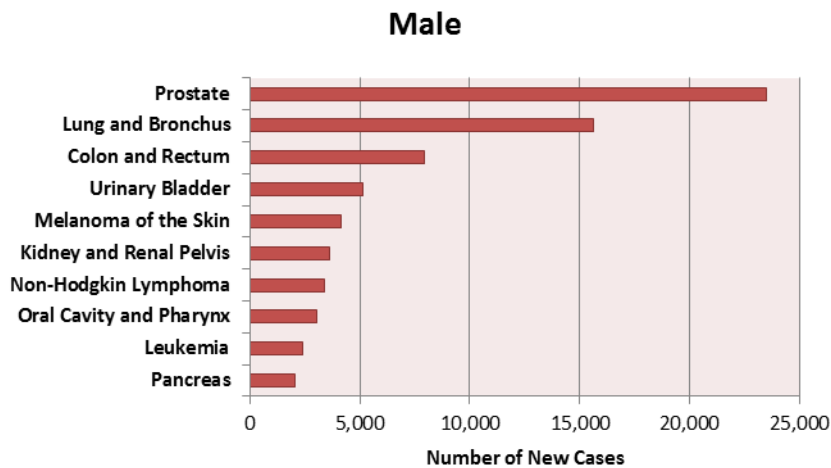
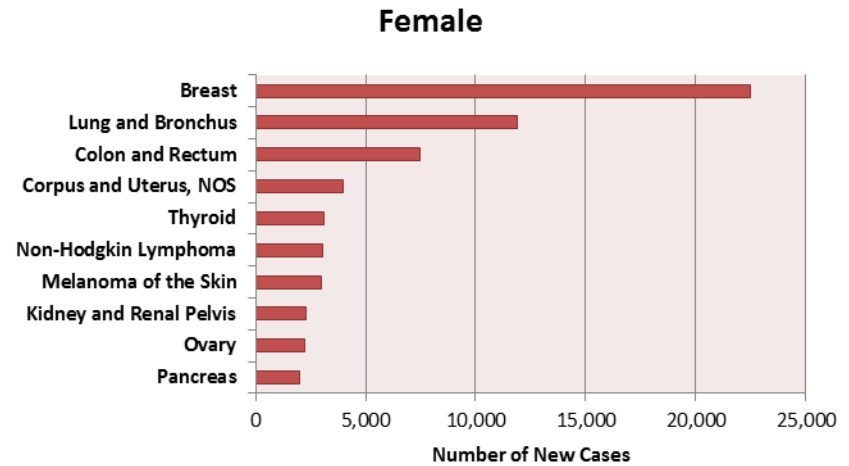


Black



LEADING CAUSES OF CANCER INCIDENCE, 2007-2011 CONTINUED

- Breast cancer was the 1st leading cause of cancer incidence among Tennessee females in 2007-2011, accounting for almost one-third (29%) of total cancer cases among women
- Lung cancer was the 2nd leading cause, followed by colorectal cancer (3rd), uterus cancer (4th), and thyroid cancer (5th)

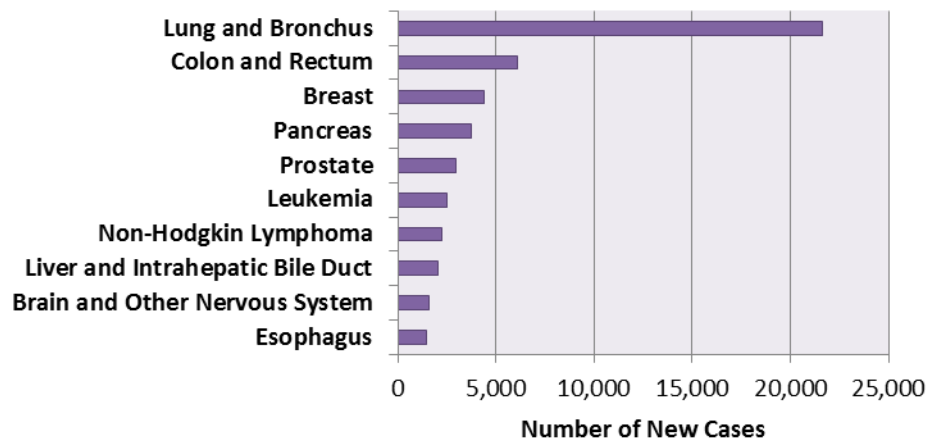


- Prostate cancer was the 1st leading cause of cancer incidence among Tennessee males in 2007-2011, accounting for 27% of total cancer cases among men
- Lung cancer was the 2nd leading cause, followed by colorectal cancer (3rd), bladder cancer (4th) and melanoma of the skin (5th)

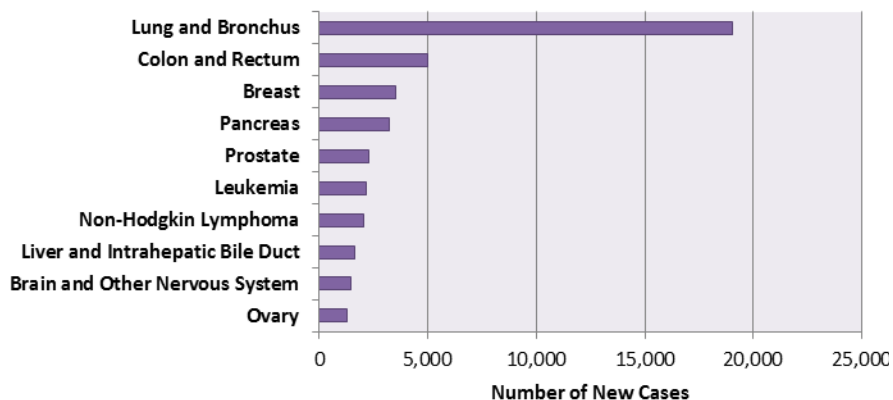
LEADING CAUSES OF CANCER MORTALITY, 2007-2011

- Lung cancer was the 1st leading cause of cancer mortality in the overall Tennessee population in 2007-2011. It was also the 1st leading cause of cancer mortality for whites, blacks, males and females
- Colorectal cancer was the 2nd leading cause of cancer death in Tennessee for the total population, whites, blacks and males. Among females, breast cancer was the 2nd leading cause.
- Breast cancer (including cases among men and women), pancreatic cancer and prostate cancer were the 3rd to 5th leading causes of cancer death, respectively, in Tennessee.

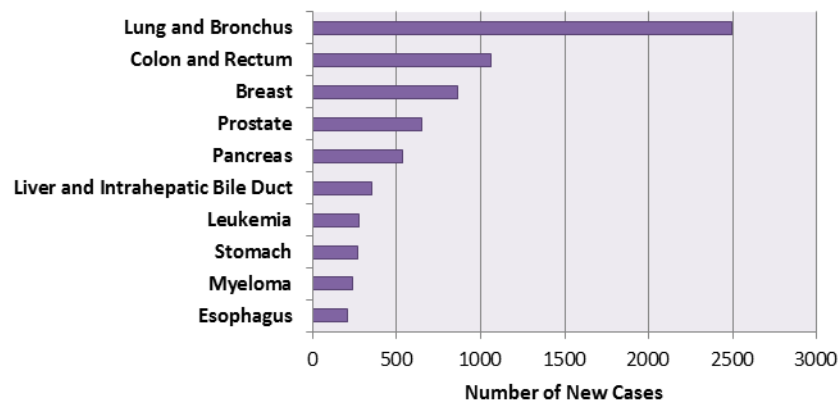
Total Population



White

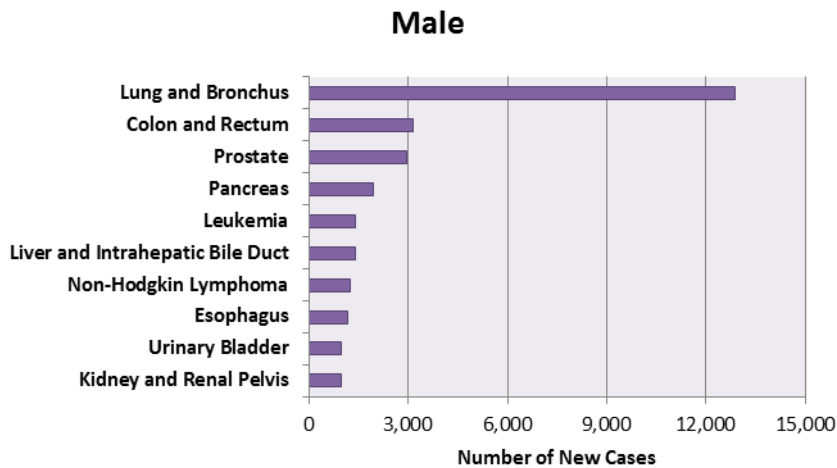
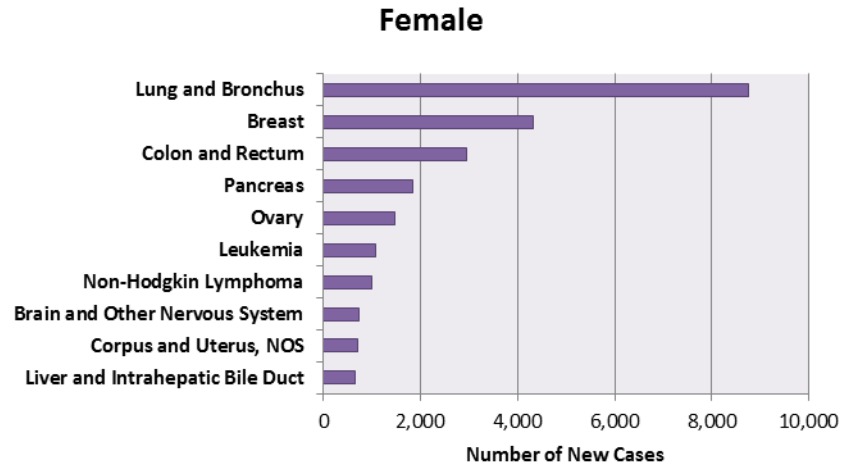


Black



LEADING CAUSES OF CANCER MORTALITY, 2007-2011 CONTINUED

- Lung cancer was the 1st leading cause of cancer death among females in 2007-2011
- Breast cancer was the 2nd leading cause, followed by colorectal cancer (3rd), pancreatic cancer (4th), and ovarian cancer (5th)



- Lung cancer was the 1st leading cause of cancer death among males in 2007-2011
- Colorectal cancer was the 2nd leading cause, followed by prostate cancer (3rd), pancreatic cancer (4th), and leukemia (5th)

CANCER INCIDENCE AND MORTALITY IN TENNESSEE, 2007-2011

CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED

Cancer Incidence and Mortality, All Sites Combined, Tennessee, 2007-2011

		Incidence			Mortality			M:I
		Count**	Rate***	CI	Count**	Rate***	CI	Ratio‡
Gender	Race							
Both*	All Races†	166,477	478.9	476.5 - 481.2	66,602	194.9	193.4 - 196.4	0.41
	Black	20,904	483.7	476.9 - 490.6	9,366	237.1	232.1 - 242.1	0.49
	White	143,517	478.6	476.1 - 481.1	56,885	190.5	188.9 - 192.1	0.40
Female	All Races†	78,528	419.1	416.1 - 422.1	30,260	157.1	155.3 - 158.9	0.37
	Black	10,202	405.9	397.9 - 414.1	4,446	187.3	181.7 - 193	0.46
	White	67,326	422.2	419.0 - 425.5	25,621	153.5	151.6 - 155.5	0.36
Male	All Races†	87,949	563.8	560.0 - 567.7	36,342	250.1	247.4 - 252.8	0.44
	Black	10,702	606.5	594.0 - 619.2	4,920	322.8	313 - 332.9	0.53
	White	76,191	558.4	554.4 - 562.5	31,264	243.5	240.7 - 246.3	0.44
Age at Diagnosis or Death		-						
0-19		1482	17.7	16.8 - 18.6	202	2.4	2.1 - 2.8	0.14
20-44		12268	121.8	119.6 - 124.0	2076	20.8	19.9 - 21.7	0.17
45-64		65,475	733.9	728.2 - 739.6	20,528	227.1	224 - 230.3	0.31
65+		87,252	2107.8	2093.8 - 2122.0	43,796	1077.6	1067.5 - 1087.8	0.51
Year of Diagnosis or Death		-						
2007		32,009	482.0	476.7 - 487.4	13,112	200.9	197.4 - 204.4	0.42
2008		32,859	482.6	477.3 - 487.9	13,108	196.3	192.9 - 199.8	0.41
2009		33,871	487.8	482.6 - 493.1	13,407	196.6	193.3 - 200	0.40
2010		33,668	474.1	469.0 - 479.3	13,514	193.6	190.3 - 197	0.41
2011		34,070	468.8	463.8 - 473.9	13,461	187.7	184.5 - 190.9	0.40

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

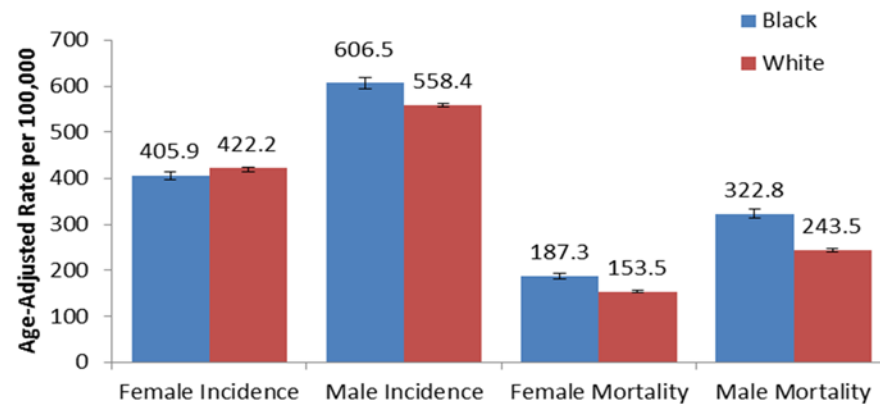
***Age-adjusted annual rate per 100,000

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

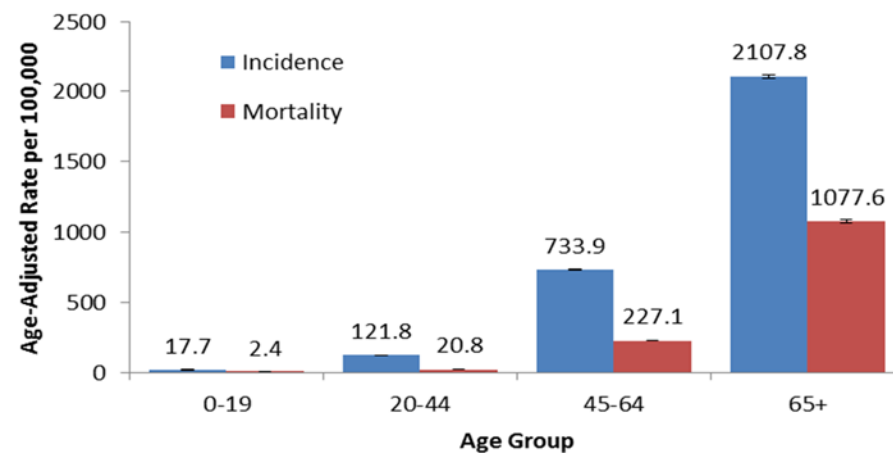
‡Mortality incidence ratio. See Technical Notes for details

- From 2007 to 2011, a total of 166,477 Tennesseans were newly diagnosed with cancer, an average of 33,295 each year or one case every 16 minutes
- During the same time period, 66,602 Tennesseans died from cancer, an average of 13,320 each year or one death every 40 minutes
- Males had higher incidence and mortality rates than females regardless of race (see Technical Notes for statistical method)
- Black females had a lower cancer incidence rate but a higher mortality rate than white females
- Black males had higher incidence and mortality rates than white males
- Both incidence and mortality rates of cancer increased with age, with the highest rates among people 65 years and older.
- The ratio of mortality and incidence rates also increased with age, from 0.14 for 0-19 year olds to 0.51 for those 65 years and older

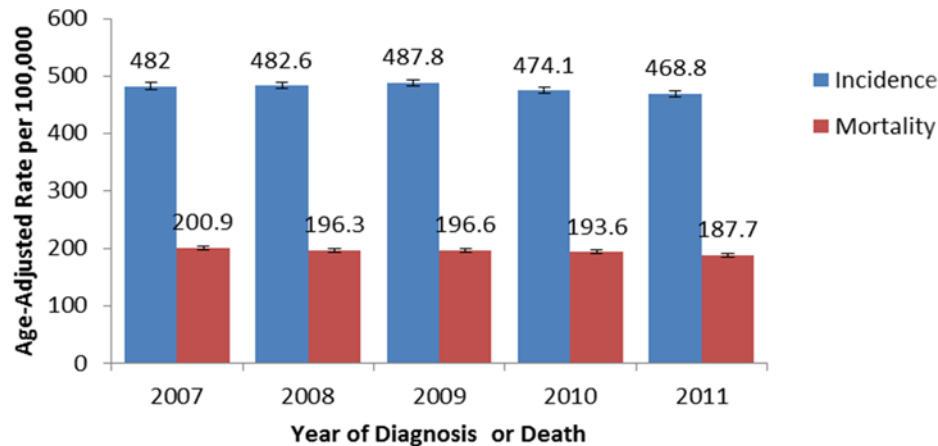
**Cancer Incidence and Mortality, All Sites Combined
By Gender and Race, Tennessee, 2007-2011**



**Cancer Incidence and Mortality, All Sites Combined
By Age Group, Tennessee, 2007-2011**



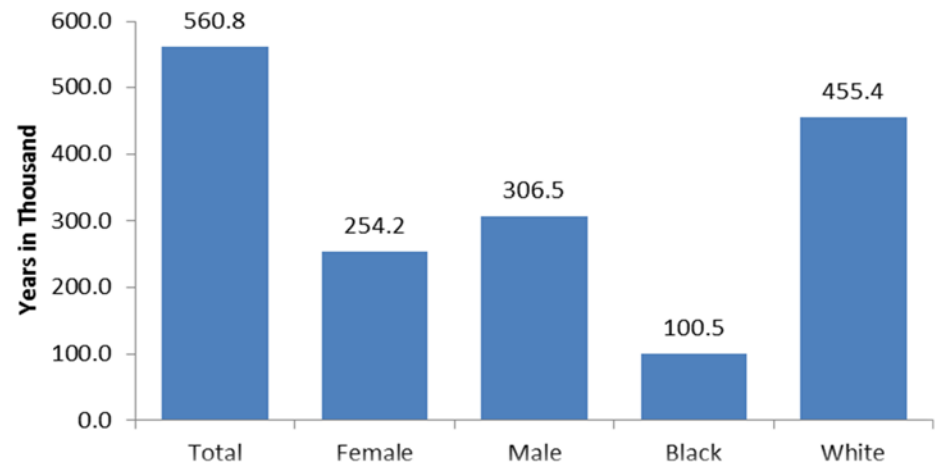
**Cancer Incidence and Mortality Time Trends
All Sites Combined, Tennessee, 2007-2011**



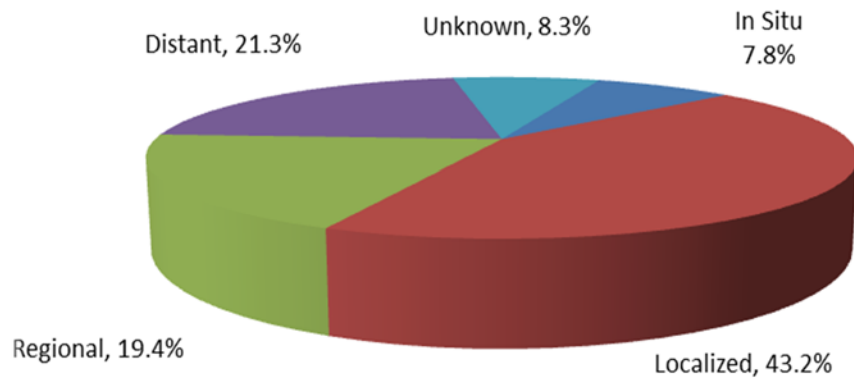
- The cancer incidence rate in Tennessee fluctuated slightly over time; however, the annual percent change was not statistically significant.
- The cancer mortality rate in Tennessee decreased over time, from 201/100,000 in 2007 to 188/100,000 in 2011; this annual percent change was statistically significant.

- In the five-year period from 2007-2011, a total of 560,767 years of potential life were lost (YPLL) due to premature cancer deaths (death before 75 years of age) for the total population; 254,234 years were lost for females and 306,533 for males; 100,495 years were lost for blacks and 455,409 for whites

**Years of Potential Life Lost to Cancer
Tennessee, 2007-2011**

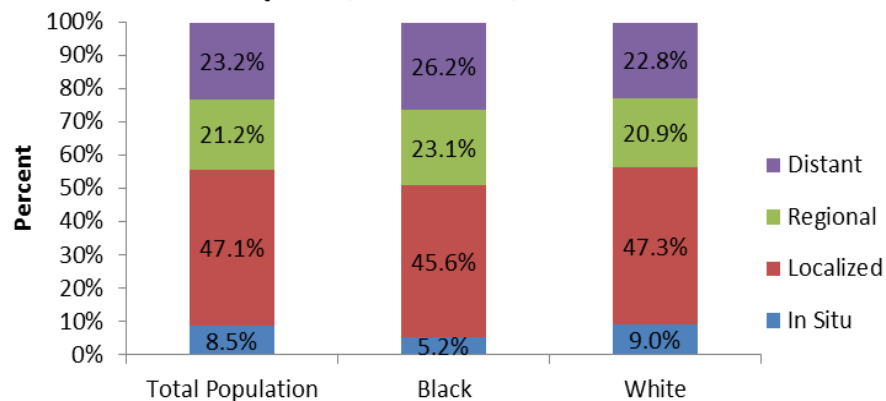


Cancer Stage, All Sites Combined Tennessee, 2007-2011



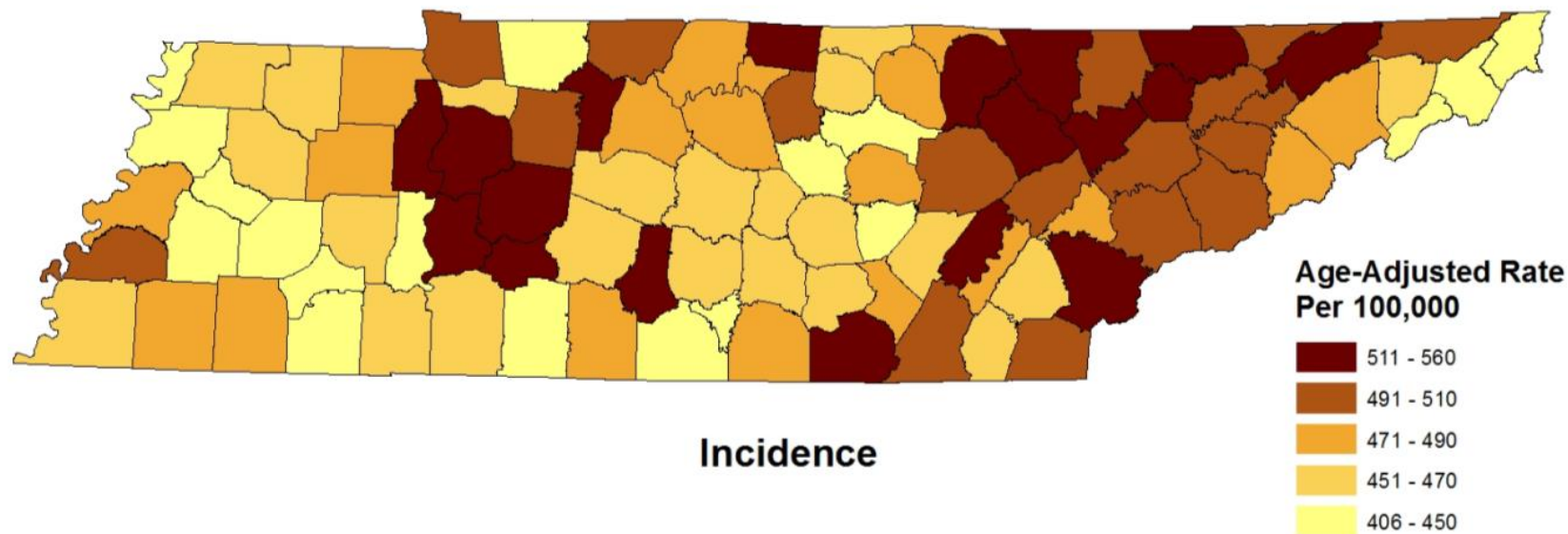
- 7.8% of new cancer cases were diagnosed at an in situ stage and 43.2% at a localized stage; therefore, 51% of all cancers were diagnosed when the tumor was still localized to the primary site of origin. 19.4% were diagnosed at a regional stage, and 21.3% at a distant stage. 8.3% of cases did not have sufficient information on stage at diagnosis or were unstaged.
- Among those with known stage information, 8.5%, 47.1%, 21.2% and 23.2% were diagnosed at the in situ, localized, regional and distant stage, respectively
- Black patients were statistically significantly more likely to be diagnosed at late stages (i.e. at the regional or distant stage) than whites: 49.3% at regional or distant stage in blacks compared to 43.7% in whites (see Technical Notes for statistical method)

Cancer Stage, All Sites Combined By Race, Tennessee, 2007-2011

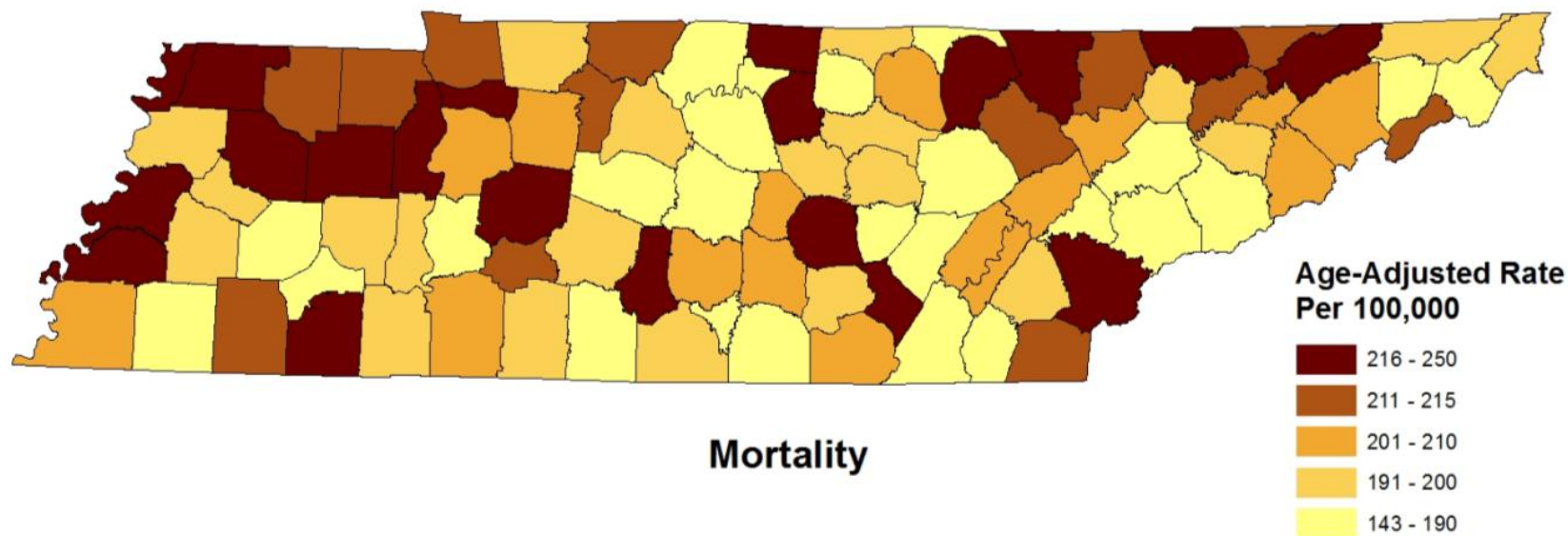


Cases with unknown stage were excluded. Numbers may not sum to 100% due to rounding errors.

2. AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, ALL SITES COMBINED, TENNESSEE, 2007-2011



Incidence

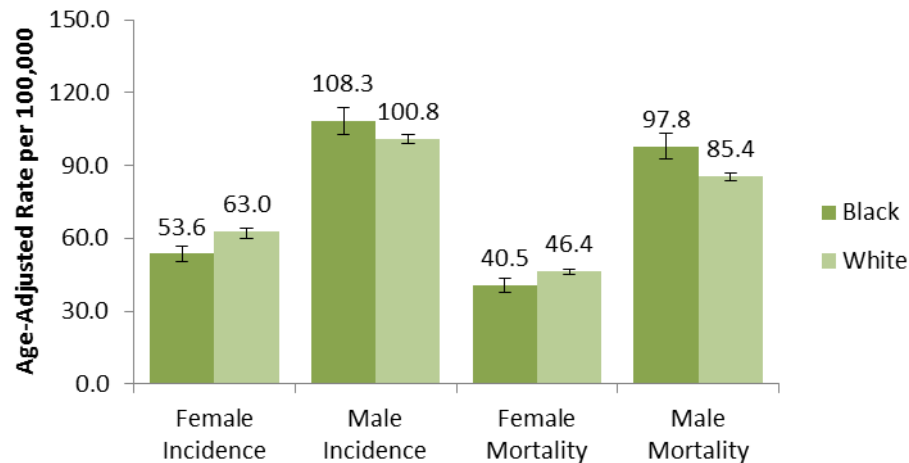


Mortality

COMMON CANCERS IN TENNESSEE, 2007-2011

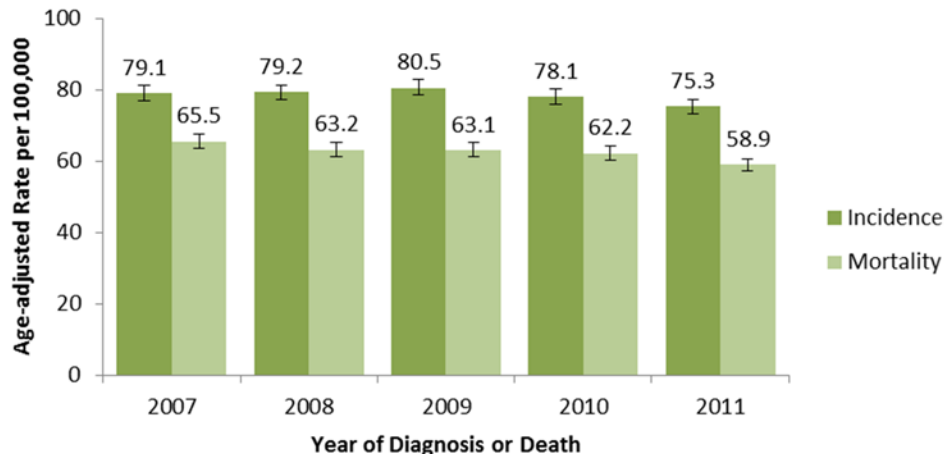
CANCER OF LUNG AND BRONCHUS

**Cancer Incidence and Mortality, Lung and Bronchus
By Gender and Race, Tennessee, 2007-2011**



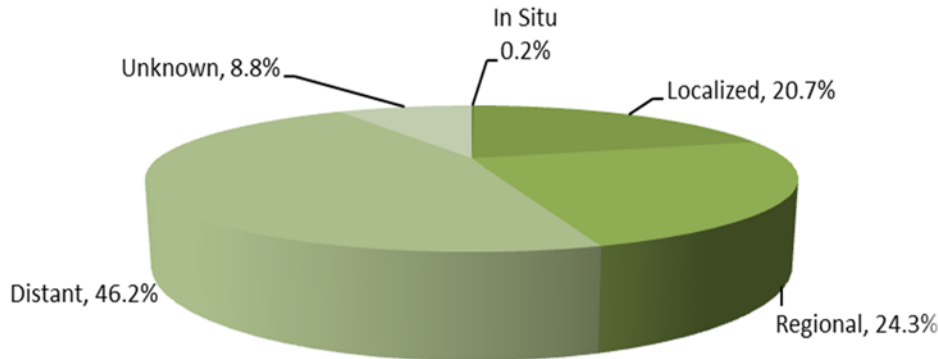
- There were 27,507 cases of newly diagnosed lung cancer in 2007-2011 among Tennesseans, resulting in an age-adjusted incidence rate of 78.4/100,000
- During the same time period, 21,659 Tennesseans died from lung cancer, with an age-adjusted mortality rate of 62.5/100,000
- Males had higher incidence and mortality rates than females regardless of race
- White females had a higher incidence and mortality rate than black females, but black males had a higher incidence and mortality rate than white males

**Cancer Incidence and Mortality Time Trends
Lung and Bronchus, Tennessee, 2007-2011**



- Lung cancer incidence rates decreased slightly over time from 2007 to 2011; however, this change was not statistically significant
- Lung cancer mortality rates also decreased from 2007 to 2011 and this change was statistically significant

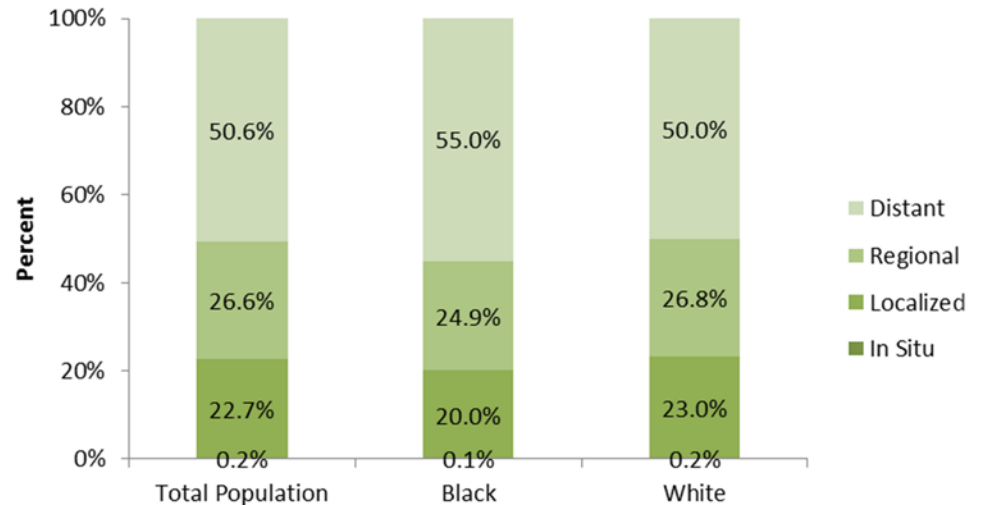
**Cancer Stage, Lung and Bronchus
Tennessee, 2007-2011**



- A very small proportion (0.2%) of lung cancer cases were diagnosed at the in situ stage
- About one in five cases (20.7%) was diagnosed at the localized stage
- About one in four (24.3%) was diagnosed at the regional stage
- Almost half of new cases (46.2%) were diagnosed at the distant stage
- 8.8% of cases had unknown stage information

- Among cases with known stage information, three out of four (77.2%) were diagnosed at either the regional or distant stage, i.e. late stages
- A higher percentage of black patients were diagnosed at late stages (79.9%) than whites (76.8%), and this difference was statistically significant

**Cancer Stage, Lung and Bronchus
By Race, Tennessee, 2007-2011**



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

CANCER INCIDENCE AND MORTALITY, LUNG AND BRONCHUS, TENNESSEE, 2007-2011

		Incidence			Mortality			M:I
		Count**	Rate***	CI	Count**	Rate***	CI	Ratio‡
Gender	Race							
Both*	All Races†	27,507	78.4	77.4 - 79.3	21,659	62.5	61.7 - 63.4	0.80
	Black	3,108	75.3	72.6 - 78.1	2,496	62.7	60.2 - 65.4	0.83
	White	24,221	79.1	78.1 - 80.1	19,072	62.9	62 - 63.8	0.80
Female	All Races†	11,880	61.5	60.4 - 62.6	8,771	45.4	44.4 - 46.4	0.74
	Black	1,280	53.6	50.6 - 56.7	943	40.5	37.9 - 43.3	0.76
	White	10,510	63.0	61.8 - 64.2	7,777	46.4	45.3 - 47.4	0.74
Male	All Races†	15,627	101.3	99.6 - 102.9	12,888	86.1	84.6 - 87.7	0.85
	Black	1,828	108.3	102.9 - 113.8	1,553	97.8	92.6 - 103.3	0.90
	White	13,711	100.8	99.0 - 102.5	11,295	85.4	83.8 - 87	0.85
Age at Diagnosis or Death****								
	0-19	^	^	^ - ^	0	0	0 - 0	^
	20-44	489	5.0	4.6 - 5.4	311	3.2	2.8 - 3.5	0.64
	45-64	9,674	106.1	104.0 - 108.3	6,783	74.2	72.4 - 76	0.70
	65+	17,340	419.2	412.9 - 425.5	14,565	355.2	349.4 - 361.1	0.85
Year of Diagnosis or Death								
	2007	5,279	79.1	76.9 - 81.2	4,325	65.5	63.6 - 67.5	0.83
	2008	5,450	79.2	77.1 - 81.3	4,281	63.2	61.3 - 65.2	0.80
	2009	5,663	80.5	78.4 - 82.7	4,364	63.1	61.3 - 65.1	0.78
	2010	5,589	78.1	76.0 - 80.2	4,400	62.2	60.3 - 64.1	0.80
	2011	5,526	75.3	73.3 - 77.3	4,289	58.9	57.1 - 60.7	0.78

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

***Age-adjusted annual rate per 100,000

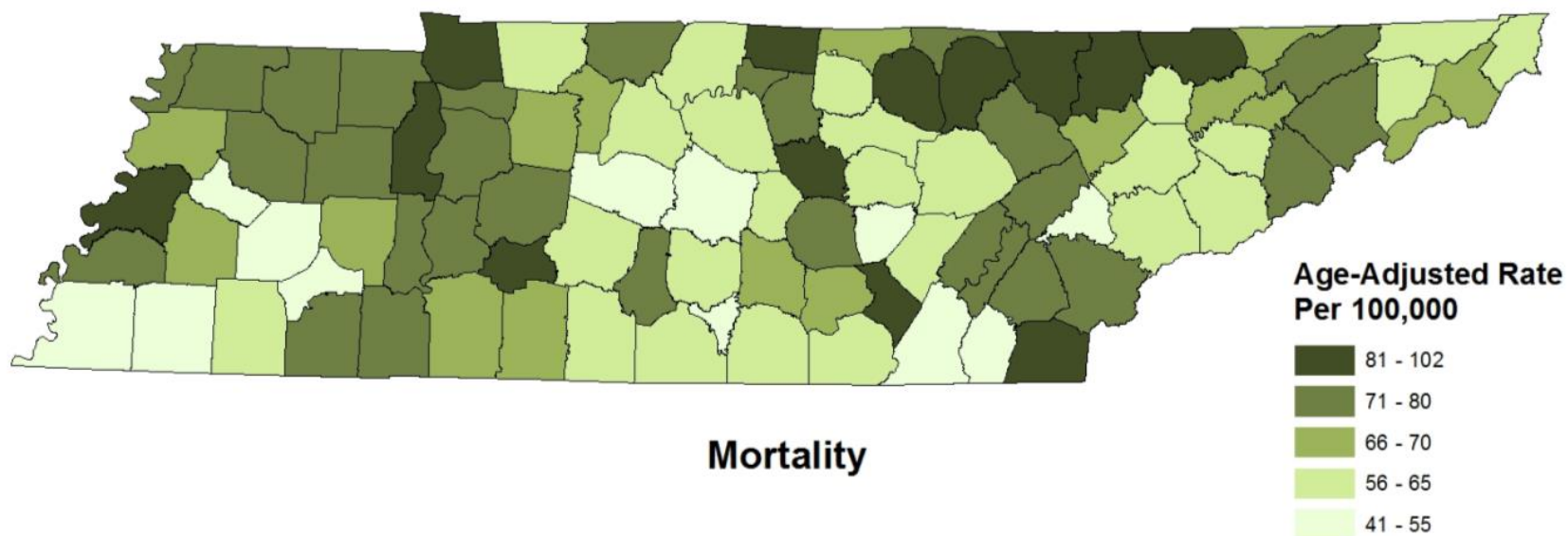
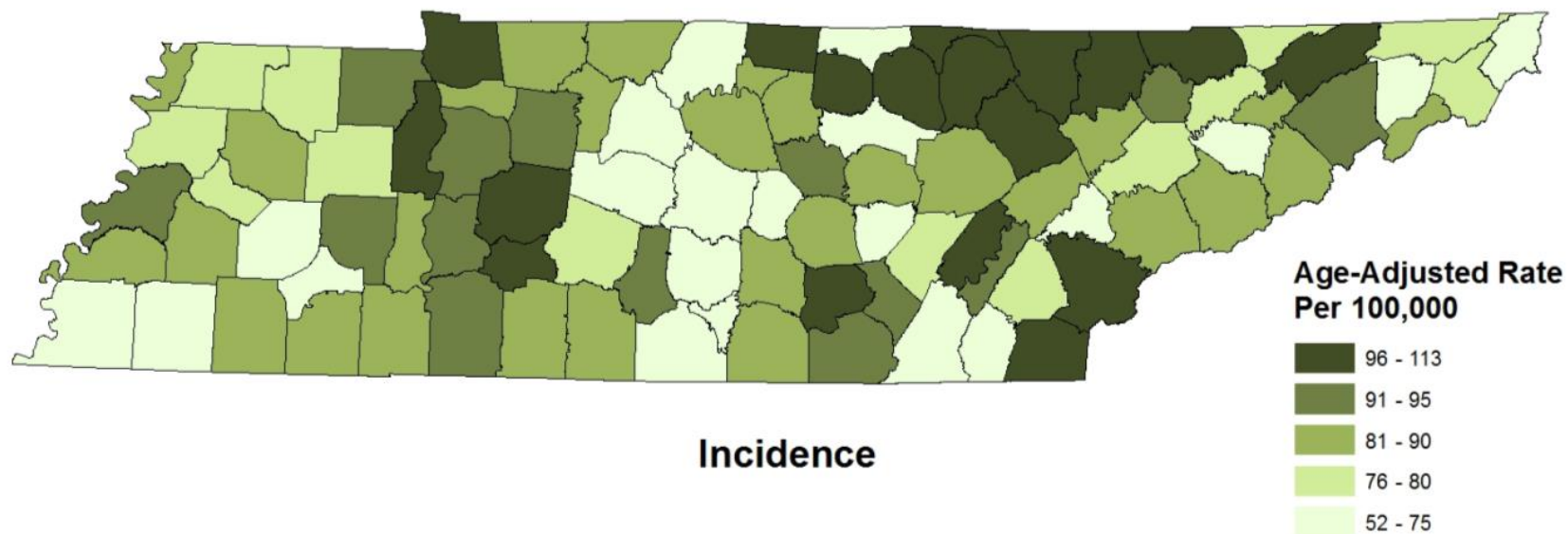
****Cell counts altered so suppressed cell values could not be derived

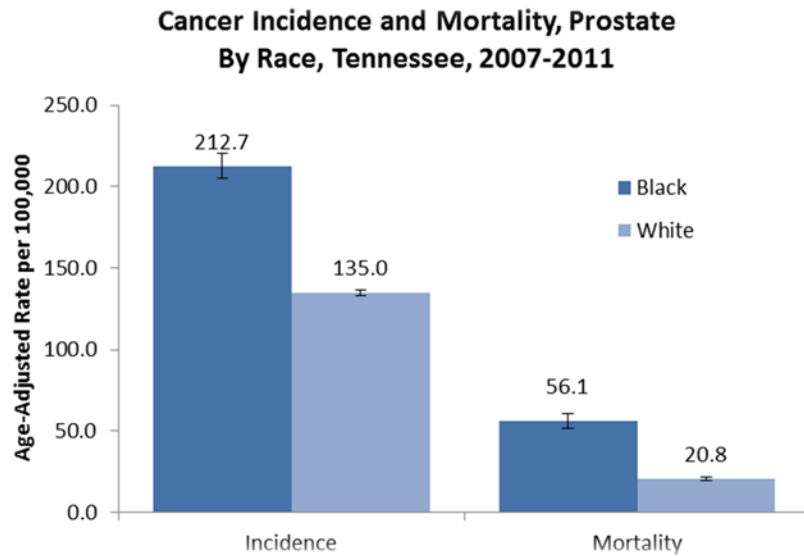
†Includes whites, blacks, other races and those missing race information

‡Mortality incidence ratio. See Technical Notes for details

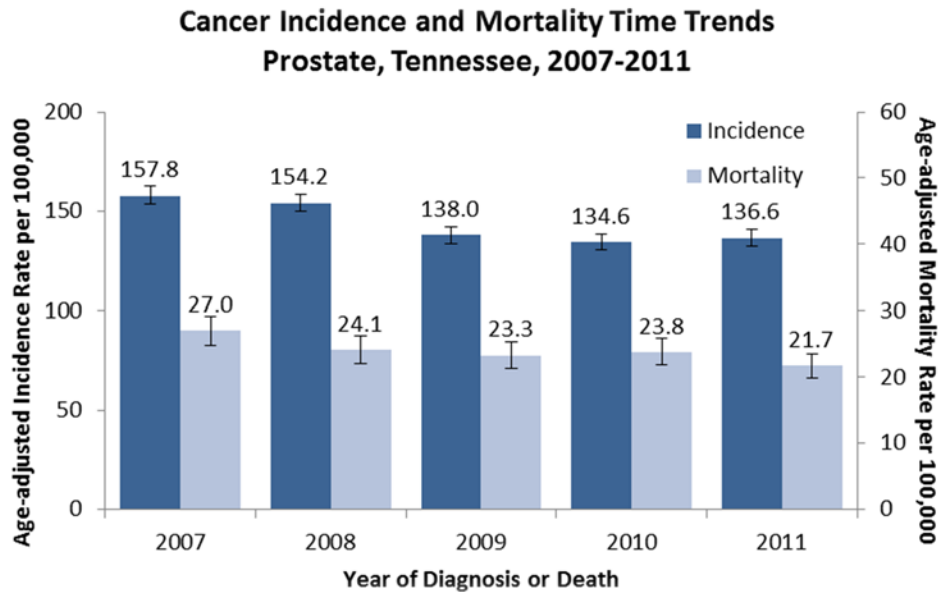
^Cell suppressed due to fewer than 10 cases

AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, LUNG AND BRONCHUS, TENNESSEE, 2007-2011



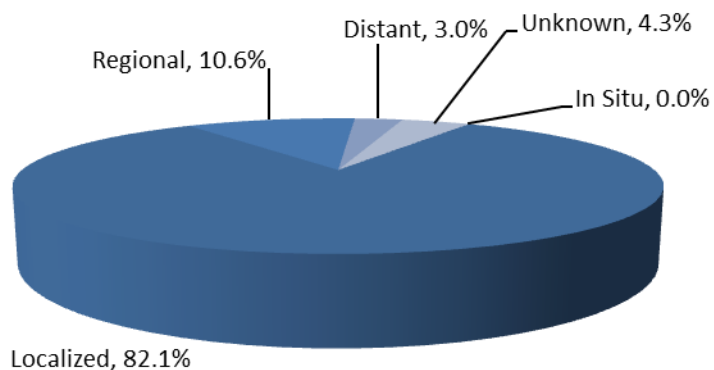


- A total of 23,489 newly diagnosed prostate cancer cases were reported among Tennessee men from 2007-2011, resulting in an age-adjusted incidence rate of 143.9/100,000
- During the same time period, 2,957 prostate cancer deaths were reported, giving an age-adjusted mortality rate of 23.9/100,000
- The mortality-to-incidence ratio for prostate cancer was 0.17 (see Appendix II)
- Black men had higher incidence and mortality rates than white men



- Prostate cancer incidence rates decreased over time from 2007 to 2011 and this change was statistically significant
- Prostate cancer mortality rates decreased over time from 2007 to 2011 and this change was statistically significant

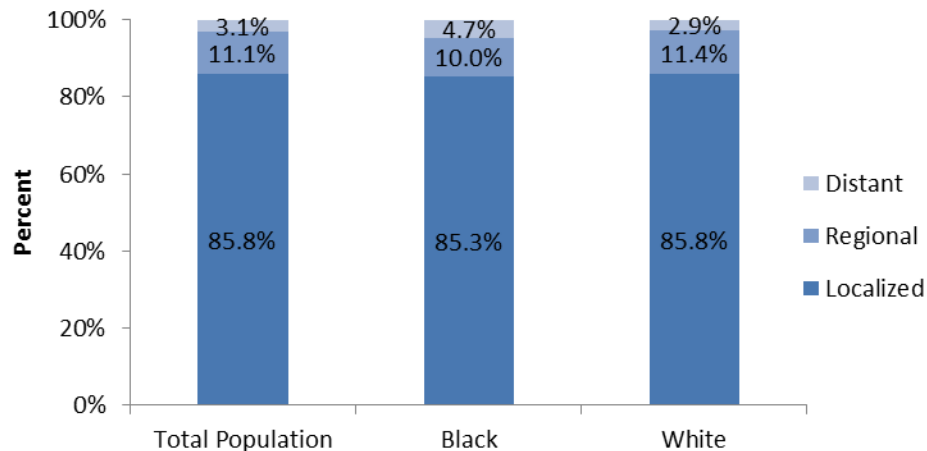
**Cancer Stage, Prostate
Tennessee, 2007-2011**



- About four out of every five cases (82.1%) were diagnosed at the localized stage
- Another one in ten (10.6%) was diagnosed at the regional stage
- 3% of cases were diagnosed at the distant stage
- 4.3% of cases had unknown stage information

- Among cases with known stage information, only 14.2% were diagnosed at late stages (i.e. at the regional or distant stage)
- A slightly higher percentage of black patients were diagnosed at late stages (14.7%) than whites (14.2%), but this difference was not statistically significant
- Early diagnosis of prostate cancer is believed to contribute to a low mortality-to-incidence ratio

**Cancer Stage, Prostate
By Race, Tennessee, 2007-2011**



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

CANCER INCIDENCE AND MORTALITY, PROSTATE, TENNESSEE, 2007-2011

		Incidence			Mortality			M:I
		Count**	Rate***	CI	Count*	Rate**	CI	Ratio‡
Gender	Race							
Male*	All Races†	23,489	143.9	142.0 - 145.8	2,957	23.9	23 - 24.8	0.17
	Black	3,754	212.7	205.3 - 220.2	647	56.1	51.6 - 60.8	0.26
	White	19,421	135.0	133.0 - 136.9	2,298	20.8	19.9 - 21.7	0.15
Age at Diagnosis or Death****								
	0-19	^	^	^ - ^	0	0	0 - 0.1	^
	20-44	125	2.6	2.2 - 3.1	^	^	^ - ^	^
	45-64	9,684	215.8	211.5 - 220.2	364	7.9	7.1 - 8.8	0.04
	65+	13,674	751.2	738.4 - 764.2	2,589	175.1	168.3 - 182.1	0.23
Year of Diagnosis or Death								
	2007	4,764	157.8	153.3 - 162.5	631	27	24.8 - 29.2	0.17
	2008	4,880	154.2	149.7 - 158.7	571	24.1	22.1 - 26.3	0.16
	2009	4,519	138.0	133.8 - 142.2	581	23.3	21.4 - 25.3	0.17
	2010	4,549	134.6	130.6 - 138.7	600	23.8	21.8 - 25.8	0.18
	2011	4,777	136.6	132.6 - 140.6	574	21.7	19.9 - 23.6	0.16

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

***Age-adjusted annual rate per 100,000

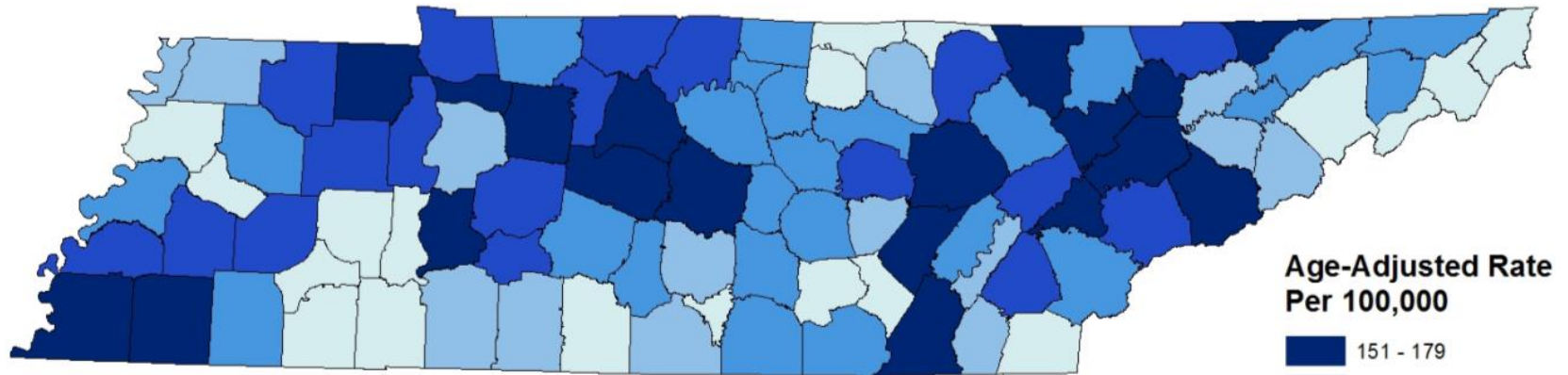
****Cell counts altered so suppressed cell values could not be derived

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

‡Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

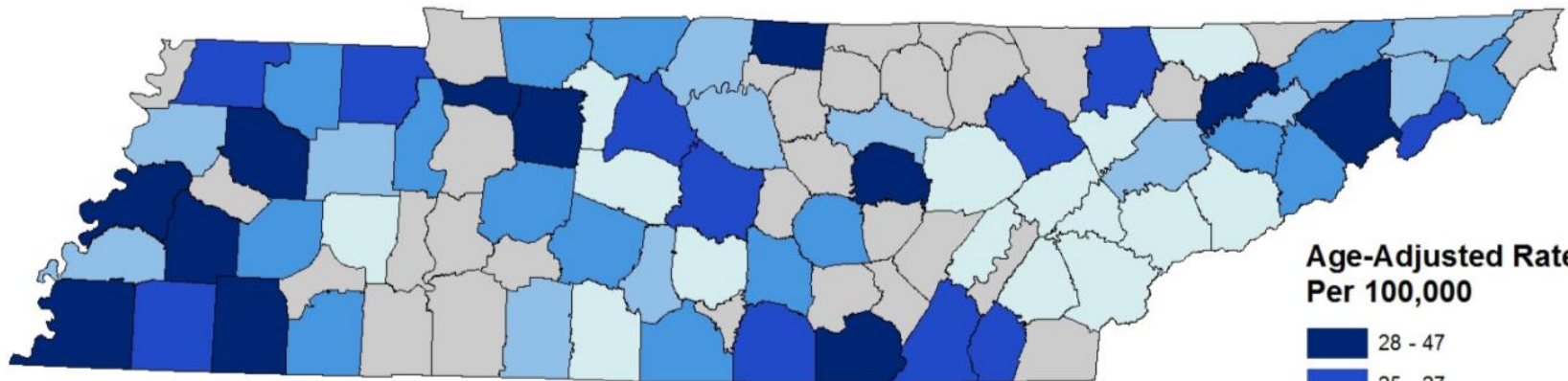
AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, PROSTATE, TENNESSEE, 2007-2011



Incidence

**Age-Adjusted Rate
Per 100,000**

- 151 - 179
- 136 - 150
- 121 - 135
- 106 - 120
- 59 - 105

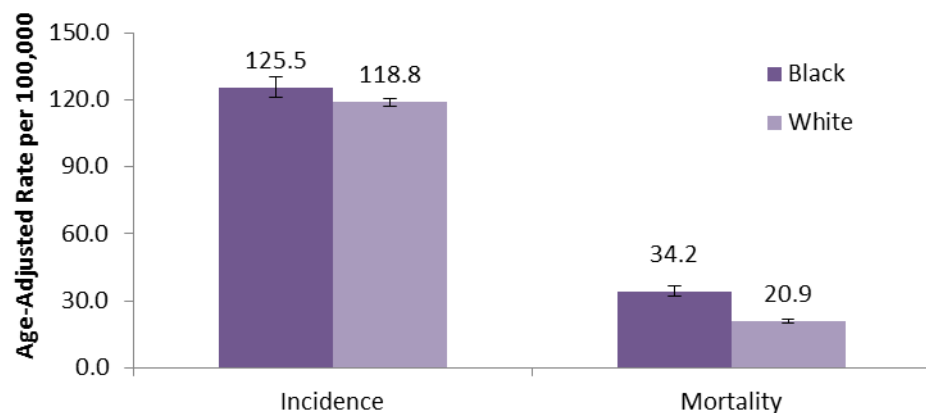


Mortality

**Age-Adjusted Rate
Per 100,000**

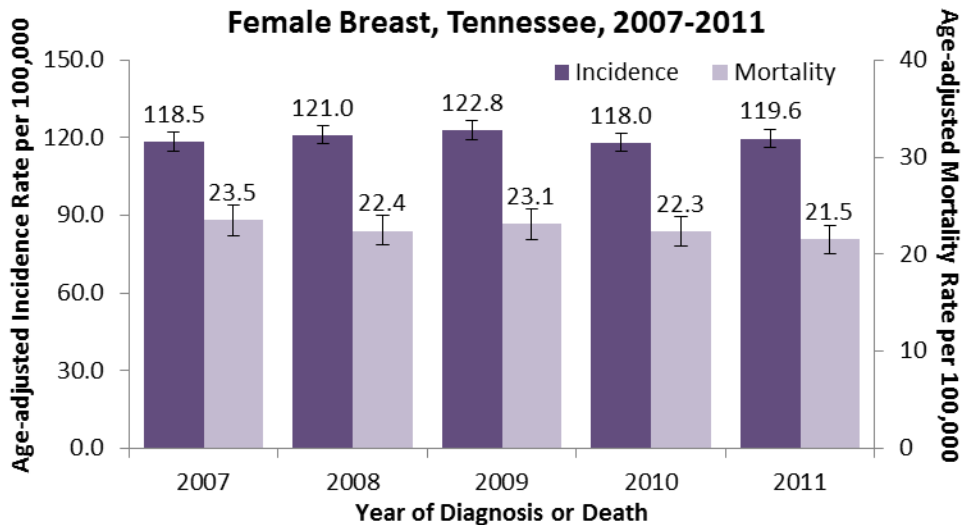
- 28 - 47
- 25 - 27
- 22 - 24
- 20 - 21
- 12 - 19
- Data Suppressed

**Cancer Incidence and Mortality, Female Breast
By Race, Tennessee, 2007-2011**



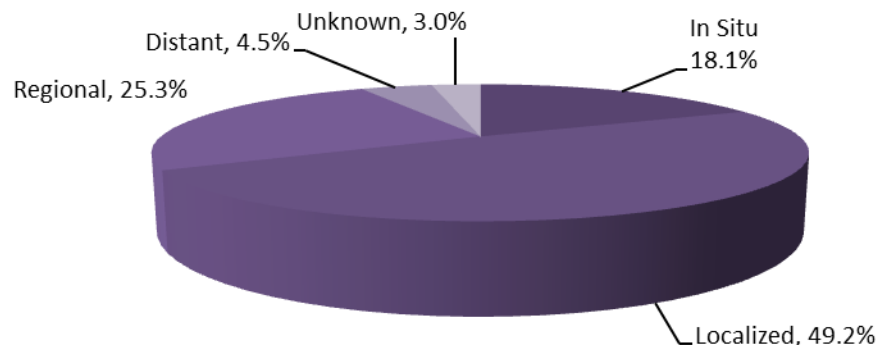
- A total of 22,479 new breast cancer cases were diagnosed among Tennessee women from 2007-2011, and the age-adjusted incidence rate was 120.0/100,000
- During the same time period, 4,334 Tennessee women died from breast cancer, giving an age-adjusted mortality rate of 22.5/100,000
- Black women had a higher incidence rate than white women, and the difference was statistically significant
- Black women had a much higher mortality rate (64% higher) than their white counterparts and the difference was statistically significant

**Cancer Incidence and Mortality Time Trends
Female Breast, Tennessee, 2007-2011**



- Female breast cancer incidence rates were stable from 2007 to 2011, whereas mortality rates were falling.

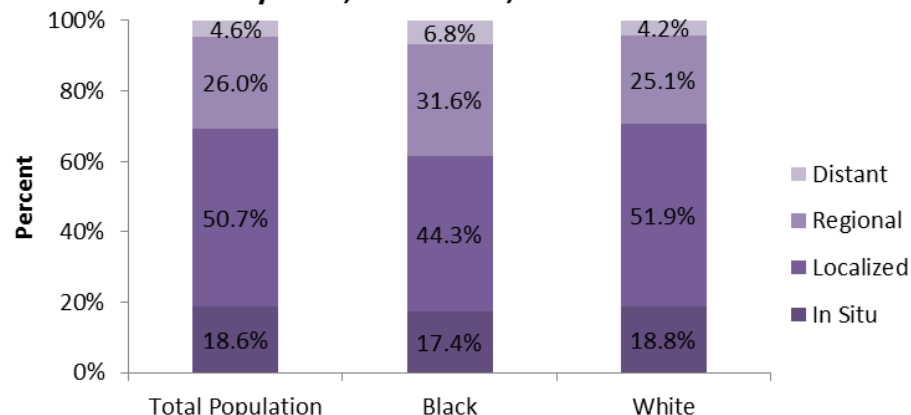
**Cancer Stage, Female Breast
Tennessee, 2007-2011**



- Almost one in five (18.1%) female breast cancer cases were diagnosed at the in situ stage
- Almost half of cases (49.2%) were diagnosed at the localized stage
- One in four cases (25.3%) was diagnosed at the regional stage
- 4.5% of cases were diagnosed at the distant stage
- 3% of cases had unknown stage information

- Among those with known stage, about one-third (30.6%) were diagnosed at late stages, either regional or distant
- Black women had a significantly higher proportion (38.4%) of cases diagnosed at late stages than white women (29.3%). This may partially explain the higher breast cancer mortality among black women, though this is surprising given that black women self-reported similar use of mammography compared to white women in the 2012 Behavioral Risk Factor Surveillance System Survey.

**Cancer Stage, Female Breast
By Race, Tennessee, 2007-2011**



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

CANCER INCIDENCE AND MORTALITY, FEMALE BREAST, TENNESSEE, 2007-2011

Gender	Race	Incidence			Mortality			M:I
		Count**	Rate***	CI	Count*	Rate**	CI	Ratio‡
Female*	All Races†	22,479	120.0	118.5 - 121.6	4,334	22.5	21.9 - 23.2	0.19
	Black	3,268	125.5	121.1 - 130.0	858	34.2	31.9 - 36.7	0.27
	White	18,923	118.8	117.1 - 120.6	3,457	20.9	20.2 - 21.6	0.18
Age at Diagnosis or Death								
	0-19	0	0.0	0.0 - 0.1	0	0	0 - 0.1	~
	20-44	2,361	47.4	45.5 - 49.3	256	5.1	4.5 - 5.8	0.11
	45-64	10,660	237.0	232.5 - 241.6	1,663	36.3	34.6 - 38.1	0.15
	65+	9,458	396.5	388.5 - 404.6	2,415	99.6	95.7 - 103.7	0.25
Year of Diagnosis or Death								
	2007	4,265	118.5	114.9 - 122.2	873	23.5	21.9 - 25.1	0.20
	2008	4,445	121.0	117.5 - 124.7	847	22.4	20.9 - 24.0	0.19
	2009	4,587	122.8	119.2 - 126.5	882	23.1	21.5 - 24.7	0.19
	2010	4,519	118.0	114.5 - 121.6	870	22.3	20.8 - 23.9	0.19
	2011	4,663	119.6	116.2 - 123.2	862	21.5	20.1 - 23.0	0.18

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

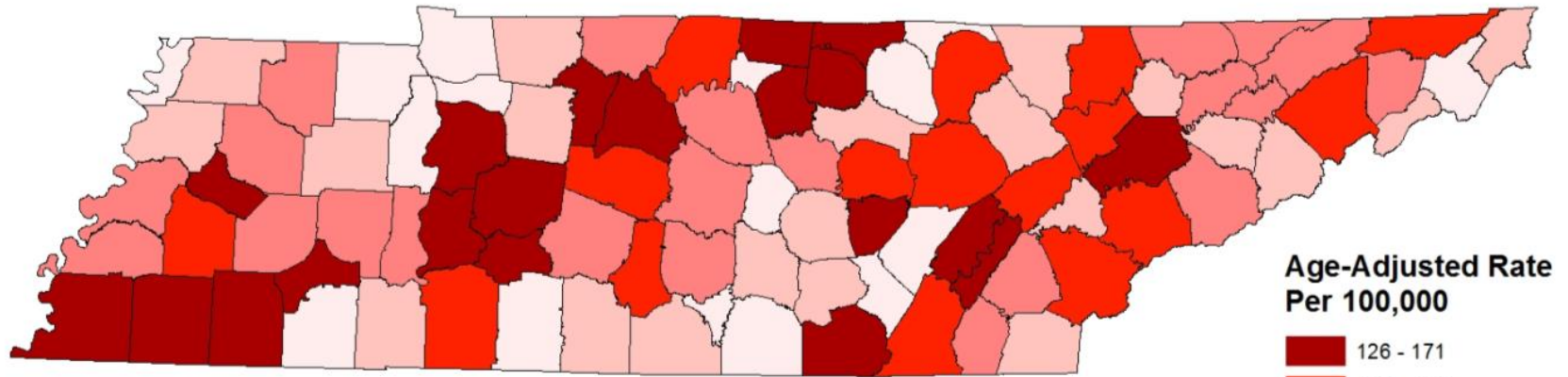
***Age-adjusted annual rate per 100,000

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

‡Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

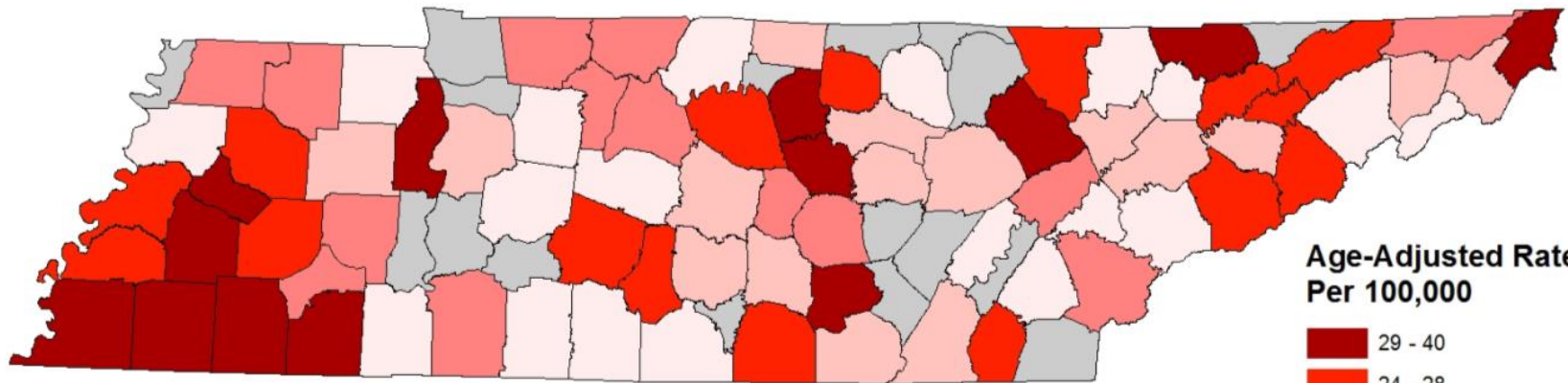
AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, FEMALE BREAST, TENNESSEE, 2007-2011



Incidence

**Age-Adjusted Rate
Per 100,000**

- 126 - 171
- 121 - 125
- 111 - 120
- 101 - 110
- 74 - 100

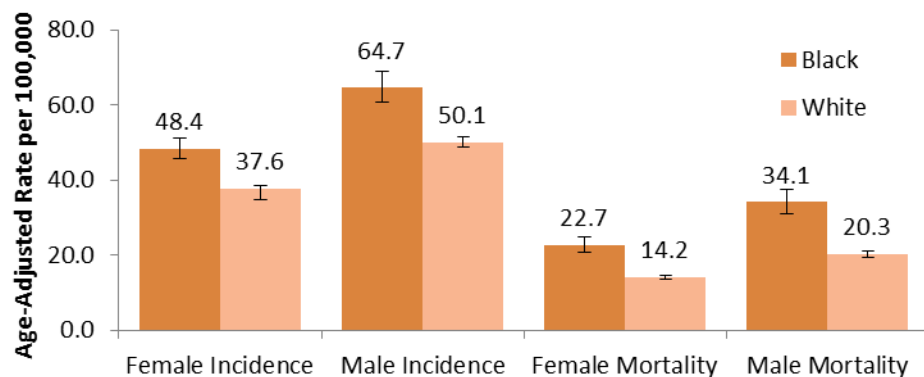


Mortality

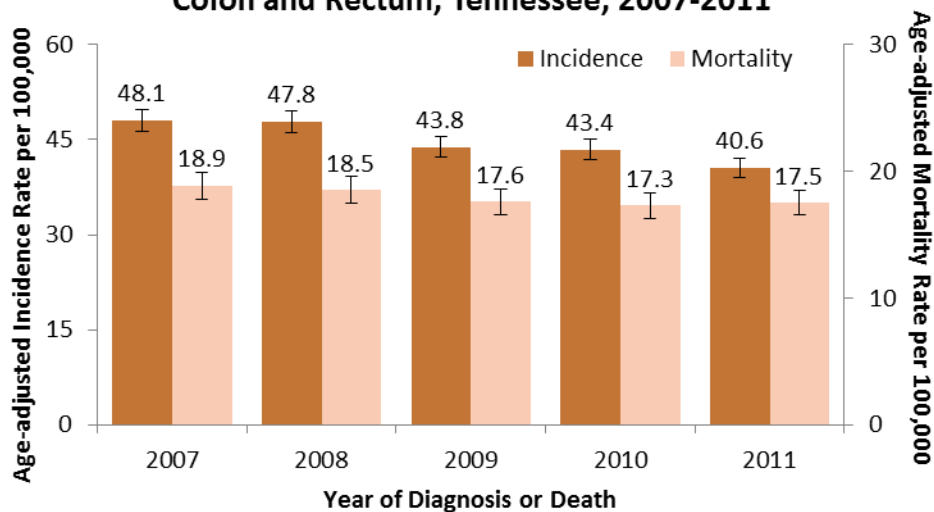
**Age-Adjusted Rate
Per 100,000**

- 29 - 40
- 24 - 28
- 22 - 23
- 20 - 21
- 15 - 19
- Data Suppressed

**Cancer Incidence and Mortality, Colon and Rectum
By Gender and Race, Tennessee, 2007-2011**



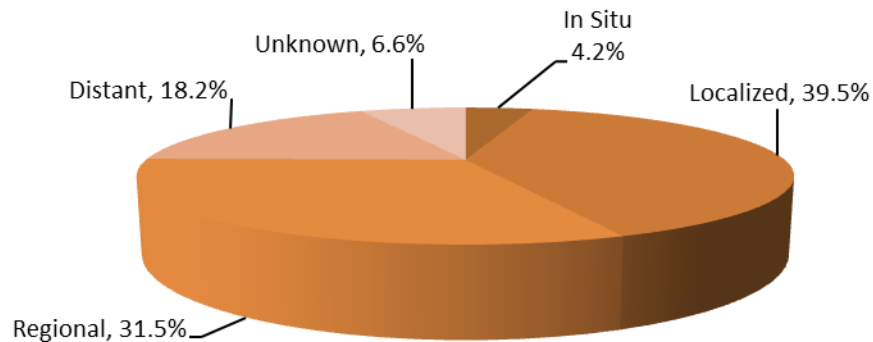
**Cancer Incidence and Mortality Time Trends
Colon and Rectum, Tennessee, 2007-2011**



- A total of 15,363 new cases of colorectal cancer were reported among Tennesseans from 2007-2011, and the age-adjusted incidence rate was 44.6/100,000
- During the same time period, 6,086 colorectal cancer deaths were reported, resulting in an age-adjusted mortality rate of 17.9/100,000
- Males had higher incidence and mortality rates than females regardless of race
- Blacks had higher incidence and mortality rates than whites regardless of gender
- Black males had the highest mortality rate among the four gender-race groups while white females had the lowest; the same pattern was also observed for incidence rates

- The colorectal cancer incidence and mortality rate both decreased statistically significantly from 2007 to 2011

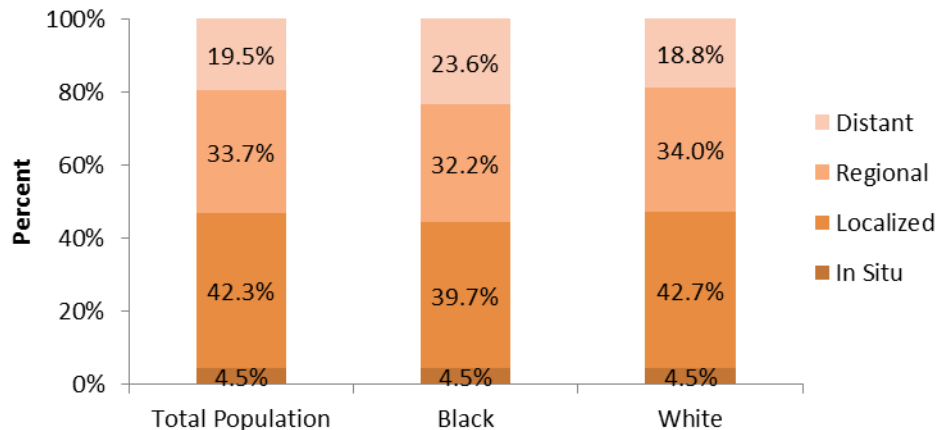
**Cancer Stage, Colon and Rectum
Tennessee, 2007-2011**



- 4.2% of the colorectal cancer incidence cases were diagnosed at the in situ stage
- 39.5% were diagnosed at the localized stage
- 31.5% were diagnosed at the regional stage
- 18.2% were diagnosed at the distant stage
- 6.6% of cases had unknown stage information

- Among those with known stage, 53.2% were diagnosed at either the regional or distant stage, i.e. late stages
- Black Tennesseans had a higher proportion (55.8%) of cases diagnosed at late stages than whites (52.8%). The difference is statistically significant
- Almost one-fourth (23.6%) of blacks were diagnosed at the distant stage, compared to less than one-fifth (18.8%) of whites

**Cancer Stage, Colon and Rectum
By Race, Tennessee, 2007-2011**



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

CANCER INCIDENCE AND MORTALITY, COLON AND RECTUM, TENNESSEE, 2007-2011

		Incidence			Mortality			M:I
		Count**	Rate***	CI	Count**	Rate***	CI	Ratio‡
Gender	Race							
Both*	All Races†	15,363	44.6	43.9 - 45.4	6,086	17.9	17.5 - 18.4	0.40
	Black	2,283	54.9	52.6 - 57.3	1,060	27.2	25.5 - 28.9	0.50
	White	12,880	43.2	42.4 - 43.9	4,991	16.8	16.4 - 17.3	0.39
Female	All Races†	7,453	39.0	38.1 - 39.9	2,948	15.1	14.6 - 15.7	0.39
	Black	1,179	48.4	45.6 - 51.3	531	22.7	20.8 - 24.8	0.47
	White	6,183	37.6	36.6 - 38.6	2,396	14.2	13.6 - 14.7	0.38
Male	All Races†	7,910	51.8	50.6 - 53.0	3,138	21.6	20.8 - 22.4	0.42
	Black	1,104	64.7	60.6 - 69.0	529	34.1	31 - 37.4	0.53
	White	6,697	50.1	48.9 - 51.4	2,595	20.3	19.5 - 21.2	0.41
Age at Diagnosis or Death****								
	0-19	^	^	^ - ^	^	^	^ - ^	^
	20-44	866	8.7	8.2 - 9.3	227	2.3	2 - 2.6	0.26
	45-64	5,636	63.5	61.8 - 65.2	1,870	20.8	19.8 - 21.7	0.33
	65+	8,856	216.2	211.7 - 220.8	3,988	98.7	95.7 - 101.8	0.46
Year of Diagnosis or Death								
	2007	3,178	48.1	46.4 - 49.8	1,229	18.9	17.8 - 19.9	0.39
	2008	3,227	47.8	46.2 - 49.5	1,225	18.5	17.5 - 19.6	0.39
	2009	3,009	43.8	42.2 - 45.4	1,189	17.6	16.6 - 18.6	0.40
	2010	3,045	43.4	41.8 - 45.0	1,201	17.3	16.3 - 18.3	0.40
	2011	2,904	40.6	39.1 - 42.1	1,242	17.5	16.6 - 18.5	0.43

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

***Age-adjusted annual rate per 100,000

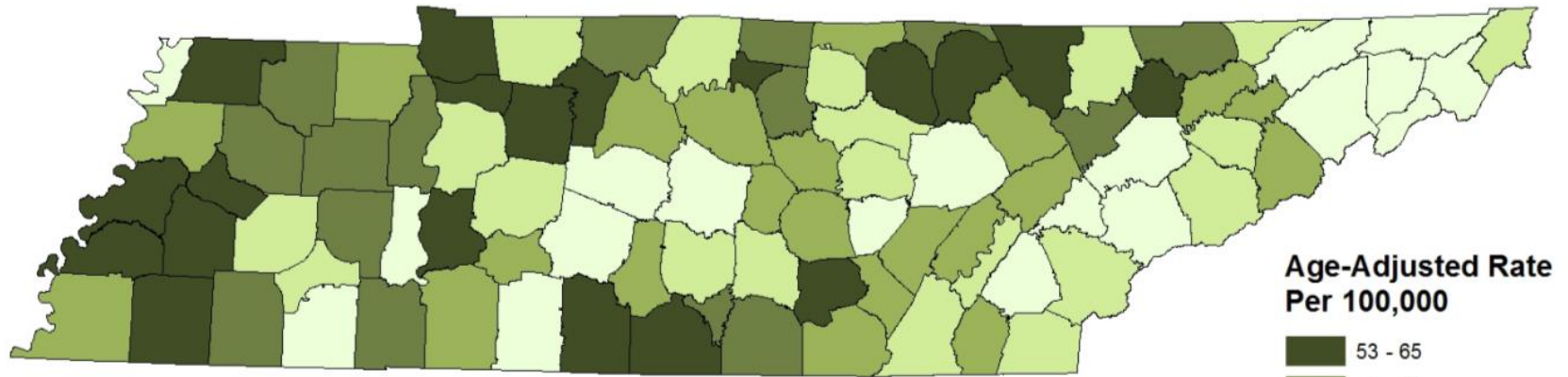
****Cell counts altered so suppressed cell values could not be derived

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

‡Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

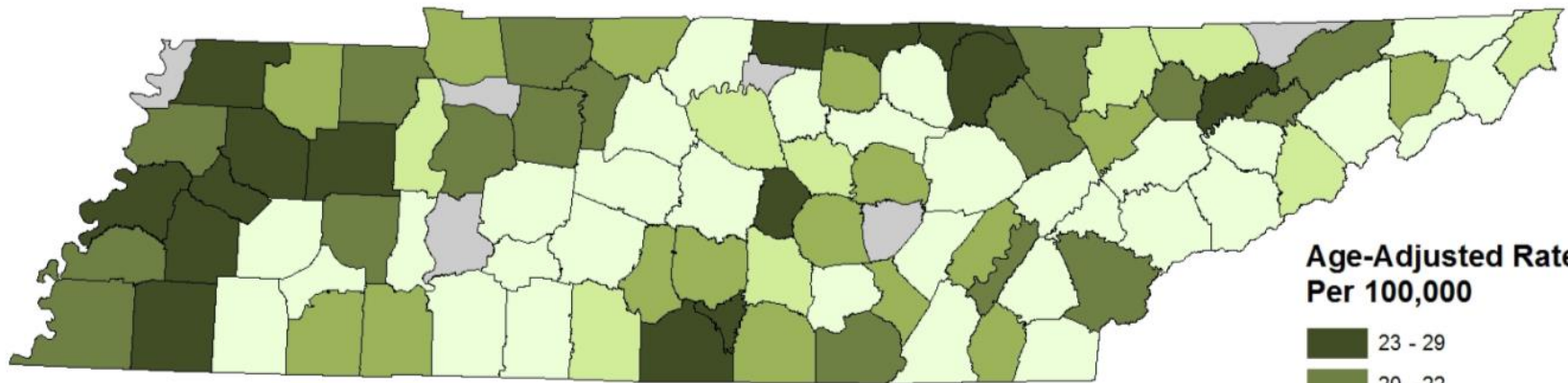
AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, COLON & RECTUM, TENNESSEE, 2007-2011



Incidence

**Age-Adjusted Rate
Per 100,000**

- 53 - 65
- 49 - 52
- 45 - 48
- 43 - 44
- 30 - 42

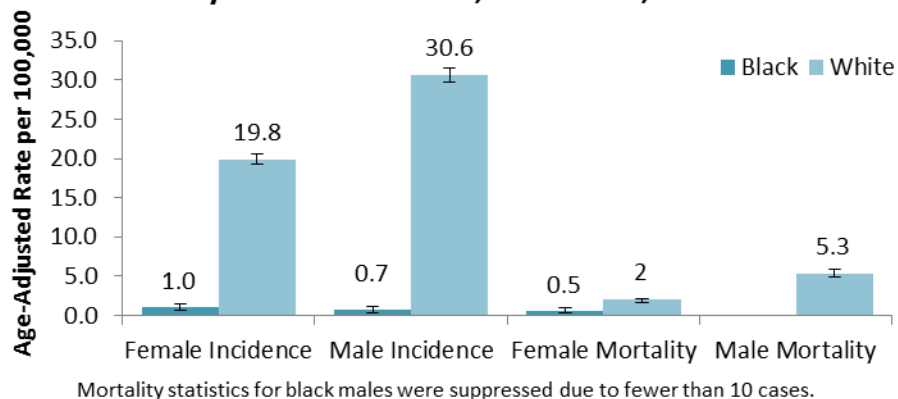


Mortality

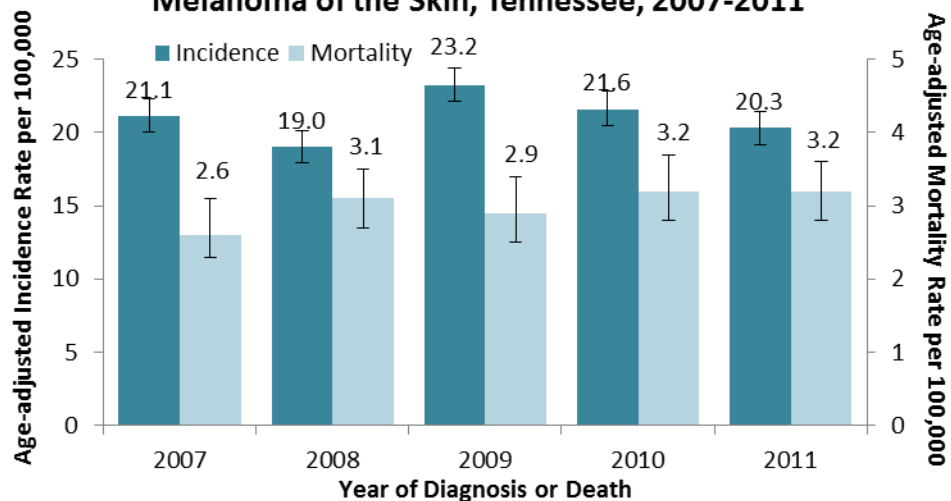
**Age-Adjusted Rate
Per 100,000**

- 23 - 29
- 20 - 22
- 19
- 18
- 11 - 17
- Data Suppressed

**Cancer Incidence and Mortality, Melanoma of the Skin
By Gender and Race, Tennessee, 2007-2011**



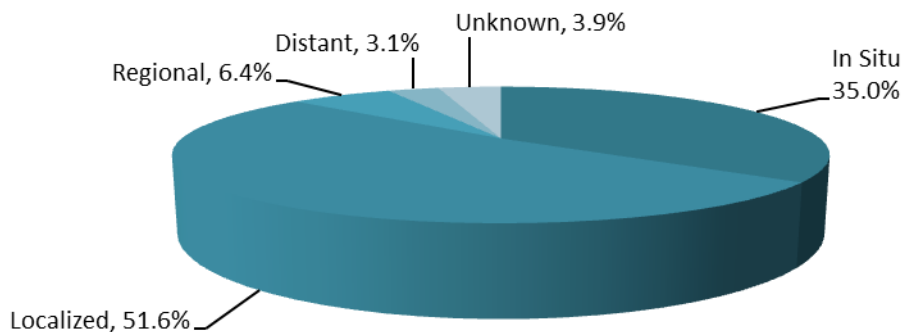
**Cancer Incidence and Mortality Time Trends
Melanoma of the Skin, Tennessee, 2007-2011**



- There were 7,132 newly diagnosed melanoma skin cancer cases among Tennesseans from 2007-2011, and the age-adjusted incidence rate was 21.1/100,000
- During the same time period, 1,020 melanoma skin cancer patients died, giving an age-adjusted mortality rate of 3.0/100,000
- The mortality-to-incidence ratio for melanoma skin cancer was 0.14 for the total population, making it the least deadly among the top 10 common cancers
- However, the mortality-to-incidence ratio for blacks was 0.56, four times as high as for whites (0.14) (see appendix I)
- Whites had a much higher melanoma skin cancer incidence rate than blacks regardless of gender
- White males had a higher incidence rate than white females
- White males had a higher mortality rate than white females

- The melanoma skin cancer incidence rate was stable over the 5-year period.
- Melanoma skin cancer mortality rates were stable over the period 2007 to 2011.

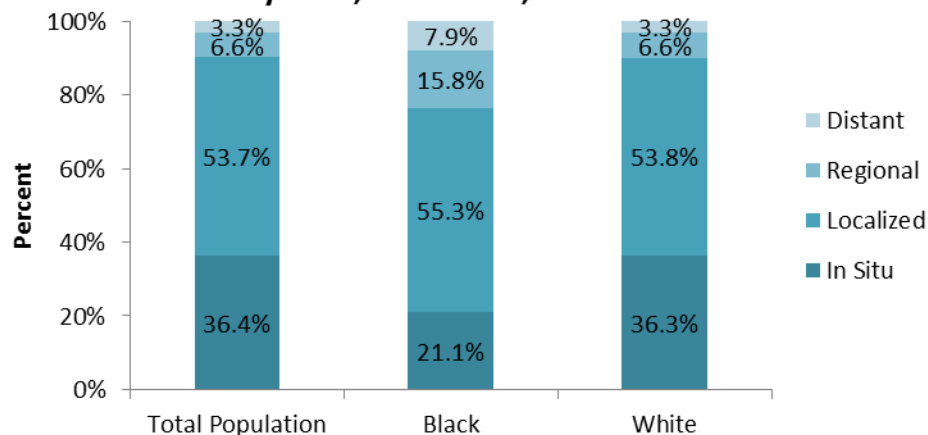
Cancer Stage, Melanoma of the Skin Tennessee, 2007-2011



- About one-third (35%) of melanoma skin cancer incident cases were diagnosed at the in situ stage
- Just over one-half of cases (51.6%) were diagnosed at the localized stage
- 6.4% of cases were diagnosed at the regional stage
- 3.1% of cases were diagnosed at distant stage
- 3.9% of cases had unknown stage information

- Among those with known stage, only one in ten was diagnosed at the regional or distant stage, i.e. late stages, which may explain why melanoma skin cancer was least deadly among the top 10 common cancers
- There was a racial disparity in stage of diagnosis: almost one in four (23.7%) cases among blacks were diagnosed at late stages, compared to one in ten (10%) among whites. This may have contributed to the much higher mortality-to-incidence ratio among blacks

Cancer Stage, Melanoma of the Skin By Race, Tennessee, 2007-2011



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

CANCER INCIDENCE AND MORTALITY, MELANOMA OF THE SKIN, TENNESSEE, 2007-2011

Gender	Race	Incidence			Mortality			M:I Ratio‡
		Count**	Rate***	CI	Count**	Rate***	CI	
Both*	All Races†	7,132	21.1	20.6 - 21.6	1,020	3.0	2.8 - 3.2	0.14
	Black	35	0.9	0.6 - 1.2	18	0.5	0.3 - 0.8	0.56
	White	6,995	24.2	23.7 - 24.8	999	3.4	3.2 - 3.6	0.14
Female	All Races†	2,995	16.8	16.2 - 17.5	325	1.7	1.6 - 1.9	0.10
	Black	25	1.0	0.7 - 1.5	12	0.5	0.3 - 0.9	0.50
	White	2,919	19.8	19.1 - 20.5	311	2.0	1.7 - 2.2	0.10
Male	All Races†	4,137	27.2	26.3 - 28.0	695	4.8	4.4 - 5.1	0.18
	Black	10	0.7	0.3 - 1.2	^	^	^ - ^	^
	White	4,076	30.6	29.7 - 31.6	688	5.3	4.9 - 5.8	0.17
Age at Diagnosis or Death								
0-19		42	0.5	0.4 - 0.7	0	0.0	0.0 - 0.0	0.00
20-44		1,157	11.4	10.7 - 12.1	76	0.8	0.6 - 0.9	0.07
45-64		2,827	32.4	31.2 - 33.7	360	4.1	3.7 - 4.6	0.13
65+		3,106	75.6	73.0 - 78.4	584	14.4	13.3 - 15.7	0.19
Year of Diagnosis or Death								
2007		1,381	21.1	20.0 - 22.3	172	2.6	2.3 - 3.1	0.12
2008		1,259	19.0	17.9 - 20.1	204	3.1	2.7 - 3.5	0.16
2009		1,577	23.2	22.1 - 24.4	199	2.9	2.5 - 3.4	0.13
2010		1,494	21.6	20.5 - 22.8	224	3.2	2.8 - 3.7	0.15
2011		1,421	20.3	19.2 - 21.4	221	3.2	2.8 - 3.6	0.16

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

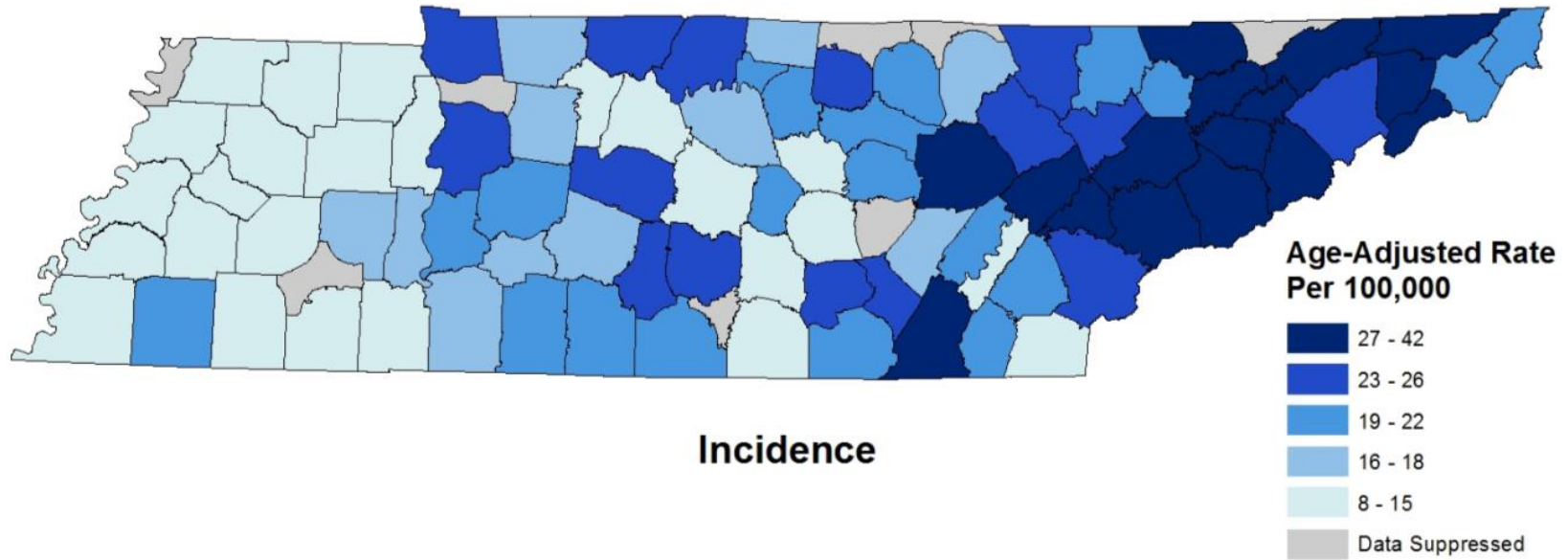
***Age-adjusted annual rate per 100,000

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

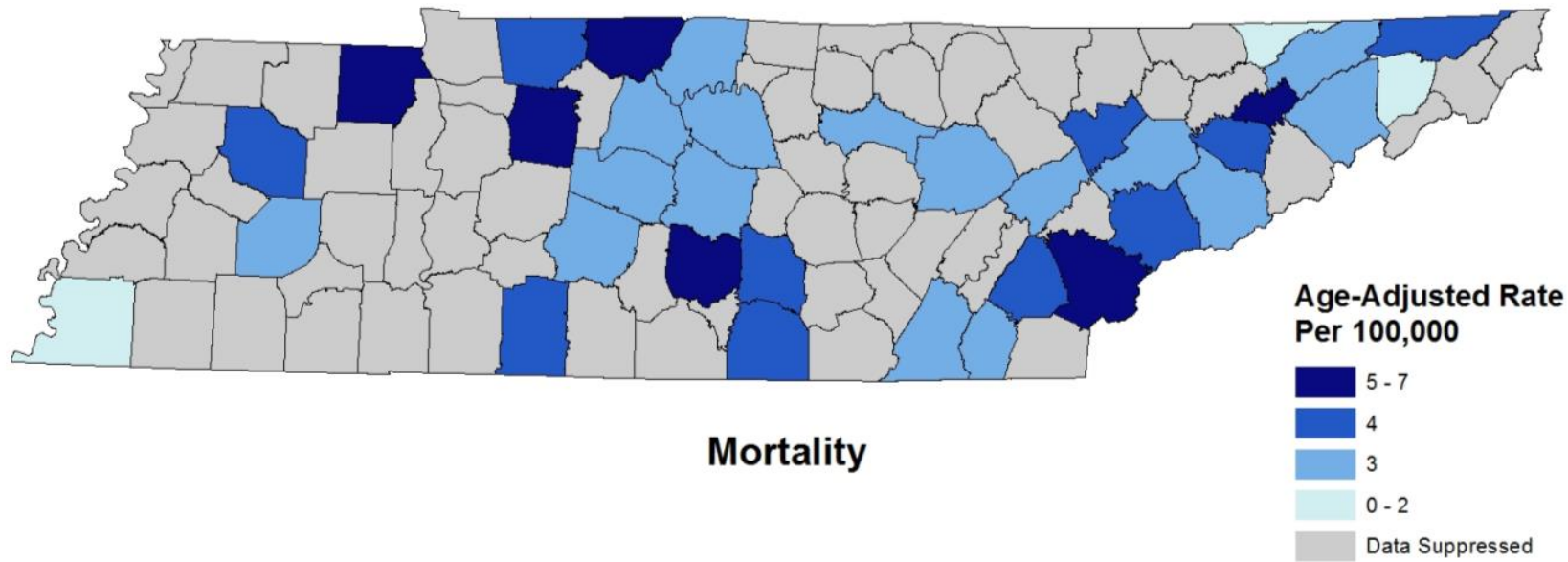
‡Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, MELANOMA OF THE SKIN, TENNESSEE, 2007-2011

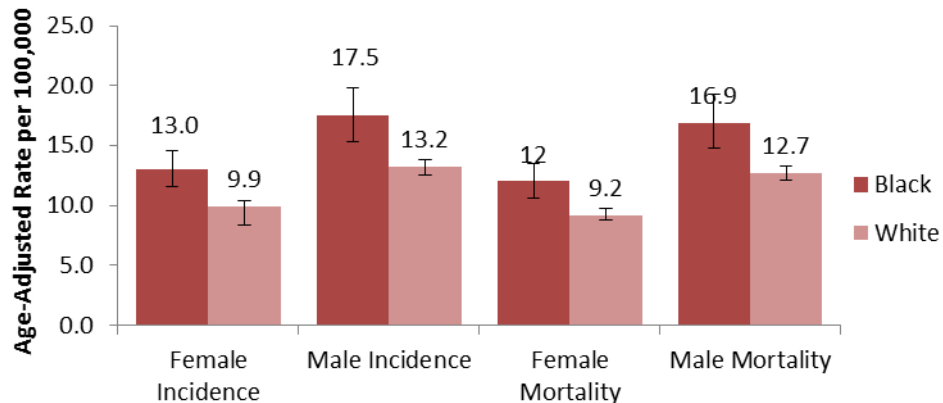


Incidence

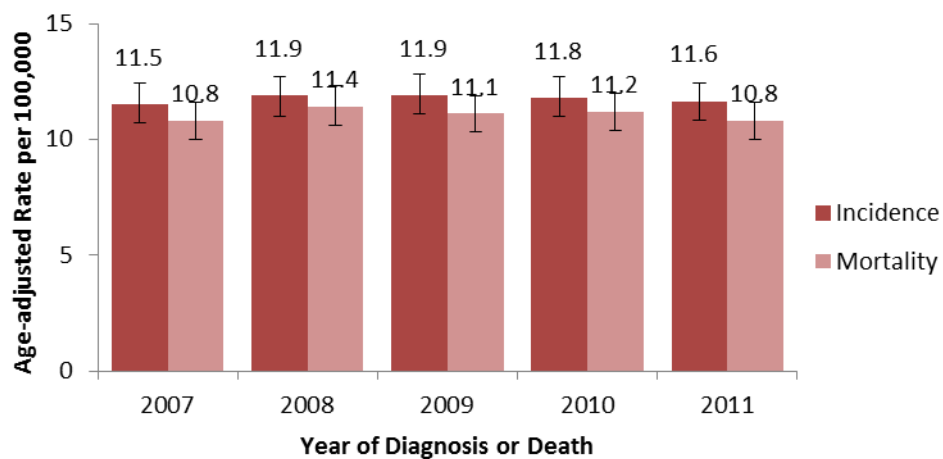


Mortality

**Cancer Incidence and Mortality, Pancreas
By Gender and Race, Tennessee, 2007-2011**



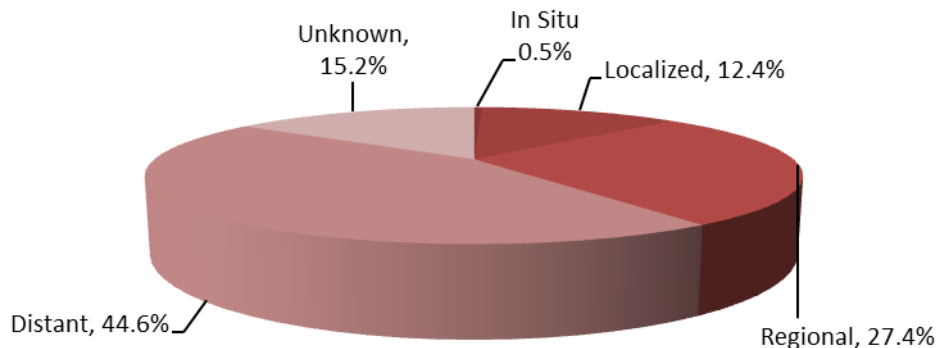
**Cancer Incidence and Mortality Time Trends
Pancreas, Tennessee, 2007-2011**



- From 2007-2011, there were 4,051 new pancreatic cancer cases among Tennesseans and the age-adjusted incidence rate was 11.8/100,000
- During the same time period, 3,770 deaths were reported, giving an age-adjusted mortality rate of 11.0/100,000
- Blacks had higher incidence and mortality rates than whites regardless of gender
- Males had higher incidence and mortality rates than females regardless of race
- The mortality-to-incidence ratio was 0.93, making pancreatic cancer the most deadly among the top 10 leading causes of cancer mortality in Tennessee

- There were no statistically significant changes in either pancreatic cancer incidence rates or mortality rates during the 5-year period, 2007-2011, i.e. rates remained stable.

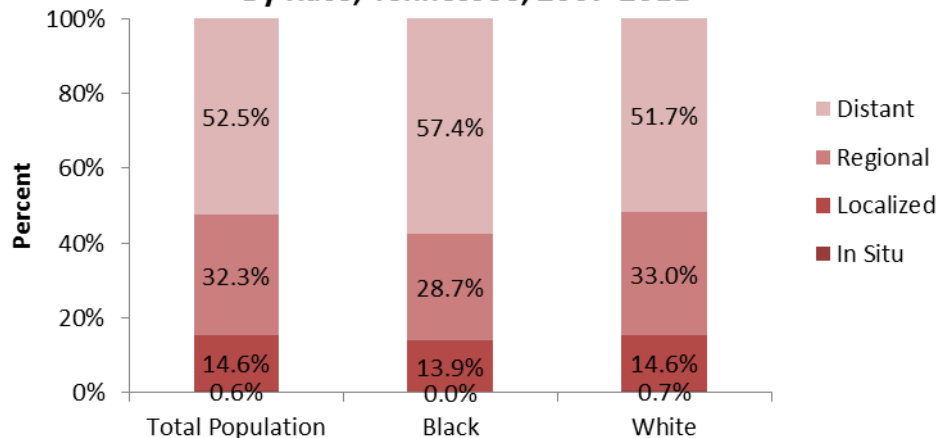
**Cancer Stage, Pancreas
Tennessee, 2007-2011**



- Only 20 pancreatic cancer cases (less than 1%) were diagnosed at the in situ stage
- 12.4% were diagnosed at the localized stage
- 27.4% were diagnosed at the regional stage
- 44.6% were diagnosed at the distant stage
- 15.2% of cases had unknown stage information

- Among cases with known stage, 84.8% were diagnosed at the regional or distant stage among the total population
- There were no statistically significant differences in percentage of cases diagnosed at late stages (i.e. the regional or distant stage) between blacks and whites

**Cancer Stage, Pancreas
By Race, Tennessee, 2007-2011**



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

CANCER INCIDENCE AND MORTALITY, PANCREAS, TENNESSEE, 2007-2011

Gender	Race	Incidence			Mortality			M:I
		Count**	Rate***	CI	Count**	Rate***	CI	Ratio‡
Both*	All Races†	4,051	11.8	11.4 - 12.1	3,770	11.0	10.7 - 11.4	0.93
	Black	586	14.9	13.6 - 16.2	536	14.0	12.8 - 15.2	0.94
	White	3,420	11.4	11.0 - 11.8	3,213	10.7	10.4 - 11.1	0.94
Female	All Races†	1,977	10.3	9.8 - 10.8	1,844	9.5	9.1 - 10.0	0.92
	Black	304	13.0	11.6 - 14.6	275	12.0	10.6 - 13.5	0.92
	White	1,648	9.9	9.4 - 10.4	1,555	9.2	8.8 - 9.7	0.93
Male	All Races†	2,074	13.6	13.0 - 14.2	1,926	13.0	12.4 - 13.7	0.96
	Black	282	17.5	15.3 - 19.8	261	16.9	14.8 - 19.3	0.97
	White	1,772	13.2	12.5 - 13.8	1,658	12.7	12.1 - 13.3	0.96
Age at Diagnosis or Death****								
0-19		^	^	^ - ^	^	^	^ - ^	^
20-44		133	1.4	1.1 - 1.6	77	0.8	0.6 - 1.0	0.57
45-64		1,389	15.3	14.5 - 16.2	1,134	12.5	11.8 - 13.2	0.82
65+		2,527	62.1	59.7 - 64.5	2,558	63.2	60.7 - 65.7	1.02
Year of Diagnosis or Death								
2007		754	11.5	10.7 - 12.4	699	10.8	10.0 - 11.6	0.94
2008		798	11.9	11.0 - 12.7	759	11.4	10.6 - 12.3	0.96
2009		809	11.9	11.1 - 12.8	750	11.1	10.3 - 11.9	0.93
2010		839	11.8	11.0 - 12.7	779	11.2	10.4 - 12.0	0.95
2011		851	11.6	10.8 - 12.4	783	10.8	10.0 - 11.6	0.93

*Excludes hermaphrodites and transsexuals

**Total counts from 2007-2011

***Age-adjusted annual rate per 100,000

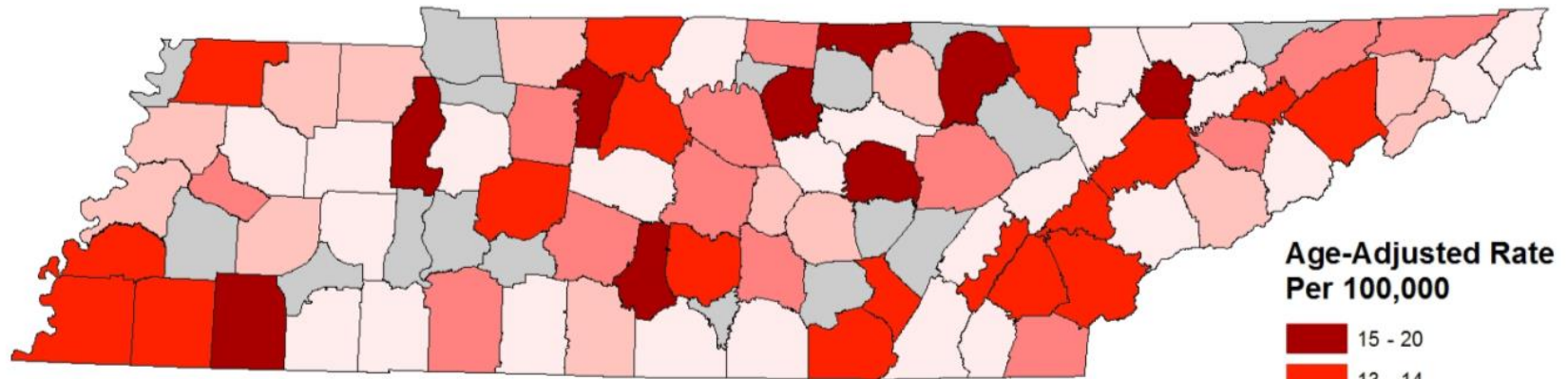
****Cell counts altered so suppressed cell values could not be derived

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

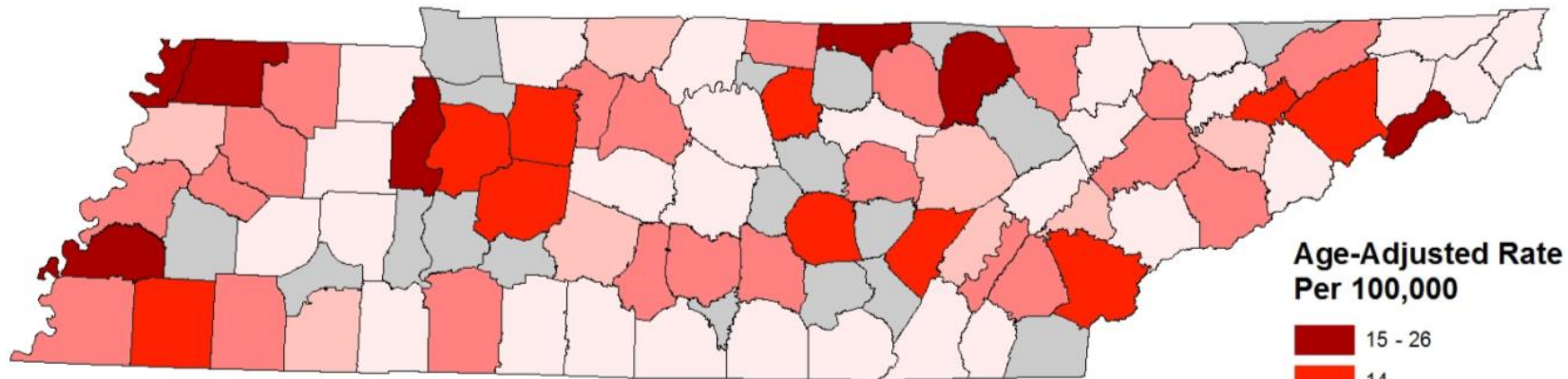
‡Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

AGE-ADJUSTED CANCER INCIDENCE AND MORTALITY RATES BY RESIDENT COUNTY, PANCREAS, TENNESSEE, 2007-2011



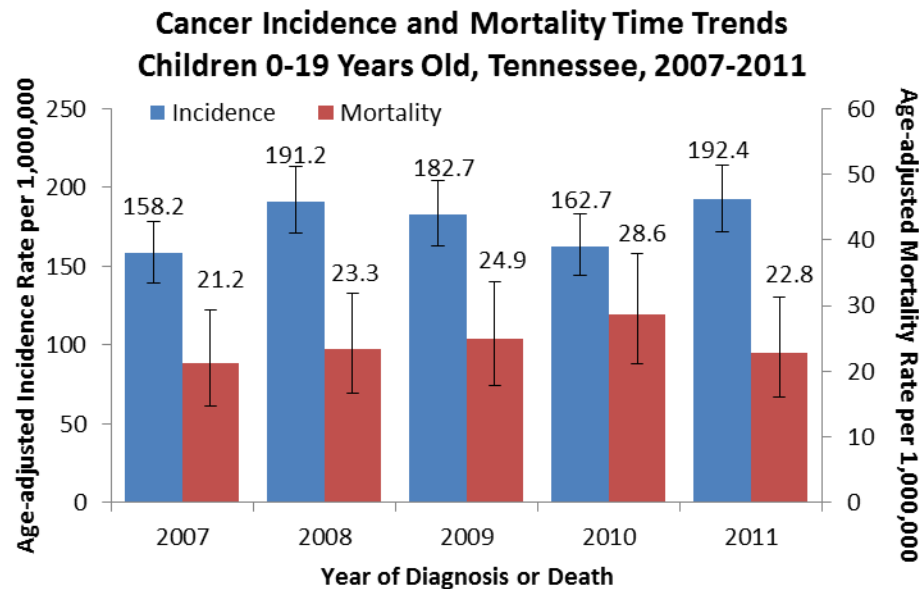
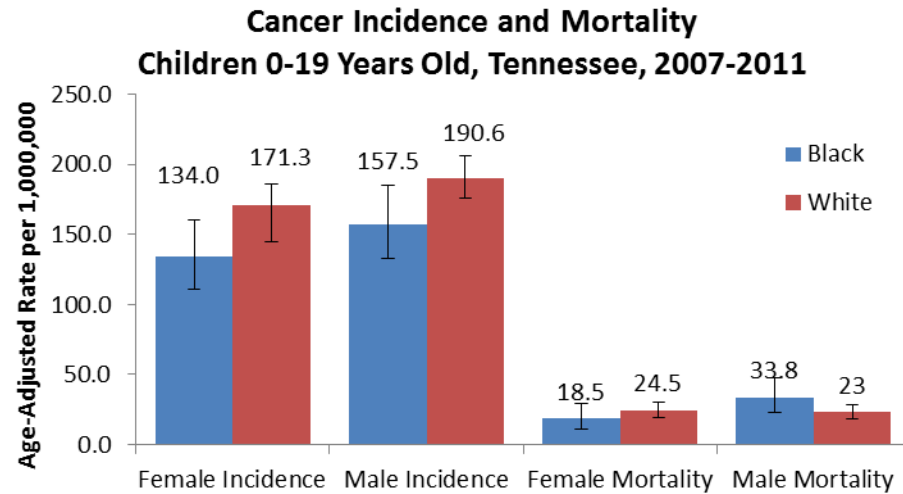
Incidence



Mortality

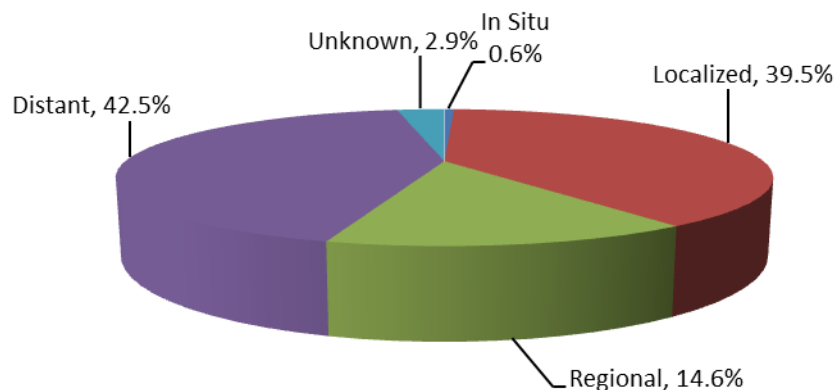
CHILDHOOD CANCER IN TENNESSEE, 2007-2011

CHILDHOOD CANCER BY GENDER AND RACE, AND TIME TREND



- A total of 1,482 new cancer cases in Tennessee were reported among children 19 years and younger from 2007-2011, and the age-adjusted incidence rate was 176.7/1,000,000
- A total of 202 children 19 years and younger died of cancer during that same five-year period, giving an age-adjusted mortality rate of 24.2/1,000,000
- There were no statistically significant differences between gender and/or race groups for either incidence or mortality rate
- There were no statistically significant changes in childhood cancer incidence rates during the 5-year period, 2007 to 2011; however, mortality rates show a slight decreasing trend over the 5-year period.

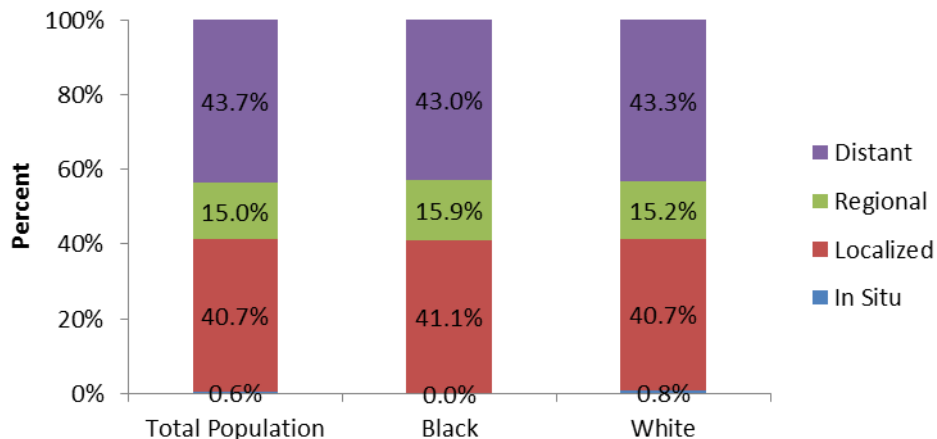
**Cancer Stage, All Sites Combined
Children 0-19, Tennessee, 2007-2011**



- 39.5% of cases were diagnosed at the localized stage
- 14.6% of cases were diagnosed at the regional stage
- 42.5% of cases were diagnosed at the distant stage
- 2.9% of cases had unknown stage information

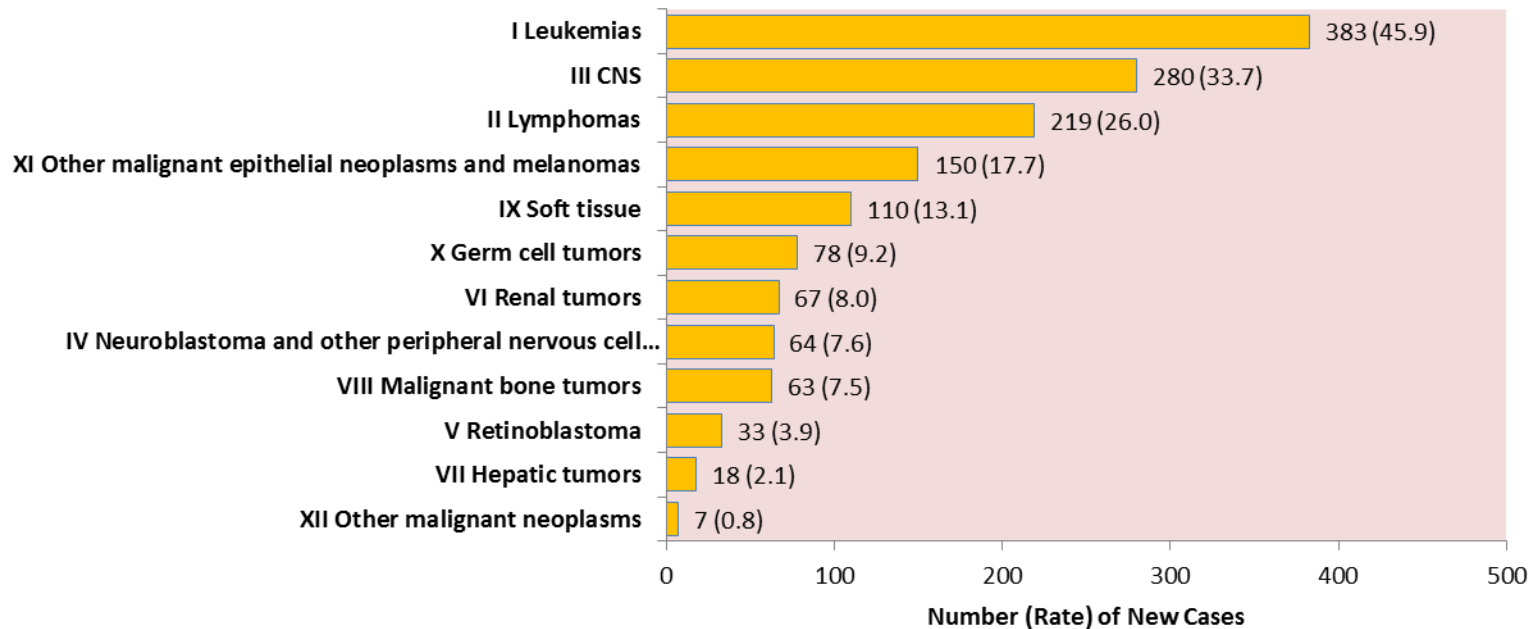
- Among cases with known stage, 58.7% were diagnosed at the regional or distant stage
- There were no statistically significant differences in percentage of cases diagnosed at late stages (i.e. the regional or distant stage) between blacks and whites

**Cancer Stage, Children 0-19
By Race, Tennessee, 2007-2011**



LEADING CAUSES OF CHILDHOOD CANCER INCIDENCE

Leading Causes of Cancer Incidence Children 0-19 Years Old, Tennessee, 2007-2011

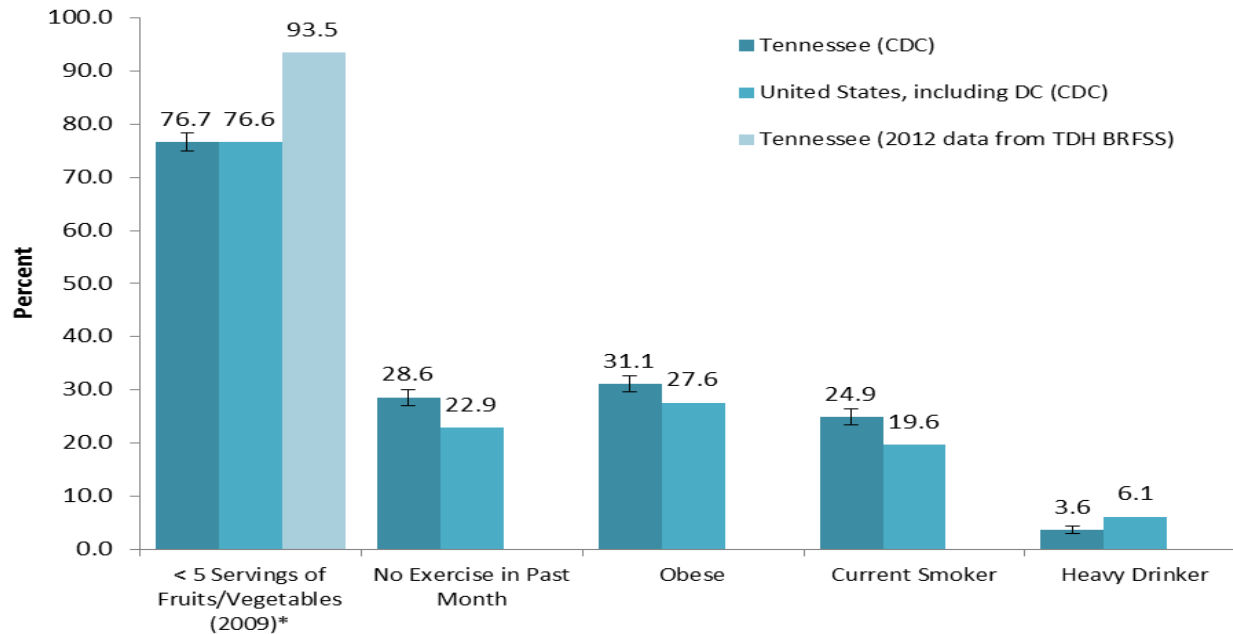


Note: Rate per 1,000,000. Excludes 10 cases not classified by International Classification of Childhood Cancers

- Leukemia was the 1st leading cause of cancer incidence among children in Tennessee
- The second leading cause was central nervous system cancers, followed by lymphomas (3rd), other epithelial neoplasms and melanomas (4th), and soft tissue sarcomas (5th)

CANCER RISK FACTOR PREVALENCE IN TENNESSEE, 2012

Prevalence of Risk Factors among Adults 18+ Years of Age Tennessee and the United States, 2012



*Most current data on 5 servings of fruits and vegetables that CDC has were for 2009
 Data source: Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System (BRFSS) Survey Data*. Atlanta, Georgia: US. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009, 2012. [Do not compare 2011 and following years of BRFSS data to previous years. Due to changes in methods, comparisons are not valid and may be misleading.](#)

- In 2009, 76.7% of adult Tennesseans did not eat a minimum of 5 fruits and vegetables servings a day, about the same as the national median. However, the Tennessee percentage rose sharply to 93.5% in 2012
- In 2012, 28.6% of adult Tennesseans did not exercise during the past month, compared to the national median of 22.9%
- 31.1% of adult Tennesseans were obese (BMI \geq 30.0) in 2012, compared to the U.S. median of 27.6%
- In 2012, 24.9% of adult Tennesseans were current cigarette smokers, compared to 19.6% nationally
- 3.6% of Tennessee adults were heavy drinkers (i.e. adult men having more than two drinks per day and adult women having more than one drink per day), compared to the U.S. median of 6.1%

TECHNICAL NOTES

DEFINITION OF TERMS

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,

Incidence rate = (Number of new cases / Population at risk) * 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.

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,

Mortality rate = (Number of cancer deaths / Population at risk) * 100,000.

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 the most important risk factor for the development of cancer. Hence, if one population has a significantly greater proportion of older people than another population, one would expect a larger number of cancers in the older population. Therefore, rates need to 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 United States Standard Population with 19 age groups.

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

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.⁶

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

⁶ Premature Mortality in the United States: Public Health Issues in the Use of Years of Potential Life Lost. MMWR. 1986 Dec 19;35(2 Suppl.):1S-11S.

gamma distribution method developed by Fay and Feuer and modified by Tiwari, Clegg, and Zou.^{7,8}

Suppression of Rates and Counts: Due to concerns regarding statistical reliability, statistics were suppressed when there were 1-9 reported cases. Counts or rates that were suppressed in this report are denoted by “^”.

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.⁹ 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

⁷ Fay MP, Feuer EJ. Confidence Intervals for Directly Standardized Rates: A Method Based on the Gamma Distribution. *Statistics in Medicine* 1997; 16(7):791-801.

⁸ Tiwari RC, Clegg LX, Zou Z. Efficient Interval Estimation for Age-adjusted Cancer Rates. *Statistical Methods in Medical Research* 2006; 15(6):547-69.

⁹ Young JL Jr, Roffers SD, Ries LAG, Fritz AG, Hurlbut AA (eds). SEER Summary Staging Manual - 2000: Codes and Coding Instructions, National Cancer Institute, NIH Pub. No. 01-4969, Bethesda, MD, 2001.

(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:¹⁰

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

Although in situ cancers are included in analyses of stage at diagnosis, these cancers (with the exception of in situ bladder cancer) are not included in incidence counts and rates.

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.

¹⁰ SEER Program Coding and Staging Manual 2010. National Cancer Institute. <http://seer.cancer.gov/tools/codingmanuals/>.

STATISTICAL METHODS

SAS 9.3 was used to prepare the incidence and mortality data and SEER*Stat 8.1.5 was used for counting numbers of new cases and deaths due to cancer and calculating age-adjusted rates and confidence intervals.^{11,12}

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 2007 vs. 2011, was statistically significant. If the 95% confidence intervals did not overlap, the difference was determined to be statistically significant at the 0.05 level. The comparison of confidence intervals method is a conservative test of statistical significance.^{13,14} Thus, findings of non-significant differences should be interpreted with caution, especially when two confidence intervals overlap only slightly.

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

¹¹ Copyright, SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA.

¹² Surveillance Research Program, National Cancer Institute SEER*Stat software (www.seer.cancer.gov/seerstat) version 8.1.5.

¹³ Fay MP, Feuer EJ. Confidence Intervals for Directly Standardized Rates: A Method Based on the Gamma Distribution. *Statistics in Medicine* 1997; 16(7):791-801.

¹⁴ Tiwari RC, Clegg LX, Zou Z. Efficient Interval Estimation for Age-adjusted Cancer Rates. *Statistical Methods in Medical Research* 2006; 15(6):547-69.

DATA SOURCES¹⁵

Tennessee Cancer Registry (TCR) Data: Cancer incidence data contain records of cases of primary cancer that were first diagnosed among Tennessee residents between January 1, 2007 and December 31, 2011, and were reported to the TCR as of July 2014. Two cases with gender reported as hermaphrodite or transsexual were not included in this report. Cases with race other than white or black or unknown race (2056 total cases) were included in the “All Races” category. A total of 153 newly diagnosed cases that did not have information on county and region of diagnosis were included in the state level statistics.

Cancer Mortality Data: Record-level mortality data were from the Death Statistical System provided by the Office of Health Statistics, Tennessee Department of Health. There were two cases with missing gender information and no case with unknown age. 343 deaths were of race other than white and black and 8 deaths had unknown race. These cases were included in the “All Races” category.

Behavioral Risk Factor Surveillance System (BRFSS) Data: BRFSS is a CDC-funded, state-administered, random-digit-dialed telephone survey of the U.S. 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

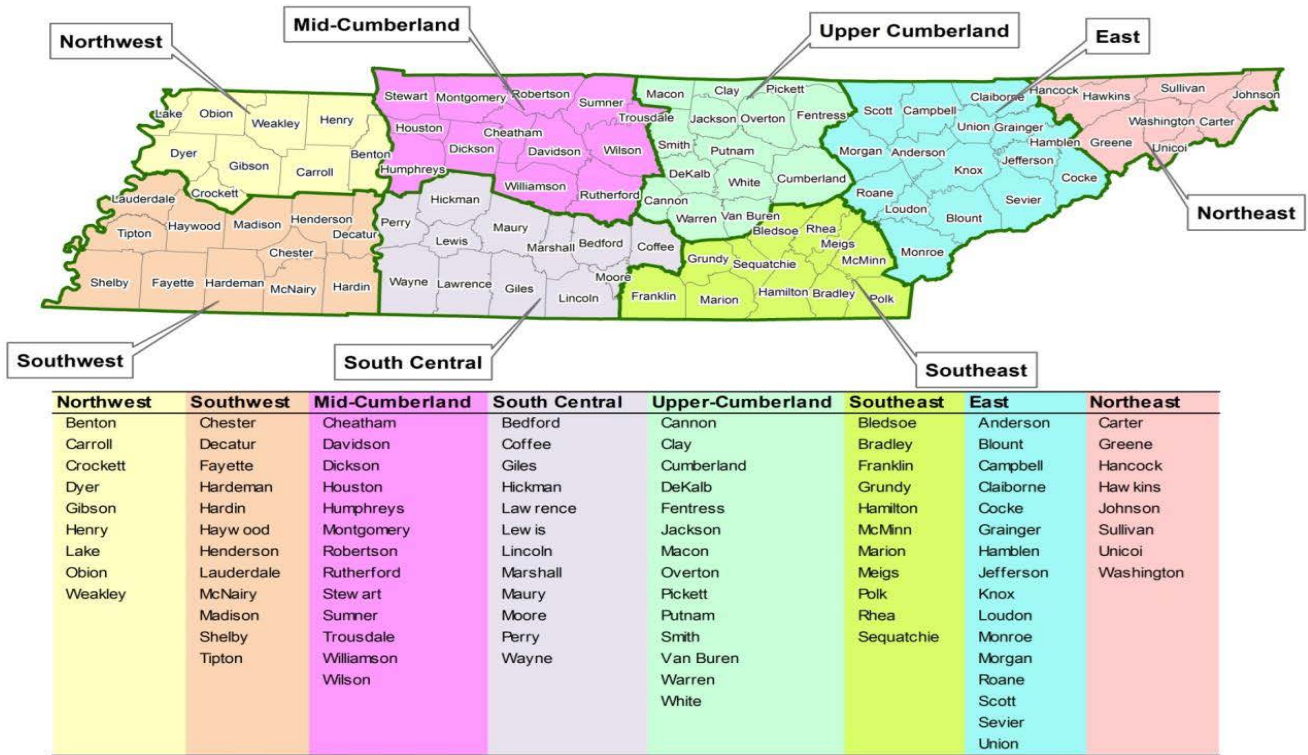
injury. BRFSS was established in 1984 by the Centers for Disease Control and Prevention (CDC); currently data are collected monthly in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. Nationwide BRFSS data were the median for 50 states and Washington D.C.

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 Centers for Disease Control & Prevention (CDC). Tennessee and United States cancer mortality trend data and Tennessee cancer rankings in incidence and mortality were based on age-adjusted rates of 50 states and Washington D.C. obtained online from the following website: <http://statecancerprofiles.cancer.gov>.

¹⁵ Except where specified, data in all tables and graphs in this report are from the Tennessee Cancer Registry and/or the Death Statistical System as described above.

APPENDICIES

APPENDIX I. TENNESSEE COUNTIES AND REGIONAL GROUPINGS MAP



APPENDIX II. CANCER INCIDENCE AND MORTALITY, BY SITE, TENNESSEE, 2007-2011

Primary Cancer Site	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
All Sites	166,477	478.9	476.5 - 481.2	66,602	194.9	193.4 - 196.4	0.41
Oral Cavity and Pharynx	4,252	11.9	11.6 - 12.3	1,073	3.0	2.9 - 3.2	0.25
Lip	238	0.7	0.6 - 0.8	13	0.0	0.0 - 0.1	0.00
Tongue	1,202	3.3	3.1 - 3.5	270	0.8	0.7 - 0.9	0.24
Salivary Gland	461	1.4	1.2 - 1.5	94	0.3	0.2 - 0.3	0.21
Floor of Mouth	234	0.6	0.6 - 0.7	16	0.0	0.0 - 0.1	0.00
Gum and Other Mouth	624	1.8	1.7 - 2.0	154	0.5	0.4 - 0.5	0.28
Nasopharynx	206	0.6	0.5 - 0.7	82	0.2	0.2 - 0.3	0.33
Tonsil	807	2.2	2.1 - 2.4	115	0.3	0.3 - 0.4	0.14
Oropharynx	173	0.5	0.4 - 0.6	82	0.2	0.2 - 0.3	0.40
Hypopharynx	225	0.6	0.5 - 0.7	32	0.1	0.1 - 0.1	0.17
Other Oral Cavity and Pharynx	82	0.2	0.2 - 0.3	215	0.6	0.5 - 0.7	3.00
Digestive System	28,138	81.3	80.3 - 82.2	15,226	44.5	43.7 - 45.2	0.55
Esophagus	1,657	4.6	4.4 - 4.9	1,460	4.1	3.9 - 4.4	0.89
Stomach	2,087	6.1	5.8 - 6.4	1,129	3.3	3.2 - 3.5	0.54
Small Intestine	822	2.4	2.2 - 2.5	145	0.4	0.4 - 0.5	0.17
Colon and Rectum	15,363	44.6	43.9 - 45.4	6,086	17.9	17.5 - 18.4	0.40
Colon excluding Rectum	11,093	32.4	31.8 - 33.0	4,959	14.6	14.2 - 15.1	0.45
Cecum	2,378	7.0	6.7 - 7.3	~	~	~ - ~	~
Appendix	269	0.8	0.7 - 0.9	~	~	~ - ~	~
Ascending Colon	2,233	6.5	6.3 - 6.8	~	~	~ - ~	~
Hepatic Flexure	521	1.5	1.4 - 1.7	~	~	~ - ~	~
Transverse Colon	965	2.8	2.7 - 3.0	~	~	~ - ~	~
Splenic Flexure	331	1.0	0.9 - 1.1	~	~	~ - ~	~
Descending Colon	703	2.0	1.9 - 2.2	~	~	~ - ~	~
Sigmoid Colon	2,789	8.0	7.7 - 8.3	~	~	~ - ~	~
Large Intestine, NOS	904	2.7	2.5 - 2.9	~	~	~ - ~	~
Rectum and Rectosigmoid Junction	4,270	12.2	11.9 - 12.6	1,127	3.3	3.1 - 3.5	0.27
Rectosigmoid Junction	1,161	3.4	3.2 - 3.6	~	~	~ - ~	~
Rectum	3,109	8.9	8.6 - 9.2	~	~	~ - ~	~
Anus, Anal Canal and Anorectum	703	2.0	1.9 - 2.2	105	0.3	0.2 - 0.4	0.15
Liver and Intrahepatic Bile Duct	2,299	6.4	6.1 - 6.7	2,032	5.8	5.5 - 6.0	0.91
Liver	2,100	5.8	5.6 - 6.1	1,624	4.6	4.4 - 4.8	0.79
Intrahepatic Bile Duct	199	0.6	0.5 - 0.7	408	1.2	1.1 - 1.3	2.00
Gallbladder	269	0.8	0.7 - 0.9	146	0.4	0.4 - 0.5	0.50
Other Biliary	499	1.5	1.3 - 1.6	133	0.4	0.3 - 0.5	0.27
Pancreas	4,051	11.8	11.4 - 12.1	3,770	11.0	10.7 - 11.4	0.93
Retroperitoneum	123	0.4	0.3 - 0.4	24	0.1	0.0 - 0.1	0.25
Peritoneum, Omentum and Mesentery	185	0.5	0.5 - 0.6	82	0.2	0.2 - 0.3	0.40
Other Digestive Organs	80	0.2	0.2 - 0.3	114	0.3	0.3 - 0.4	1.50

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Appendix II Continued

Primary Cancer Site	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Respiratory System	29,521	84.0	83.0 - 85.0	22,233	64.1	63.3 - 65.0	0.76
Nose, Nasal Cavity and Middle Ear	251	0.7	0.6 - 0.8	65	0.2	0.1 - 0.2	0.29
Larynx	1,710	4.7	4.5 - 5.0	480	1.3	1.2 - 1.5	0.28
Lung and Bronchus	27,507	78.4	77.4 - 79.3	21,659	62.5	61.7 - 63.4	0.80
Pleura	185	0.5	0.5 - 0.6	^	^	^ - ^	^
Trachea, Mediastinum and Other Respiratory O	48	0.1	0.1 - 0.2	27	0.1	0.1 - 0.1	1.00
Bones and Joints	307	1.0	0.8 - 1.1	136	0.4	0.4 - 0.5	0.40
Soft Tissue including Heart	1,064	3.2	3.0 - 3.4	447	1.3	1.2 - 1.5	0.41
Skin excluding Basal and Squamous	7,618	22.5	22.0 - 23.0	1,459	4.3	4.1 - 4.5	0.19
Melanoma of the Skin	7,132	21.1	20.6 - 21.6	1,020	3.0	2.8 - 3.2	0.14
Other Non-Epithelial Skin	486	1.5	1.3 - 1.6	439	1.3	1.2 - 1.4	0.87
Breast (Males Only)	263	1.7	1.5 - 1.9	41	0.3	0.2 - 0.4	0.18
Breast (Females Only)	22,479	120.0	118.5 - 121.6	4,334	22.5	21.9 - 23.2	0.19
Female Genital System	8,416	45.4	44.4 - 46.4	2,887	15.1	14.6 - 15.7	0.33
Cervix Uteri	1,429	8.6	8.1 - 9.0	503	2.8	2.6 - 3.1	0.33
Corpus and Uterus, NOS	3,970	20.7	20.1 - 21.4	700	3.6	3.3 - 3.9	0.17
Corpus Uteri	3,809	19.9	19.2 - 20.5	271	1.4	1.2 - 1.6	0.07
Uterus, NOS	161	0.8	0.7 - 1.0	429	2.2	2.0 - 2.5	2.75
Ovary	2,210	11.8	11.3 - 12.3	1,459	7.6	7.2 - 8.0	0.64
Vagina	163	0.9	0.7 - 1.0	59	0.3	0.2 - 0.4	0.33
Vulva	532	2.9	2.6 - 3.1	117	0.6	0.5 - 0.7	0.21
Other Female Genital Organs	112	0.6	0.5 - 0.7	49	0.3	0.2 - 0.3	0.50
Male Genital System	24,371	149.8	147.8 - 151.7	3,028	24.4	23.5 - 25.3	0.16
Prostate	23,489	143.9	142.0 - 145.8	2,957	23.9	23 - 24.8	0.17
Testis	723	4.8	4.5 - 5.2	34	0.2	0.2 - 0.3	0.04
Penis	129	0.9	0.7 - 1.0	29	0.2	0.1 - 0.3	0.22
Other Male Genital Organs	30	0.2	0.1 - 0.3	^	^	^ - ^	^
Urinary System	12,876	37.3	36.6 - 37.9	2,921	8.7	8.4 - 9.0	0.23
Urinary Bladder	6,714	19.6	19.2 - 20.1	1,376	4.2	4 - 4.4	0.21
Kidney and Renal Pelvis	5,902	16.9	16.4 - 17.3	1,459	4.2	4 - 4.5	0.25
Ureter	182	0.5	0.5 - 0.6	34	0.1	0.1 - 0.1	0.20
Other Urinary Organs	78	0.2	0.2 - 0.3	52	0.2	0.1 - 0.2	1.00
Eye and Orbit	351	1.0	0.9 - 1.1	46	0.1	0.1 - 0.2	0.10
Brain and Other Nervous System	2,319	6.9	6.7 - 7.2	1,612	4.7	4.5 - 4.9	0.68
Brain	2,210	6.6	6.3 - 6.9	~	~	~ - ~	~
Cranial Nerves Other Nervous System	109	0.3	0.3 - 0.4	~	~	~ - ~	~

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Appendix II Continued

Primary Cancer Site	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Endocrine System	4,421	13.4	13.0 - 13.8	264	0.8	0.7 - 0.9	0.06
Thyroid	4,191	12.7	12.3 - 13.1	159	0.5	0.4 - 0.6	0.04
Other Endocrine including Thymus	230	0.7	0.6 - 0.8	105	0.3	0.3 - 0.4	0.43
Lymphoma	7,291	21.6	21.1 - 22.1	2,389	7.1	6.8 - 7.4	0.33
Hodgkin Lymphoma	844	2.7	2.5 - 2.9	133	0.4	0.3 - 0.5	0.15
Hodgkin - Nodal	811	2.6	2.4 - 2.8	~	~	~ - ~	~
Hodgkin - Extranodal	33	0.1	0.1 - 0.1	~	~	~ - ~	~
Non-Hodgkin Lymphoma	6,447	18.9	18.4 - 19.4	2,256	6.7	6.5 - 7.0	0.35
NHL - Nodal	4,609	13.5	13.1 - 13.9	~	~	~ - ~	~
NHL - Extranodal	1,838	5.4	5.1 - 5.6	~	~	~ - ~	~
Myeloma	2,056	5.9	5.6 - 6.1	1,259	3.7	3.5 - 4.0	0.63
Leukemia	4,233	12.7	12.3 - 13.0	2,479	7.5	7.2 - 7.8	0.59
Lymphocytic Leukemia	2,068	6.2	5.9 - 6.4	779	2.4	2.2 - 2.5	0.39
Acute Lymphocytic Leukemia	461	1.5	1.4 - 1.7	151	0.5	0.4 - 0.5	0.33
Chronic Lymphocytic Leukemia	1,486	4.3	4.1 - 4.5	584	1.8	1.6 - 1.9	0.42
Other Lymphocytic Leukemia	121	0.4	0.3 - 0.4	44	0.1	0.1 - 0.2	0.25
Myeloid and Monocytic Leukemia	1,923	5.8	5.5 - 6.0	1,172	3.5	3.3 - 3.7	0.60
Acute Myeloid Leukemia	1,296	3.9	3.7 - 4.1	980	2.9	2.7 - 3.1	0.74
Acute Monocytic Leukemia	86	0.3	0.2 - 0.3	16	0.0	0.0 - 0.1	0.00
Chronic Myeloid Leukemia	461	1.4	1.3 - 1.5	110	0.3	0.3 - 0.4	0.21
Other Myeloid/Monocytic Leukemia	80	0.2	0.2 - 0.3	66	0.2	0.2 - 0.3	1.00
Other Leukemia	242	0.7	0.6 - 0.8	528	1.6	1.5 - 1.8	2.29
Other Acute Leukemia	97	0.3	0.2 - 0.4	207	0.6	0.6 - 0.7	2.00
Aleukemic, Subleukemic and NOS	145	0.4	0.4 - 0.5	321	1.0	0.9 - 1.1	2.50
Mesothelioma	266	0.8	0.7 - 0.9	235	0.7	0.6 - 0.8	0.88
Kaposi Sarcoma	71	0.2	0.2 - 0.3	^	^	^ - ^	^
Miscellaneous	6,164	18.2	17.8 - 18.7	4,526	13.3	12.9 - 13.7	0.73

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

~Corresponding disease categories not available in mortality data

Note that 180 pleura cancer incident cases were included with mesotheliomas, but these cases were not included in the respiratory system total

APPENDIX III. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY GENDER, RACE AND RESIDENT REGION, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Total Population							
<i>Tennessee</i>	166,477	478.9	476.5 - 481.2	66,602	194.9	193.4 - 196.4	0.41
East	35,179	501.3	496.0 - 506.7	13,575	194.6	191.3 - 198.0	0.39
Mid-Cumberland	38,216	478.6	473.7 - 483.5	14,263	188.8	185.6 - 192.0	0.39
Northeast	15,391	473.0	465.4 - 480.7	6,435	195.1	190.3 - 200.0	0.41
Northwest	7,385	460.5	449.9 - 471.4	3,546	216.5	209.3 - 223.8	0.47
South	10,426	468.2	459.1 - 477.4	4,404	198.6	192.7 - 204.6	0.42
Southeast	19,043	486.5	479.5 - 493.6	7,263	186.0	181.7 - 190.4	0.38
Southwest	30,351	463.9	458.6 - 469.2	12,750	201.8	198.3 - 205.4	0.44
Upper-Cumberland	10,333	477.4	468.0 - 486.9	4,366	199.9	193.9 - 206.1	0.42
Female							
<i>Tennessee</i>	78,528	419.1	416.1 - 422.1	30,260	157.1	155.3 - 158.9	0.37
East	16,190	433.9	427.1 - 440.8	6,130	157.3	153.3 - 161.4	0.36
Mid-Cumberland	18,311	418.4	412.3 - 424.6	6,543	152.3	148.6 - 156.1	0.36
Northeast	7,420	432.9	422.8 - 443.2	2,920	159.4	153.5 - 165.4	0.37
Northwest	3,365	394.6	380.9 - 408.6	1,589	171.9	163.4 - 180.8	0.44
South	4,956	418.8	407.0 - 430.9	1,952	157.9	150.9 - 165.2	0.38
Southeast	8,834	421.4	412.4 - 430.5	3,214	146.9	141.8 - 152.2	0.35
Southwest	14,697	404.8	398.2 - 411.5	6,042	165.2	161.1 - 169.5	0.41
Upper-Cumberland	4,680	417.8	405.5 - 430.4	1,870	158.7	151.4 - 166.2	0.38
Male							
<i>Tennessee</i>	87,949	563.8	560.0 - 567.7	36,342	250.1	247.4 - 252.8	0.44
East	18,989	594.0	585.3 - 602.8	7,445	247.2	241.4 - 253.1	0.42
Mid-Cumberland	19,904	565.5	557.3 - 573.8	7,720	243.5	237.9 - 249.3	0.43
Northeast	7,970	530.3	518.4 - 542.4	3,515	246.4	238.0 - 254.9	0.46
Northwest	4,020	551.7	534.4 - 569.5	1,957	279.2	266.7 - 292.1	0.51
South	5,470	540.6	525.9 - 555.6	2,452	256.9	246.5 - 267.7	0.48
Southeast	10,209	579.6	568.0 - 591.3	4,049	244.5	236.7 - 252.4	0.42
Southwest	15,654	552.5	543.5 - 561.6	6,708	258.8	252.3 - 265.3	0.47
Upper-Cumberland	5,653	555.9	541.1 - 571.1	2,496	254.6	244.4 - 265.2	0.46
Black							
<i>Tennessee</i>	20,904	483.7	476.9 - 490.6	9,366	237.1	232.1 - 242.1	0.49
East	1,184	489.8	461.6 - 519.3	495	217.2	198.0 - 237.6	0.44
Mid-Cumberland	5,039	497.7	483.3 - 512.5	2,099	233.6	223.2 - 244.3	0.47
Northeast	218	399.6	346.5 - 458.2	102	195.0	157.8 - 237.9	0.49
Northwest	709	474.7	439.8 - 511.5	366	250.9	225.5 - 278.4	0.53
South	537	400.4	366.7 - 436.4	278	216.3	191.1 - 243.7	0.54
Southeast	1,901	507.6	484.4 - 531.6	737	210.2	194.9 - 226.3	0.41
Southwest	11,169	479.8	470.5 - 489.3	5,239	247.4	240.4 - 254.5	0.52
Upper-Cumberland	141	589.3	494.2 - 696.8	50	225.2	166.2 - 297.5	0.38
White							
<i>Tennessee</i>	143,517	478.6	476.1 - 481.1	56,885	190.5	188.9 - 192.1	0.40
East	33,659	502.1	496.6 - 507.6	13,019	194.6	191.2 - 198.0	0.39
Mid-Cumberland	32,556	478.3	473.1 - 483.6	12,022	184.3	181.0 - 187.7	0.39
Northeast	15,105	475.4	467.7 - 483.2	6,320	195.6	190.8 - 200.6	0.41
Northwest	6,613	457.3	446.1 - 468.7	3,174	213.9	206.4 - 221.6	0.47
South	9,825	473.0	463.6 - 482.6	4,111	197.9	191.8 - 204.1	0.42
Southeast	16,959	485.4	478.0 - 492.9	6,497	184.9	180.4 - 189.5	0.38
Southwest	18,654	453.7	447.1 - 460.4	7,437	180.2	176.1 - 184.4	0.40
Upper-Cumberland	10,125	476.0	466.5 - 485.6	4,305	200.3	194.2 - 206.5	0.42

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX IV. CANCER INCIDENCE AND MORTALITY, ALL SITES COMBINED, BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Tennessee	166,477	478.9	476.5 - 481.2	66,602	194.9	193.4 - 196.4	0.41
East Region	35,179	501.3	496.0 - 506.7	13,575	194.6	191.3 - 198.0	0.39
Anderson	2,538	517.3	496.9 - 538.3	1,035	201.8	189.5 - 214.8	0.39
Blount	3,853	506.5	490.3 - 523.1	1,347	177.2	167.7 - 187.1	0.35
Campbell	1,324	503.2	475.8 - 531.9	556	212.8	195.1 - 231.7	0.42
Claiborne	1,029	514.1	482.4 - 547.5	442	221.0	200.4 - 243.3	0.43
Cocke	1,103	475.7	447.1 - 505.6	467	204.7	186.0 - 224.8	0.43
Grainger	710	505.4	467.7 - 545.4	283	212.1	187.3 - 239.4	0.42
Hamblen	1,883	502.4	479.6 - 526.0	787	208.2	193.7 - 223.5	0.41
Jefferson	1,545	495.5	470.4 - 521.7	606	200.4	184.3 - 217.5	0.40
Knox	11,568	497.9	488.8 - 507.2	4,327	188.0	182.4 - 193.7	0.38
Loudon	1,684	471.0	447.5 - 495.5	576	163.1	149.5 - 177.6	0.35
Monroe	1,439	516.6	489.3 - 545.0	601	225.6	207.5 - 244.9	0.44
Morgan	649	517.1	477.2 - 559.5	254	215.2	189.0 - 244.2	0.42
Roane	1,884	497.8	475.0 - 521.6	793	203.4	189.3 - 218.5	0.41
Scott	657	534.4	493.6 - 577.7	304	247.7	220.2 - 277.8	0.46
Sevier	2,737	505.9	486.6 - 525.8	988	185.0	173.4 - 197.3	0.37
Union	576	535.2	490.9 - 582.4	209	196.2	169.6 - 225.8	0.37
Mid-Cumberland Region	38,216	478.6	473.7 - 483.5	14,263	188.8	185.6 - 192.0	0.39
Cheatham	1,061	542.0	508.5 - 577.1	381	211.6	189.9 - 235.0	0.39
Davidson	14,239	489.4	481.2 - 497.6	5,558	197.6	192.4 - 202.9	0.40
Dickson	1,362	509.7	482.6 - 538.0	530	201.8	184.7 - 220.0	0.40
Houston	249	456.8	400.4 - 519.5	120	215.5	178.0 - 259.1	0.47
Humphreys	612	519.1	477.6 - 563.4	250	208.6	183.1 - 236.9	0.40
Montgomery	2,886	448.6	431.9 - 465.8	1,162	197.6	186.1 - 209.7	0.44
Robertson	1,677	501.5	477.3 - 526.6	676	212.5	196.5 - 229.5	0.42
Rutherford	4,715	455.3	441.9 - 469.0	1,721	182.4	173.5 - 191.5	0.40
Stewart	428	509.4	461.3 - 561.6	177	213.4	182.7 - 248.3	0.42
Sumner	4,117	484.0	469.0 - 499.3	1,435	176.9	167.7 - 186.5	0.37
Trousdale	208	477.0	413.2 - 548.1	77	178.0	139.8 - 223.8	0.37
Williamson	3,833	455.8	440.8 - 471.1	1,118	148.0	139.1 - 157.3	0.32
Wilson	2,829	477.9	459.9 - 496.4	1,058	189.1	177.5 - 201.2	0.40
Northeast Region	15,391	473.0	465.4 - 480.7	6,435	195.1	190.3 - 200.0	0.41
Carter	1,556	418.3	397.3 - 440.2	716	187.8	174.1 - 202.3	0.45
Greene	2,163	485.0	464.3 - 506.5	924	207.5	194.1 - 221.7	0.43
Hancock	218	494.2	428.7 - 567.6	95	214.8	172.9 - 264.7	0.43
Hawkins	1,832	512.7	488.9 - 537.4	770	216.7	201.4 - 233.0	0.42
Johnson	522	434.1	396.7 - 474.3	235	200.1	175.0 - 228.2	0.46
Sullivan	5,237	493.2	479.6 - 507.2	2,091	191.7	183.4 - 200.2	0.39
Unicoi	573	437.9	401.7 - 476.8	294	213.9	189.8 - 240.6	0.49
Washington	3,290	458.3	442.5 - 474.5	1,310	181.3	171.5 - 191.5	0.40

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Appendix IV Continued

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Northwest Region	7,385	460.5	449.9 - 471.4	3,546	216.5	209.3 - 223.8	0.47
Benton	625	529.9	487.6 - 575.2	302	246.6	218.9 - 277.3	0.47
Carroll	905	481.6	450.0 - 515.0	417	216.5	195.9 - 238.9	0.45
Crockett	383	432.7	389.8 - 479.4	173	190.8	163.1 - 222.1	0.44
Dyer	928	418.3	391.4 - 446.7	429	195.0	176.8 - 214.7	0.47
Gibson	1,430	467.7	443.3 - 493.0	723	226.7	210.4 - 244.2	0.48
Henry	1,096	478.1	449.3 - 508.3	498	212.6	193.9 - 232.7	0.44
Lake	178	407.1	348.6 - 473.0	110	250.4	205.3 - 302.9	0.62
Obion	926	454.2	424.9 - 485.2	457	221.0	201.0 - 242.7	0.49
Weakley	914	451.6	422.3 - 482.6	437	212.6	192.9 - 233.9	0.47
South Central Region	10,426	468.2	459.1 - 477.4	4,404	198.6	192.7 - 204.6	0.42
Bedford	1,092	463.4	435.9 - 492.1	465	203.3	185.0 - 222.9	0.44
Coffee	1,458	464.4	440.6 - 489.2	641	202.4	186.9 - 218.9	0.44
Giles	883	471.6	440.3 - 504.7	344	179.1	160.4 - 199.6	0.38
Hickman	707	512.7	475.0 - 552.8	302	219.0	194.6 - 245.8	0.43
Lawrence	1,114	443.7	417.6 - 471.0	497	196.1	179.1 - 214.4	0.44
Lewis	395	529.0	476.8 - 585.6	163	213.7	181.6 - 250.1	0.40
Lincoln	949	446.5	418.1 - 476.5	414	193.8	175.4 - 213.8	0.43
Marshall	864	516.0	481.5 - 552.4	365	220.3	197.9 - 244.7	0.43
Mauzy	2,042	458.1	438.1 - 478.8	836	193.3	180.2 - 207.1	0.42
Moore	173	412.4	351.8 - 481.4	62	143.4	109.5 - 185.7	0.35
Perry	276	532.9	469.3 - 603.3	100	184.8	149.3 - 227.0	0.35
Wayne	473	450.9	410.6 - 494.2	215	206.1	179.2 - 236.1	0.46
Southeast Region	19,043	486.5	479.5 - 493.6	7,263	186.0	181.7 - 190.4	0.38
Bledsoe	370	463.1	415.6 - 514.7	124	161.0	133.0 - 193.3	0.35
Bradley	2,557	462.6	444.5 - 481.2	1,025	188.8	177.3 - 201.0	0.41
Franklin	1,253	474.8	448.3 - 502.5	502	188.1	171.8 - 205.6	0.40
Grundy	412	463.5	418.6 - 512.3	179	197.3	168.8 - 229.5	0.43
Hamilton	9,619	491.1	481.2 - 501.2	3,430	174.5	168.6 - 180.5	0.36
McMinn	1,517	454.9	431.9 - 478.9	664	197.3	182.3 - 213.2	0.43
Marion	913	518.8	484.6 - 554.8	360	209.7	188.0 - 233.3	0.40
Meigs	371	487.6	437.0 - 542.9	155	209.2	176.2 - 246.9	0.43
Polk	559	507.5	465.1 - 553.0	233	212.6	185.6 - 242.7	0.42
Rhea	1,059	559.9	525.9 - 595.7	396	209.4	188.9 - 231.6	0.37
Sequatchie	413	488.8	441.4 - 540.2	195	238.4	205.3 - 275.6	0.49

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Appendix IV Continued

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Southwest Region	30,351	463.9	458.6 - 469.2	12,750	201.8	198.3 - 205.4	0.44
Chester	383	405.5	365.4 - 449.0	166	172.8	147.3 - 201.6	0.43
Decatur	364	432.1	387.1 - 481.5	163	193.3	163.7 - 227.3	0.45
Fayette	1,123	485.2	456.3 - 515.5	423	188.8	170.7 - 208.4	0.39
Hardeman	773	487.6	453.3 - 523.9	335	213.8	191.3 - 238.4	0.44
Hardin	790	452.6	420.6 - 486.6	352	196.9	176.5 - 219.3	0.44
Haywood	489	449.6	410.0 - 492.2	214	195.6	169.9 - 224.1	0.44
Henderson	772	470.3	437.2 - 505.3	319	192.3	171.5 - 215.0	0.41
Lauderdale	685	477.4	441.8 - 515.1	327	232.1	207.3 - 259.1	0.49
McNairy	736	440.0	407.9 - 474.1	366	216.2	194.2 - 240.1	0.49
Madison	2,304	434.5	416.7 - 452.9	945	179.5	168.1 - 191.5	0.41
Shelby	20,454	467.7	461.2 - 474.3	8,519	204.5	200.1 - 209.0	0.44
Tipton	1,478	495.3	469.7 - 522.0	621	222.3	204.6 - 241.1	0.45
Upper-Cumberland	10,333	477.4	468.0 - 486.9	4,366	199.9	193.9 - 206.1	0.42
Cannon	405	469.1	423.8 - 518.2	176	207.3	177.5 - 241.0	0.44
Clay	256	460.0	402.9 - 523.6	109	193.3	158.0 - 235.1	0.42
Cumberland	2,324	504.2	482.4 - 527.0	820	174.0	161.7 - 187.2	0.35
DeKalb	498	432.9	395.0 - 473.6	225	196.8	171.6 - 224.9	0.45
Fentress	592	513.9	471.8 - 559.0	271	235.9	207.7 - 267.1	0.46
Jackson	364	467.2	418.7 - 520.2	151	189.6	159.7 - 224.0	0.41
Macon	649	525.8	485.4 - 568.7	283	233.7	206.8 - 263.1	0.44
Overton	691	485.9	449.4 - 524.8	302	209.3	185.9 - 235.1	0.43
Pickett	188	478.6	409.1 - 558.0	72	179.6	139.4 - 229.9	0.38
Putnam	1,791	447.6	426.8 - 469.2	767	191.7	178.3 - 206.0	0.43
Smith	535	498.4	456.2 - 543.5	243	231.3	202.7 - 263.0	0.46
Van	167	449.6	380.7 - 528.4	67	184.0	140.8 - 237.4	0.41
Warren	1,071	460.7	433.2 - 489.6	542	231.7	212.5 - 252.4	0.50
White	802	480.2	446.7 - 515.6	338	199.6	178.6 - 222.6	0.42

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX V. LUNG AND BRONCHUS CANCER INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Tennessee	27,507	78.4	77.4 - 79.3	21,659	62.5	61.7 - 63.4	0.80
East Region	6,085	84.3	82.2 - 86.5	4,678	65.6	63.7 - 67.5	0.78
Anderson	416	81.3	73.5 - 89.7	352	68.0	61.0 - 75.7	0.84
Blount	649	83.6	77.2 - 90.4	449	58.2	52.9 - 64.0	0.70
Campbell	301	107.5	95.5 - 120.8	231	86.0	75.1 - 98.2	0.80
Claiborne	210	101.0	87.5 - 116.2	182	87.8	75.2 - 102.0	0.87
Cocke	221	88.9	77.3 - 101.9	186	77.7	66.6 - 90.1	0.87
Grainger	119	80.0	66.0 - 96.4	98	66.1	53.4 - 81.2	0.83
Hamblen	317	81.1	72.3 - 90.7	263	67.9	59.8 - 76.8	0.84
Jefferson	251	74.3	65.2 - 84.5	199	60.9	52.5 - 70.3	0.82
Knox	1,831	78.9	75.3 - 82.6	1,383	60.1	56.9 - 63.4	0.76
Loudon	268	70.5	62.0 - 80.0	178	50.0	42.7 - 58.4	0.71
Monroe	302	103.9	92.1 - 116.7	221	77.4	67.2 - 88.7	0.74
Morgan	127	98.5	81.7 - 117.8	91	71.8	57.6 - 88.8	0.73
Roane	344	86.4	77.4 - 96.3	302	75.9	67.5 - 85.2	0.88
Scott	133	105.1	87.7 - 125.1	127	102.0	84.7 - 121.8	0.97
Sevier	492	86.8	79.1 - 95.1	348	62.5	56.0 - 69.7	0.72
Union	104	90.9	73.8 - 111.0	68	58.8	45.3 - 75.2	0.65
Mid-Cumberland Region	5,769	74.8	72.9 - 76.8	4,517	59.8	58.0 - 61.6	0.80
Cheatham	169	87.9	74.6 - 102.9	129	69.7	57.7 - 83.5	0.79
Davidson	2,112	74.7	71.5 - 78.0	1,710	61.4	58.4 - 64.4	0.82
Dickson	247	91.8	80.5 - 104.2	182	67.7	58.1 - 78.6	0.74
Houston	52	87.8	65.3 - 116.5	41	70.8	50.5 - 97.4	0.81
Humphreys	119	94.2	77.8 - 113.4	90	72.4	58.1 - 89.5	0.77
Montgomery	489	81.9	74.6 - 89.7	370	63.0	56.6 - 69.9	0.77
Robertson	295	88.2	78.3 - 99.1	230	71.4	62.3 - 81.5	0.81
Rutherford	685	71.2	65.8 - 76.9	514	54.6	49.9 - 59.7	0.77
Stewart	85	98.1	78.1 - 122.1	72	85.5	66.7 - 108.4	0.87
Sumner	618	72.9	67.2 - 79.0	479	58.2	53.0 - 63.8	0.80
Trousdale	38	82.8	58.2 - 114.7	32	71.4	48.4 - 101.9	0.86
Williamson	389	52.4	47.1 - 58.0	311	42.2	37.5 - 47.3	0.81
Wilson	471	82.2	74.7 - 90.2	357	63.7	57.0 - 70.9	0.77
Northeast Region	2,775	82.3	79.2 - 85.4	2,216	66.0	63.3 - 68.9	0.80
Carter	306	79.0	70.2 - 88.6	254	65.7	57.8 - 74.6	0.83
Greene	438	94.7	85.9 - 104.2	356	77.8	69.8 - 86.5	0.82
Hancock	38	78.4	55.2 - 109.3	32	67.5	45.9 - 96.9	0.86
Hawkins	368	100.6	90.4 - 111.8	274	75.1	66.3 - 84.8	0.75
Johnson	95	74.8	60.3 - 92.1	72	58.8	45.8 - 74.7	0.79
Sullivan	879	79.2	74.0 - 84.7	717	64.3	59.6 - 69.3	0.81
Unicoi	123	87.9	72.8 - 105.7	99	70.4	57.1 - 86.3	0.80
Washington	528	72.2	66.1 - 78.7	412	57.1	51.7 - 63.0	0.79

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Appendix V Continued

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Northwest Region	1,401	84.4	80.0 - 89.0	1,207	72.6	68.5 - 76.9	0.86
Benton	128	104.3	86.6 - 125.1	105	84.6	68.9 - 103.5	0.81
Carroll	155	78.6	66.6 - 92.5	145	74.3	62.6 - 87.9	0.95
Crockett	70	75.5	58.7 - 96.0	51	54.2	40.3 - 71.8	0.72
Dyer	183	78.7	67.5 - 91.3	151	66.7	56.3 - 78.5	0.85
Gibson	276	87.8	77.7 - 99.0	237	74.6	65.3 - 84.9	0.85
Henry	221	91.1	79.4 - 104.4	174	70.6	60.4 - 82.3	0.77
Lake	36	81.9	57.1 - 114.5	36	77.4	53.9 - 108.5	0.95
Obion	170	80.4	68.6 - 93.8	164	78.2	66.5 - 91.5	0.97
Weakley	162	78.3	66.6 - 91.7	144	70.6	59.4 - 83.5	0.90
South Central Region	1,892	82.6	78.9 - 86.5	1,511	67.0	63.6 - 70.5	0.81
Bedford	176	73.7	63.1 - 85.7	147	63.5	53.5 - 74.8	0.86
Coffee	275	85.0	75.2 - 95.8	212	65.7	57.1 - 75.2	0.77
Giles	159	81.3	69.0 - 95.4	119	62.0	51.2 - 74.5	0.76
Hickman	137	95.6	80.0 - 113.5	111	78.1	64.0 - 94.5	0.82
Lawrence	216	82.4	71.7 - 94.4	179	69.5	59.7 - 80.7	0.84
Lewis	80	102.8	81.1 - 128.8	65	83.8	64.4 - 107.8	0.82
Lincoln	162	72.9	62.0 - 85.3	134	60.7	50.8 - 72.1	0.83
Marshall	166	95.2	81.0 - 111.3	127	73.9	61.4 - 88.3	0.78
Maury	337	76.3	68.2 - 85.0	280	64.9	57.4 - 73.1	0.85
Moore	27	62.5	40.9 - 92.8	18	41.4	24.4 - 67.3	0.66
Perry	56	94.5	70.9 - 124.5	43	78.2	56.0 - 107.2	0.83
Wayne	101	93.0	75.6 - 113.7	76	70.1	55.1 - 88.3	0.75
Southeast Region	3,180	79.1	76.3 - 81.9	2,338	58.7	56.3 - 61.1	0.74
Bledsoe	65	79.2	60.6 - 102.2	46	56.0	40.5 - 75.9	0.71
Bradley	416	73.0	66.0 - 80.5	309	54.8	48.8 - 61.4	0.75
Franklin	234	84.7	74.1 - 96.6	154	56.3	47.7 - 66.1	0.66
Grundy	90	97.0	77.7 - 120.1	65	68.8	52.8 - 88.5	0.71
Hamilton	1,436	72.4	68.7 - 76.3	1,023	51.8	48.6 - 55.1	0.72
McMinn	271	78.2	69.0 - 88.3	245	71.5	62.7 - 81.3	0.91
Marion	172	92.2	78.7 - 107.7	120	64.9	53.6 - 78.0	0.70
Meigs	78	94.1	73.7 - 119.0	59	75.2	56.7 - 98.4	0.80
Polk	132	112.6	93.8 - 134.4	99	86.6	70.0 - 106.3	0.77
Rhea	201	103.3	89.2 - 119.1	146	75.8	63.7 - 89.5	0.73
Sequatchie	85	92.8	73.6 - 115.8	72	83.3	64.7 - 105.8	0.90
Southwest Region	4,486	69.8	67.8 - 71.9	3,655	57.9	56.0 - 59.9	0.83
Chester	64	65.2	50.1 - 83.6	50	53.4	39.5 - 70.7	0.82
Decatur	71	81.2	62.9 - 103.7	63	70.6	53.9 - 91.5	0.87
Fayette	146	61.1	51.3 - 72.3	123	53.4	44.1 - 64.1	0.87
Hardeman	136	83.6	70.0 - 99.3	107	65.1	53.2 - 79.0	0.78
Hardin	161	86.8	73.7 - 101.9	140	76.8	64.4 - 91.1	0.88
Haywood	91	83.7	67.2 - 103.1	76	69.5	54.6 - 87.4	0.83
Henderson	153	92.9	78.6 - 109.2	111	67.4	55.3 - 81.4	0.73
Lauderdale	137	94.8	79.4 - 112.4	124	87.6	72.6 - 104.7	0.92
McNairy	147	83.2	70.1 - 98.2	133	74.8	62.5 - 89.1	0.90
Madison	370	70.0	63.0 - 77.7	275	52.4	46.3 - 59.1	0.75
Shelby	2,745	65.1	62.7 - 67.7	2,236	54.4	52.1 - 56.8	0.84
Tipton	265	88.6	78.0 - 100.3	217	75.2	65.3 - 86.3	0.85

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Appendix V Continued

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Upper-Cumberland Region	1,912	84.0	80.2 - 88.0	1,537	68.1	64.7 - 71.6	0.81
Cannon	61	69.2	52.8 - 89.6	49	57.7	42.5 - 76.9	0.83
Clay	44	74.1	53.2 - 101.6	39	68.6	48.5 - 95.4	0.93
Cumberland	399	81.8	73.5 - 90.9	282	57.6	50.8 - 65.3	0.70
DeKalb	108	90.9	74.3 - 110.4	96	82.9	66.9 - 101.7	0.91
Fentress	122	99.3	81.9 - 119.6	99	81.1	65.4 - 99.7	0.82
Jackson	88	107.2	85.5 - 133.6	54	65.3	48.6 - 86.5	0.61
Macon	135	103.0	86.1 - 122.4	110	86.2	70.6 - 104.3	0.84
Overton	152	99.9	84.3 - 117.8	124	83.4	69.1 - 100.1	0.83
Pickett	42	106.6	75.2 - 148.6	29	70.7	46.5 - 105.3	0.66
Putnam	291	69.9	62.0 - 78.5	259	63.4	55.8 - 71.7	0.91
Smith	98	89.6	72.4 - 109.8	86	79.6	63.4 - 98.9	0.89
Van Buren	25	66.2	41.8 - 101.0	21	54.5	32.8 - 86.7	0.82
Warren	203	84.6	73.2 - 97.3	178	74.2	63.6 - 86.1	0.88
White	144	82.8	69.7 - 98.0	111	64.9	53.2 - 78.6	0.78

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX VI. PROSTATE CANCER INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Tennessee	23,489	143.9	142.0 - 145.8	2,957	23.9	23.0 - 24.8	0.17
East Region	5,098	150.1	145.9 - 154.4	515	19.9	18.1 - 21.7	0.13
Anderson	393	169.7	153.1 - 187.7	39	18.6	13.2 - 25.6	0.11
Blount	530	145.0	132.6 - 158.3	49	17.0	12.4 - 22.6	0.12
Campbell	176	132.2	112.7 - 154.4	23	24.8	15.3 - 37.7	0.19
Claiborne	149	149.9	125.6 - 177.9	12	16.9	8.2 - 30.4	0.11
Cocke	143	119.3	99.8 - 141.9	19	22.0	12.6 - 35.5	0.18
Grainger	91	120.3	95.5 - 150.2	14	30.5	15.6 - 52.7	0.25
Hamblen	236	135.4	118.2 - 154.4	28	21.0	13.7 - 30.6	0.16
Jefferson	185	115.2	98.4 - 134.2	25	22.1	13.6 - 33.7	0.19
Knox	1,768	165.5	157.7 - 173.6	174	20.7	17.7 - 24.0	0.13
Loudon	300	156.5	138.6 - 176.6	22	16.7	10.3 - 25.8	0.11
Monroe	189	133.4	114.0 - 155.3	19	18.8	11.0 - 29.7	0.14
Morgan	82	125.4	98.9 - 157.1	11	25.3	12.0 - 45.7	0.20
Roane	267	141.6	124.7 - 160.3	29	18.7	12.4 - 27.3	0.13
Scott	85	150.7	119.0 - 188.3	^	^	^ - ^	^
Sevier	413	154.4	139.2 - 170.9	37	18.5	12.8 - 25.7	0.12
Union	91	166.2	131.4 - 207.7	^	^	^ - ^	^
Mid-Cumberland Region	5,342	147.8	143.6 - 152.0	626	23.7	21.8 - 25.7	0.16
Cheatham	135	138.1	114.4 - 165.2	11	14.1	6.8 - 25.6	0.10
Davidson	1,945	155.7	148.6 - 163.0	263	26.2	23.1 - 29.7	0.17
Dickson	183	151.5	129.5 - 176.2	28	30.4	19.8 - 44.2	0.20
Houston	39	151.6	106.2 - 210.9	10	46.6	21.7 - 87.5	0.31
Humphreys	62	105.6	80.1 - 137.2	^	^	^ - ^	^
Montgomery	366	129.5	116.0 - 144.1	51	24.2	17.6 - 32.2	0.19
Robertson	235	148.0	128.9 - 169.1	26	22.6	14.5 - 33.3	0.15
Rutherford	703	151.3	139.5 - 163.6	73	24.9	19.2 - 31.4	0.16
Stewart	59	138.6	104.6 - 181.0	^	^	^ - ^	^
Sumner	587	148.6	136.2 - 161.8	56	19.6	14.6 - 25.6	0.13
Trousdale	26	133.7	85.8 - 198.7	^	^	^ - ^	^
Williamson	642	154.6	142.0 - 168.0	49	18.7	13.7 - 24.8	0.12
Wilson	360	124.4	111.1 - 138.8	39	20.3	14.0 - 28.0	0.16
Northeast Region	1,878	115.8	110.5 - 121.3	275	22.6	20.0 - 25.6	0.20
Carter	173	95.4	81.3 - 111.4	33	24.4	16.6 - 34.6	0.26
Greene	231	105.4	91.7 - 120.8	55	36.2	26.8 - 47.7	0.34
Hancock	37	177.9	122.7 - 250.8	^	^	^ - ^	^
Hawkins	223	124.5	108.0 - 142.9	29	23.3	15.3 - 33.8	0.19
Johnson	40	59.1	41.8 - 82.0	^	^	^ - ^	^
Sullivan	680	128.9	119.2 - 139.2	84	20.2	16.0 - 25.2	0.16
Unicoi	54	79.9	59.6 - 105.9	14	25.4	13.5 - 44.2	0.32
Washington	440	124.3	112.7 - 136.8	54	20.3	15.2 - 26.5	0.16

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Appendix VI Continued

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Northwest Region	975	127.0	119.0 - 135.5	152	24.2	20.5 - 28.5	0.19
Benton	86	147.2	116.7 - 184.2	12	24.4	12.4 - 44.0	0.17
Carroll	126	138.2	114.7 - 165.4	16	21.4	12.2 - 35.0	0.15
Crockett	41	97.2	69.1 - 133.5	^	^	^ - ^	^
Dyer	89	85.4	68.0 - 106.0	18	21.1	12.2 - 33.8	0.25
Gibson	172	122.5	104.8 - 142.6	36	28.6	20.0 - 39.8	0.23
Henry	194	172.4	148.2 - 199.8	22	25.8	15.8 - 39.8	0.15
Lake	26	119.0	76.2 - 177.5	^	^	^ - ^	^
Obion	108	108.8	88.8 - 132.4	20	25.4	15.3 - 39.6	0.23
Weakley	133	135.8	113.3 - 161.7	19	23.3	13.8 - 36.6	0.17
South Central Region	1,274	121.7	114.9 - 128.8	166	20.6	17.5 - 24.1	0.17
Bedford	124	107.2	88.6 - 128.5	16	18.9	10.5 - 30.8	0.18
Coffee	180	122.7	105.1 - 142.4	26	22.2	14.3 - 32.7	0.18
Giles	95	105.3	84.5 - 130.0	13	17.6	9.1 - 30.8	0.17
Hickman	93	145.2	116.2 - 179.3	11	23.8	11.4 - 42.8	0.16
Lawrence	132	114.7	95.6 - 136.7	19	20.9	12.4 - 32.8	0.18
Lewis	50	135.5	99.5 - 181.2	^	^	^ - ^	^
Lincoln	112	111.8	91.5 - 135.5	16	21.9	12.1 - 36.0	0.20
Marshall	103	131.7	106.3 - 161.3	11	20.8	10.2 - 36.8	0.16
Maury	273	133.9	117.9 - 151.4	34	21.5	14.7 - 30.3	0.16
Moore	20	96.4	58.4 - 153.3	^	^	^ - ^	^
Perry	39	160.9	110.0 - 227.8	^	^	^ - ^	^
Wayne	53	106.6	79.3 - 140.6	^	^	^ - ^	^
Southeast Region	2,753	147.3	141.7 - 153.1	363	25.3	22.7 - 28.2	0.17
Bledsoe	65	164.0	123.9 - 213.4	^	^	^ - ^	^
Bradley	311	120.3	106.7 - 135.0	46	27.2	19.6 - 36.4	0.23
Franklin	173	132.2	112.8 - 154.1	28	26.8	17.6 - 39.1	0.20
Grundy	41	88.3	62.5 - 122.3	^	^	^ - ^	^
Hamilton	1,564	172.0	163.4 - 180.9	195	26.5	22.9 - 30.6	0.15
McMinn	215	135.9	117.7 - 156.1	24	19.4	12.1 - 29.2	0.14
Marion	106	122.4	98.9 - 150.0	28	44.6	28.8 - 65.7	0.36
Meigs	46	114.5	81.6 - 157.5	^	^	^ - ^	^
Polk	59	103.0	76.6 - 136.3	^	^	^ - ^	^
Rhea	128	133.7	110.8 - 160.3	13	15.6	8.0 - 27.4	0.12
Sequatchie	45	104.1	74.5 - 142.2	^	^	^ - ^	^
Southwest Region	4,701	160.3	155.6 - 165.2	690	31.6	29.2 - 34.1	0.20
Chester	38	83.8	58.8 - 116.2	^	^	^ - ^	^
Decatur	40	95.1	67.4 - 131.9	^	^	^ - ^	^
Fayette	198	172.0	147.7 - 199.4	21	26.1	15.5 - 40.7	0.15
Hardeman	109	134.0	109.2 - 163.1	16	30.3	17.0 - 49.2	0.23
Hardin	77	87.4	68.1 - 110.9	^	^	^ - ^	^
Haywood	70	148.9	114.8 - 190.0	15	41.7	22.9 - 69.0	0.28
Henderson	77	99.8	78.2 - 125.8	11	18.0	8.7 - 32.6	0.18
Lauderdale	78	120.8	94.4 - 152.2	18	39.0	22.8 - 61.3	0.32
McNairy	83	94.8	75.0 - 118.7	16	22.2	12.2 - 37.1	0.23
Madison	342	143.3	128.1 - 159.8	44	23.2	16.7 - 31.2	0.16
Shelby	3,377	178.7	172.4 - 185.1	504	35.9	32.7 - 39.2	0.20
Tipton	212	149.4	128.9 - 172.3	21	20.4	12.1 - 31.7	0.14

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Appendix VI Continued

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Upper-Cumberland Region	1,429	132.0	125.1 - 139.3	170	20.0	17.0 - 23.4	0.15
Cannon	57	134.7	101.2 - 176.4	^	^	^ - ^	^
Clay	25	82.6	52.5 - 126.5	^	^	^ - ^	^
Cumberland	427	170.3	153.9 - 188.3	26	11.8	7.6 - 18.0	0.07
DeKalb	65	120.6	92.1 - 155.5	^	^	^ - ^	^
Fentress	83	145.3	113.5 - 183.7	^	^	^ - ^	^
Jackson	37	83.8	58.3 - 118.5	^	^	^ - ^	^
Macon	68	121.9	93.6 - 156.0	15	35.3	19.3 - 58.3	0.29
Overton	80	109.5	86.2 - 137.8	^	^	^ - ^	^
Pickett	15	69.9	37.6 - 124.3	^	^	^ - ^	^
Putnam	233	120.8	105.5 - 137.7	33	20.8	14.2 - 29.4	0.17
Smith	66	129.2	98.8 - 166.2	^	^	^ - ^	^
Van Buren	20	113.2	65.7 - 183.7	^	^	^ - ^	^
Warren	136	126.4	105.6 - 150.3	21	24.3	14.8 - 37.4	0.19
White	117	139.1	114.5 - 167.7	20	29.1	17.5 - 45.6	0.21

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX VII. FEMALE BREAST CANCER INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Tennessee	22,479	120.0	118.5 - 121.6	4,334	22.5	21.9 - 23.2	0.19
East Region	4,494	120.3	116.7 - 123.9	826	21.4	19.9 - 22.9	0.18
Anderson	318	121.3	107.9 - 135.9	61	21.4	16.1 - 27.9	0.18
Blount	504	122.7	111.9 134.2	77	18.1	14.2 - 22.8	0.15
Campbell	163	120.9	102.5 141.9	23	18.3	11.4 - 28.1	0.15
Claiborne	119	114.6	94.4 138.1	30	29.1	19.4 - 42.4	0.25
Cocke	120	101.2	83.4 121.9	29	23.7	15.7 - 34.8	0.23
Grainger	80	112.2	88.3 141.0	19	25.7	15.3 - 41.2	0.23
Hamblen	230	111.7	97.4 127.7	54	24.6	18.4 - 32.4	0.22
Jefferson	176	107.0	91.4 124.7	34	20.7	14.2 - 29.3	0.19
Knox	1,655	130.9	124.6 137.5	270	20.7	18.3 - 23.4	0.16
Loudon	196	106.3	91.0 123.7	29	17.3	11.2 - 25.7	0.16
Monroe	179	122.2	104.4 142.4	31	22.1	14.9 - 31.8	0.18
Morgan	67	106.2	81.9 136.1	20	33.8	20.4 - 53.2	0.32
Roane	244	123.0	107.5 140.4	50	22.6	16.7 - 30.3	0.18
Scott	65	100.5	77.1 129.0	17	25.5	14.7 - 41.5	0.25
Sevier	316	111.5	99.3 124.9	70	23.6	18.3 - 30.0	0.21
Union	62	109.1	83.1 141.0	12	18.9	9.7 - 34.1	0.17
Mid-Cumberland Region	5,364	120.8	117.6 124.1	937	21.3	19.9 - 22.7	0.18
Cheatham	137	127.5	106.5 151.4	23	22.7	14.2 - 34.5	0.18
Davidson	2,093	129.1	123.6 134.8	389	23.2	20.9 - 25.6	0.18
Dickson	156	108.0	91.5 126.6	24	17.1	10.9 - 25.7	0.16
Houston	19	73.7	43.2 118.4	^	^	^ - ^	^
Humphreys	78	133.8	104.7 168.9	12	20.2	10.2 - 36.5	0.15
Montgomery	381	105.0	94.6 116.2	75	21.7	17.0 - 27.3	0.21
Robertson	210	115.8	100.5 132.8	40	22.2	15.8 - 30.4	0.19
Rutherford	643	110.8	102.2 119.9	115	20.7	17.0 - 24.9	0.19
Stewart	40	98.0	69.4 135.2	^	^	^ - ^	^
Sumner	575	122.5	112.6 133.1	86	18.9	15.1 - 23.5	0.15
Trousdale	23	98.9	62.1 150.4	^	^	^ - ^	^
Williamson	618	125.0	115.1 135.6	72	15.6	12.1 - 19.8	0.12
Wilson	391	120.4	108.6 133.3	78	24.7	19.5 - 31.0	0.21
Northeast Region	1,998	117.1	111.9 122.5	381	21.3	19.2 - 23.6	0.18
Carter	193	99.9	85.8 115.7	42	20.4	14.6 - 28.0	0.20
Greene	288	122.5	108.3 138.1	39	15.4	10.9 - 21.4	0.13
Hancock	25	114.1	72.0 173.5	^	^	^ - ^	^
Hawkins	218	115.6	100.4 132.7	47	24.0	17.5 - 32.3	0.21
Johnson	61	101.7	76.7 133.2	15	28.7	15.8 - 48.7	0.28
Sullivan	698	122.9	113.7 132.8	136	23.1	19.2 - 27.5	0.19
Unicoi	69	102.8	79.2 132.1	14	17.3	9.4 - 31.0	0.17
Washington	446	119.4	108.3 131.3	82	21.2	16.8 - 26.4	0.18

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Appendix VII Continued

	Incidence				Mortality			M:I
	Count*	Rate**	CI		Count*	Rate**	CI	Ratio†
Northwest Region	907	107.8	100.7	115.3	208	23.0	19.9 - 26.5	0.21
Benton	57	93.0	69.6	122.7	19	29.7	17.3 - 48.8	0.32
Carroll	105	106.9	86.5	130.9	21	19.5	11.6 - 31.2	0.18
Crockett	61	131.1	99.7	169.8	19	40.3	23.9 - 64.3	0.31
Dyer	126	105.5	87.5	126.1	20	16.1	9.8 - 25.3	0.15
Gibson	183	111.3	95.3	129.3	46	25.2	18.3 - 34.1	0.23
Henry	114	94.6	77.4	114.9	26	19.0	12.4 - 28.8	0.20
Lake	18	91.2	52.3	150.3	^	^	^ - ^	^
Obion	117	109.3	89.8	132.0	26	23.2	15.0 - 34.6	0.21
Weakley	126	118.8	98.5	142.4	24	22.0	13.8 - 33.6	0.19
South Central Region	1,326	112.3	106.3	118.7	252	20.4	17.9 - 23.1	0.18
Bedford	152	119.1	100.6	140.0	25	19.7	12.7 - 29.3	0.17
Coffee	168	101.1	86.1	118.2	37	20.9	14.6 - 29.1	0.21
Giles	109	108.4	88.5	131.8	21	18.7	11.5 - 29.4	0.17
Hickman	88	125.9	100.5	156.1	14	16.9	9.2 - 29.3	0.13
Lawrence	126	93.4	77.4	111.8	25	16.6	10.6 - 25.0	0.18
Lewis	57	145.3	109.0	190.6	^	^	^ - ^	^
Lincoln	115	102.6	84.2	124.0	18	15.4	9.1 - 25.0	0.15
Marshall	110	125.4	102.6	151.7	26	27.7	17.9 - 41.1	0.22
Mauzy	278	113.6	100.4	128.0	61	25.1	19.1 - 32.4	0.22
Moore	21	96.2	58.2	152.1	^	^	^ - ^	^
Perry	39	151.6	106.1	211.4	^	^	^ - ^	^
Wayne	63	120.5	92.0	155.9	10	21.6	10.1 - 41.2	0.18
Southeast Region	2,492	119.4	114.6	124.3	440	20.5	18.6 - 22.5	0.17
Bledsoe	40	97.6	69.1	135.2	^	^	^ - ^	^
Bradley	335	112.9	101.0	125.9	76	24.9	19.6 - 31.3	0.22
Franklin	135	100.4	83.6	119.8	32	23.9	16.0 - 34.5	0.24
Grundy	50	101.8	74.6	136.6	16	31.1	17.6 - 52.4	0.31
Hamilton	1,305	122.9	116.1	129.9	219	20.0	17.4 - 22.9	0.16
McMinn	212	120.0	104.0	137.9	32	17.2	11.7 - 24.7	0.14
Marion	123	134.7	111.1	162.1	18	19.7	11.5 - 31.8	0.15
Meigs	47	131.0	95.2	176.7	^	^	^ - ^	^
Polk	55	100.7	75.2	132.7	^	^	^ - ^	^
Rhea	147	147.2	123.7	174.1	19	17.9	10.6 - 28.8	0.12
Sequatchie	43	97.7	70.1	133.3	^	^	^ - ^	^
Southwest Region	4,558	125.0	121.4	128.7	1,039	28.0	26.3 - 29.8	0.22
Chester	62	126.7	96.5	163.5	13	22.4	11.9 - 39.4	0.18
Decatur	45	112.5	79.8	154.8	^	^	^ - ^	^
Fayette	170	140.3	119.4	164.0	38	30.8	21.6 - 42.9	0.22
Hardeman	112	146.2	119.6	177.3	27	33.9	22.1 - 50.1	0.23
Hardin	99	109.8	88.5	135.2	19	18.7	11.1 - 30.2	0.17
Haywood	73	121.4	94.6	153.7	19	30.3	18.1 - 48.2	0.25
Henderson	107	119.1	97.3	144.7	22	23.2	14.4 - 35.9	0.19
Lauderdale	87	116.1	92.6	143.8	22	28.4	17.7 - 43.6	0.24
McNairy	86	100.2	79.4	125.0	25	30.2	19.2 - 45.6	0.30
Madison	343	116.9	104.7	130.3	73	24.0	18.7 - 30.3	0.21
Shelby	3,192	127.7	123.2	132.2	734	29.2	27.1 - 31.5	0.23
Tipton	182	112.5	96.6	130.4	38	24.7	17.4 - 34.1	0.22

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	Incidence				Mortality			M:I Ratio†
	Count*	Rate**	CI		Count*	Rate**	CI	
Upper-Cumberland Region	1,315	119.2	112.6	126.1	251	22.0	19.3 - 25.0	0.18
Cannon	36	78.1	54.2	109.9	10	22.8	10.7 - 43.7	0.29
Clay	36	142.7	97.2	203.1	^	^	^ - ^	^
Cumberland	274	123.7	108.0	141.2	47	19.9	14.3 - 27.5	0.16
DeKalb	74	120.1	93.6	152.2	19	31.7	19.0 - 50.4	0.26
Fentress	75	124.3	96.9	157.7	^	^	^ - ^	^
Jackson	50	128.5	93.7	172.9	12	28.1	14.0 - 52.3	0.22
Macon	107	171.1	139.6	207.7	13	21.1	11.0 - 36.6	0.12
Overton	77	99.5	78.0	125.6	15	19.3	10.6 - 33.1	0.19
Pickett	20	87.8	52.2	144.9	^	^	^ - ^	^
Putnam	230	110.0	96.0	125.6	46	21.0	15.3 - 28.2	0.19
Smith	72	128.5	100.0	162.8	21	36.7	22.4 - 57.1	0.29
Van Buren	27	145.7	93.7	218.9	^	^	^ - ^	^
Warren	132	108.7	90.5	129.6	31	23.4	15.9 - 33.6	0.22
White	105	122.0	99.0	149.0	17	20.4	11.6 - 33.6	0.17

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX VIII. COLORECTAL CANCER INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Tennessee	15,363	44.6	43.9 - 45.4	6,086	17.9	17.5 - 18.4	0.40
East Region	2,950	42.5	41.0 - 44.1	1,118	16.3	15.3 - 17.3	0.38
Anderson	245	50.0	43.8 - 56.9	99	19.4	15.7 - 23.9	0.39
Blount	299	40.1	35.6 - 45.0	119	15.8	13.1 - 19	0.39
Campbell	112	42.9	35.2 - 52.0	46	18.4	13.4 - 24.8	0.43
Claiborne	98	49.3	39.8 - 60.6	35	18.4	12.7 - 26	0.37
Cocke	106	46.4	37.8 - 56.6	39	17.6	12.4 - 24.4	0.38
Grainger	66	48.2	37.0 - 62.0	30	24.1	16.1 - 34.9	0.50
Hamblen	168	45.5	38.8 - 53.1	77	20.3	15.9 - 25.5	0.45
Jefferson	129	42.9	35.6 - 51.3	42	13.2	9.4 - 18.1	0.31
Knox	903	39.1	36.6 - 41.8	324	14.2	12.7 - 15.8	0.36
Loudon	108	30.1	24.5 - 36.8	42	11.8	8.4 - 16.3	0.39
Monroe	118	43.5	35.8 - 52.5	54	21.5	16.1 - 28.3	0.49
Morgan	56	46.2	34.7 - 60.5	26	22	14.2 - 32.6	0.48
Roane	171	44.7	38.2 - 52.2	65	17.2	13.2 - 22.1	0.38
Scott	73	60.5	47.2 - 76.4	25	21.2	13.6 - 31.6	0.35
Sevier	237	44.2	38.6 - 50.4	74	14.1	11 - 17.8	0.32
Union	61	59.6	45.2 - 77.3	21	19.6	11.9 - 30.6	0.33
Mid-Cumberland Region	3,471	44.6	43.1 - 46.1	1,274	16.9	16 - 17.9	0.38
Cheatham	107	59.6	48.4 - 72.5	36	21.6	14.8 - 30.1	0.36
Davidson	1,300	45.6	43.1 - 48.2	491	17.4	15.9 - 19	0.38
Dickson	152	58.1	49.1 - 68.3	57	22.1	16.6 - 28.7	0.38
Houston	32	62.4	42.3 - 89.3	^	^	^ - ^	^
Humphreys	56	44.0	33.1 - 57.8	23	19.5	12.2 - 29.9	0.44
Montgomery	264	42.6	37.4 - 48.2	116	19.6	16 - 23.5	0.46
Robertson	164	50.7	43.1 - 59.3	60	19.2	14.6 - 24.8	0.38
Rutherford	414	41.1	37.0 - 45.4	160	17.3	14.6 - 20.2	0.42
Stewart	47	56.1	40.9 - 75.4	16	19.2	10.8 - 32.1	0.34
Sumner	353	42.6	38.2 - 47.4	114	14	11.5 - 16.9	0.33
Trousdale	23	52.9	33.1 - 80.4	^	^	^ - ^	^
Williamson	289	34.4	30.3 - 38.8	88	11.4	9 - 14.1	0.33
Wilson	270	46.8	41.2 - 53.0	97	17.6	14.1 - 21.6	0.38
Northeast Region	1,295	39.8	37.6 - 42.1	571	17.6	16.1 - 19.1	0.44
Carter	133	36.1	30.1 - 43.1	62	16.5	12.6 - 21.4	0.46
Greene	183	41.5	35.6 - 48.2	71	16.6	12.9 - 21.1	0.40
Hancock	20	43.3	26.3 - 68.5	^	^	^ - ^	^
Hawkins	148	41.6	35.0 - 49.1	69	20.1	15.5 - 25.6	0.48
Johnson	55	44.2	33.1 - 58.3	21	17.5	10.7 - 27.4	0.40
Sullivan	426	40.3	36.5 - 44.4	183	16.9	14.5 - 19.6	0.42
Unicoi	49	36.0	26.5 - 48.4	19	12.9	7.8 - 20.9	0.36
Washington	281	39.0	34.5 - 43.9	138	19.1	16 - 22.6	0.49

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Appendix VIII Continued

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Northwest Region	813	50.2	46.7 - 53.8	371	22.4	20.1 - 24.8	0.45
Benton	63	51.9	39.5 - 67.4	22	18.3	11.3 - 28.8	0.35
Carroll	97	50.3	40.6 - 61.8	48	24.1	17.7 - 32.2	0.48
Crockett	48	54.2	39.7 - 72.5	24	25.5	16.3 - 38.6	0.47
Dyer	107	48.3	39.5 - 58.6	50	22.2	16.4 - 29.4	0.46
Gibson	160	51.6	43.8 - 60.5	77	23.6	18.6 - 29.7	0.46
Henry	102	44.9	36.4 - 54.9	46	19.9	14.5 - 26.8	0.44
Lake	18	40.7	24.0 - 65.4	^	^	^ - ^	^
Obion	110	55.1	45.1 - 66.8	54	25.7	19.3 - 33.9	0.47
Weakley	108	51.3	42.0 - 62.1	41	19.1	13.7 - 26.2	0.37
South Central Region	1,027	46.1	43.3 - 49.1	397	18.0	16.3 - 19.9	0.39
Bedford	99	43.0	34.8 - 52.5	41	18.5	13.2 - 25.1	0.43
Coffee	141	44.0	37.0 - 52.1	56	17.8	13.4 - 23.3	0.40
Giles	107	58.3	47.6 - 70.9	34	17.9	12.3 - 25.3	0.31
Hickman	59	44.0	33.3 - 57.1	22	16.2	10.0 - 24.9	0.37
Lawrence	94	37.0	29.8 - 45.5	43	17.1	12.3 - 23.3	0.46
Lewis	36	47.6	33.0 - 66.9	11	14.5	7.2 - 26.7	0.30
Lincoln	125	58.4	48.5 - 69.8	53	25.4	19.0 - 33.5	0.43
Marshall	77	46.3	36.4 - 58.2	31	18.7	12.6 - 26.8	0.40
Mauzy	185	41.9	36.0 - 48.5	70	16.0	12.4 - 20.3	0.38
Moore	23	52.2	32.9 - 80.3	11	25.0	12.4 - 46.8	0.48
Perry	34	64.6	44.0 - 92.4	^	^	^ - ^	^
Wayne	47	45.0	32.9 - 60.2	17	16.7	9.7 - 27.2	0.37
Southeast Region	1,718	44.1	42.0 - 46.3	633	16.3	15.0 - 17.6	0.37
Bledsoe	36	45.1	31.2 - 63.5	12	17.4	8.8 - 31.0	0.39
Bradley	245	44.5	39.0 - 50.5	105	19.2	15.6 - 23.3	0.43
Franklin	136	50.6	42.3 - 60.2	51	19.0	14.1 - 25.3	0.38
Grundy	48	57.1	41.8 - 76.5	11	13.1	6.3 - 24.3	0.23
Hamilton	848	43.4	40.5 - 46.5	280	14.2	12.6 - 16.0	0.33
McMinn	124	37.1	30.8 - 44.4	57	17.2	13.0 - 22.4	0.46
Marion	79	46.9	36.8 - 59.0	34	21.1	14.5 - 29.9	0.45
Meigs	30	43.4	28.7 - 63.2	14	20.7	10.9 - 36.0	0.48
Polk	47	43.1	31.4 - 58.2	19	17.4	10.3 - 27.9	0.40
Rhea	85	46.5	36.9 - 57.8	35	18.8	12.9 - 26.4	0.40
Sequatchie	40	48.4	34.2 - 66.8	15	19.0	10.4 - 31.9	0.39
Southwest Region	3,115	48.2	46.5 - 49.9	1,336	21.1	20.0 - 22.3	0.44
Chester	41	43.3	30.9 - 59.1	16	16.6	9.4 - 27.2	0.38
Decatur	35	39.4	27.1 - 56.2	13	17.1	8.7 - 30.5	0.43
Fayette	128	57.2	47.4 - 68.4	52	24.1	17.8 - 31.8	0.42
Hardeman	75	49.2	38.6 - 61.9	26	16.9	11.0 - 24.9	0.34
Hardin	94	52.3	42.0 - 64.7	34	18.7	12.9 - 26.7	0.36
Haywood	57	53.2	40.0 - 69.4	25	22.6	14.6 - 33.7	0.42
Henderson	80	48.6	38.4 - 60.8	34	19.9	13.7 - 28.1	0.41
Lauderdale	77	53.6	42.1 - 67.3	34	24.1	16.6 - 33.9	0.45
McNairy	70	41.3	32.0 - 52.7	30	18.9	12.6 - 27.4	0.46
Madison	235	44.4	38.8 - 50.6	92	17.3	13.9 - 21.3	0.39
Shelby	2,058	47.7	45.6 - 49.8	917	22.0	20.6 - 23.5	0.46
Tipton	165	57.3	48.6 - 67.0	63	22.3	17.0 - 28.7	0.39

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Appendix VIII Continued

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Upper-Cumberland Region	970	45.0	42.2 - 48.0	386	18.1	16.3 - 20.1	0.40
Cannon	42	46.6	33.5 - 63.6	21	24.1	14.8 - 37.5	0.52
Clay	28	47.6	31.2 - 70.8	15	25.7	14.2 - 44.3	0.54
Cumberland	185	39.5	33.7 - 46.2	62	13.0	9.9 - 17.0	0.33
DeKalb	53	47.1	35.1 - 62.0	21	18.0	11.1 - 28.0	0.38
Fentress	58	52.7	39.7 - 68.9	32	29.4	19.8 - 42.3	0.56
Jackson	32	43.6	29.3 - 62.8	15	19.3	10.6 - 33.2	0.44
Macon	58	49.1	37.1 - 63.8	30	27.4	18.4 - 39.2	0.56
Overton	74	53.3	41.6 - 67.6	23	15.9	10.0 - 24.2	0.30
Pickett	19	49.8	29.6 - 80.9	10	25.6	12.1 - 50.7	0.51
Putnam	173	42.7	36.5 - 49.7	61	15.6	11.9 - 20.1	0.37
Smith	52	51.0	37.8 - 67.3	17	16.9	9.8 - 27.4	0.33
Van Buren	17	41.6	23.4 - 70.3	^	^	^ - ^	^
Warren	108	46.5	38.0 - 56.3	43	18.6	13.4 - 25.2	0.40
White	71	44.2	34.3 - 56.2	32	18.6	12.7 - 26.6	0.42

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX IX. MELANOMA OF THE SKIN INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence				Mortality				M:I
	Count*	Rate**	CI		Count*	Rate**	CI		Ratio†
Tennessee***	7,132	21.1	20.6	- 21.6	1,020	3	2.8	- 3.2	0.14
East Region	1,976	29.3	28.0	- 30.6	233	3.4	2.9	- 3.8	0.12
Anderson	118	24.6	20.2	- 29.6	17	3.5	2.0	- 5.8	0.14
Blount	232	30.8	26.9	- 35.2	30	4	2.7	- 5.8	0.13
Campbell	48	19.7	14.4	- 26.5	^	^	^	- ^	^
Claiborne	60	32.3	24.4	- 42.0	^	^	^	- ^	^
Cocke	60	28.5	21.5	- 37.0	^	^	^	- ^	^
Grainger	49	36.7	26.9	- 49.2	^	^	^	- ^	^
Hamblen	135	38.1	31.8	- 45.3	17	4.5	2.6	- 7.4	0.12
Jefferson	93	30.9	24.7	- 38.1	11	3.9	1.9	- 7.1	0.13
Knox	682	30.0	27.7	- 32.3	73	3.1	2.4	- 3.9	0.10
Loudon	100	29.5	23.6	- 36.5	^	^	^	- ^	^
Monroe	69	25.3	19.5	- 32.4	13	5.4	2.8	- 9.4	0.21
Morgan	32	24.9	16.8	- 35.6	^	^	^	- ^	^
Roane	93	27.6	22.0	- 34.2	13	3.4	1.8	- 6	0.12
Scott	28	23.5	15.5	- 34.3	^	^	^	- ^	^
Sevier	155	29.8	25.2	- 35.1	15	2.7	1.5	- 4.5	0.09
Union	22	19.6	12.1	- 30.2	^	^	^	- ^	^
Mid-Cumberland Region	1,449	17.9	17.0	- 18.9	246	3.2	2.8	- 3.6	0.18
Cheatham	31	15.1	10.1	- 21.6	^	^	^	- ^	^
Davidson	451	15.3	13.9	- 16.8	81	2.9	2.3	- 3.6	0.19
Dickson	47	17.7	12.9	- 23.7	14	5.1	2.8	- 8.7	0.29
Houston	^	^	^	- ^	^	^	^	- ^	^
Humphreys	27	26.0	16.9	- 38.5	^	^	^	- ^	^
Montgomery	105	15.6	12.7	- 19.0	24	3.6	2.3	- 5.4	0.23
Robertson	77	24.2	19.0	- 30.3	16	5.3	3.0	- 8.6	0.22
Rutherford	154	13.8	11.6	- 16.2	33	3.2	2.2	- 4.6	0.23
Stewart	19	23.3	13.7	- 37.4	^	^	^	- ^	^
Sumner	203	24.8	21.5	- 28.6	22	2.8	1.7	- 4.3	0.11
Trousdale	10	20.9	9.8	- 39.7	^	^	^	- ^	^
Williamson	219	25.9	22.4	- 29.7	21	2.5	1.5	- 3.9	0.10
Wilson	98	17.0	13.7	- 20.8	20	3.2	1.9	- 5	0.19
Northeast Region	949	31.0	29.0	- 33.1	96	3.1	2.5	- 3.8	0.10
Carter	75	20.5	16.0	- 25.9	^	^	^	- ^	^
Greene	96	22.5	18.1	- 27.7	14	3.2	1.7	- 5.5	0.14
Hancock	^	^	^	- ^	0	0	0.0	- 11.4	^
Hawkins	139	41.8	34.9	- 49.6	11	3.4	1.7	- 6.2	0.08
Johnson	25	20.1	12.8	- 30.6	^	^	^	- ^	^
Sullivan	357	36.2	32.4	- 40.3	40	4	2.9	- 5.6	0.11
Unicoi	40	34.8	24.4	- 48.2	^	^	^	- ^	^
Washington	207	30.8	26.7	- 35.4	14	1.9	1.0	- 3.3	0.06

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	Incidence				Mortality				M:I
	Count*	Rate**	CI		Count*	Rate**	CI		Ratio†
Northwest Region	192	12.5	10.8	- 14.5	54	3.5	2.6	- 4.6	0.28
Benton	14	13.4	7.0	- 23.6	^	^	^	- ^	^
Carroll	26	14.5	9.4	- 21.6	^	^	^	- ^	^
Crockett	13	14.8	7.8	- 25.8	^	^	^	- ^	^
Dyer	23	10.6	6.7	- 16.0	^	^	^	- ^	^
Gibson	25	9.0	5.8	- 13.4	12	3.8	2.0	- 6.8	0.42
Henry	32	15.3	10.2	- 22.2	15	7.2	3.9	- 12.4	0.47
Lake	^	^	^	- ^	^	^	^	- ^	^
Obion	28	14.1	9.3	- 20.6	^	^	^	- ^	^
Weakley	26	14.0	9.0	- 20.8	^	^	^	- ^	^
South Central Region	409	18.8	17.0	- 20.8	76	3.4	2.7	- 4.3	0.18
Bedford	52	22.5	16.8	- 29.7	11	4.8	2.4	- 8.7	0.21
Coffee	36	12.2	8.5	- 17.0	12	4	2.1	- 7.1	0.33
Giles	40	21.0	14.8	- 29.1	^	^	^	- ^	^
Hickman	26	18.5	12.0	- 27.5	^	^	^	- ^	^
Lawrence	49	20.5	15.1	- 27.4	11	4	2.0	- 7.4	0.20
Lewis	11	15.7	7.7	- 28.9	^	^	^	- ^	^
Lincoln	40	18.7	13.3	- 25.7	^	^	^	- ^	^
Marshall	41	23.8	16.9	- 32.5	^	^	^	- ^	^
Maury	78	18.1	14.3	- 22.8	13	2.9	1.5	- 5.1	0.16
Moore	^	^	^	- ^	^	^	^	- ^	^
Perry	10	21.9	10.1	- 41.9	^	^	^	- ^	^
Wayne	19	18.1	10.8	- 28.8	^	^	^	- ^	^
Southeast Region	870	23.2	21.7	- 24.8	122	3.2	2.6	- 3.8	0.14
Bledsoe	14	17.5	9.1	- 30.8	^	^	^	- ^	^
Bradley	105	19.8	16.1	- 24.1	15	2.8	1.5	- 4.6	0.14
Franklin	38	14.9	10.4	- 20.7	10	3.9	1.8	- 7.4	0.26
Grundy	21	25.5	15.5	- 39.8	^	^	^	- ^	^
Hamilton	516	27.3	25.0	- 29.9	52	2.6	2.0	- 3.5	0.10
McMinn	61	19.7	14.9	- 25.5	12	3.7	1.9	- 6.6	0.19
Marion	31	18.9	12.7	- 27.2	^	^	^	- ^	^
Meigs	10	12.6	5.8	- 24.5	^	^	^	- ^	^
Polk	15	15.2	8.3	- 25.9	^	^	^	- ^	^
Rhea	40	21.8	15.4	- 30.1	^	^	^	- ^	^
Sequatchie	19	25.6	15.2	- 40.5	^	^	^	- ^	^

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Appendix IX Continued

	Incidence					Mortality					M:I Ratio†
	Count*	Rate**	CI			Count*	Rate**	CI			
Southwest Region	852	13.1	12.2	-	14.1	124	2	1.6	-	2.4	0.15
Chester	^	^	^	-	^	^	^	^	-	^	^
Decatur	13	16.3	8.4	-	29.1	^	^	^	-	^	^
Fayette	46	20.3	14.7	-	27.5	^	^	^	-	^	^
Hardeman	12	8.1	4.1	-	14.3	^	^	^	-	^	^
Hardin	24	13.7	8.7	-	20.9	^	^	^	-	^	^
Haywood	12	10.9	5.6	-	19.3	^	^	^	-	^	^
Henderson	27	18.1	11.8	-	26.5	^	^	^	-	^	^
Lauderdale	20	14.7	8.9	-	22.8	^	^	^	-	^	^
McNairy	22	13.2	8.1	-	20.5	^	^	^	-	^	^
Madison	61	12.1	9.2	-	15.6	16	3.1	1.8	-	5.1	0.26
Shelby	565	12.9	11.9	-	14.0	64	1.5	1.2	-	2	0.12
Tipton	34	11.3	7.8	-	16.0	^	^	^	-	^	^
Upper-Cumberland	414	20.7	18.7	-	22.8	69	3.3	2.5	-	4.2	0.16
Cannon	19	21.3	12.7	-	34.1	^	^	^	-	^	^
Clay	^	^	^	-	^	^	^	^	-	^	^
Cumberland	125	30.1	24.5	-	36.6	11	2.6	1.2	-	5.1	0.09
DeKalb	10	8.9	4.2	-	16.7	^	^	^	-	^	^
Fentress	19	16.9	9.9	-	27.2	^	^	^	-	^	^
Jackson	15	22.6	12.5	-	38.1	^	^	^	-	^	^
Macon	19	16.0	9.5	-	25.3	^	^	^	-	^	^
Overton	27	22.0	14.3	-	32.4	^	^	^	-	^	^
Pickett	^	^	^	-	^	^	^	^	-	^	^
Putnam	71	19.4	15.1	-	24.5	10	2.5	1.2	-	4.6	0.13
Smith	22	22.3	13.9	-	33.9	^	^	^	-	^	^
Van	^	^	^	-	^	^	^	^	-	^	^
Warren	34	15.4	10.6	-	21.7	^	^	^	-	^	^
White	33	19.9	13.5	-	28.4	^	^	^	-	^	^

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

***Regional counts under incidence were modified, if needed, so suppressed cells could not be derived

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX X. PANCREATIC CANCER INCIDENCE AND MORTALITY BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Tennessee	4,051	11.8	11.4 - 12.1	3,770	11	10.7 - 11.4	0.93
East Region	825	11.7	10.9 - 12.5	767	10.9	10.2 - 11.7	0.93
Anderson	45	8.5	6.2 - 11.5	40	7.8	5.5 - 10.8	0.92
Blount	74	9.4	7.4 - 11.9	69	9.1	7 - 11.5	0.97
Campbell	26	10.3	6.6 - 15.3	20	8	4.8 - 12.5	0.78
Claiborne	19	9.7	5.8 - 15.4	19	9.7	5.8 - 15.5	1.00
Cocke	23	9.3	5.9 - 14.3	22	9.6	6 - 14.9	1.03
Grainger	14	10.4	5.6 - 17.9	13	10.4	5.4 - 18.2	1.00
Hamblen	54	14.4	10.8 - 18.9	53	14.2	10.6 - 18.7	0.99
Jefferson	37	11.6	8.1 - 16.2	33	11	7.5 - 15.7	0.95
Knox	295	12.6	11.2 - 14.1	276	11.8	10.5 - 13.3	0.94
Loudon	57	14.4	10.8 - 19.0	44	11.1	8 - 15.2	0.77
Monroe	40	14.2	10.0 - 19.6	37	13.7	9.5 - 19.1	0.96
Morgan	^	^	^ - ^	^	^	^ - ^	^
Roane	38	9.6	6.7 - 13.4	36	8.8	6.2 - 12.5	0.92
Scott	17	13.7	7.9 - 22.3	16	12.7	7.2 - 20.9	0.93
Sevier	61	11.3	8.5 - 14.6	68	12.5	9.7 - 16	1.11
Union	22	19.8	12.2 - 30.5	13	11.9	6.2 - 20.8	0.60
Mid-Cumberland Region	933	12.1	11.3 - 12.9	803	10.7	10 - 11.5	0.88
Cheatham	27	14.6	9.4 - 21.6	22	12.8	7.8 - 19.6	0.88
Davidson	386	13.9	12.5 - 15.4	333	12.2	10.9 - 13.6	0.88
Dickson	31	12.1	8.2 - 17.2	35	14	9.7 - 19.5	1.16
Houston	^	^	^ - ^	^	^	^ - ^	^
Humphreys	11	8.7	4.3 - 16.1	17	13.6	7.8 - 22.4	1.56
Montgomery	67	11.0	8.5 - 14.0	59	9.8	7.4 - 12.7	0.89
Robertson	44	12.6	9.1 - 17.1	36	10.6	7.4 - 14.8	0.84
Rutherford	114	11.9	9.7 - 14.3	96	10.1	8.1 - 12.4	0.85
Stewart	^	^	^ - ^	^	^	^ - ^	^
Sumner	84	10.2	8.1 - 12.7	76	9.7	7.6 - 12.2	0.95
Trousdale	^	^	^ - ^	^	^	^ - ^	^
Williamson	77	9.6	7.5 - 12.1	60	7.7	5.8 - 9.9	0.80
Wilson	73	12.0	9.3 - 15.2	52	8.5	6.3 - 11.3	0.71
Northeast Region	395	11.6	10.5 - 12.9	370	11	9.9 - 12.2	0.95
Carter	40	10.3	7.3 - 14.2	37	9.5	6.6 - 13.3	0.92
Greene	63	14.0	10.7 - 18.1	61	13.5	10.3 - 17.6	0.96
Hancock	^	^	^ - ^	^	^	^ - ^	^
Hawkins	43	11.8	8.5 - 16.1	43	11.5	8.3 - 15.7	0.97
Johnson	10	8.4	4.0 - 16.1	11	9.9	4.9 - 18.1	1.18
Sullivan	130	12.1	10.1 - 14.5	113	10.2	8.4 - 12.3	0.84
Unicoi	16	11.1	6.3 - 18.7	20	15.2	9.1 - 24.2	1.37
Washington	83	11.0	8.7 - 13.7	78	10.4	8.2 - 13	0.95

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	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Northwest Region	178	11.2	9.6 - 13.0	202	12.5	10.8 - 14.4	1.12
Benton	19	16.5	9.7 - 26.8	21	17.3	10.6 - 27.2	1.05
Carroll	16	8.3	4.7 - 13.8	20	10.4	6.3 - 16.4	1.25
Crockett	11	11.7	5.8 - 21.6	12	13.1	6.7 - 23.4	1.12
Dyer	24	10.8	6.9 - 16.2	23	10.6	6.7 - 16.1	0.98
Gibson	31	9.7	6.6 - 14.0	38	11.8	8.3 - 16.3	1.22
Henry	24	10.6	6.7 - 16.1	21	9.3	5.7 - 14.6	0.88
Lake	^	^	^ - ^	11	26.1	13 - 47.6	^
Obion	29	13.8	9.2 - 20.2	33	16.3	11.1 - 23.2	1.18
Weakley	21	10.6	6.5 - 16.4	23	11.9	7.5 - 18	1.12
South Central Region	258	11.7	10.3 - 13.2	245	11.1	9.7 - 12.5	0.95
Bedford	32	13.8	9.4 - 19.6	29	12.9	8.6 - 18.6	0.93
Coffee	38	12.1	8.5 - 16.7	41	12.9	9.2 - 17.6	1.07
Giles	20	11.1	6.7 - 17.5	16	8.5	4.8 - 14.2	0.77
Hickman	18	13.1	7.7 - 20.9	19	14.3	8.5 - 22.6	1.09
Lawrence	24	9.5	6.1 - 14.2	24	9.5	6.1 - 14.3	1.00
Lewis	^	^	^ - ^	^	^	^ - ^	^
Lincoln	22	9.9	6.2 - 15.3	21	9.4	5.8 - 14.6	0.95
Marshall	24	14.8	9.4 - 22.2	19	11.8	7 - 18.6	0.80
Maury	52	11.9	8.8 - 15.6	48	11	8.1 - 14.7	0.92
Moore	^	^	^ - ^	^	^	^ - ^	^
Perry	^	^	^ - ^	^	^	^ - ^	^
Wayne	13	11.7	6.2 - 20.6	14	12.6	6.8 - 21.8	1.08
Southeast Region	412	10.5	9.5 - 11.6	401	10.3	9.3 - 11.4	0.98
Bledsoe	^	^	^ - ^	10	13.8	6.4 - 26.1	^
Bradley	52	9.8	7.3 - 12.9	53	9.9	7.4 - 13.1	1.01
Franklin	21	7.8	4.8 - 12.2	21	7.9	4.8 - 12.2	1.01
Grundy	^	^	^ - ^	^	^	^ - ^	^
Hamilton	204	10.3	9.0 - 11.9	201	10.3	8.9 - 11.9	1.00
McMinn	45	13.1	9.5 - 17.7	43	12.3	8.9 - 16.8	0.94
Marion	23	12.9	8.1 - 19.8	19	10.3	6.1 - 16.6	0.80
Meigs	11	13.0	6.2 - 24.9	11	12.9	6 - 24.8	0.99
Polk	12	11.9	6.1 - 21.3	^	^	^ - ^	^
Rhea	19	9.4	5.6 - 14.9	21	11.3	6.9 - 17.5	1.20
Sequatchie	10	14.2	6.7 - 26.4	^	^	^ - ^	^

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	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Southwest Region	787	12.4	11.5 - 13.3	740	11.8	11 - 12.7	0.95
Chester	^	^	^ - ^	^	^	^ - ^	^
Decatur	^	^	^ - ^	^	^	^ - ^	^
Fayette	31	14.0	9.4 - 20.2	30	14	9.3 - 20.2	1.00
Hardeman	25	15.7	10.1 - 23.4	20	13	7.9 - 20.4	0.83
Hardin	12	7.3	3.7 - 13.1	15	8.6	4.8 - 14.6	1.18
Haywood	^	^	^ - ^	^	^	^ - ^	^
Henderson	14	9.0	4.9 - 15.3	11	7	3.4 - 12.7	0.78
Lauderdale	16	11.2	6.3 - 18.4	19	13.3	8 - 21	1.19
McNairy	15	9.2	5.0 - 15.5	17	11.1	6.4 - 18	1.21
Madison	58	10.7	8.1 - 14.0	54	9.9	7.4 - 13	0.93
Shelby	556	13.4	12.3 - 14.5	511	12.6	11.5 - 13.7	0.94
Tipton	40	13.5	9.6 - 18.6	46	16.2	11.7 - 21.8	1.20
Upper-Cumberland	257	11.9	10.4 - 13.4	242	11.2	9.8 - 12.8	0.94
Cannon	10	11.3	5.4 - 21.6	^	^	^ - ^	^
Clay	10	17.4	8.2 - 33.9	10	16.7	7.9 - 32.7	0.96
Cumberland	58	12.0	9.0 - 16.0	51	10.6	7.8 - 14.3	0.88
DeKalb	10	8.7	4.1 - 16.5	^	^	^ - ^	^
Fentress	17	15.2	8.7 - 25.1	19	17.2	10.2 - 27.6	1.13
Jackson	^	^	^ - ^	^	^	^ - ^	^
Macon	15	12.4	6.8 - 20.6	15	12.6	7 - 21.1	1.02
Overton	16	11.4	6.4 - 19.0	17	12.8	7.4 - 20.9	1.12
Pickett	^	^	^ - ^	^	^	^ - ^	^
Putnam	36	9.2	6.4 - 12.8	31	8.1	5.5 - 11.6	0.88
Smith	16	14.9	8.4 - 24.5	15	14.4	8 - 24.1	0.97
Van	^	^	^ - ^	^	^	^ - ^	^
Warren	25	10.5	6.8 - 15.7	33	14.2	9.8 - 20.1	1.35
White	25	15.7	10.1 - 23.5	21	12.3	7.6 - 19.2	0.78

*Total counts from 2007-2011

**Age-adjusted annual rate per 100,000

***Regional counts under incidence were modified, if needed, so suppressed cells could not be derived

†Mortality incidence ratio. See Technical Notes for details

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX XI. CANCER INCIDENCE AND MORTALITY, CHILDREN 0-19 YEARS, BY RESIDENT COUNTY, TENNESSEE, 2007-2011

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Tennessee	1,482	176.7	167.8 - 185.9	202	24.2	21.0 - 27.7	0.14
East Region	273	187.1	165.5 - 210.6	33	22.7	15.6 - 31.9	0.12
Anderson	26	282.0	184.2 - 413.7	^	^	^ - ^	^
Blount	23	152.7	96.8 - 229.4	^	^	^ - ^	^
Campbell	11	221.2	110.4 - 396.2	^	^	^ - ^	^
Claiborne	^	^	^ - ^	^	^	^ - ^	^
Cocke	^	^	^ - ^	^	^	^ - ^	^
Grainger	^	^	^ - ^	0	0.0	0.0 - 134.6	^
Hamblen	17	212.5	123.8 - 339.8	0	0.0	0.0 - 45.0	0.00
Jefferson	17	262.4	152.6 - 420.8	^	^	^ - ^	^
Knox	85	156.5	124.9 - 193.5	12	22.4	11.6 - 39.1	0.14
Loudon	19	351.0	211.2 - 548.2	^	^	^ - ^	^
Monroe	12	213.5	110.3 - 372.9	0	0.0	0.0 - 65.5	0.00
Morgan	^	^	^ - ^	^	^	^ - ^	^
Roane	^	^	^ - ^	^	^	^ - ^	^
Scott	^	^	^ - ^	^	^	^ - ^	^
Sevier	20	180.8	110.4 - 279.4	^	^	^ - ^	^
Union	^	^	^ - ^	0	0.0	0.0 - 145.2	^
Mid-Cumberland Region	419	176.8	160.3 - 194.6	60	25.9	19.8 - 33.3	0.15
Cheatham	11	201.6	100.6 - 362.1	^	^	^ - ^	^
Davidson	129	160.8	134.1 - 191.3	15	20.6	11.5 - 33.9	0.13
Dickson	16	234.2	133.8 - 380.5	^	^	^ - ^	^
Houston	^	^	^ - ^	0	0.0	0.0 - 338.6	^
Humphreys	^	^	^ - ^	^	^	^ - ^	^
Montgomery	47	174.3	127.8 - 232.2	^	^	^ - ^	^
Robertson	12	129.6	66.9 - 226.4	^	^	^ - ^	^
Rutherford	64	167.1	128.7 - 213.4	11	29.5	14.7 - 52.8	0.18
Stewart	^	^	^ - ^	0	0.0	0.0 - 230.9	^
Sumner	41	187.9	134.8 - 254.9	^	^	^ - ^	^
Trousdale	^	^	^ - ^	^	^	^ - ^	^
Williamson	56	206.8	156.0 - 268.9	^	^	^ - ^	^
Wilson	30	197.0	132.9 - 281.4	^	^	^ - ^	^
Northeast Region	113	191.6	157.8 - 230.4	12	20.1	10.4 - 35.2	0.10
Carter	13	195.4	103.9 - 334.9	0	0.0	0.0 - 56.8	0.00
Greene	14	172.5	94.1 - 289.9	^	^	^ - ^	^
Hancock	^	^	^ - ^	^	^	^ - ^	^
Hawkins	13	189.9	101.0 - 325.1	^	^	^ - ^	^
Johnson	^	^	^ - ^	^	^	^ - ^	^
Sullivan	37	205.9	144.9 - 284.1	^	^	^ - ^	^
Unicoi	^	^	^ - ^	^	^	^ - ^	^
Washington	19	127.6	76.7 - 200.0	0	0.0	0.0 - 26.2	0.00

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Appendix XI Continued

	Incidence			Mortality			M:I
	Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
Northwest Region	68	209.6	162.7 - 265.9	^	^	^ - ^	^
Benton	^	^	^ - ^	^	^	^ - ^	^
Carroll	11	293.2	146.0 - 527.4	^	^	^ - ^	^
Crockett	^	^	^ - ^	0	0.0	0.0 - 190.1	^
Dyer	^	^	^ - ^	^	^	^ - ^	^
Gibson	^	^	^ - ^	^	^	^ - ^	^
Henry	12	309.8	160.1 - 541.5	^	^	^ - ^	^
Lake	^	^	^ - ^	0	0.0	0.0 - 526.4	^
Obion	10	249.3	119.3 - 460.5	0	0.0	0.0 - 95.7	0.00
Weakley	^	^	^ - ^	^	^	^ - ^	^
South Central Region	84	165.5	132.0 - 204.9	14	27.6	15.1 - 46.3	0.17
Bedford	10	155.4	74.5 - 285.0	^	^	^ - ^	^
Coffee	^	^	^ - ^	0	0.0	0.0 - 51.5	^
Giles	^	^	^ - ^	^	^	^ - ^	^
Hickman	^	^	^ - ^	^	^	^ - ^	^
Lawrence	12	206.7	106.8 - 361.1	0	0.0	0.0 - 63.5	0.00
Lewis	^	^	^ - ^	0	0.0	0.0 - 242.8	^
Lincoln	15	356.9	199.7 - 588.2	^	^	^ - ^	^
Marshall	^	^	^ - ^	^	^	^ - ^	^
Maury	^	^	^ - ^	^	^	^ - ^	^
Moore	^	^	^ - ^	0	0.0	0.0 - 530.1	^
Perry	^	^	^ - ^	0	0.0	0.0 - 385.4	^
Wayne	^	^	^ - ^	^	^	^ - ^	^
Southeast Region	157	189.3	160.8 - 221.4	15	18.0	10.1 - 29.7	0.10
Bledsoe	^	^	^ - ^	0	0.0	0.0 - 246.1	^
Bradley	22	168.2	105.4 - 255.1	^	^	^ - ^	^
Franklin	13	247.0	130.9 - 425.2	^	^	^ - ^	^
Grundy	^	^	^ - ^	0	0.0	0.0 - 212.5	^
Hamilton	82	196.0	155.8 - 243.4	^	^	^ - ^	^
McMinn	^	^	^ - ^	^	^	^ - ^	^
Marion	12	358.5	185.2 - 625.7	^	^	^ - ^	^
Meigs	^	^	^ - ^	0	0.0	0.0 - 267.4	^
Polk	^	^	^ - ^	0	0.0	0.0 - 184.8	^
Rhea	^	^	^ - ^	0	0.0	0.0 - 90.0	^
Sequatchie	^	^	^ - ^	0	0.0	0.0 - 201.5	^
Southwest Region	291	153.8	136.6 - 172.5	53	28.3	21.2 - 37.0	0.18
Chester	^	^	^ - ^	0	0.0	0.0 - 167.0	^
Decatur	^	^	^ - ^	^	^	^ - ^	^
Fayette	^	^	^ - ^	^	^	^ - ^	^
Hardeman	^	^	^ - ^	0	0.0	0.0 - 114.7	^
Hardin	^	^	^ - ^	^	^	^ - ^	^
Haywood	^	^	^ - ^	0	0.0	0.0 - 140.6	^
Henderson	^	^	^ - ^	^	^	^ - ^	^
Lauderdale	11	294.6	147.0 - 526.9	^	^	^ - ^	^
McNairy	^	^	^ - ^	^	^	^ - ^	^
Madison	20	140.5	85.6 - 217.8	^	^	^ - ^	^
Shelby	209	152.0	132.1 - 174.0	44	32.2	23.4 - 43.2	0.21
Tipton	11	125.9	62.8 - 225.1	^	^	^ - ^	^

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Appendix XI Continued

	Incidence			Mortality			M:I Ratio†
	Count*	Rate**	CI	Count*	Rate**	CI	
Upper-Cumberland Region	74	175.0	137.4 - 219.7	^	^	^ - ^	^
Cannon	^	^	^ - ^	0	0.0	0.0 - 220.0	^
Clay	^	^	^ - ^	0	0.0	0.0 - 401.3	^
Cumberland	^	^	^ - ^	^	^	^ - ^	^
DeKalb	^	^	^ - ^	0	0.0	0.0 - 155.8	^
Fentress	^	^	^ - ^	^	^	^ - ^	^
Jackson	^	^	^ - ^	0	0.0	0.0 - 286.7	^
Macon	^	^	^ - ^	0	0.0	0.0 - 118.6	^
Overton	^	^	^ - ^	^	^	^ - ^	^
Pickett	0	0.0	0.0 - 682.9	0	0.0	0.0 - 682.9	~
Putnam	15	155.0	86.2 - 257.4	^	^	^ - ^	^
Smith	^	^	^ - ^	0	0.0	0.0 - 148.4	^
Van Buren	^	^	^ - ^	0	0.0	0.0 - 600.1	^
Warren	14	267.5	146.1 - 448.5	^	^	^ - ^	^
White	^	^	^ - ^	^	^	^ - ^	^

*Total counts from 2007-2011

**Age-adjusted annual rate per 1,000,000

†Mortality incidence ratio. See Technical Notes for details

~ Statistics could not be computed

^Cell suppressed due to fewer than 10 cases

Note that the number of cases by region may not sum up to the state total due to records with missing region information

APPENDIX XII. INCIDENCE AND MORTALITY OF COMMON CANCERS, THREE-YEAR MOVING AVERAGE, TENNESSEE, 2007-2011

Cancer Site	Year	Incidence			Mortality			M:I
		Count*	Rate**	CI	Count*	Rate**	CI	Ratio†
All Sites	2007-2009	98,739	484.1	481.1 - 487.2	39,627	197.9	195.9 - 199.9	0.41
	2008-2010	100,398	481.4	478.4 - 484.4	40,029	195.5	193.6 - 197.4	0.41
	2009-2011	101,609	476.8	473.8 - 479.8	40,382	192.6	190.7 - 194.5	0.40
Lung and Bronchus	2007-2009	16,392	79.6	78.4 - 80.8	12,970	63.9	62.8 - 65.1	0.80
	2008-2010	16,702	79.2	78.0 - 80.5	13,045	62.8	61.8 - 63.9	0.79
	2009-2011	16,778	77.9	76.7 - 79.1	13,053	61.4	60.3 - 62.5	0.79
Female Breast	2007-2009	13,297	120.8	118.7 - 122.9	2,602	23	22.1 - 23.9	0.19
	2008-2010	13,551	120.6	118.6 - 122.7	2,599	22.6	21.7 - 23.5	0.19
	2009-2011	13,769	120.2	118.1 - 122.2	2,614	22.3	21.4 - 23.2	0.19
Prostate	2007-2009	14,163	149.8	147.3 - 152.4	1,783	24.8	23.6 - 26	0.17
	2008-2010	13,948	142.1	139.6 - 144.5	1,752	23.7	22.6 - 24.9	0.17
	2009-2011	13,845	136.4	134.0 - 138.7	1,755	22.9	21.8 - 24	0.17
Colon and Rectum	2007-2009	9,414	46.5	45.6 - 47.5	3,643	18.3	17.7 - 18.9	0.39
	2008-2010	9,281	45.0	44.0 - 45.9	3,615	17.8	17.2 - 18.4	0.40
	2009-2011	8,958	42.6	41.7 - 43.5	3,632	17.4	16.9 - 18	0.41
Melanoma of the Skin	2007-2009	4,217	21.1	20.5 - 21.8	575	2.9	2.7 - 3.1	0.14
	2008-2010	4,330	21.3	20.7 - 21.9	627	3.1	2.8 - 3.3	0.15
	2009-2011	4,492	21.7	21.1 - 22.4	644	3.1	2.9 - 3.4	0.14
Pancreas	2007-2009	2,361	11.8	11.3 - 12.3	2,208	11.1	10.6 - 11.6	0.94
	2008-2010	2,446	11.9	11.4 - 12.3	2,288	11.2	10.8 - 11.7	0.94
	2009-2011	2,499	11.8	11.3 - 12.3	2,312	11	10.6 - 11.5	0.93

*Total counts in three years

**Age-adjusted annual rate per 100,000

†Mortality incidence ratio. See Technical Notes for details