

Data
Statistics
Information
Graphs
Tables
Charts
Trends

Davidson County Mortality Report Data for 2012 & 2013



Metro **Public Health Dept**
Nashville / Davidson County

Protecting, Improving, and Sustaining Health

Suggested Citation

Rogers, B. Thomas-Trudo, S. & McKelvey, B. (2016). Davidson County Mortality Report, Data for 2012 & 2013. Nashville, TN; Metropolitan Nashville Public Health Department.

What you will find in this report:

- ▶ Number of Deaths by Sex, Race/Ethnicity, and Age
- ▶ Crude Death Rates by Sex, Race/Ethnicity, and Age
- ▶ Leading Causes of Death
- ▶ Infant Mortality
- ▶ Years of Potential Life Lost
- ▶ Comparison to National Objectives
- ▶ Spotlight on Cancer

This page was intentionally left blank.

Executive Summary

- ▶ 4,942 Davidson County, TN residents died in 2012 and 5,077 died in 2013.
- ▶ In 2012, 72.6% of deaths were among non-Hispanic whites and 2.6% were among Hispanics when racial/ethnic identity could be determined. Similarly, in 2013, 71.8% of deaths were among non-Hispanic whites and 2.8% were among Hispanic residents.
- ▶ The age-adjusted death rate from all causes was 848.4 per 100,000 in 2012, and 843.2 in 2013.
- ▶ The highest death rate was among Hispanic males in both 2012 and 2013 when the age-adjusted death rates were 2,143.8 and 1,492.4 per 100,000 respectively.
- ▶ Cancer (2012: n=1,132 & 2013:n=1,109) and heart disease (2012: 1,108 & 2013: n=1,182) were the most common causes of death in 2012 and 2013. These two causes accounted for 45.3% in 2012 and 45.1% in 2013 of all the deaths in Davidson County.
- ▶ 69 infants died in 2012 producing an infant mortality rate of 7.1 per 1,000 live births. In 2013, there were 76 infant deaths, producing an infant mortality rate of 7.7 per 1,000 live births.
- ▶ The top ten leading causes of death accounted for 30,934 years of potential life lost (YPLL) by Davidson County residents in 2012 compared to 34,014.5 YPLL in 2013.
- ▶ The Healthy People 2020 objective for the leading causes of death in Davidson County was only met for diabetes.
- ▶ The young age distribution of the local Hispanic population accounts for differing leading causes of death in this group, and is why Hispanics were not included in the special section focusing on cancer at the end of this report.
- ▶ An average of nearly 1,117.1 Davidson County residents died from cancer annually over the past 8-year period.
- ▶ The age-adjusted mortality rate from cancer decreased 10.4% from 2006 to 2013.
- ▶ In Davidson County, between 2006 and 2013, males experienced a higher age-adjusted mortality rate for cancer than females.
- ▶ From 2006 to 2013, the age-adjusted mortality rate for cancer decreased among all race/sex/ethnicity groups with non-Hispanic black males showing the greatest decrease at 18.1%.
- ▶ In 2013, in Davidson County, lung cancer mortality was approximately four times more common than any other type. The other leading types of cancer mortality included breast, colon, pancreatic, and prostate.

Number of Deaths by Sex, Race/Ethnicity, and Age

In 2012 and 2013, 4,942 and 5,077 Davidson County residents died respectively. Slightly fewer females died (n=2,457, 49.7%) than males (n=2,484, 50.3%) in 2012. In 2013, more females died (n=2,603, 51.3%) than males (n=2,474, 48.7%). The gender distribution of 2012 and 2013 deaths closely parallels the population estimates provided by the 2012 and 2013 American Community Survey 1-Year Estimates. During 2012, the gender distribution of county residents was 48.4% male and 51.6% female. In 2013, the population was approximately 48.3% male and 51.7% female.

By race/ethnicity, non-Hispanic whites accounted for 72.3% of the deaths, non-Hispanic blacks represented 24.7%, while Hispanics represented 2.7% in 2012 and 2013 combined. The remaining 0.3% of deaths represented other racial/ethnic minorities or did not have this information recorded. The 2012 and 2013 combined population distribution by race/ethnicity was reported to be 57.0% non-Hispanic white, 27.8% non-Hispanic black, and 9.9% Hispanic. The number of deaths among non-Hispanic blacks is close to what would be expected based on the population distribution, while that among non-Hispanic whites is much higher and the corresponding number for Hispanics is considerably lower than might be anticipated. Deaths among people aged 65 and older (n=6,657) accounted for 66.4% of all resident deaths in 2012 and 2013. There were 145 infant (less than 1 year old) deaths in 2012 and 2013, accounting for 1.4% of all deaths.

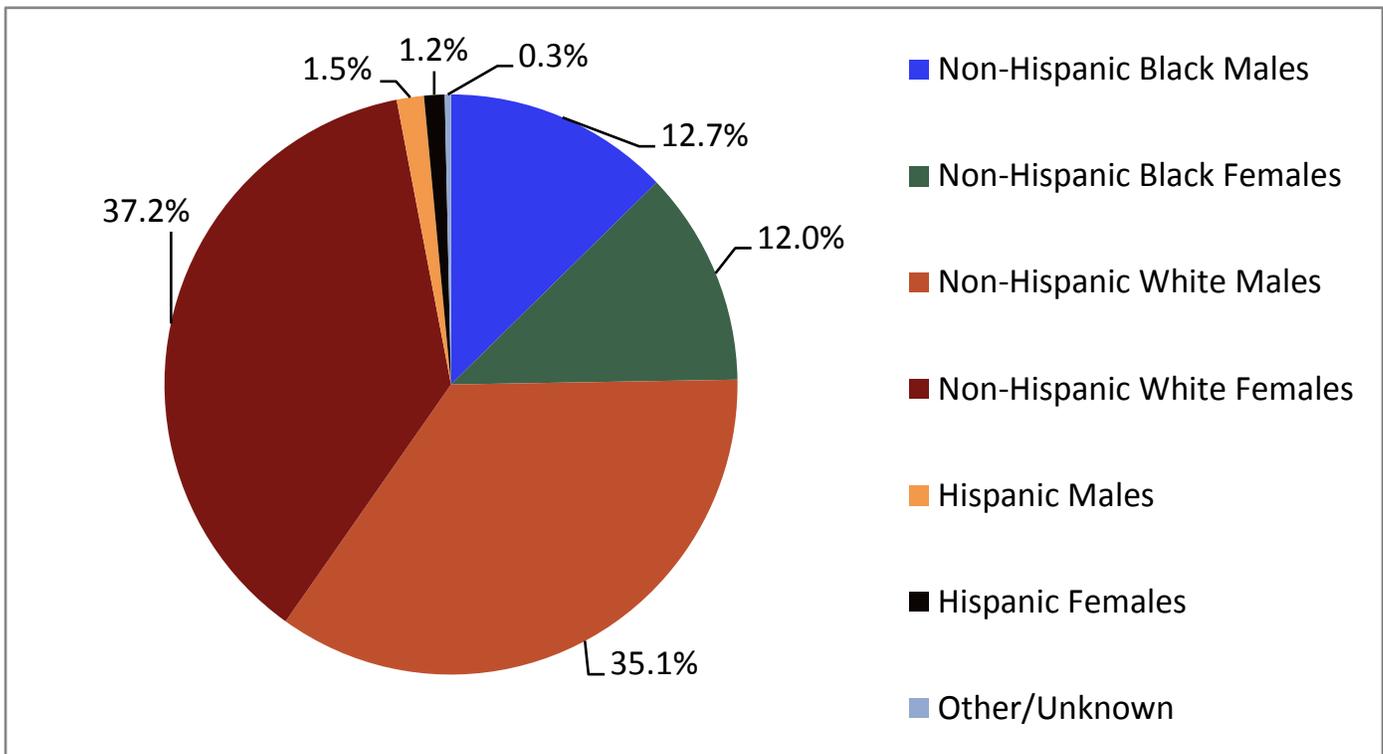


Figure 1. Percent of Deaths by Sex and Race/Ethnicity Davidson County, TN, 2012 & 2013

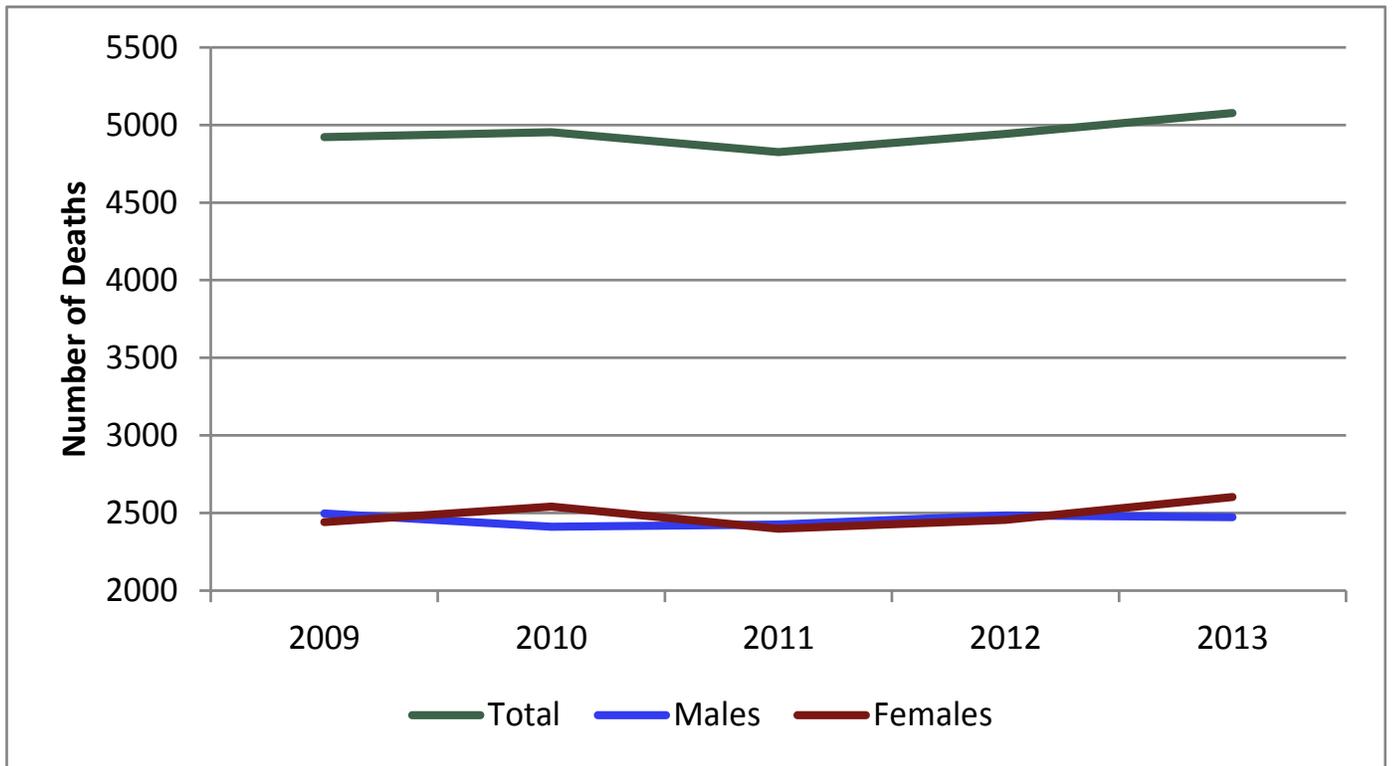


Figure 2. Number of Deaths by Sex, Davidson County, TN, 2009–2013

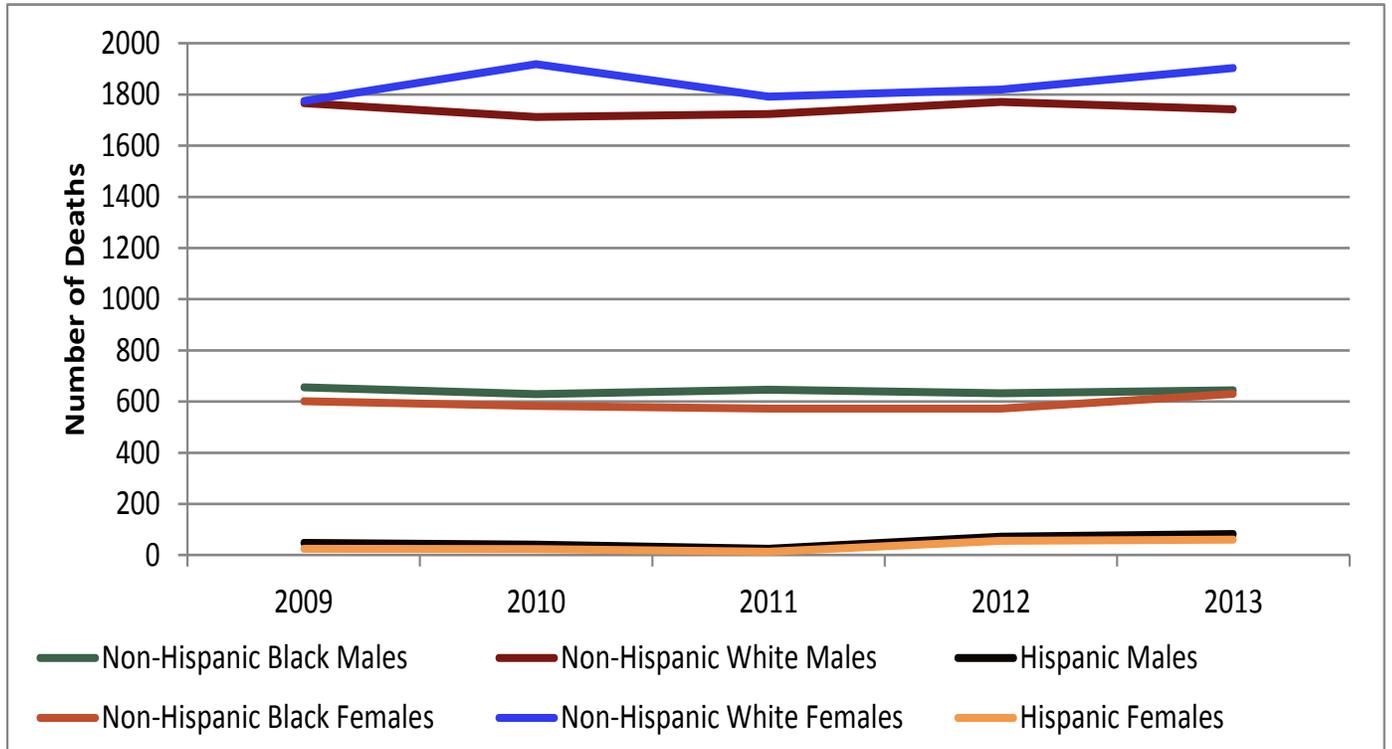


Figure 3. Number of Deaths by Race/Ethnicity and Sex, Davidson County, TN, 2009-2013

Crude Death Rates by Sex, Race/Ethnicity, and Age

Crude death rates are the mortality rates from all causes of death for a population. They are calculated as the number of deaths in a population in a given time period per 100,000 people. The overall crude death rate in Davidson County for 2012 was 762.3 per 100,000 population. In 2013 the crude death rate increased to 770.9 per 100,000. The crude death rates for males in 2012 and 2013 were 791.8 and 776.6 per 100,000. In females, the corresponding rates were 734.3 and 765.5 in 2012 and 2013 respectively. The crude death rates for non-Hispanic whites, non-Hispanic blacks, and Hispanics were 970.5, 703.4, and 217.2 in 2013. The graph below presents the crude mortality trends from 2009-2013 by race/sex/ethnicity groups.

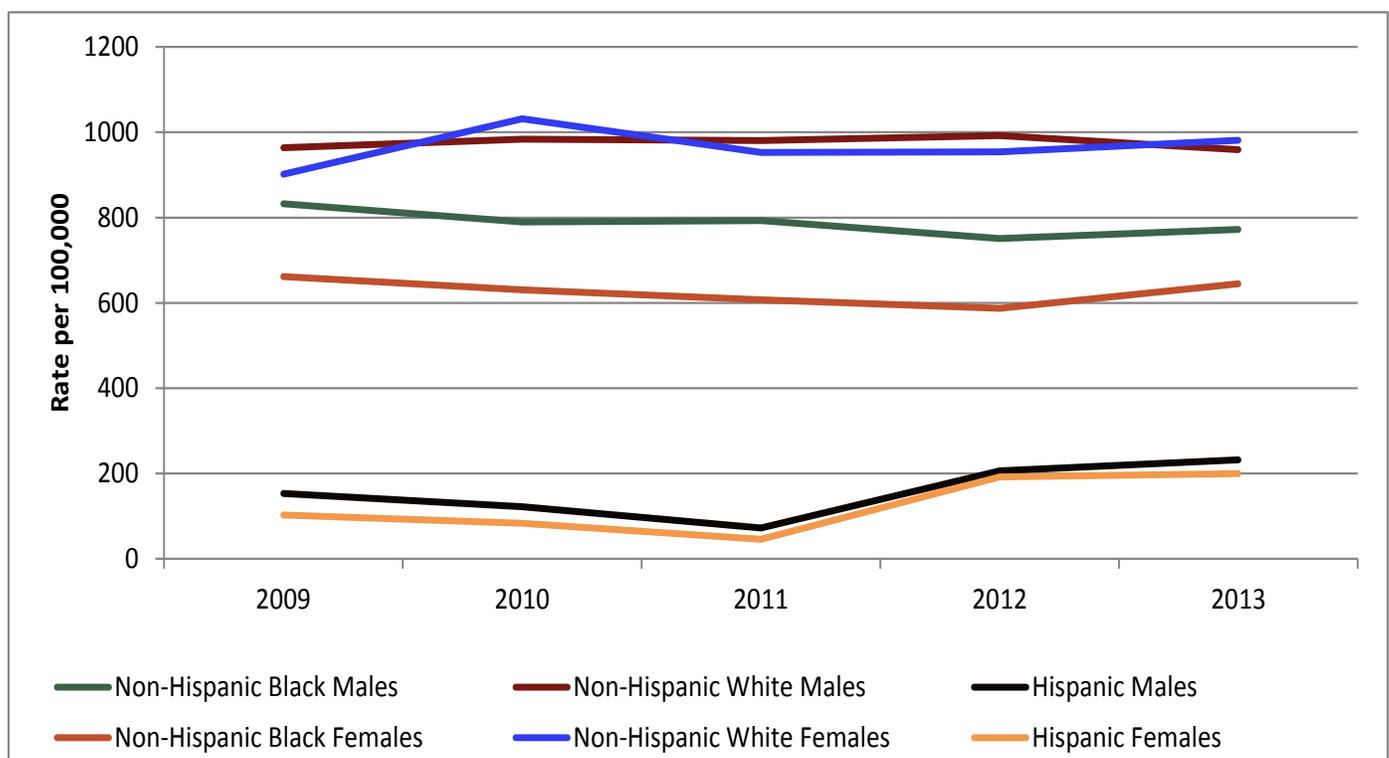


Figure 4. Crude Death Rates per 100,000 by Sex, Race/Ethnicity, Davidson County, TN, 2009–2013

Leading Causes of Death

Age-adjustment of mortality rates uses a statistical computation that allows for comparison of groups of people with different age distributions, or between causes of death that vary in frequency by age. It does not represent the actual number of deaths in that group.

Years of Potential Life Lost (YPLL) are presented as the sum of the difference between each person's age at death and age 75. For example, if someone died of cancer at age 55, he/she would contribute 20 YPLL to the county total for that condition. Table 1 shows the ten leading causes of death in Davidson County in 2013 in order of frequency. The rates presented are age-adjusted rates per 100,000 population. The ten leading causes of death accounted for 34,014.5 YPLL. The most YPLL were a result of cancer, followed by heart disease, accidents, and suicide.

Table 1. Leading Causes of Death Ranked by Frequency with the Corresponding Age-Adjusted Mortality Rates and Years of Potential Life Lost, Davidson County, TN 2013

Disease	Number	Rate	YPLL
Heart Disease	1,182	198.0	8,069.0
Cancer	1,109	179.6	10,106.5
Accidents	386	61.2	7,279.0
Chronic Lower Respiratory Disease	273	47.8	1,133.0
Stroke	241	41.5	1,251.5
Alzheimer's Disease	189	34.4	91.5
Diabetes	155	25.7	1,380.5
Influenza and Pneumonia	102	17.6	742.5
Suicide	91	13.1	2,825.5
Chronic Liver Disease and Cirrhosis	74	11.1	1,135.5

Not surprisingly, the leading causes of death differ by age. The highlights below are based on the 2013 data.

- ▶ Two causes of death account for nearly 80% of infant deaths: perinatal conditions (n=43) and birth defects (n=17).
- ▶ Only six deaths occurred among children 1–4 years old with accidents (n=2) and homicide (n=2) being the most common causes.
- ▶ Thirteen deaths occurred among those 5–14 years old with five being attributed to accidents and two to cancer.
- ▶ Among those 15–24 years old, the leading causes of death were accidents (n=15), suicide (n=12), and homicide (n=10).
- ▶ In the 25–44 year old age group, the leading causes of death were accidents (n=86), cancer (n=40), suicide (n=35), heart disease (n=31), and homicide (n=19). These five causes accounted for 71.5% of the deaths in this age group.

- ▶ Among residents 45–64 years old, two causes of death accounted for over half of the deaths for this group. The leading causes were cancers (n=367) and heart disease (n=299).
- ▶ In persons 65 years old and older, heart disease (n=847) and cancers (n=699) were the most common causes of death, followed by chronic lower respiratory disease (n=232) and stroke (n=193).

Based on age-adjusted rates by race/ethnicity, heart disease, cancer, and accidents were reported as the top three causes of death among both non-Hispanic blacks, and non-Hispanic whites respectively. Among Hispanics, cancer, heart disease, and accidents claimed the top spots as the leading causes of death respectively. The leading causes of death in order among both males and females in 2013 were heart disease, cancer, and accidents.

In the table on page ten, one can see that heart disease or cancer claimed the top spot within each of the six racial/ethnic and sex categories based on age-adjusted rates. According to the 2013 American Community Survey 1-Year Estimates, the median age of all Davidson County residents was 34.3 years. The Hispanic community in Davidson County has a younger age distribution, so the number of deaths from causes typically associated with older individuals are too few to report.

It is important to note that the age-adjusted rates for Hispanics should be interpreted with extreme caution. Multiple factors impacted the stability of these rates. The size of the Hispanic community in Davidson County is increasing which naturally means a greater number of deaths in that population. An additional issue is the lack of reliable population estimates. These factors combined make it clear that these rates should be considered unstable. Therefore, the actual number of deaths is provided in Table 3 on page 10 instead of rates for this segment of the population.

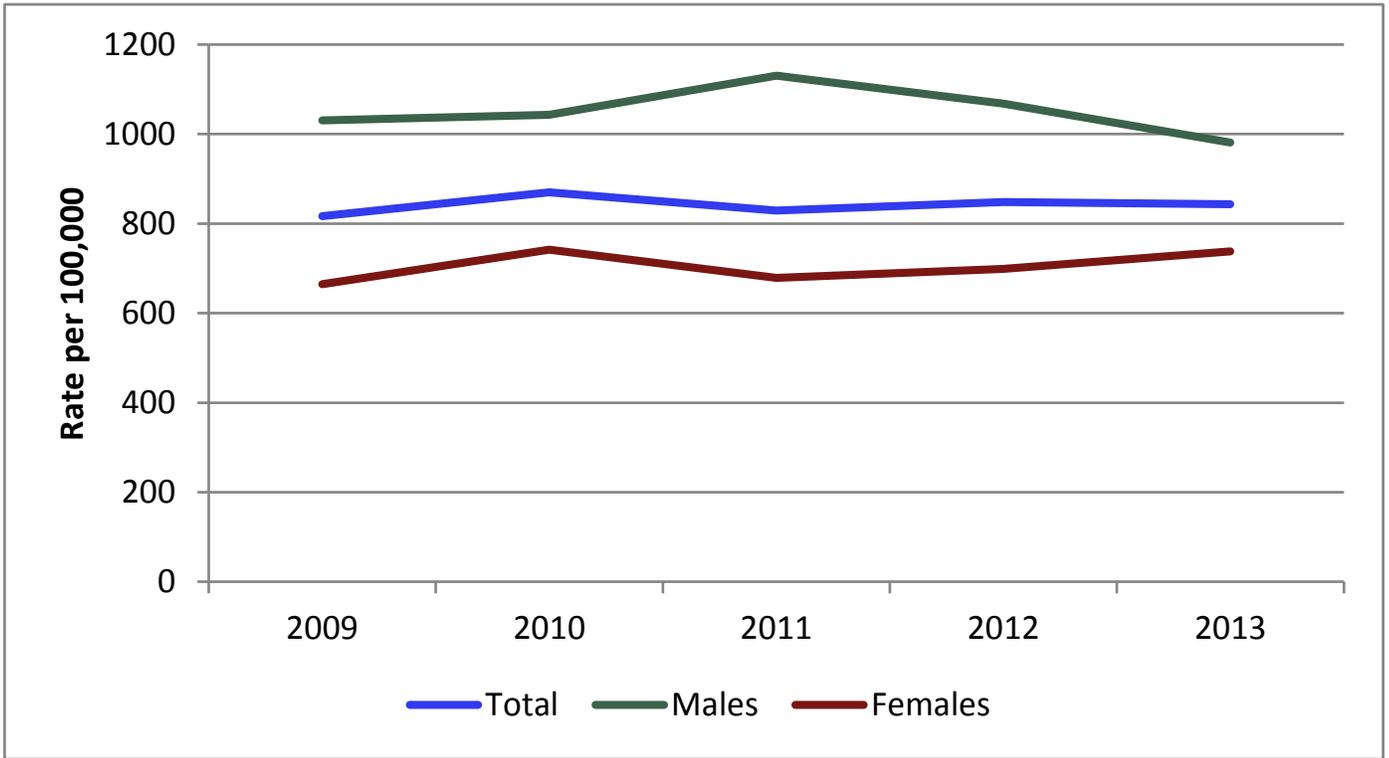


Figure 5. All Cause Age-Adjusted Mortality Rates per 100,000 by Sex, Davidson County, TN, 2009–2013

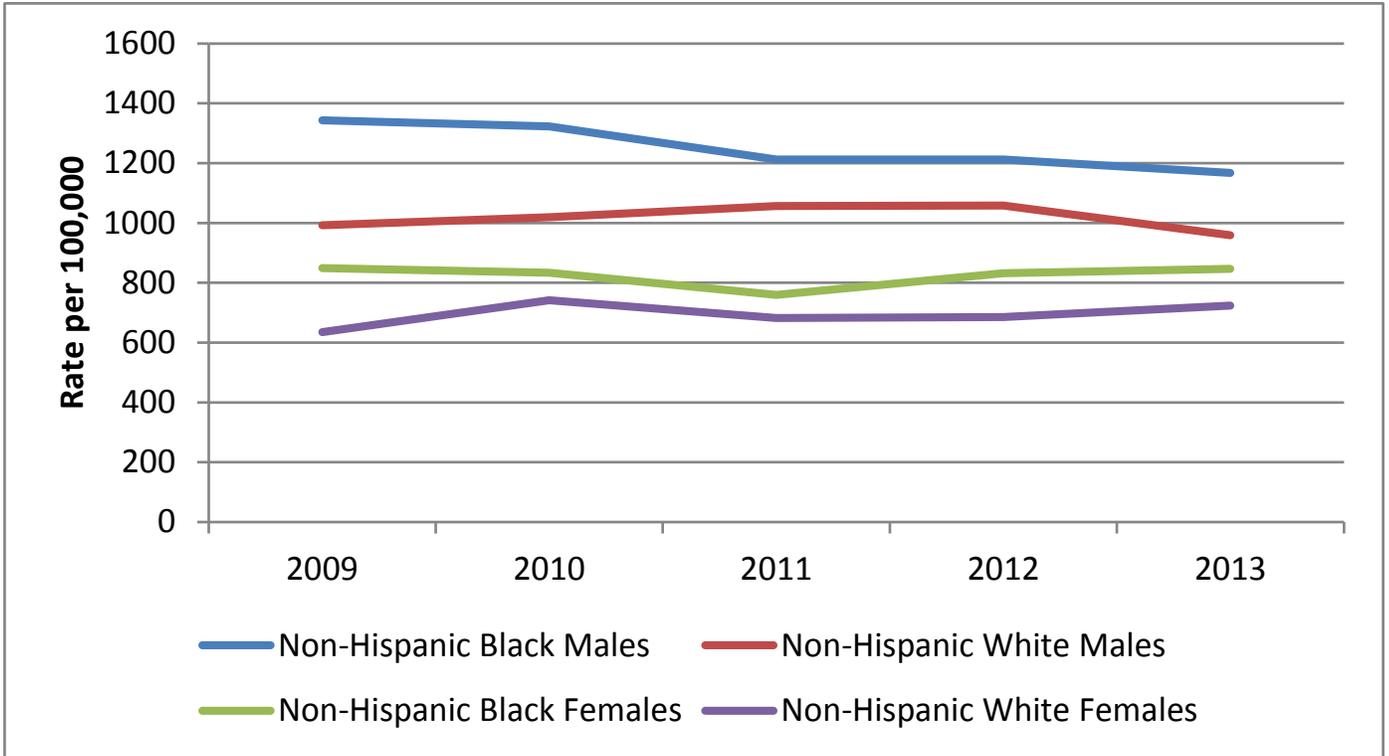


Figure 6. All Cause Age-Adjusted Mortality Rates per 100,000 by Race/Ethnicity and Sex, Davidson County, TN, 2009–2013

Table 2. Age-Adjusted Mortality Rates for 10 Overall Leading Causes of Death Ranked by Frequency for Racial/Ethnic and Sex Groups, Davidson County, TN, 2013

Disease/Condition	Race/Ethnicity			Gender		
	NHW	NHB	Hispanic	Female	Male	
Heart Disease	187.0	258.5	136.2	168.4	236.0	
Cancer	173.7	219.6	164.1	154.1	218.4	
Accidents	67.2	51.5	38.8	45.8	79.0	
Chronic Lower Respiratory Disease	52.4	38.7	--	43.9	55.2	
Stroke	38.4	50.5	82.9	42.2	40.0	
Alzheimer's Disease	36.5	28.6	--	36.6	30.0	
Diabetes	22.2	40.9	--	21.6	32.2	
Influenza and Pneumonia	17.6	19.8	--	18.2	17.0	
Suicide	19.1	4.5	--	4.9	22.6	
Chronic Liver Disease and Cirrhosis	13.3	6.2	--	9.3	13.3	

Disease/Condition	Race/Ethnicity and Gender					
	NHWM	NHWF	NHBM	NHBF	HM	HF
Heart Disease	229.2	154.4	279.1	239.7	320.6	104.4
Cancer	206.8	151.2	289.9	175.5	277.6	141.4
Accidents	85.5	51.3	74.0	34.5	25.5	36.9
Chronic Lower Respiratory Disease	58.9	49.1	47.5	33.7	--	--
Stroke	40.4	36.7	36.5	58.3	--	--
Alzheimer's Disease	32.0	38.8	22.4	31.7	--	--
Diabetes	26.5	19.8	52.9	32.9	--	--
Influenza and Pneumonia	17.9	18.1	14.6	22.4	--	--
Suicide	32.5	7.1	7.3	--	--	--
Chronic Liver Disease and Cirrhosis	15.4	11.3	7.4	5.3	--	--

Rates are suppressed when the number of cases is less than five, making the rates unstable.

Table 3. Number of Hispanic Deaths by Sex, Davidson County, TN, 2009-2013

	2009	2010	2011	2012	2013
Hispanic Males	48	41	25	72	82
Hispanic Females	25	23	13	56	60

Table 4. Median Age at Death for 10 Overall Leading Causes of Death Ranked by Frequency for Racial/Ethnic and Sex Groups, Davidson County, TN, 2013

Disease/Condition	Race/Ethnicity			Gender		
	NHW	NHB	Hispanic	Female	Male	
Heart Disease	81.5	68.0	63.5	83.0	70.0	
Cancer	71.0	65.0	55.0	71.0	67.0	
Accidents	62.0	52.0	30.5	72.5	54.0	
Chronic Lower Respiratory Disease	78.5	77.5	81.0	78.0	78.0	
Stroke	82.0	69.0	78.0	81.0	75.5	
Alzheimer's Disease	87.0	89.0	85.0	89.0	85.0	
Diabetes	74.0	68.0	78.0	72.0	70.0	
Influenza and Pneumonia	85.0	70.5	86.0	83.0	81.0	
Suicide	42.0	22.0	58.0	48.0	41.0	
Chronic Liver Disease and Cirrhosis	58.5	61.5	69.0	62.5	57.5	
Disease/Condition	Race/Ethnicity and Gender					
	NHWM	NHWF	NHBM	NHBF	HM**	HF**
Heart Disease	74.0	85.0	64.0	75.0	58.5	79.5
Cancer	68.0	72.0	65.0	65.0	58.0	53.0
Accidents	56.0	75.5	53.0	49.0	28.0	54.0
Chronic Lower Respiratory Disease	78.5	78.5	77.0	78.0	*	81.0
Stroke	77.5	83.5	62.5	70.0	71.0	82.0
Alzheimer's Disease	85.0	89.0	85.0	91.5	73.0	87.0
Diabetes	74.0	74.0	66.5	68.0	78.0	*
Influenza and Pneumonia	85.0	86.0	59.0	78.0	*	86.0
Suicide	42.0	48.0	19.0	40.0	58.0	*
Chronic Liver Disease and Cirrhosis	57.5	61.0	60.0	63.0	87.0	51.0

*Blank cells resulted when no deaths occurred in a particular population group for a given condition.

**With the exception of heart disease, cancer, and accidents, data for Hispanic males and Hispanic females should be interpreted with caution as the number of cases was 5 or less.

Looking at the median age of death for the leading causes of death allows for more understanding of who the victims of a given disease or condition are. The table above illustrates that non-Hispanic white women live the longest with heart disease. Cancer claims the lives of Hispanic men and women at an earlier age than their non-Hispanic counterparts. Hispanic males are the victims of accidental death at an earlier age than other race/ethnicity/gender groups. Non-Hispanic males appear to die of strokes and influenza/pneumonia at a younger age. Suicide victims are youngest among non-Hispanic black males.

Infant Mortality

In 2012 and 2013, 69 and 76 infants died respectively before reaching their first birthday for a total of 145. This produced annual infant mortality rates of 7.1 and 7.7 per 1,000 live births in 2012 and 2013. The largest proportion of deaths in these two years was among non-Hispanic blacks (n=64, 44.1%), followed by non-Hispanic whites (n=54, 37.2%) and Hispanics (n=26, 17.9%). During the period included in the graph below, the overall infant mortality rate has shown no improvement. A dramatic increase in infant mortality among Hispanic residents was witnessed from 2010 to 2013. This increase began slowly, but in this four-year period, the Hispanic infant mortality rate increased more than three-fold from 3.1 to 9.7. In the past, the number of Hispanic infant deaths has been too low for rates to be stable. The increase in the size of this segment of the population may mean that the rates are beginning to stabilize. In 2013, the infant mortality rate among non-Hispanic blacks was 1.9 times that of non-Hispanic whites. For a more detailed information about infant mortality, please consult the annual Fetal and Infant Mortality Review of Davidson County. These reports offer more in-depth investigation including the Perinatal Periods of Risk analysis. These reports can be found on the Metro Public Health Department website at <http://www.nashville.gov/Health-Department/Data-and-Publications/Death-Data.aspx>.

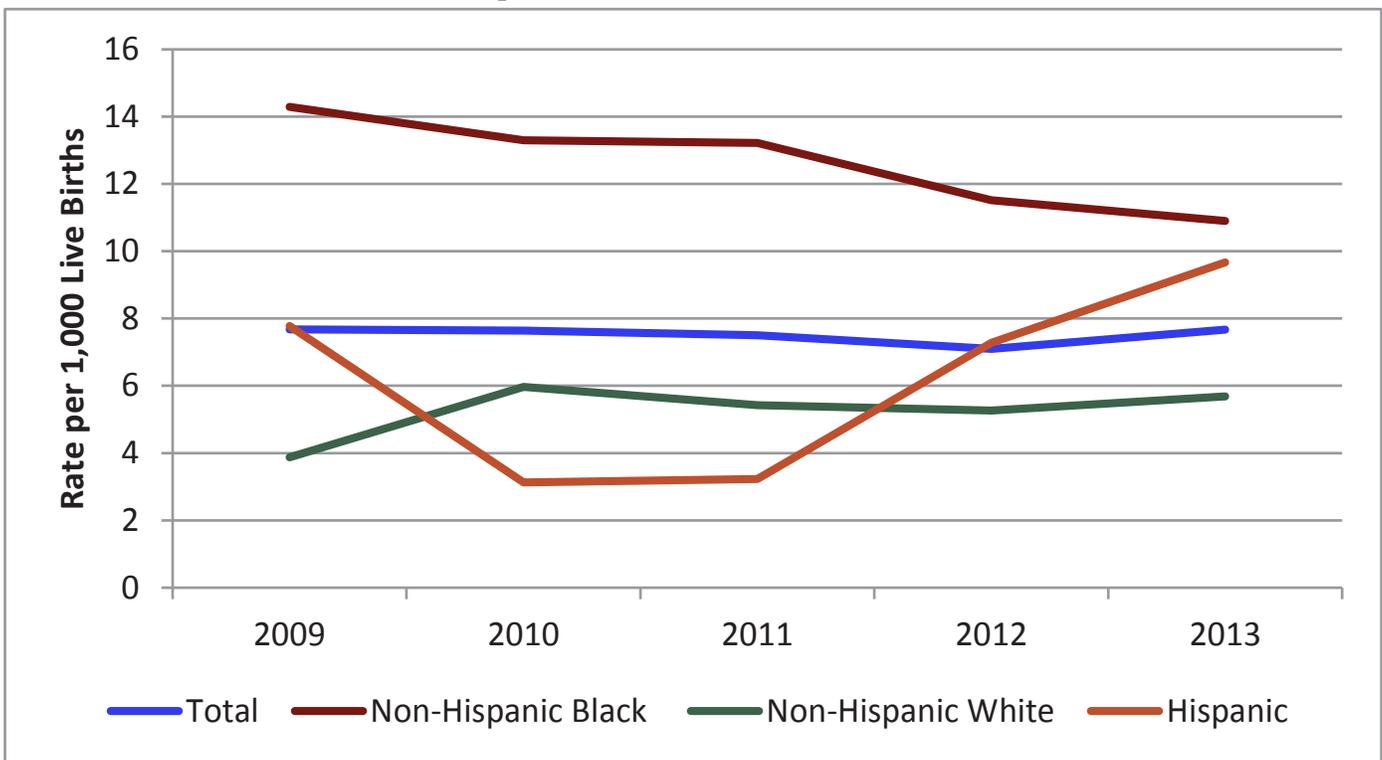


Figure 7. Infant Mortality Rate per 1,000 Live Births by Race/Ethnicity, Davidson County, TN, 2009–2013

Years of Potential Life Lost

Previously, it was stated that a total of 34,014.5 years of potential life were lost in 2013 due to the 10 overall leading causes of death. For all causes of death, there were a total of 44,832 YPLL. That is the equivalent of losing the lifelong contributions of over 598 people who would have lived 75 years each. The table below lists the top five contributors of YPLL when possible for each racial/ethnic/sex group. Causes with fewer than five cases were omitted from this table.

Table 5. Top Contributors to Years of Potential Life Lost by Racial/Ethnic and Sex Groups, Davidson County, TN 2013

Non-Hispanic Black	Non-Hispanic White	Hispanic
Heart Disease	Heart Disease	Cancer
Cancer	Cancer	Heart Disease
Accidents	Accidents	Accidents
Stroke	Chronic Lower Respiratory Disease	Birth Defects
Diabetes	Stroke	Stroke
Male	Female	
Heart Disease	Heart Disease	
Cancer	Cancer	
Accidents	Accidents	
Chronic Lower Respiratory Disease	Chronic Lower Respiratory Disease	
Stroke	Stroke	
NHWM	NHWF	
Heart Disease	Heart Disease	
Cancer	Cancer	
Accidents	Accidents	
Chronic Lower Respiratory Disease	Chronic Lower Respiratory Disease	
Stroke	Alzheimer's Disease	
NHBM	NHBF	
Cancer	Heart Disease	
Heart Disease	Cancer	
Accidents	Stroke	
Diabetes	Accidents	
Homicide	Diabetes	
HM	HF	
Cancer	Cancer	
Heart Disease	Stroke	
Accidents	Heart Disease	
Birth Defects	Accidents	

Comparison to National Objectives

Healthy People 2020 is a list of national health objectives that are used as targets that health jurisdictions seek to achieve. Six of the top ten leading causes of death in Davidson County had a corresponding objective. The table below presents the national objective, the Davidson County status in 2013, and the percent difference. Davidson County only achieved the national objective for diabetes. For this objective, Davidson County is nearly 60% below the goal. The largest difference was seen in heart disease, which was 96.4% higher than the 2020 objective.

Table 6. Percent Difference in Age-Adjusted Mortality Rates for Leading Causes of Death and Infant Mortality in Davidson County, TN in 2013 Compared to the Health People 2020 Objectives

Disease/Condition	Healthy People 2020	Davidson County Rate	% Difference
Heart Disease	100.8	198.0	96.4
Cancer	160.6	179.6	11.8
Accidents	36.0	61.2	70.0
Chronic Lower Respiratory Disease		47.8	
Stroke	33.8	41.5	22.8
Alzheimer's Disease		34.4	
Diabetes	65.8	25.7	-60.9
Influenza and Pneumonia		17.6	
Suicide		13.1	
Chronic Liver Disease and Cirrhosis	8.2	11.1	35.4
Infant Mortality	6.0	7.7	28.3

Spotlight on Cancer

Each year, for the past several years, we have highlighted a specific cause of death that impacts local residents. Last year the focus was on Alzheimer's Disease. In 2015, we have chosen to focus on a disease that, while much progress has been made over the past several decades in terms of detection and treatment, is still responsible for approximately 1,100 deaths in Davidson County annually. This year our focus is on cancer.

According to the National Cancer Institute, in 2015, over 1.6 million people will be diagnosed with cancer in the U.S., and nearly 600,000 will die from the disease. It is estimated that in 2010 approximately \$125 billion were spent in the U.S. on cancer care, and this number could reach \$156 billion by 2020. Cancer patients are not just older adults. In 2014, it was estimated that 15,780 children and adolescents (ages 0-19) were diagnosed with cancer, and nearly 2,000 died of this disease.¹

Cancer is the 2nd leading cause of death in the U.S.² and Davidson County. In 2013, 1,109 residents died because of this disease. This represents 21.8% of all Davidson County deaths. During the previous 8 years in Davidson County (2006-2013), an average of 1,117.1 cancer deaths occurred each year.

In Davidson County, from 2006 until 2013, the age-adjusted mortality rate for cancer decreased 10.4% (2006: 200.4 and 2013: 179.6). This general overall decreasing trend reflects what was observed nationally since the early 1990's.¹

Within our community, cancer mortality rates are typically higher among males and non-Hispanic black residents. This finding is consistent with national data.³ The most common cancer deaths in 2013 were lung, breast, colon, pancreatic, and prostate cancer. In 2013, lung cancer had 4.0 times as many deaths as breast cancer.

1. National Cancer Institute (no date). Cancer Statistics. Last accessed at <http://www.cancer.gov/about-cancer/what-is-cancer/statistics> on June 23, 2015.

2. Centers for Disease Control and Prevention (2015). FastStats-Cancer. Last accessed at <http://www.cdc.gov/nchs/fastats/cancer.htm> on June, 2, 2015.

3. Centers for Disease Control and Prevention (2015). Cancer Rates by Race/Ethnicity and Sex. Last accessed at <http://www.cdc.gov/cancer/dcpc/data/race.htm> on November 10, 2015.

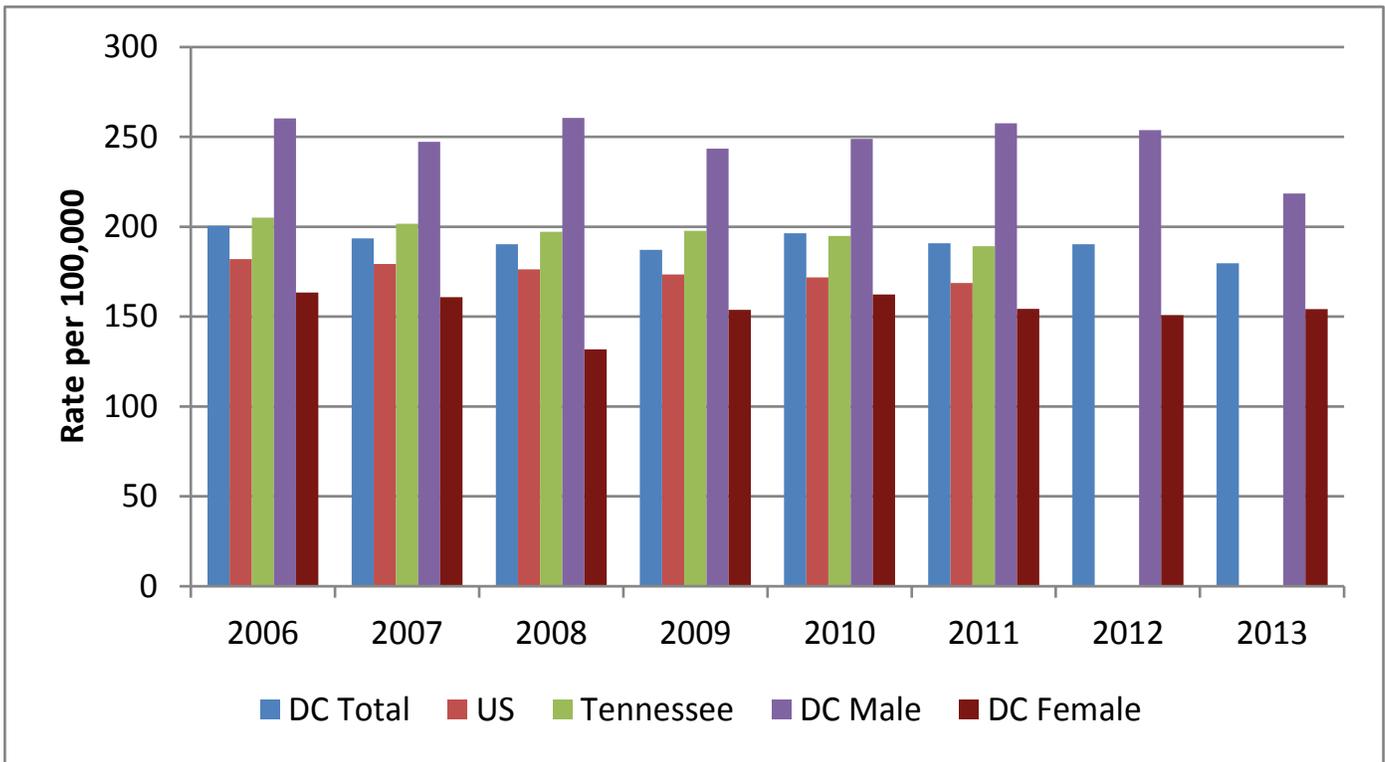


Figure 8. Age-Adjusted Cancer Mortality Rates per 100,000 by Sex, Davidson County, TN, 2006–2013

Locally, our investigation into cancer has been limited to non-Hispanic blacks and non-Hispanic whites. Over the past 8 years, these two groups have accounted for over 96% of the cases annually. Non-Hispanic blacks have experienced the highest cancer mortality rates since 2006. From 2006-2013, the age-adjusted cancer mortality for non-Hispanic blacks hovered between 219.6 to 257.4 per 100,000 population. Non-Hispanic whites experienced age-adjusted mortality rates due to cancer between 173.7 and 195.5 per 100,000 population. From 2011 through 2013, the age-adjusted rates for both non-Hispanic whites and non-Hispanic blacks have decreased each year.

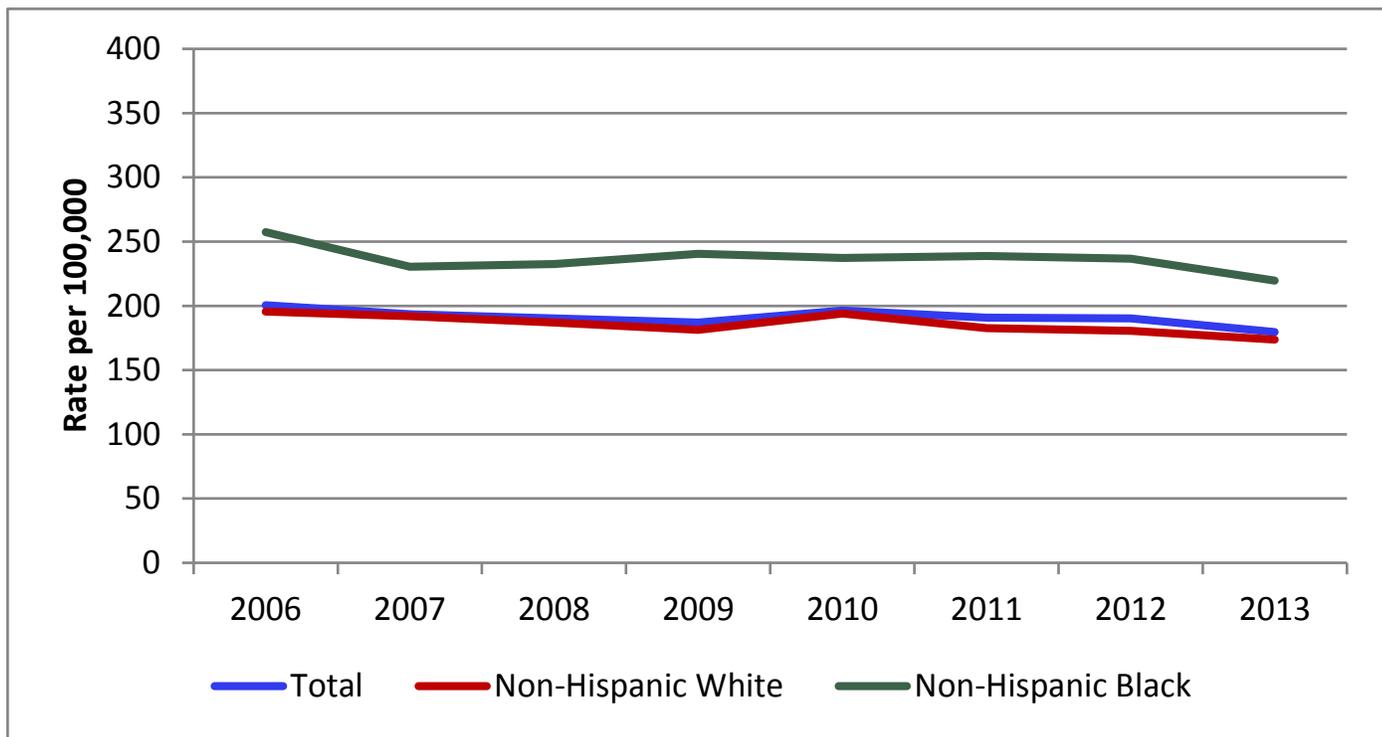


Figure 9. Age-Adjusted Cancer Mortality Rates per 100,000 by Race/Ethnicity, Davidson County, TN, 2006–2013

Finally, from 2006-2013, non-Hispanic white females experienced the lowest cancer age-adjusted mortality rates followed by non-Hispanic black females, non-Hispanic white males, and then non-Hispanic black males. When looking at a rate projection through 2033 (not included in this report), the rates for non-Hispanic blacks becomes stable at slightly more than 230 per 100,000. The projections for non-Hispanic whites has more variation over time, but it consistently hovers around 190 per 100,000 with a few periodic peaks and valleys. The overall rate projection hovers around 190 per 100,000 as well. Based on these projections, Davidson County will not achieve racial equity in cancer mortality within the next 20 years.

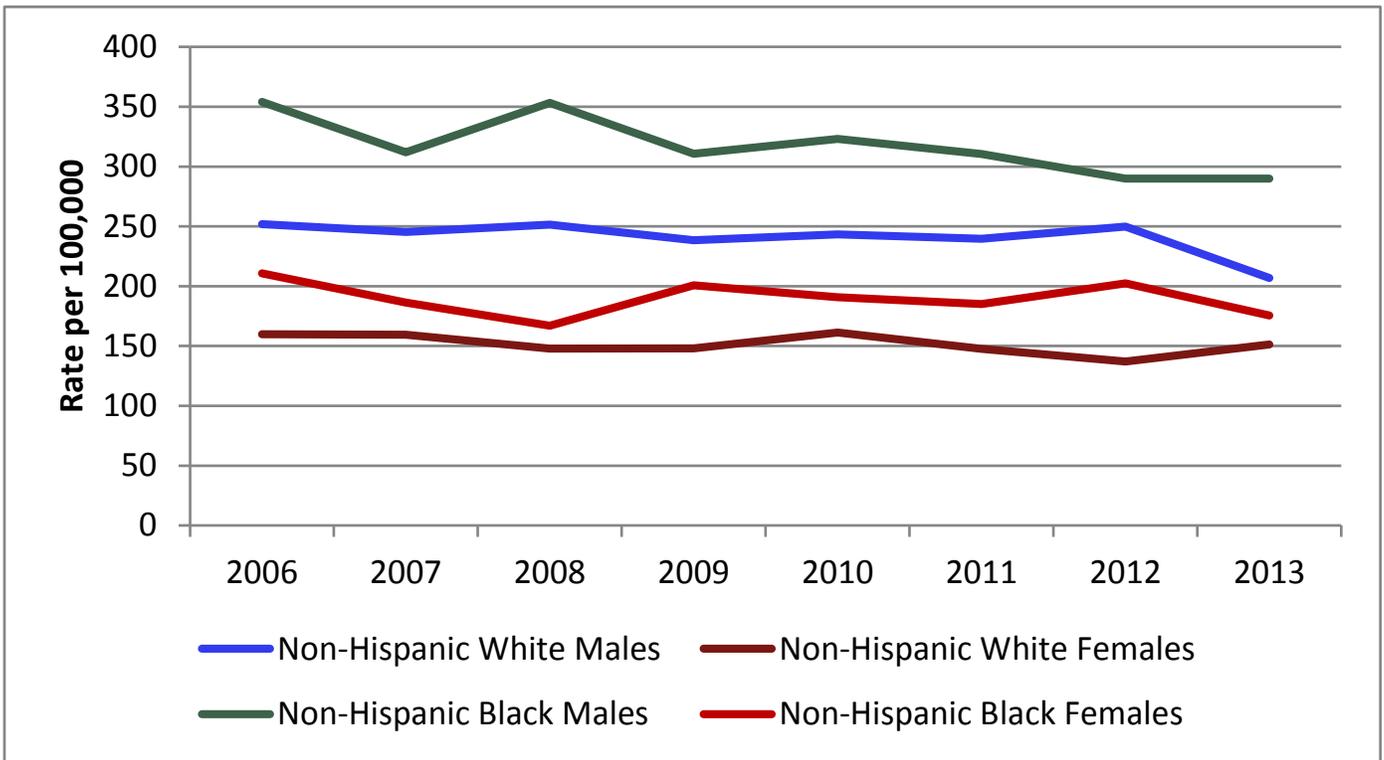


Figure 10. Age-Adjusted Cancer Mortality Rates per 100,000 by Race/Ethnicity, and Sex Davidson County, TN, 2006-2013