Community Health Status Assessment

Jefferson County, Alabama

ASSESSMENT, VISIONING, AND PLANNING
COMMUNITY MATTERS
FOR A HEALTHY JEFFERSON COUNTY

October 2019

Overview of the Community Health Status Assessment

The Community Health Status Assessment identifies and monitors quantitative data over time related to population demographics, health status, quality of life, mortality and morbidity, and risk factors, as well as social and economic determinants of individual and community health. The Community Health Status Assessment addresses the following questions:

- *How healthy is the community?*
- *What does the health status of the community look like?*

The Community Health Status Assessment identified 168 potential indicators of community health in eleven categories. Data were collected from the following categories: Demographic Characteristics, Socioeconomic Characteristics, Health Resource Availability, Quality of Life, Behavioral Risk Factors, Environmental Health Indicators, Social and Mental Health, Maternal and Child Health, Death, Illness and Injury, Communicable Disease, and Sentinel Events. With data from each of these categories, the Community Health Status Assessment provides a robust picture of the health and health status of Jefferson County, Alabama.

Demographic Characteristics include measures of the total population, as well as percent of total population by age group, gender, race and ethnicity, as well as descriptions of where these populations and subpopulations are located, and the rate of change in population density over time due to births, deaths and migration patterns.

Socioeconomic Characteristics include measures affecting health status such as income, education and employment, and the proportion of the population represented by various levels of these variables.

Health Resource Availability represents factors associated with health system capacity and includes both the number of licensed and credentialed health personnel and the physical capacity of health care facilities. In addition, the health resources category includes measures of access, utilization, cost and quality of health and prevention services.

Quality of Life (QOL) is a construct that "connotes an overall sense of well-being when applied to an individual and a community" (Moriarty, 1996). While some dimensions of QOL can be quantified using a supportive environment when applied to indicators, research has shown QOL to be related to the social determinants of health and community well-being. Other valid dimensions of QOL include the perceptions of community residents regarding aspects of their neighborhoods and communities that enhance or diminish quality of life.

Behavioral Risk Factors include behaviors which are believed to cause or to be contributing factors to injury, disease and death during youth and adolescence and to significantly impact morbidity (rates of the incidence and prevalence of disease) and mortality (rates of death within a population) in later life. Examples of these risk factors include tobacco use, obesity and utilization of health screening.

The physical environment directly impacts health and quality of life. Clean air and water, as well as safely prepared food, are essential to physical health. Exposure to environmental substances such as lead and hazardous waste increase risk for preventable disease. Environmental Health Indicators measure the health of the environment and the population's exposure to potential environmental hazards.

The category of Social and Mental Health reflects social and mental health factors and conditions directly or indirectly influencing overall health status, as well as quality of life. Mental health conditions and overall psychological well-being and safety are influenced by substance abuse and violence within the home and the community.

One of the most significant areas for monitoring and comparing the health of the overall population relates to the health of vulnerable populations including infant health and correlations with birth outcomes, such as measures of maternal medical care access and utilization. Maternal and Child Health indicators focus on pregnancy and birth outcomes, as well as morbidity and mortality data for infants and children. Because maternal health care is correlated with birth outcomes, measures of maternal care access and utilization are included. Live births to teen mothers are a critical indicator of increased risk for both mother and child.

Health status in a community can be measured in terms of mortality and morbidity. Mortality can be represented by crude rates or age-adjusted rates (AAM), by degree of premature death (Years of Productive Life Lost or YPLL), and by cause, for example, disease-cancer and non-cancer or injury – intentional and unintentional. Morbidity is represented by age-adjusted (AA) incidence of cancer and chronic disease. Measures of Death, Illness and Injury represent both mortality and morbidity rates for a variety of diseases.

Measures of Communicable Disease include diseases which are usually transmitted through person-to-person contact or shared use of contaminated instruments/materials. Vaccine-preventable diseases can be avoided through a high level of vaccine coverage in the population. Measures of sexually transmitted infections in populations and the use of protective measures such as condoms are indicators assessed in this category.

Sentinel events are those cases of unnecessary disease, disability or untimely death that could be avoided if appropriate and timely medical care or preventive services were implemented. These include vaccine-preventable illnesses, late stage cancer diagnoses and unexpected syndromes or infections. Sentinel events may alert the community to inadequacies in the local public health system such as inadequate vaccine coverage, lack of primary care and/or screening, a bioterrorist event or the introduction of globally transmitted infections.

The Community Matters Core Team of the Jefferson County Department of Health identified potential indicators within each of these eleven categories and identified data sources for each indicator,

abstracted data, evaluated the data for trends and prioritized opportunities for health improvement. The Community Matters Core Team included Carrea Dye, MPH; Sophia Hussain, MPH; Elisabeth Welty, MPH; Sonja Lewis, MSW, MPA; Bryn Manzella, MPH; Monique Mullins, MPH; and Greg Townsend, MPPM. The Community Matters Core Team met in fall of 2018 to review the 168 potential indicators and to identify potential data sources for the indicators of interest. Indicators from each category were reviewed to determine whether the data indicator was informative for Jefferson County and if a data source existed for that indicator. If an indicator was deemed to be informative and had an available data source, the indicator was included in the assessment.

Of the 168 potential indicators, the assessment captured data for a total of 146 indicators. Once data for each of the indicators had been gathered, the data were analyzed. Where adequate data were available, trends were evaluated to determine changes in community health status. Trends, patterns over time, such as increasing infant mortality rate, shifts in population distributions and changes in socioeconomic indicators were evaluated.

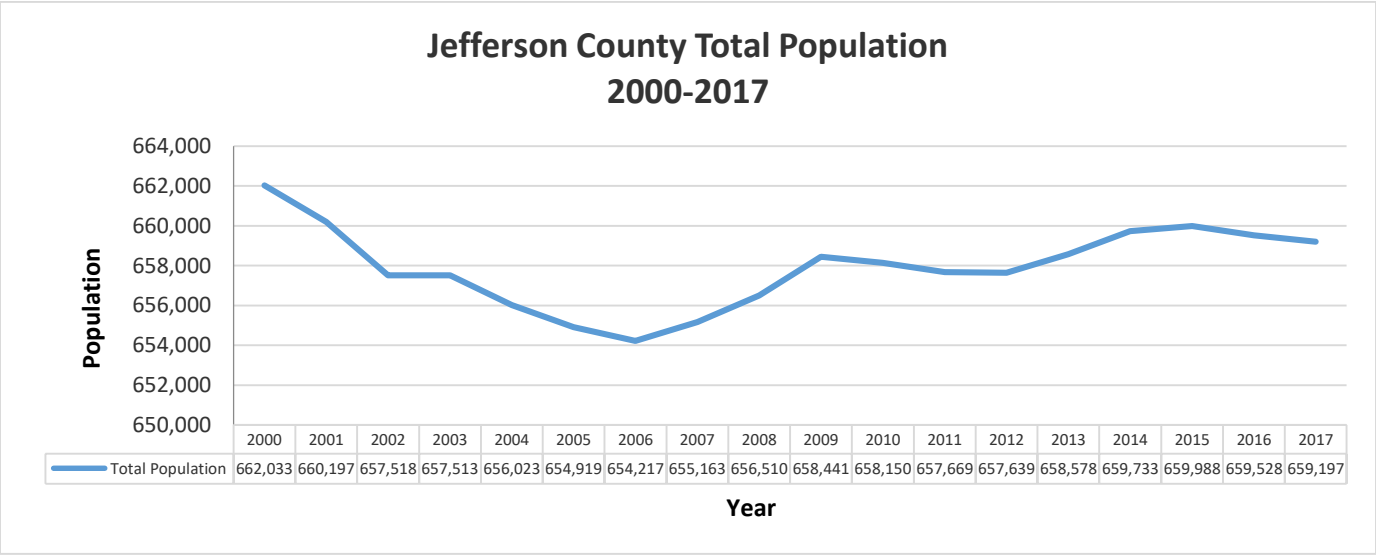
The remainder of the Community Health Status Assessment provides the evaluation of the 146 indicators of community health status in Jefferson County, Alabama.

Demographic Characteristics [1-10]

This first category of data presents the current and historic demographic profile of Jefferson County, Alabama. These data demonstrate population shifts and changes over time.

Overall Jefferson County Population

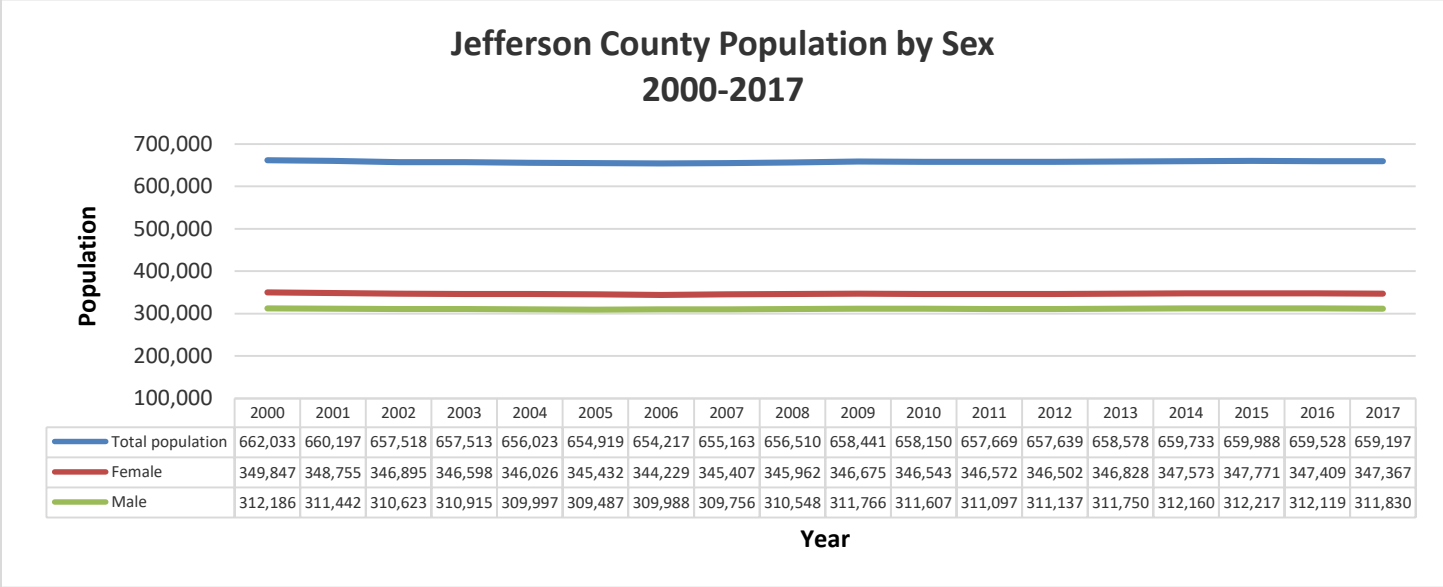
While the net change in the population for Jefferson County between 2012 and 2017 demonstrates a decrease of 0.1% (660,009 to 659,197), this is not reflective of the population change over the full time frame. The population fell steadily until it reached a low of 654,217 in 2006 at which point the population has steadily recovered.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	662,033	660,197	657,518	657,513	656,023	654,919	654,217	655,163	656,510	658,441	658,150	657,669	657,639	658,578	659,733	659,988	659,528	659,197

Jefferson County Population by Sex

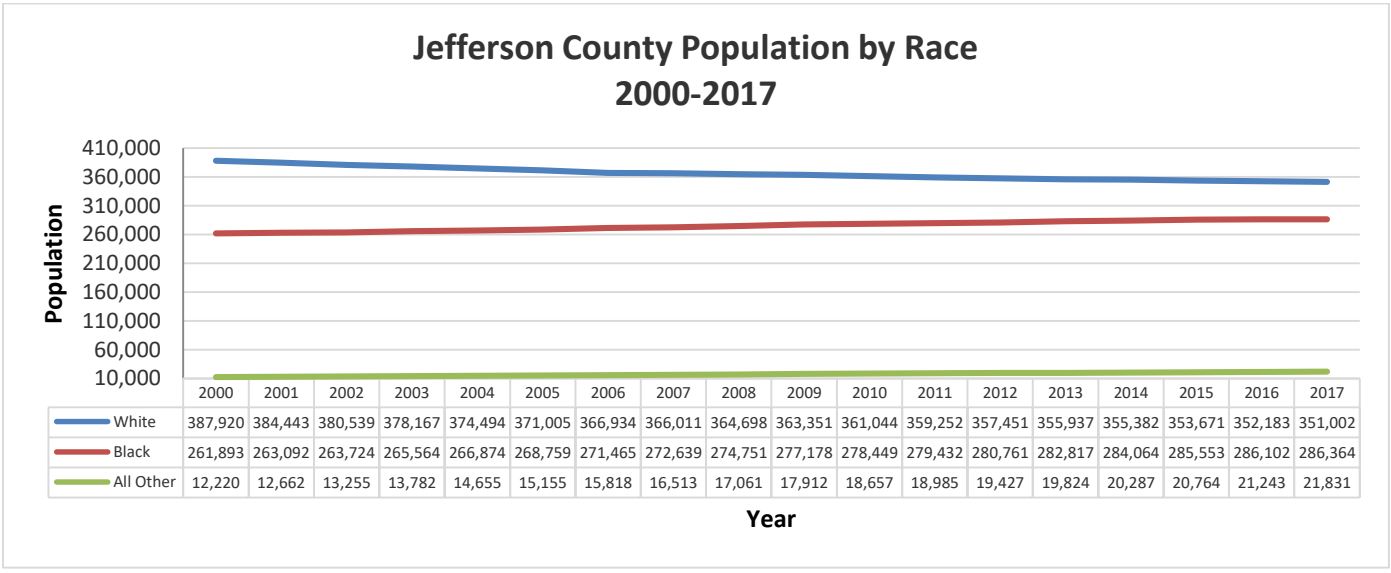
The percent of the population of Jefferson County that identifies as male remained stagnant at 47.3% in 2012 and 2017. The female subpopulation maintained stability at 52.7% in 2012 and 2017.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total population	662,033	660,197	657,518	657,513	656,023	654,919	654,217	655,163	656,510	658,441	658,150	657,669	657,639	658,578	659,733	659,988	659,528	659,197
Female	349,847	348,755	346,895	346,598	346,026	345,432	344,229	345,407	345,962	346,675	346,543	346,572	346,502	346,828	347,573	347,771	347,409	347,367
Male	312,186	311,442	310,623	310,915	309,997	309,487	309,988	309,756	310,548	311,766	311,607	311,097	311,137	311,750	312,160	312,217	312,119	311,830

Jefferson County Population by Race

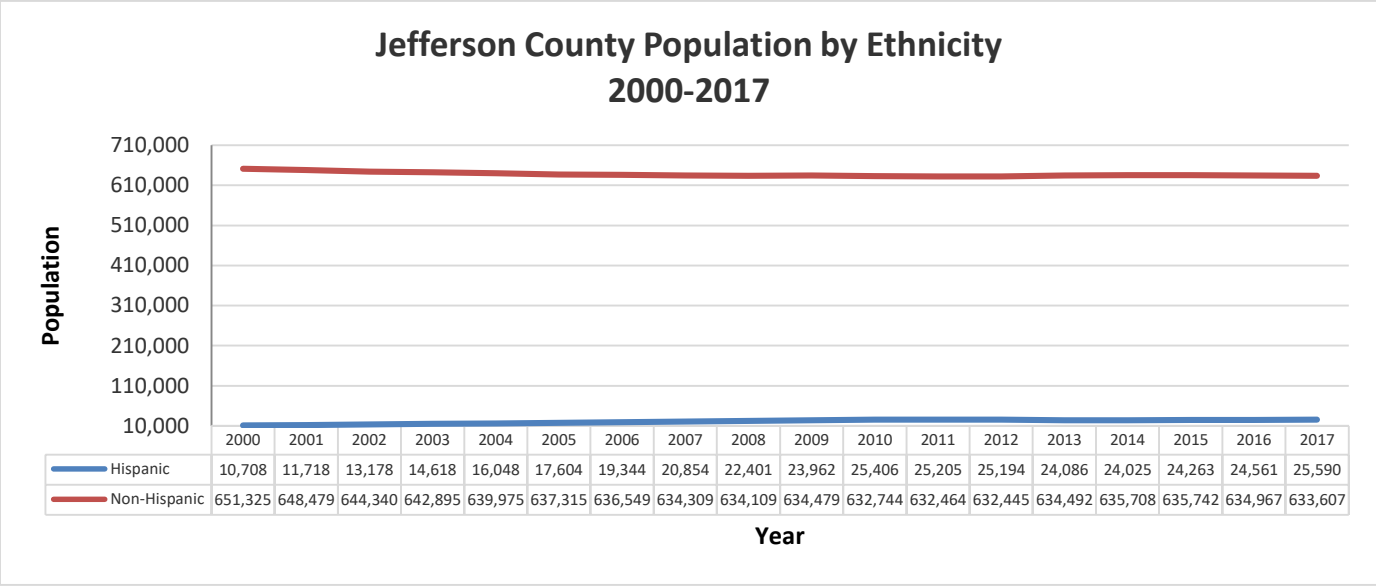
Since 2012, the white or Caucasian subpopulation of Jefferson County has decreased by 2.0% from 54.3% to 53.2% in 2017. The population of black or African-American increased by 1.9% from 42.6% in 2012 to 43.4% in 2017. The population of all other races increased by 6.5% between 2012 and 2017 from 3.1% to 3.3%. All other races include individuals from the following racial groups listed from the highest sub-population in 2017 to the lowest: 11,381 Asian, 8,148 Multi-racial, 1,919 American Indian/Eskimo, and 537 Pacific Islander residents of Jefferson County.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
White	387,920	384,443	380,539	378,167	374,494	371,005	366,934	366,011	364,698	363,351	361,044	359,252	357,451	355,937	355,382	353,671	352,183	351,002
Black	261,893	263,092	263,724	265,564	266,874	268,759	271,465	272,639	274,751	277,178	278,449	279,432	280,761	282,817	284,064	285,553	286,102	286,364
All Other	12,220	12,662	13,255	13,782	14,655	15,155	15,818	16,513	17,061	17,912	18,657	18,985	19,427	19,824	20,287	20,764	21,243	21,831

Jefferson County Population by Ethnicity

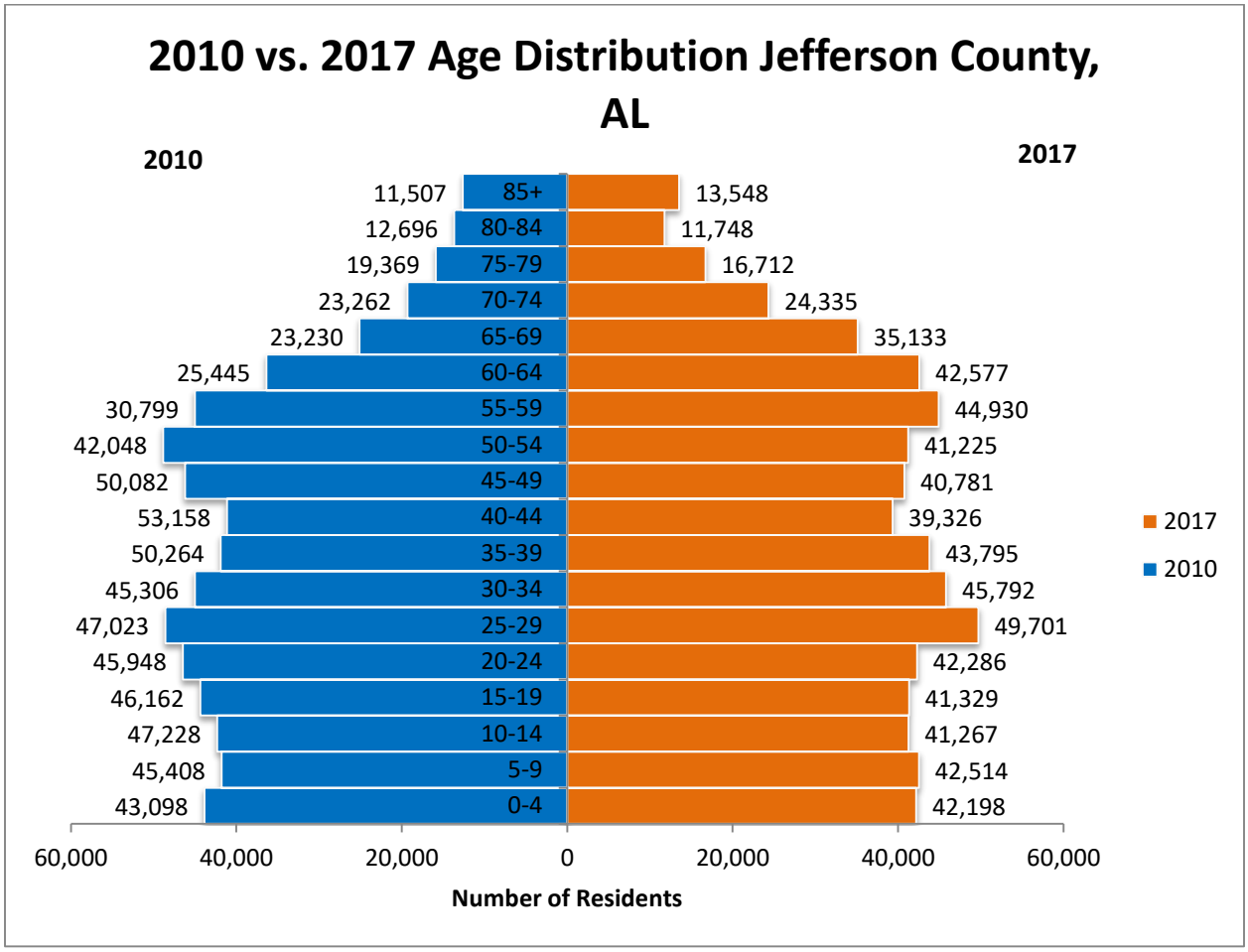
The Hispanic population of Jefferson County increased by 2.6% between 2012 and 2017. In 2012, the Jefferson County Hispanic population was 3.8% of the total population and in 2017 it was 3.9% of the total population.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Hispanic	10,708	11,718	13,178	14,618	16,048	17,604	19,344	20,854	22,401	23,962	25,406	25,205	25,194	24,086	24,025	24,263	24,561	25,590
Non-Hispanic	651,325	648,479	644,340	642,895	639,975	637,315	636,549	634,309	634,109	634,479	632,744	632,464	632,445	634,492	635,708	635,742	634,967	633,607

Jefferson County Population by Age

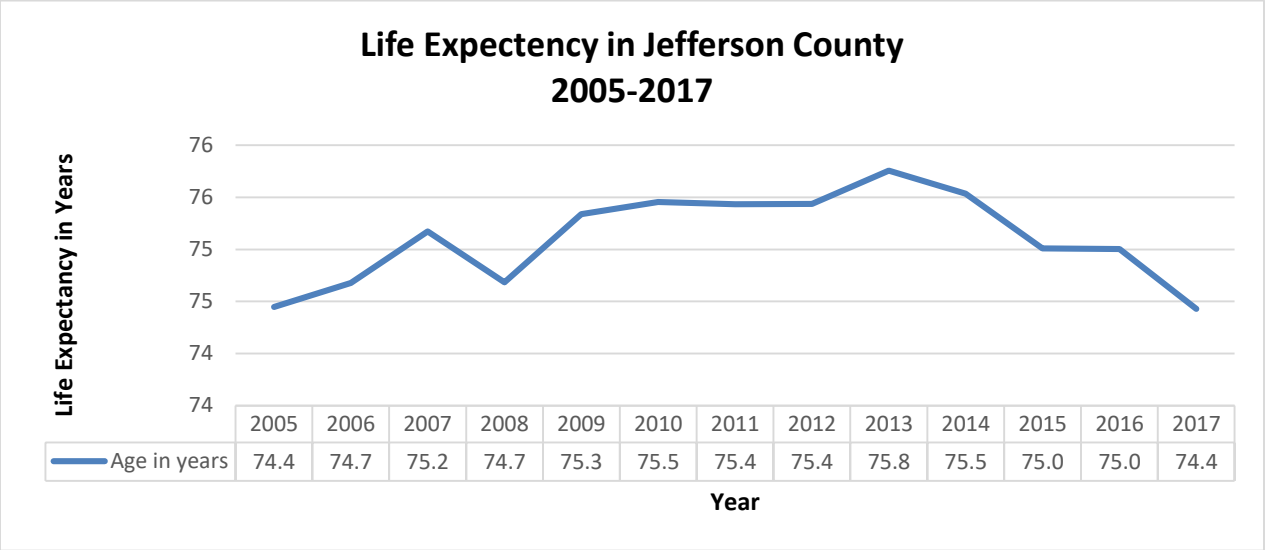
The 2017 age structure of the Jefferson County population compared to the 2010 age structure indicates an aging population.



Life Expectancy

Overall, life expectancy in Jefferson County at birth decreased statistically significantly from 75.4 years in 2012 to 74.4 years in 2017. Decreases in life expectancy were observed in the black and white sub-populations, as well as in the life expectancy of the male and female sub-populations. Statistically significant reductions in life expectancy were noted between 2012 and 2017 for the male, white, and white male subpopulations. Contributing factors to these changes are presented within this document.

According to the National Center for Health Statistics, the national life expectancy at birth in 2017 was 78.6 years; therefore, Jefferson County's life expectancy is lower than the national average.

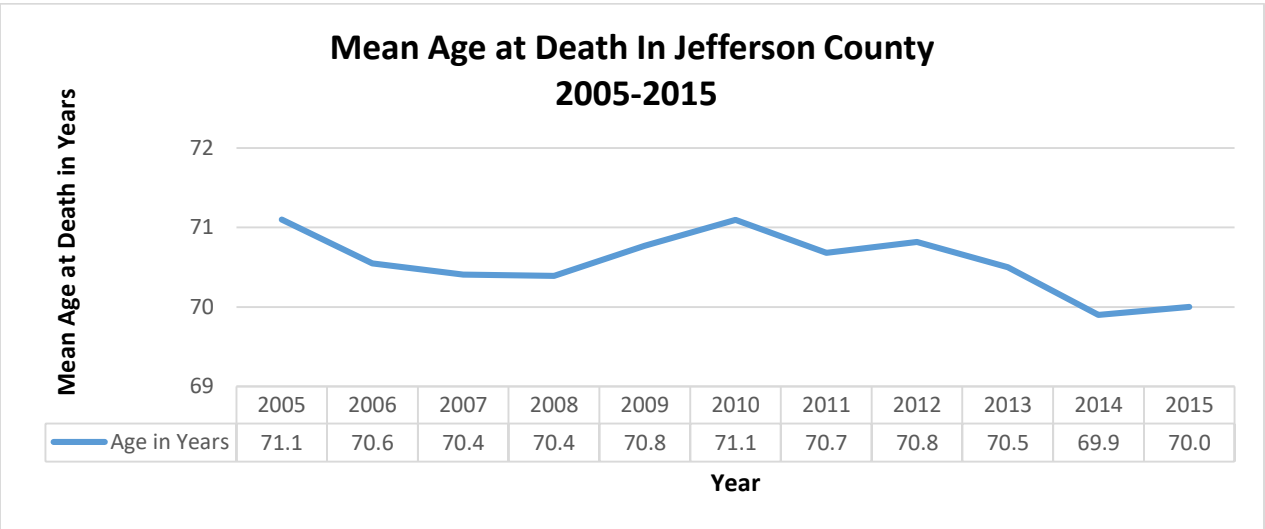


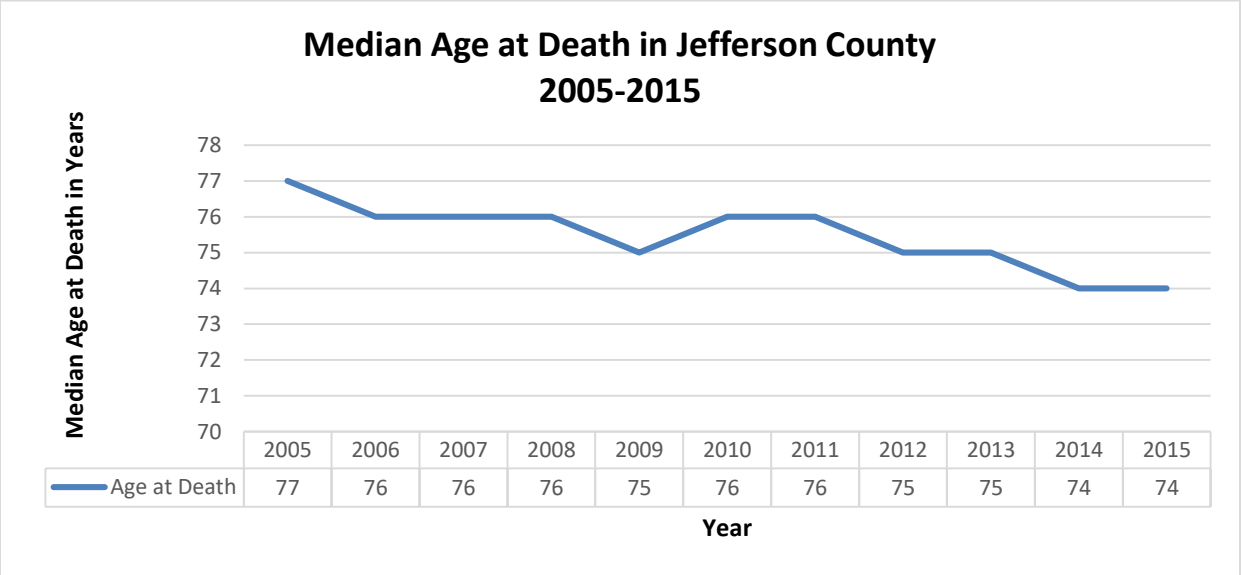
Years of Potential Life Lost

The total years of potential life lost prior to age 75 increased 17.6% from 65,367 in 2012 to 76,882 in 2017 for Jefferson County.

Age at Death

Both the mean and the median age at death decreased between 2012 and 2015 for the total population in Jefferson County.



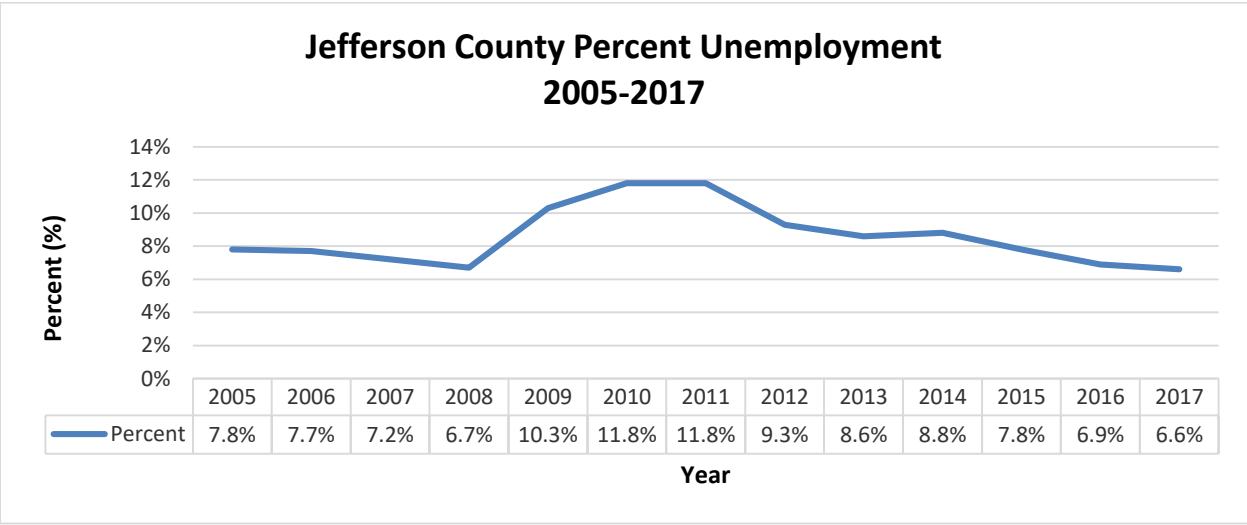


Socioeconomic Characteristics [11-19]

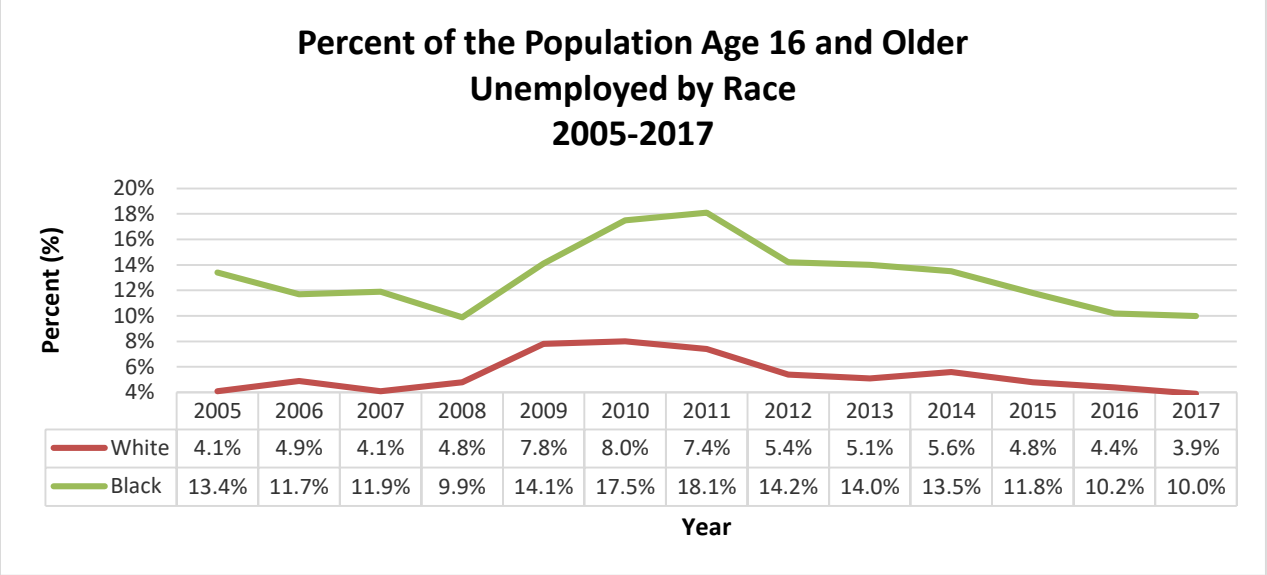
Indicators in this category provide a picture of the economic and social structures of Jefferson County. This category includes indicators related to poverty and income, employment, education, disabilities and family structures.

Employment

The unemployed Jefferson County sub-population decreased from 9.3% in 2012 to 6.6% in 2017 (29% decrease). The decline in the unemployment rate between 2012 and 2017 reached statistical significance. Unemployment was highest in 2010 and 2011 at 11.8%, with a decrease observed in 2012. The black sub-population experienced higher rates of unemployment than the white population. The change in unemployment rates for the black sub-population between 2012 and 2017 reached statistical significance.



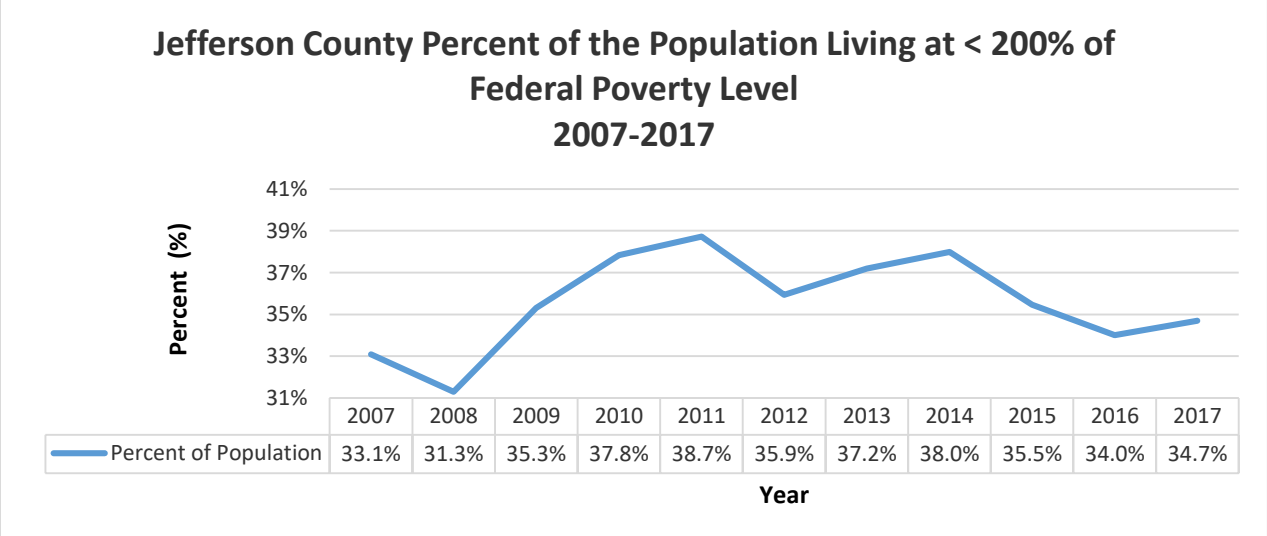
While unemployment rates have remained higher for the black sub-population, the relative disparity between whites and blacks declined between 2012 and 2017.



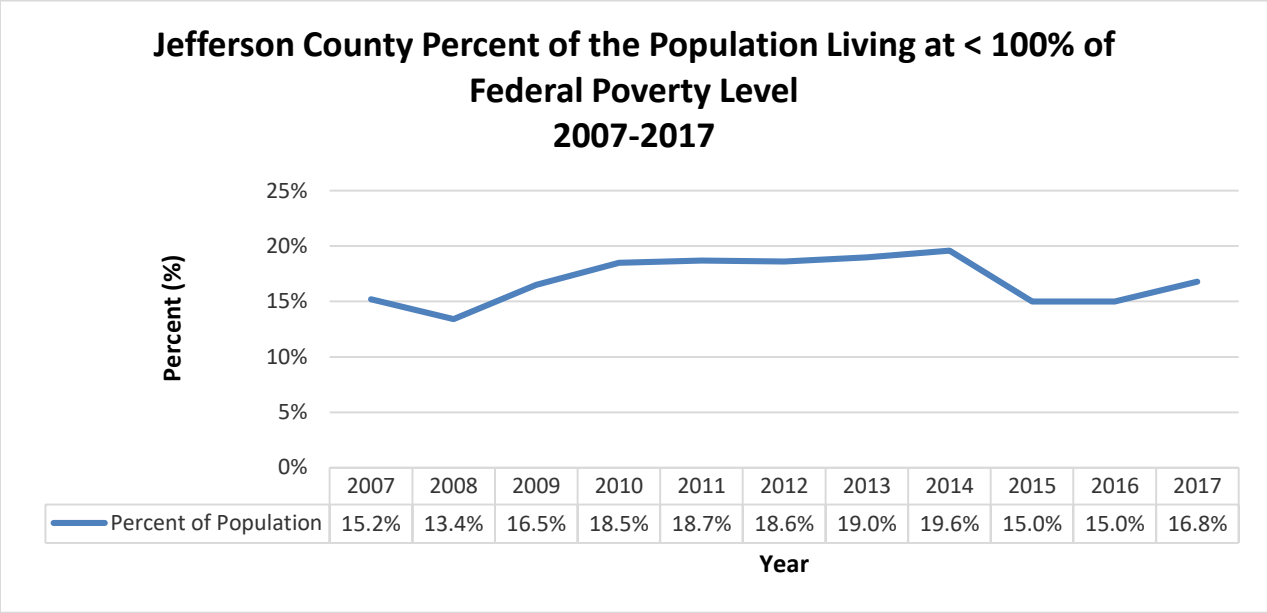
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
White	4.1%	4.9%	4.1%	4.8%	7.8%	8.0%	7.4%	5.4%	5.1%	5.6%	4.8%	4.4%	3.9%
Black	13.4%	11.7%	11.9%	9.9%	14.1%	17.5%	18.1%	14.2%	14.0%	13.5%	11.8%	10.2%	10.0%

Poverty

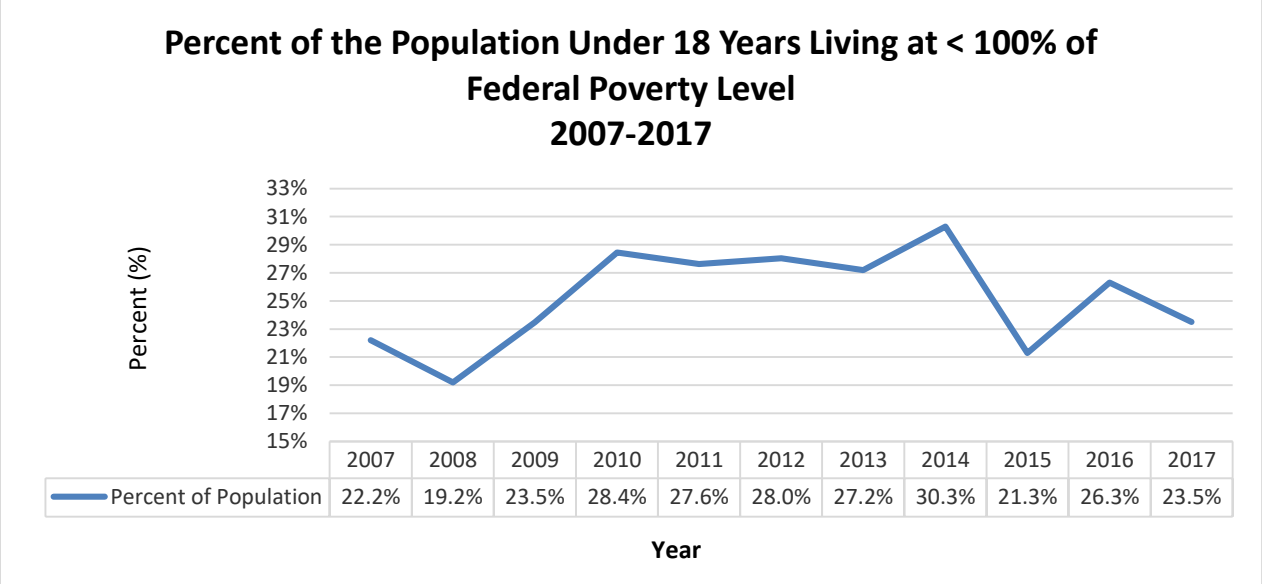
The percent of the population living in poverty decreased across all poverty sub-categories and age groups. The percent of the population living at less than 200% of the Federal Poverty Level in Jefferson County decreased from 35.9% in 2012 to 34.7% in 2017. The percent of the population living below the 100% Federal Poverty Level as defined by the Department of Health and Human Services decreased in Jefferson County from 18.6% in 2012 to 16.8% in 2017. In 2017, the nation-wide percentage of people living with an income less than the 100% Federal Poverty Level was 13.4%, indicating Jefferson County's poverty rate is higher than the national average.



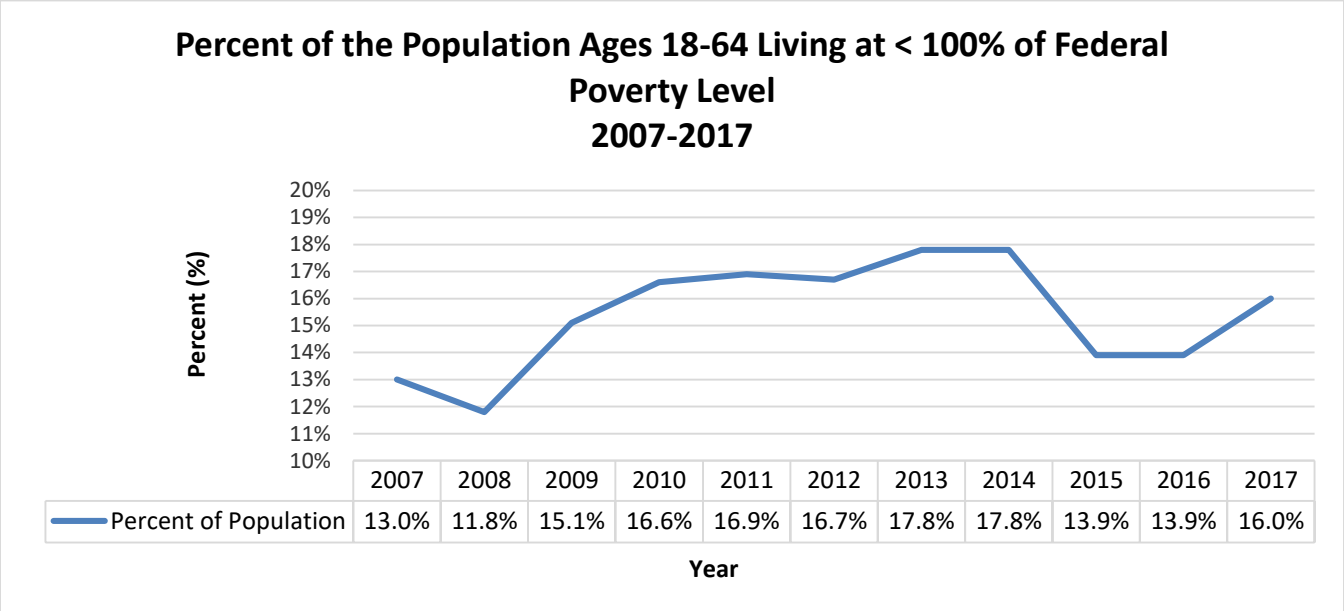
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent of Population	33.1%	31.3%	35.3%	37.8%	38.7%	35.9%	37.2%	38.0%	35.5%	34.0%	34.7%



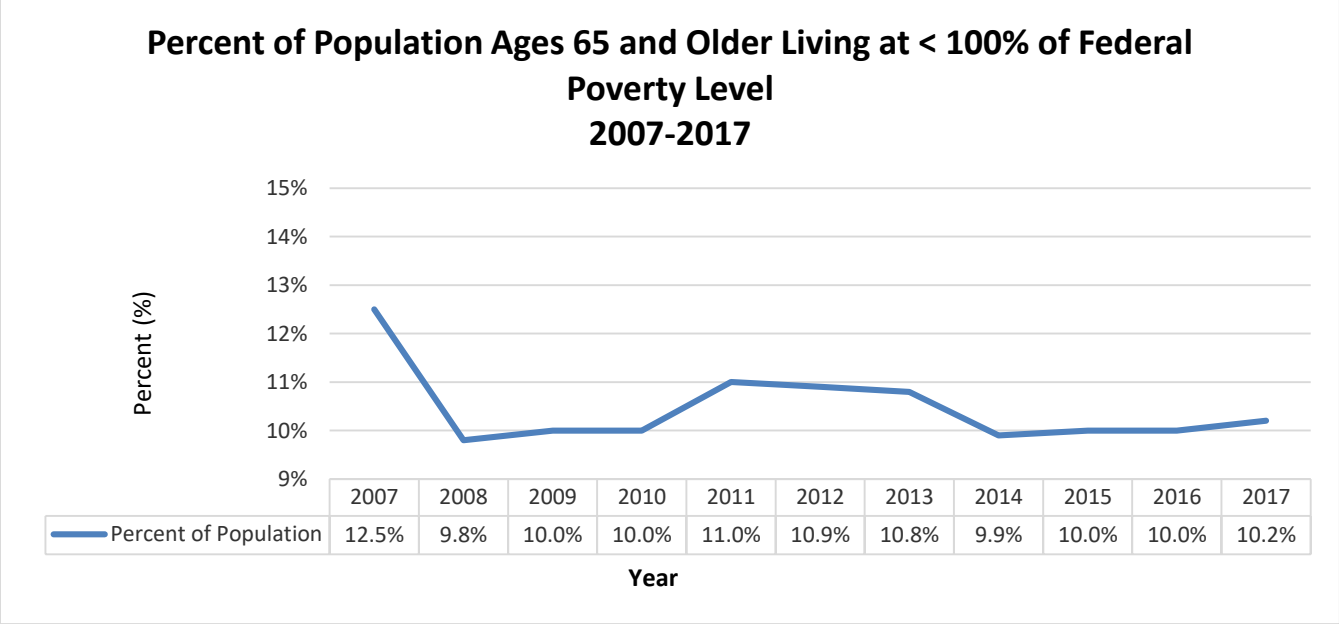
The percent of children living at 100% Federal Poverty Level decreased from 28.0% of the population in 2012 to 23.5% of the population in 2017.



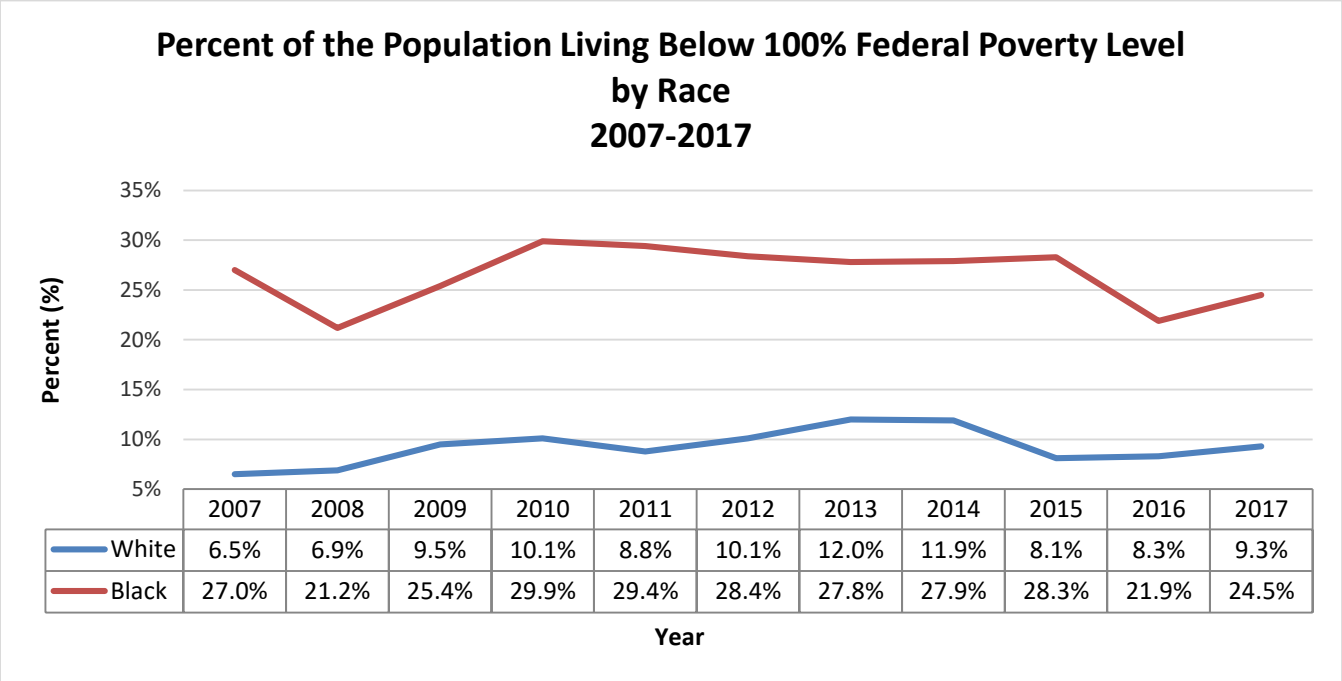
The percent of the adult sub-population, ages 18 to 64, living at 100% Federal Poverty Level decreased from 16.7% in 2012 to 16.0% in 2017.



The percent of adults age 65 years and older living in poverty decreased from 10.9% in 2012 to 10.2% in 2017.

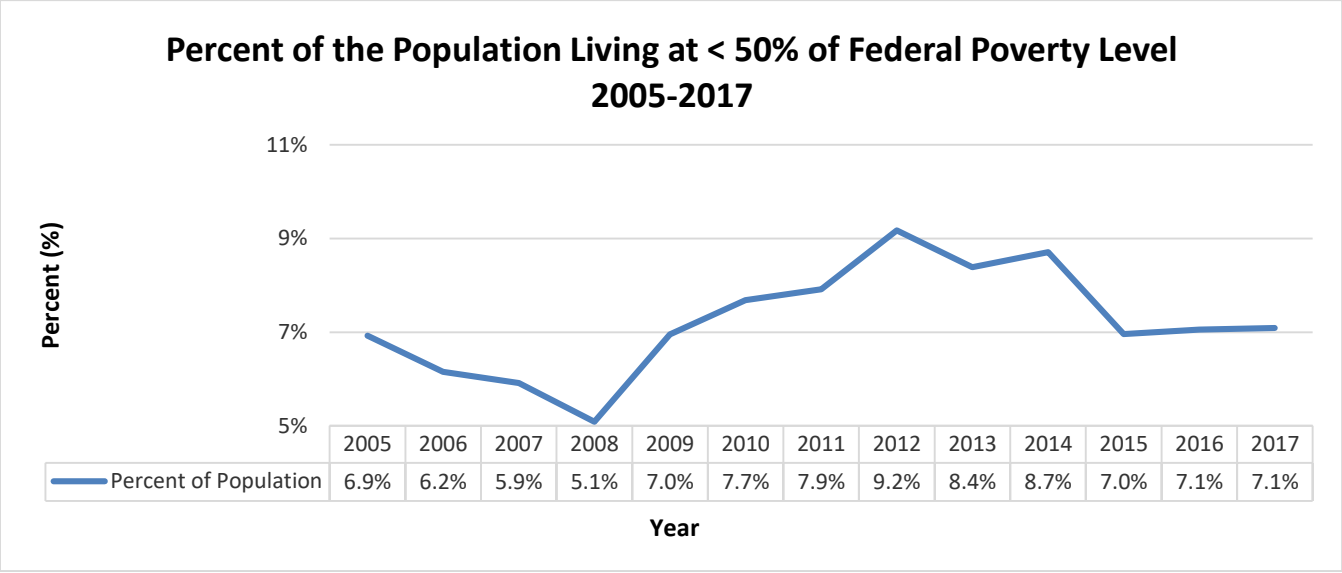


The percent of the black sub-population living at or below the 100% Federal Poverty Level is significantly higher than the percent of the white population living at 100% Federal Poverty Level.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
White	6.5%	6.9%	9.5%	10.1%	8.8%	10.1%	12.0%	11.9%	8.1%	8.3%	9.3%
Black	27.0%	21.2%	25.4%	29.9%	29.4%	28.4%	27.8%	27.9%	28.3%	21.9%	24.5%

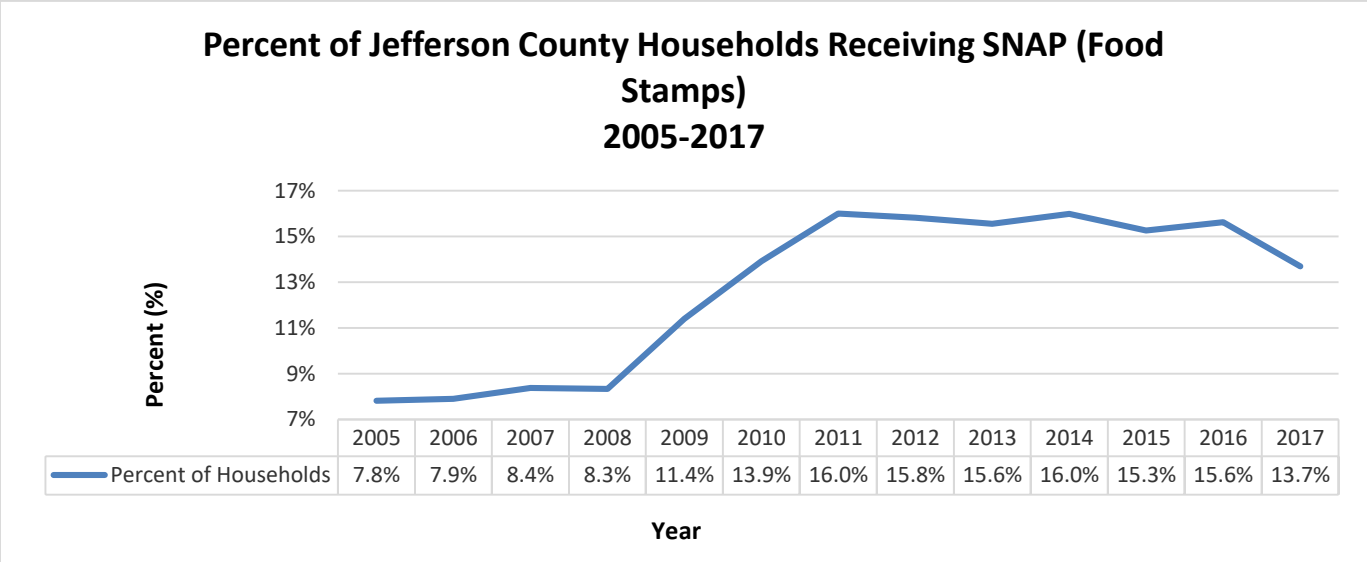
The percent of Jefferson County population living below 50% of the Federal Poverty Level decreased from 9.2% in 2012 to 7.1% in 2017.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent of Population	6.9%	6.2%	5.9%	5.1%	7.0%	7.7%	7.9%	9.2%	8.4%	8.7%	7.0%	7.1%	7.1%

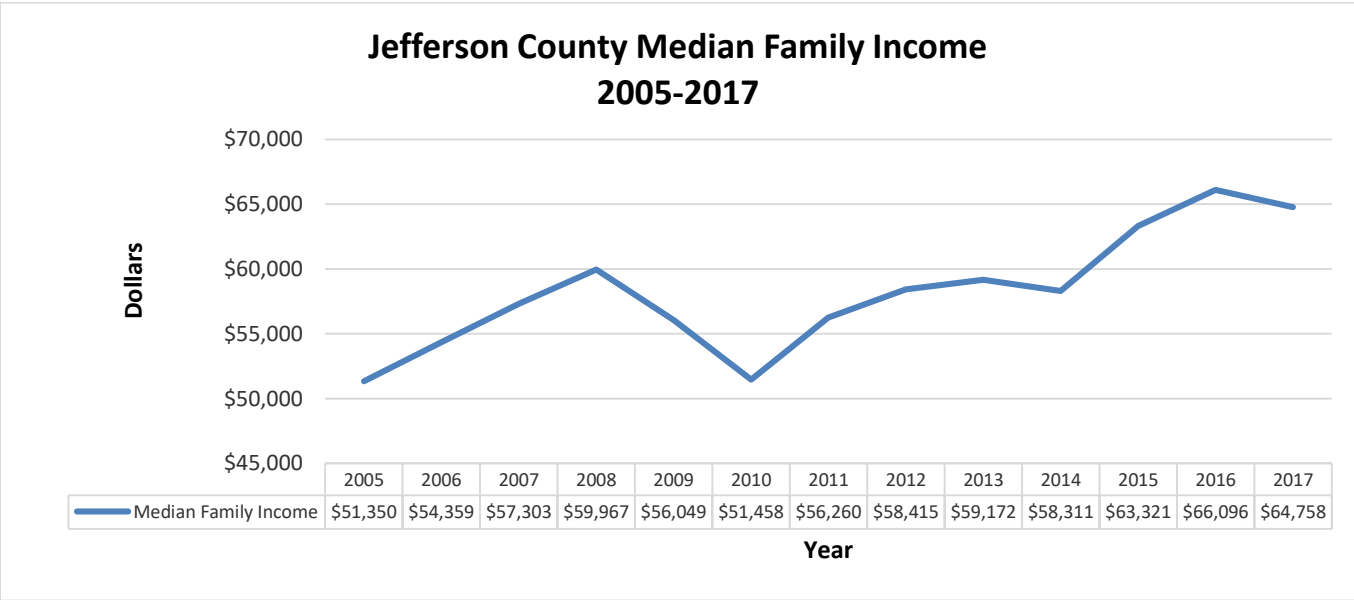
Supplemental Nutritional Assistance Program (Food Stamp) Participation

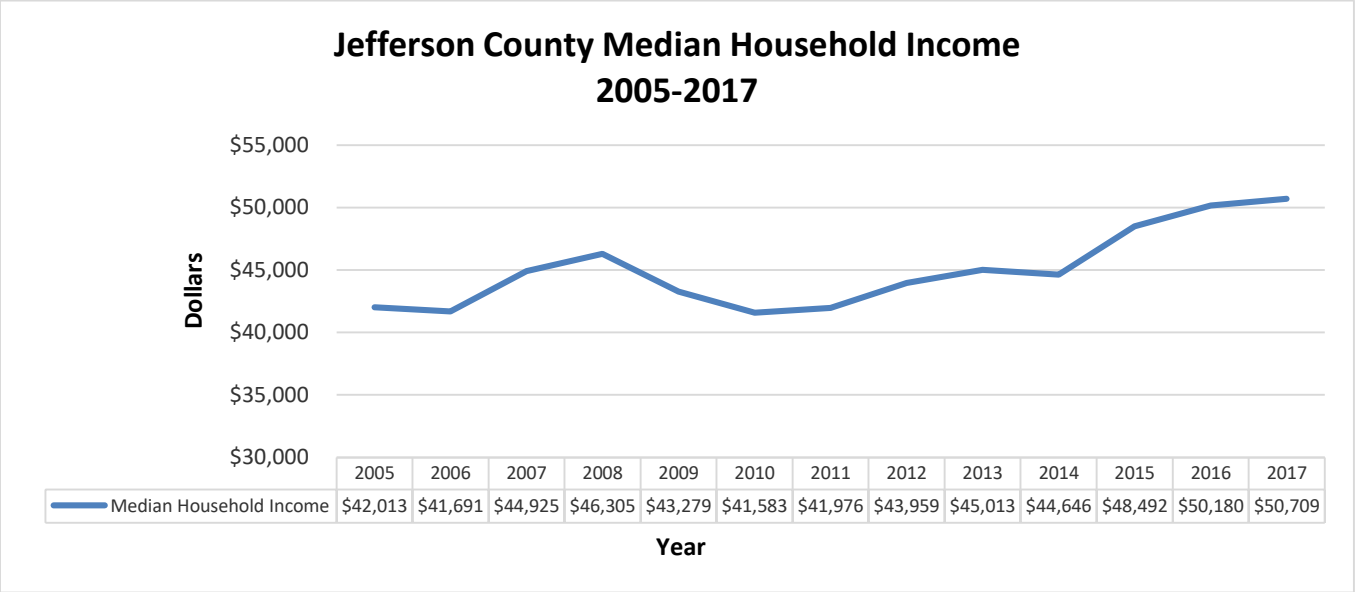
The Supplemental Nutrition Assistance Program (SNAP) provides nutritional assistance to low-income individuals. The percent of the Jefferson County population receiving SNAP or food stamps decreased from 15.8% in 2012 to 13.7% in 2017 (13.3% relative change).

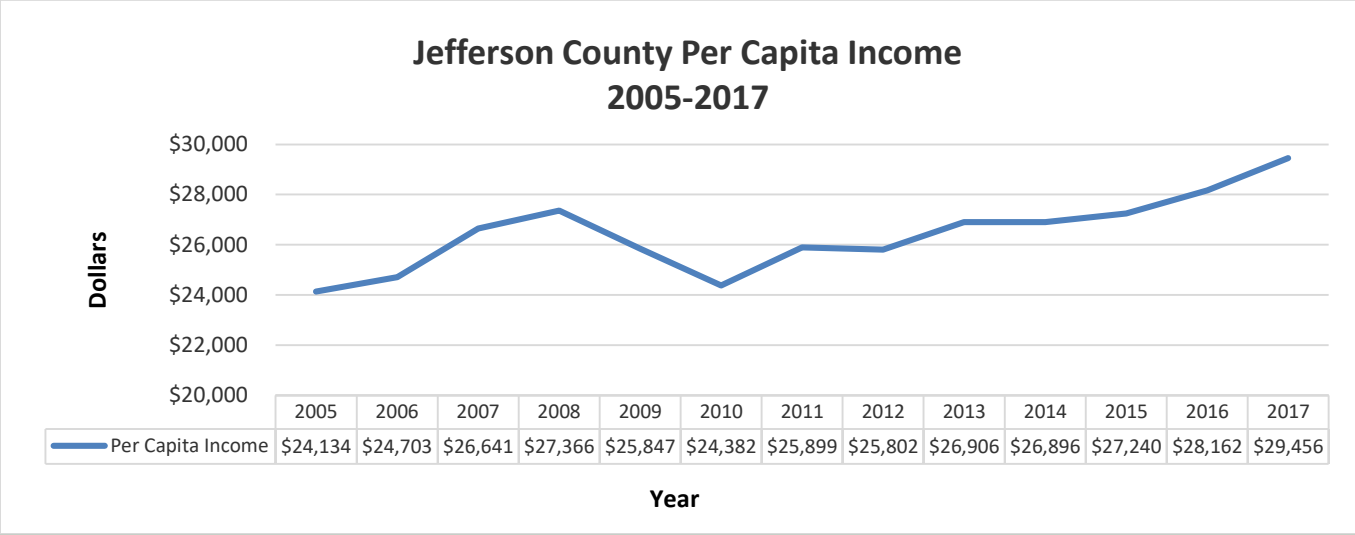


Income

Jefferson County's median family income increased from $58,415 in 2012 to $64,758 in 2017. The county's Median household income increased from $43,959 in 2012 to $50,709 in 2017, achieving statistical significance. The county's per capita income increased by from $25,802 in 2012 to $29,456 in 2017.

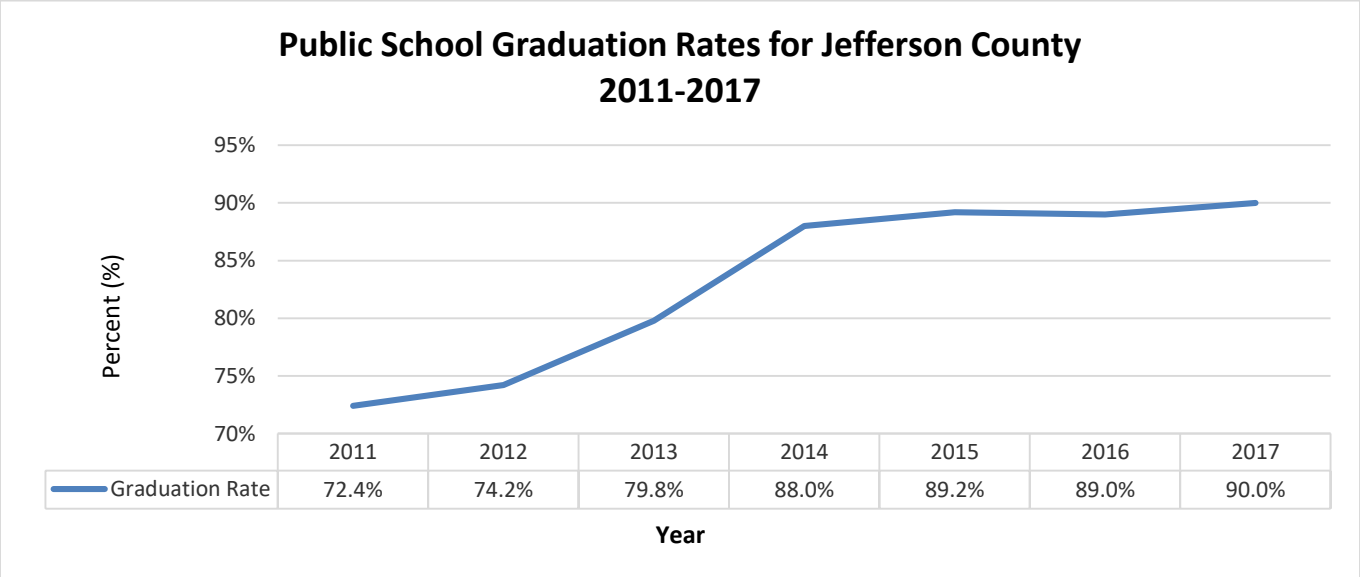




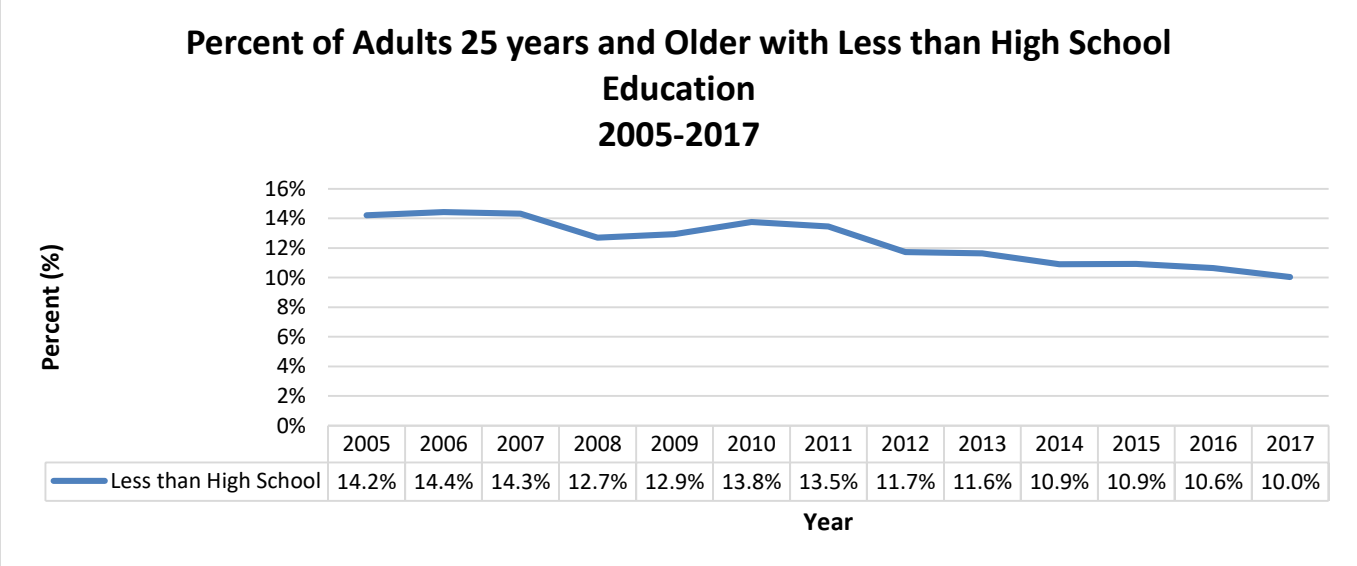


Educational Attainment

The overall rate of on-time high school graduation for public school students in Jefferson County increased 17.6% between 2012 (74.2%) and 2017 (90.0%). Graduation rates, however, vary widely between school systems. The on-time high school graduation rate for all Alabama public schools for the 2016-2017 school year was 90.4%.

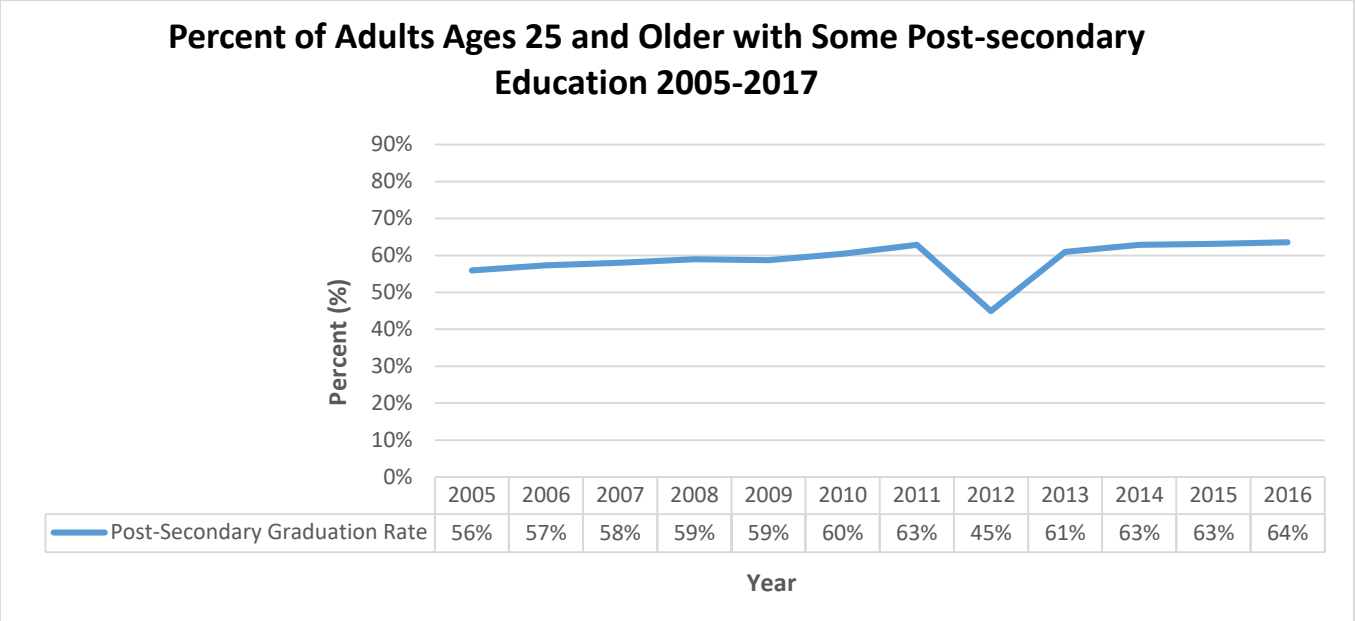


Percent of Adults with Less Than a High School Education



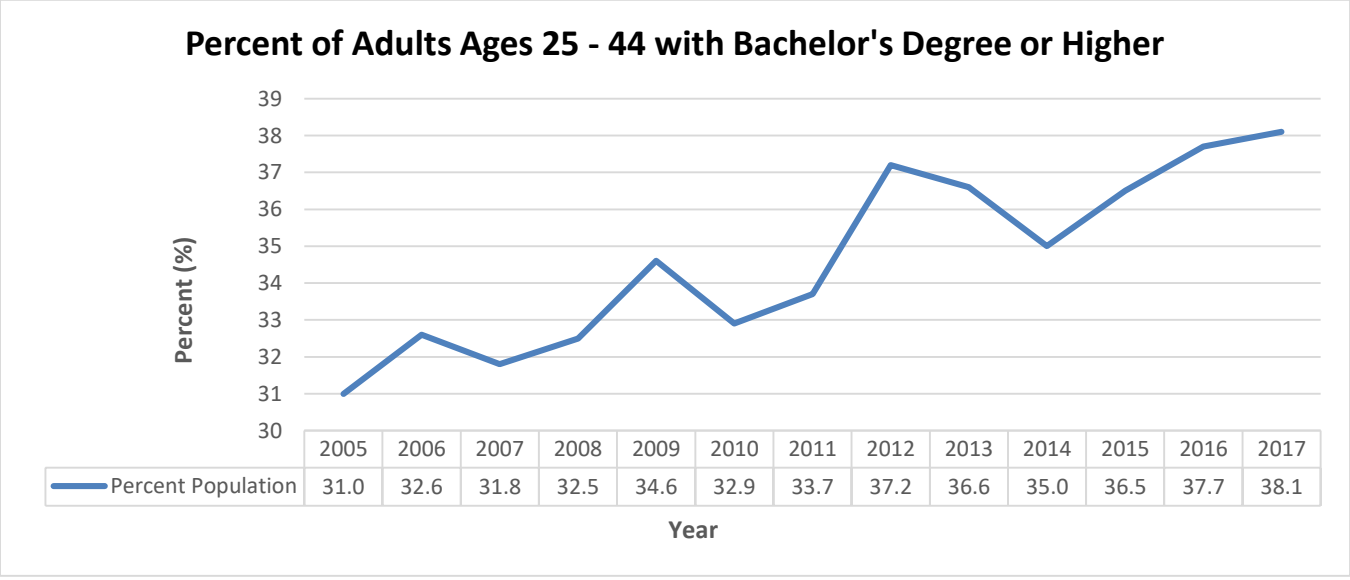
Percent of Adults over the Age of 25 with Some Post-secondary Education

The percent of Jefferson County adults completing some post-secondary education increased from 62.9% in 2012 to 63.9% in 2017.



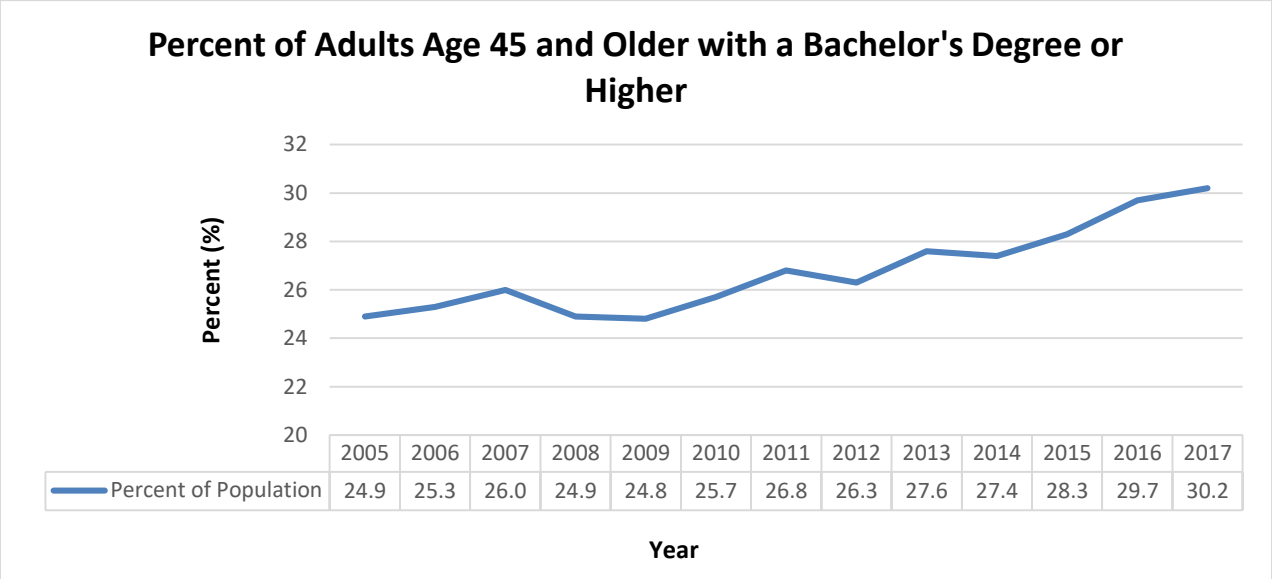
Percent of Adults Ages 25 to 44 with Bachelor's Degree or Higher Education

The percent of Jefferson County adults ages 25 to 44 with a bachelor's degree or higher level education increased from 37.2% in 2012 to 38.1% in 2017.



Percent of Adults over Age 45 with a Bachelor's Degree or Higher

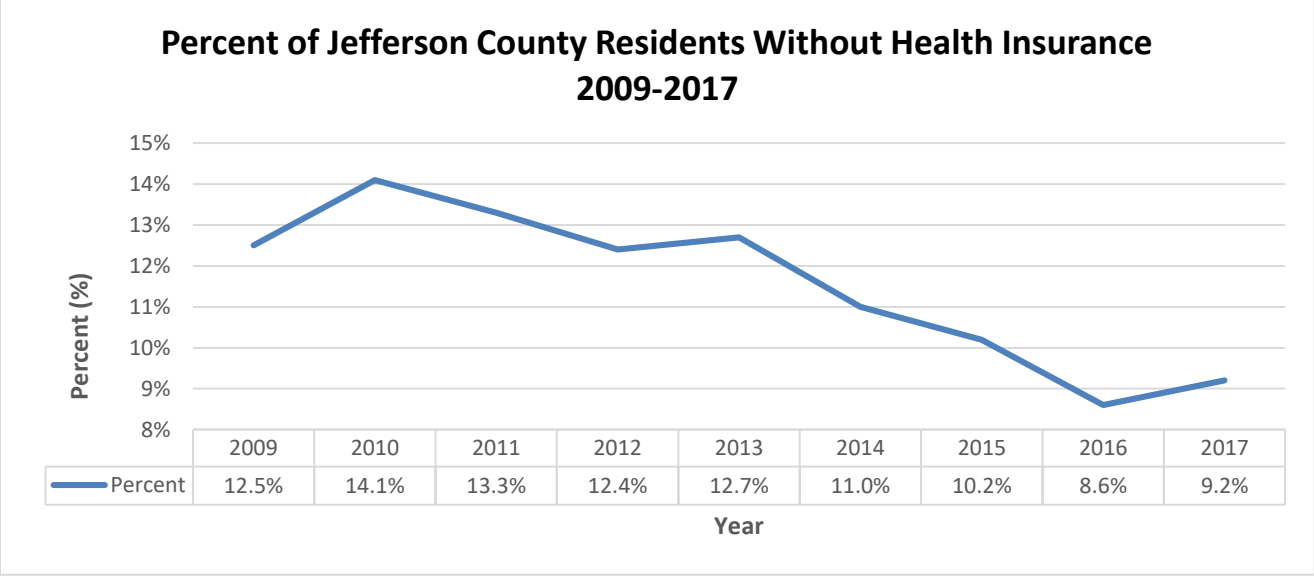
The percent of Jefferson County adults over age 45 with a bachelor's degree or higher increased from 26.3% in 2012 to 30.2% in 2017.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent of Population	24.9	25.3	26.0	24.9	24.8	25.7	26.8	26.3	27.6	27.4	28.3	29.7	30.2

Persons without Health Insurance

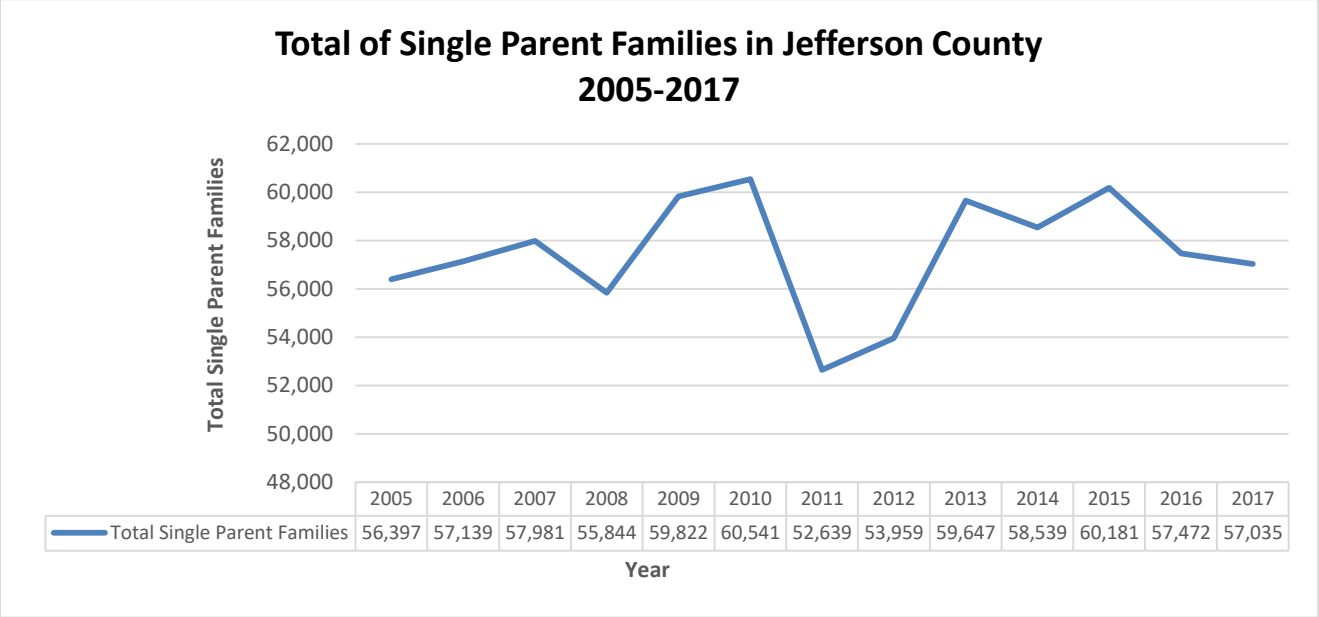
The percent of Jefferson County's population without health insurance decreased in 2012 to 9.2% in 2017.



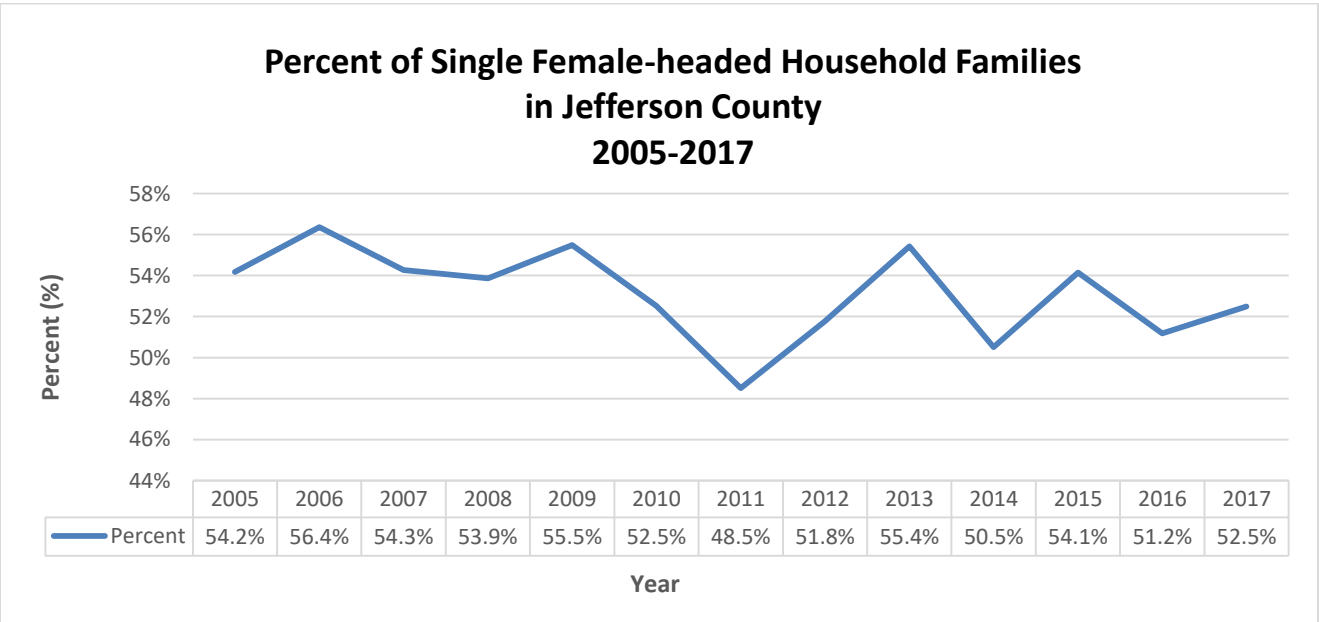
	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent	12.5%	14.1%	13.3%	12.4%	12.7%	11.0%	10.2%	8.6%	9.2%

Single Parent Families

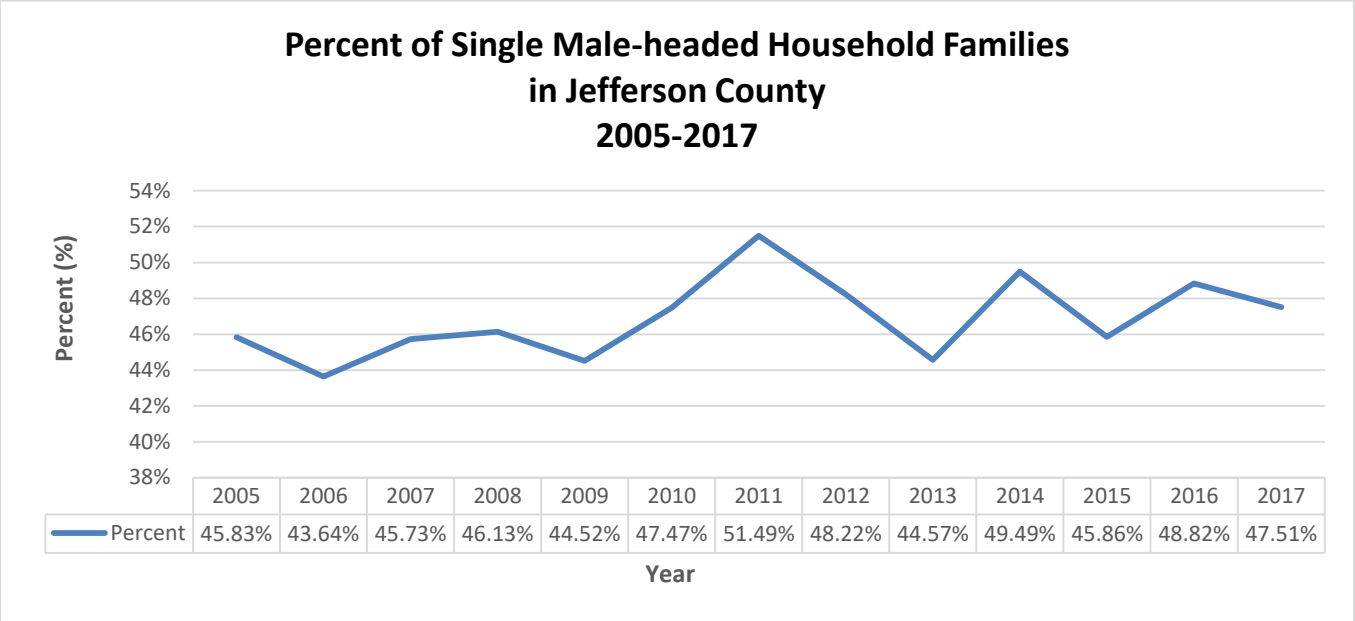
The overall number of single parent family households increased from 53,959 in 2012 to 57,035 in 2017. The number of single female family households demonstrated a slight increase during the same time period. The number of male single parent family households demonstrated a decline when comparing 2012 to 2017 data.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Single Parent Families	56,397	57,139	57,981	55,844	59,822	60,541	52,639	53,959	59,647	58,539	60,181	57,472	57,035

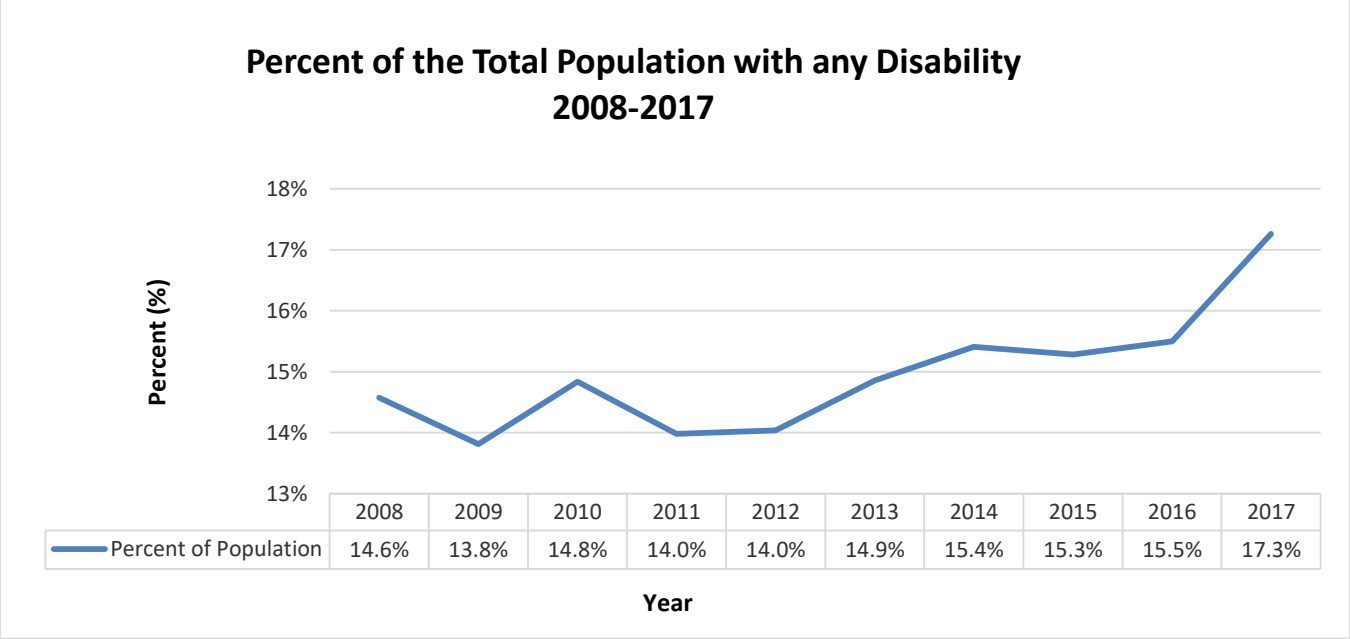


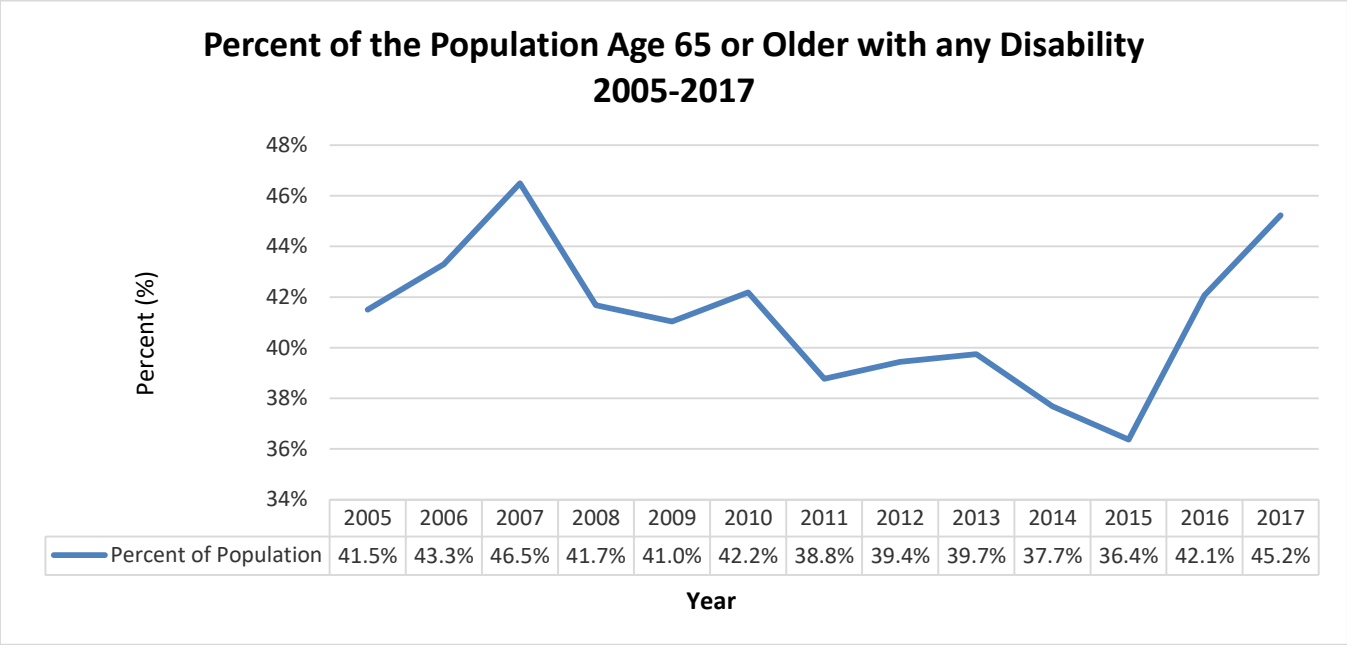
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent	54.2%	56.4%	54.3%	53.9%	55.5%	52.5%	48.5%	51.8%	55.4%	50.5%	54.1%	51.2%	52.5%



Persons with Disabilities

The percentage of the population in Jefferson County with disabilities increased between 2012 and 2017, and the increase was statistically significant. The percent of the population over 65 years of age with disabilities increased from 2014 to 2017.





Socioeconomic Findings

Jefferson County's socioeconomic findings indicate family and per capita incomes increased between 2012 and 2017 while the rates of poverty and unemployment decreased during this timeframe. Poverty rates decreased between 2012 and 2017 among all age groups. Following the trend of decreasing poverty, the percent of households receiving SNAP (food stamps) also decreased. The percentage of adults ages 25 to 44 years with a bachelor's degree or higher increased from 2012 to 2017, yet the percentage of persons who are 25 years of age or older with less than a high school diploma increased between 2012 and 2017, a statistically significant change.

Household and family structure data indicate that the number of single parent family households remained relatively stable for both male and female single parent families.

The number of individuals living in Jefferson County without health insurance declined each year from 2012 to 2017.

Health Resource Availability [20-26]

Indicators in this category demonstrate the opportunities available for residents of Jefferson County to access needed health care resources. Data are expressed as the proportion of providers to population, the number of hospital beds, the number of Federally Qualified Health Centers (FQHCs) and the Jefferson County Department of Health's (JCDH) number of full-time equivalent employees and expenditure per county resident.

Providers

The table below shows the proportion of the Jefferson County population per provider by type.

Type of Provider	Proportion of Population Per Provider (2013)	Proportion of Population Per Provider (2018)
Licensed Dentists	1 dentist per 1,148 population	1 dentist per 1,588 population
Licensed Primary Care Physicians	1 primary care physician per 474 population	1 primary care physician per 163 population
Mental Health Providers	1 mental health provider per 1,024 population	1 mental health provider per 640 population

Hospital Beds

The table below shows the number of hospital beds per 100,000 Jefferson County residents and the percent bed occupancy during 2018.

Type of Hospital Bed	Number of Beds per 100,000 Population (% Occupancy) (2013)	Number of Beds per 100,000 Population (% Occupancy) (2018)
Total Beds	680.8 per 100,000 (61% occupancy)	658.7 per 100,000 (79% occupancy)
Acute Care Beds	590.7 per 100,000	354.2 per 100,000
Specialty Beds	90.1 per 100,000	144.0 per 100,000

Federally Qualified Health Centers

Federally Qualified Health Centers (FQHCs) are safety net providers that offer primary care services in underserved urban and rural communities. The table below shows the percentage of the eligible population, those with an income less than 200% of the Federal Poverty Level, receiving health care from an FQHC or the Jefferson County Department of Health (JCDH). The number of individuals living at less than 200% of the Federal Poverty Level receiving care from private providers or other public providers is unknown.

Health Safety Net Indicators	Index data (2012)	Endpoint data (2017)	Relative Percent Change	Movement
Total Population < 200% Federal Poverty Level	**236,374**	**228,693**	-3.20%	**Desirable**
Percent of Eligible Population Served by FQHC[15]	**7.20%**	**11.00%**	52.80%	**Desirable**
Percent of Eligible Population Served by JCDH[16]	**19.20%**	**23.20%**	20.80%	**Desirable**

Jefferson County Department of Health (JCDH)

The Jefferson County Department of Health (JCDH) is a county health department serving Jefferson County, Alabama. The following table provides data regarding the number of JCDH employees, JCDH's expenditures per Jefferson County resident and its expenditures related to its primary care it provides.

		Reference Data (2013)	Endpoint Data (2018)	Relative Percent Change since 2013	Movement
JCDH Full Time Equivalent Employees	(number)	**357**	**440**	23.00%	**Desirable**
JCDH Operating Budget per Jefferson County Resident	(dollars per resident)	**$91**	**$80**	-12.09%	**Undesirable**
Total Cost of JCDH Primary Care Services	(dollars)	**$12,503,922**	**$14,066,817**	12.50%	**Not Applicable**
Cost of Clinical Services as % of JCDH's Total Budget	(%)	**20.80%**	**26.70%**	28.36%	**Not Applicable**
JCDH Expenditure per Patient	(dollars)	**$280.79**	**$261.01**	-7.04%	**Not Applicable**

Health Resource Availability Findings

The ratio of mental health providers and primary care physicians per population in Jefferson County declined statistically significantly between 2013 and 2017 indicating improved access to care, between 2013 and 2018 the ratio of dentists per population increased. This data indicates the continued need for access to dentists within the county. During this time period, the number of acute care hospital beds per population decreased while the number of specialty care hospital beds per population increased,

expanding healthcare access. The total bed occupancy rate for all hospital beds in Jefferson County increased to 79% in 2018 from the 2013 rate of 61%.

According to United States Department of Health and Human Services, Federally Qualified Health Centers (FQHCs) serve the sub-population with an income of less than 200% of the Federal Poverty Level. Although the overall number of Jefferson County residents living at less than 200% Federal Poverty Level decreased between 2012 and 2017, the percentage of residents served by Federally Qualified Health Centers or Jefferson County Department of Health (JCDH) clinics increased.

The number of full-time employees at the Jefferson County Department of Health (JCDH) increased from 357 employees in 2012 to 440 employees in 2017. The total cost of primary care services and the volume of patients served by JCDH increased between 2012 and 2017. The increased number of employees and patients are reflected in the growing cost of Clinical Services as a percentage of the Jefferson County Department of Health's total budget.

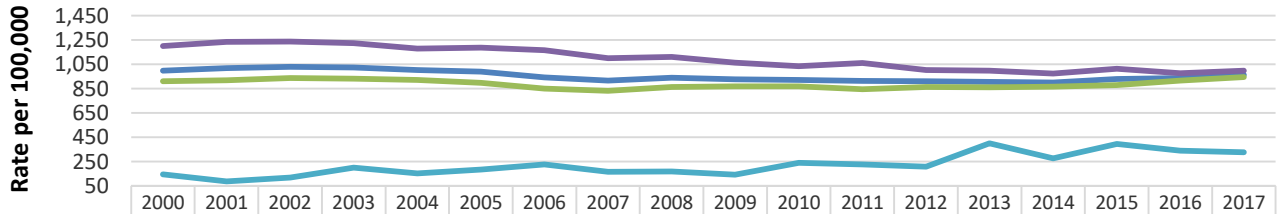
Death, Illness and Injury [27-53]

Indicators in this category demonstrate the morbidity (illness) and mortality (death) experience of Jefferson County residents over time. Data measures for this category include mortality rates for a variety of causes of death. All mortality rates reported in this section are age-adjusted. Age-adjusted mortality rates are adjusted to the 2000 population standard age distribution to provide an accurate comparison rate between communities of differing age structures.

All-Cause Mortality

The all-cause mortality rate is the total mortality rate for all causes of death per 100,000 population among Jefferson County residents. In 2012, the all-cause mortality rate was 911.7 deaths per 100,000 population. The all-cause mortality rate for 2017 increased to 964.7 deaths per 100,000 population, representing a 5.8% increase in the mortality rate since 2017. The 2017 all-cause mortality rate is statistically significantly higher than the 2012 rate. All-cause mortality rates in 2017 were statically significantly higher in 2017 compared to 2012 for males and the white sub-population.

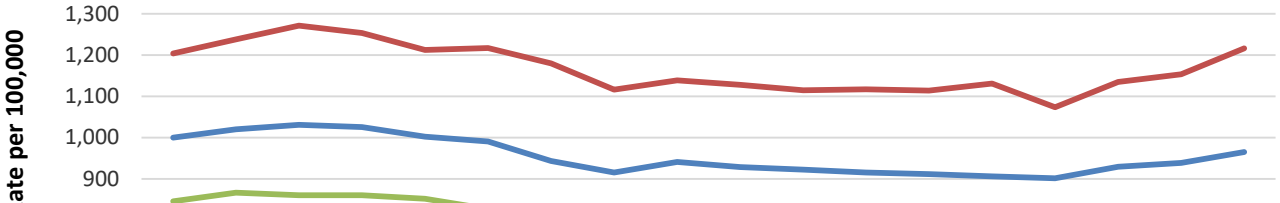
All-Cause Mortality Rate per 100,000 Jefferson County Residents by Race 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	999.5	1,020	1,030	1,025	1,002	990.3	943.0	915.6	940.9	928.6	922.0	915.4	911.7	905.9	901.4	929.1	938.7	964.7
White	912.1	920.4	938.5	933.7	923.2	898.1	852.1	832.7	865.0	870.1	868.8	846.2	865.4	861.8	866.9	880.6	918.1	946.2
Black	1,202	1,234	1,238	1,224	1,180	1,187	1,166	1,099	1,110	1,064	1,035	1,061	1,003	997.7	974.6	1,013	977.8	998.2
Other	144.8	89.1	118.9	201.2	153.6	186.6	228.6	166.5	168.9	143.8	241.4	228.1	208.4	402.1	276.7	396.3	340.0	326.5

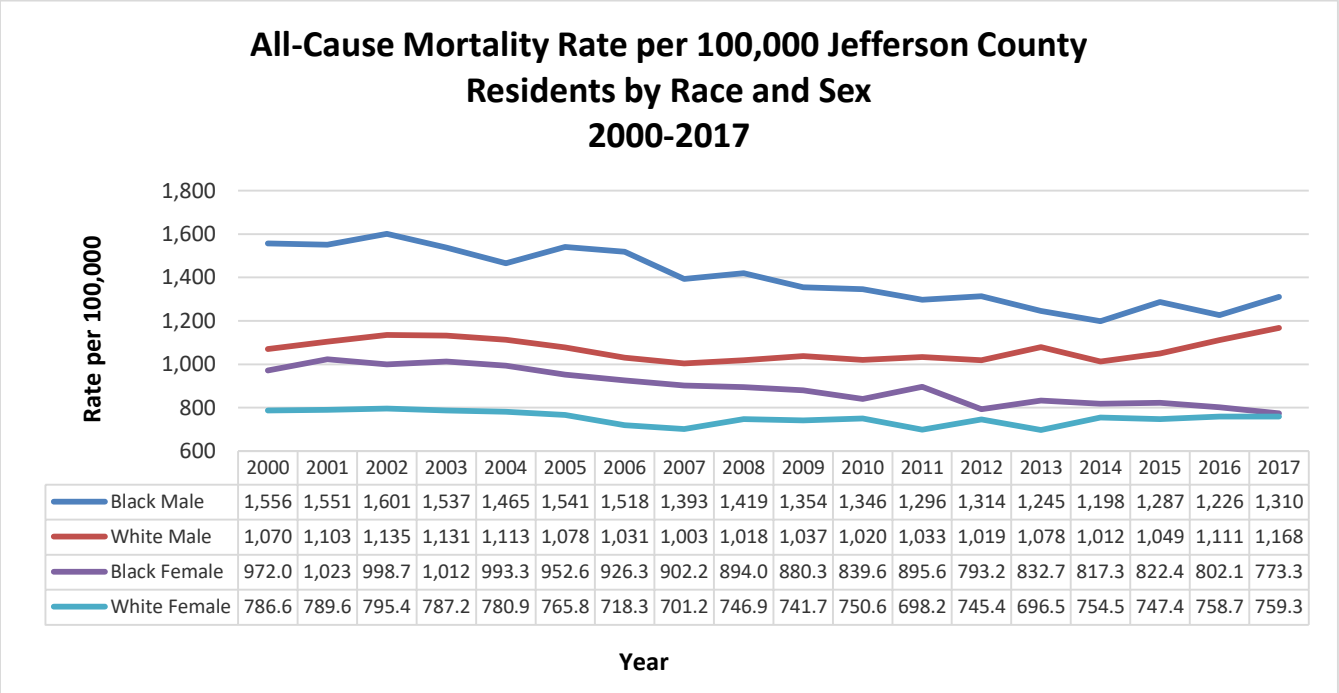
Year

All-Cause Mortality Rate per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	999.5	1,020	1,030	1,025	1,002	990.3	943.0	915.6	940.9	928.6	922.0	915.4	911.7	905.9	901.4	929.1	938.7	964.7
Male	1,204	1,238	1,271	1,253	1,212	1,217	1,180	1,116	1,139	1,127	1,115	1,117	1,114	1,131	1,073	1,134	1,153	1,216
Female	845.3	866.2	859.9	860.1	851.4	826.9	787.6	766.3	790.5	783.4	781.6	762.7	759.6	744.7	771.6	774.3	773.1	766.9

Year



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	1,556	1,551	1,601	1,537	1,465	1,541	1,518	1,393	1,419	1,354	1,346	1,296	1,314	1,245	1,198	1,287	1,226	1,310
White Male	1,070	1,103	1,135	1,131	1,113	1,078	1,031	1,003	1,018	1,037	1,020	1,033	1,019	1,078	1,012	1,049	1,111	1,168
Black Female	972.0	1,023	998.7	1,012	993.3	952.6	926.3	902.2	894.0	880.3	839.6	895.6	793.2	832.7	817.3	822.4	802.1	773.3
White Female	786.6	789.6	795.4	787.2	780.9	765.8	718.3	701.2	746.9	741.7	750.6	698.2	745.4	696.5	754.5	747.4	758.7	759.3

Ten Leading Causes of Death

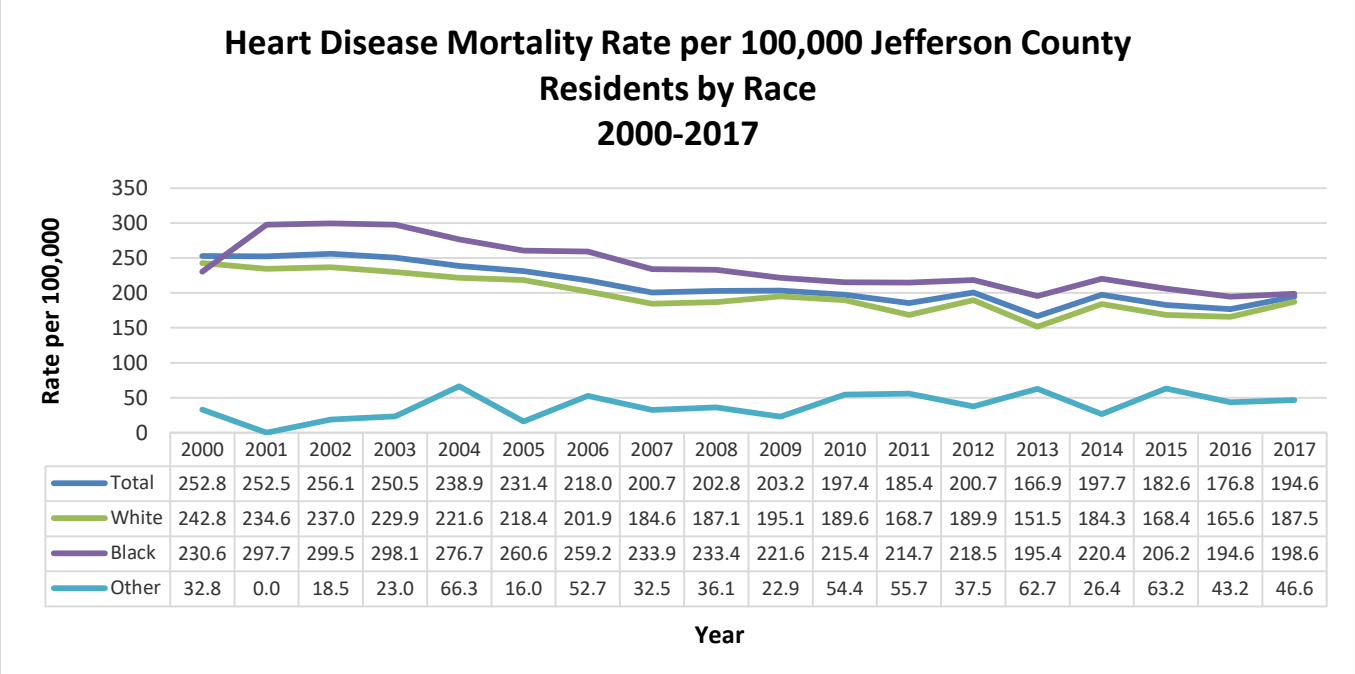
The following table lists the ten leading causes of death within Jefferson County for the years 2003, 2012 and 2017.

Ten Leading Causes of Death in Jefferson County		
Reference Data (2003)	**Index Data (2012)**	**Endpoint Data (2017)**
1. Heart Disease	**1. Heart Disease**	**1. Heart Disease**
2. Cancer	**2. Cancer**	**2. Cancer**
3. Cerebrovascular Disease	**3. Cerebrovascular Disease**	**3. Cerebrovascular Disease**
4. Unintentional Injuries	**4. Chronic Lower Respiratory Disease**	**4. Unintentional Injuries**
5. Chronic Lower Respiratory Disease	**5. Unintentional Injuries**	**5. Chronic Lower Respiratory Disease**
6. Diabetes	**6. Kidney Disease**	**6. Alzheimer's Disease**
7. Kidney Disease	**7. Diabetes**	**7. Pneumonia and Influenza**

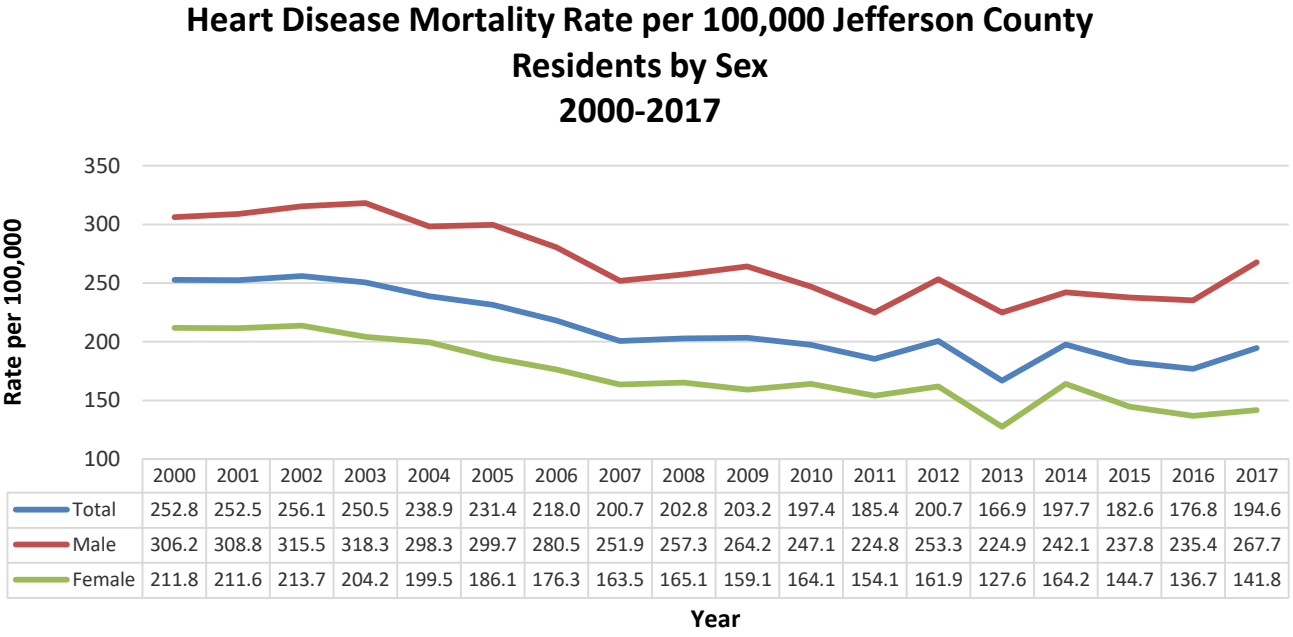
8. Pneumonia and Influenza	**8. Septicemia**	**8. Septicemia**
9. Alzheimer's Disease	**9. Alzheimer's Disease**	**9. Diabetes**
10. Homicide	**10. Pneumonia and Influenza**	**10. Homicide**

Heart Disease Mortality

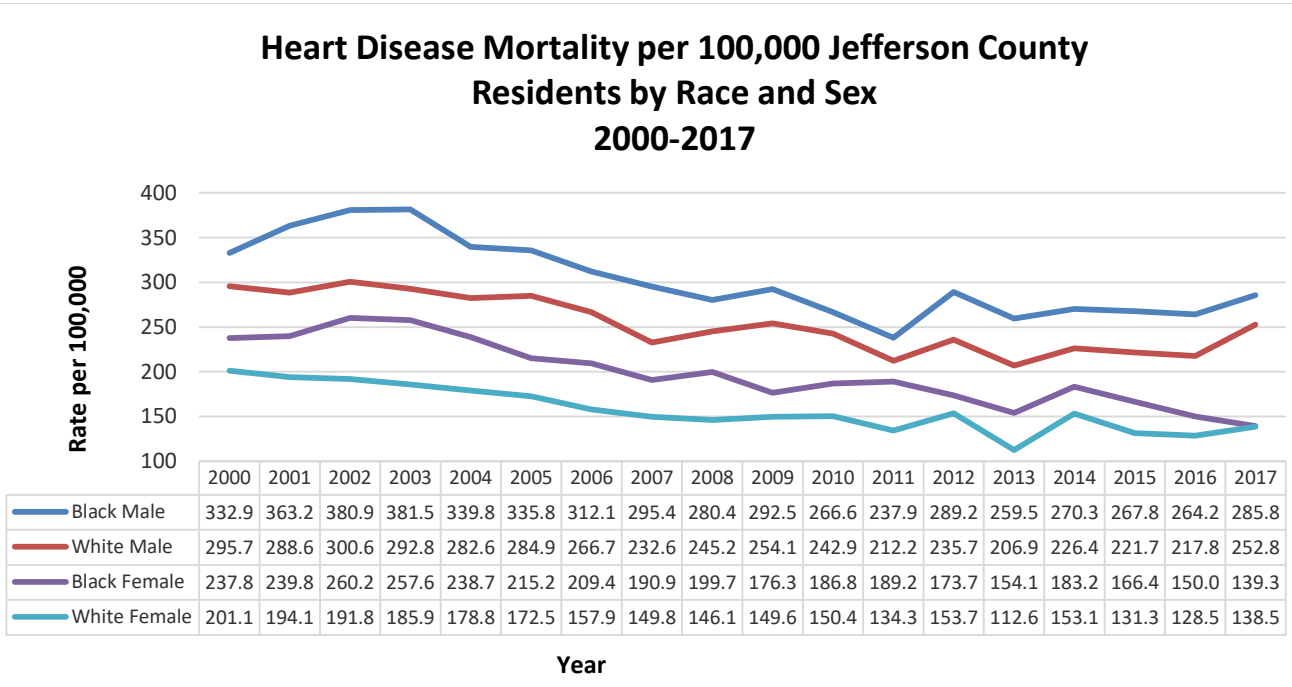
Heart disease remained the leading cause of death in Jefferson County in 2017. In 2012, the heart disease mortality rate was 200.7 per 100,000 population. In 2017, the overall heart disease mortality rate decreased to 194.6 per 100,000 population. This decreasing trend in heart disease mortality was observed across the white and the black sub-populations. The heart disease mortality rate disparity between black and white sub-populations declined. However, heart disease mortality rates increased for males while decreasing for females from 2012 to 2017. Heart disease mortality rates among individuals of other races are trending higher.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	252.8	252.5	256.1	250.5	238.9	231.4	218.0	200.7	202.8	203.2	197.4	185.4	200.7	166.9	197.7	182.6	176.8	194.6
White	242.8	234.6	237.0	229.9	221.6	218.4	201.9	184.6	187.1	195.1	189.6	168.7	189.9	151.5	184.3	168.4	165.6	187.5
Black	230.6	297.7	299.5	298.1	276.7	260.6	259.2	233.9	233.4	221.6	215.4	214.7	218.5	195.4	220.4	206.2	194.6	198.6
Other	32.8	0.0	18.5	23.0	66.3	16.0	52.7	32.5	36.1	22.9	54.4	55.7	37.5	62.7	26.4	63.2	43.2	46.6



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	252.8	252.5	256.1	250.5	238.9	231.4	218.0	200.7	202.8	203.2	197.4	185.4	200.7	166.9	197.7	182.6	176.8	194.6
Male	306.2	308.8	315.5	318.3	298.3	299.7	280.5	251.9	257.3	264.2	247.1	224.8	253.3	224.9	242.1	237.8	235.4	267.7
Female	211.8	211.6	213.7	204.2	199.5	186.1	176.3	163.5	165.1	159.1	164.1	154.1	161.9	127.6	164.2	144.7	136.7	141.8

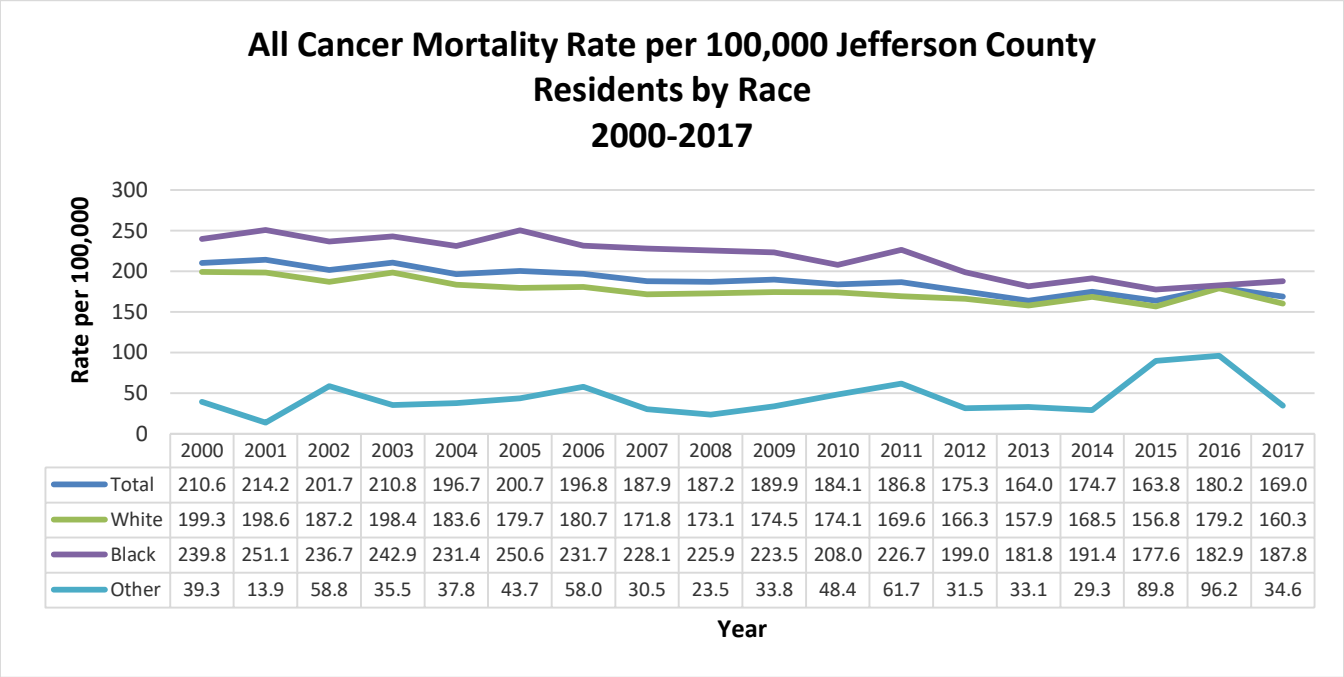


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	332.9	363.2	380.9	381.5	339.8	335.8	312.1	295.4	280.4	292.5	266.6	237.9	289.2	259.5	270.3	267.8	264.2	285.8
White Male	295.7	288.6	300.6	292.8	282.6	284.9	266.7	232.6	245.2	254.1	242.9	212.2	235.7	206.9	226.4	221.7	217.8	252.8
Black Female	237.8	239.8	260.2	257.6	238.7	215.2	209.4	190.9	199.7	176.3	186.8	189.2	173.7	154.1	183.2	166.4	150.0	139.3
White Female	201.1	194.1	191.8	185.9	178.8	172.5	157.9	149.8	146.1	149.6	150.4	134.3	153.7	112.6	153.1	131.3	128.5	138.5

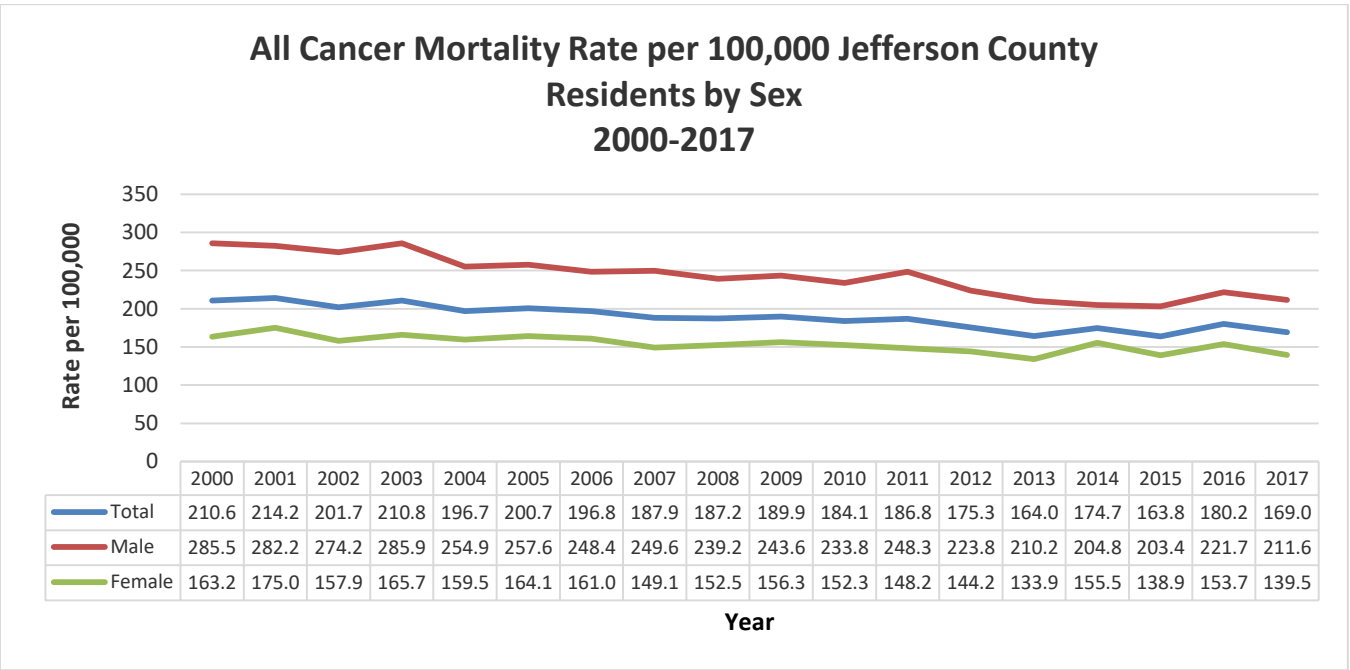
Cancer Mortality

Cancer was the second leading cause of death in Jefferson County in 2017. Overall cancer mortality trended down from 2000 to 2013. However, since 2013, the cancer mortality rate has fluctuated. The

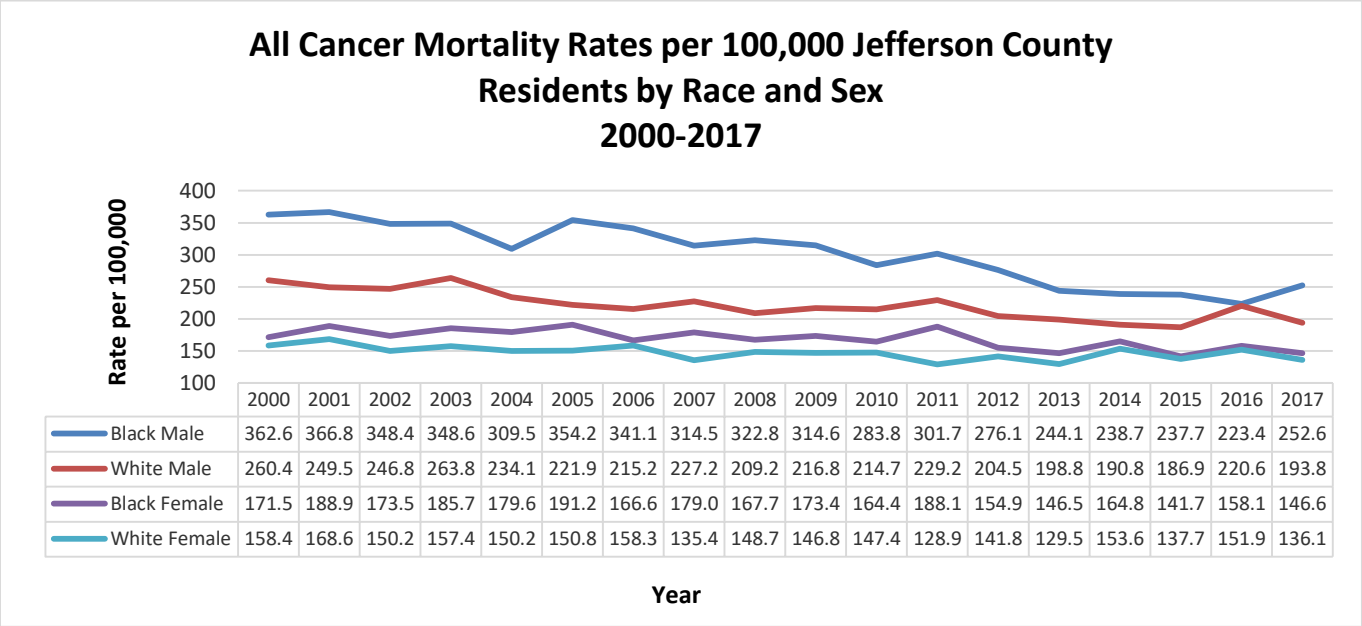
2017 overall cancer mortality rate of 169.0 per 100,000 population is 3.6% less than the 2012 overall cancer mortality rate of 175.3 per 100,000 population. This decreasing trend is observed in males and females, as well as in the white and black sub-populations. Among individuals of other races, the all cancer mortality rate varied more significantly on a year-to-year basis.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	210.6	214.2	201.7	210.8	196.7	200.7	196.8	187.9	187.2	189.9	184.1	186.8	175.3	164.0	174.7	163.8	180.2	169.0
White	199.3	198.6	187.2	198.4	183.6	179.7	180.7	171.8	173.1	174.5	174.1	169.6	166.3	157.9	168.5	156.8	179.2	160.3
Black	239.8	251.1	236.7	242.9	231.4	250.6	231.7	228.1	225.9	223.5	208.0	226.7	199.0	181.8	191.4	177.6	182.9	187.8
Other	39.3	13.9	58.8	35.5	37.8	43.7	58.0	30.5	23.5	33.8	48.4	61.7	31.5	33.1	29.3	89.8	96.2	34.6



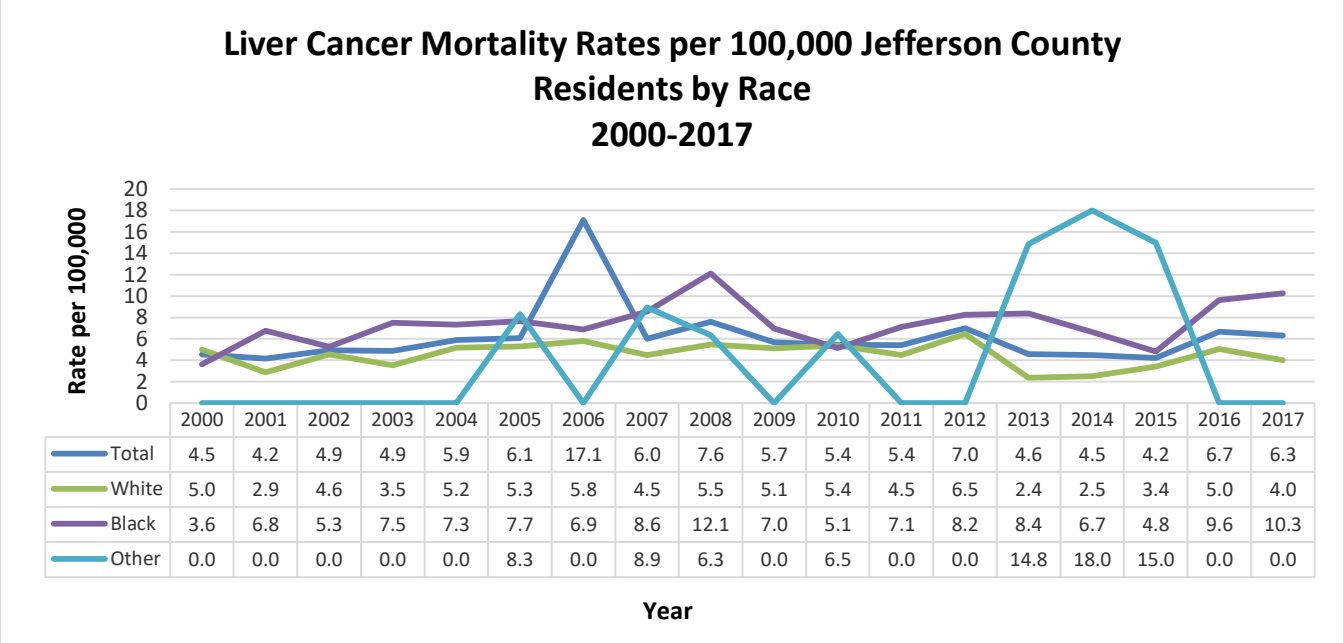
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	210.6	214.2	201.7	210.8	196.7	200.7	196.8	187.9	187.2	189.9	184.1	186.8	175.3	164.0	174.7	163.8	180.2	169.0
Male	285.5	282.2	274.2	285.9	254.9	257.6	248.4	249.6	239.2	243.6	233.8	248.3	223.8	210.2	204.8	203.4	221.7	211.6
Female	163.2	175.0	157.9	165.7	159.5	164.1	161.0	149.1	152.5	156.3	152.3	148.2	144.2	133.9	155.5	138.9	153.7	139.5



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	362.6	366.8	348.4	348.6	309.5	354.2	341.1	314.5	322.8	314.6	283.8	301.7	276.1	244.1	238.7	237.7	223.4	252.6
White Male	260.4	249.5	246.8	263.8	234.1	221.9	215.2	227.2	209.2	216.8	214.7	229.2	204.5	198.8	190.8	186.9	220.6	193.8
Black Female	171.5	188.9	173.5	185.7	179.6	191.2	166.6	179.0	167.7	173.4	164.4	188.1	154.9	146.5	164.8	141.7	158.1	146.6
White Female	158.4	168.6	150.2	157.4	150.2	150.8	158.3	135.4	148.7	146.8	147.4	128.9	141.8	129.5	153.6	137.7	151.9	136.1

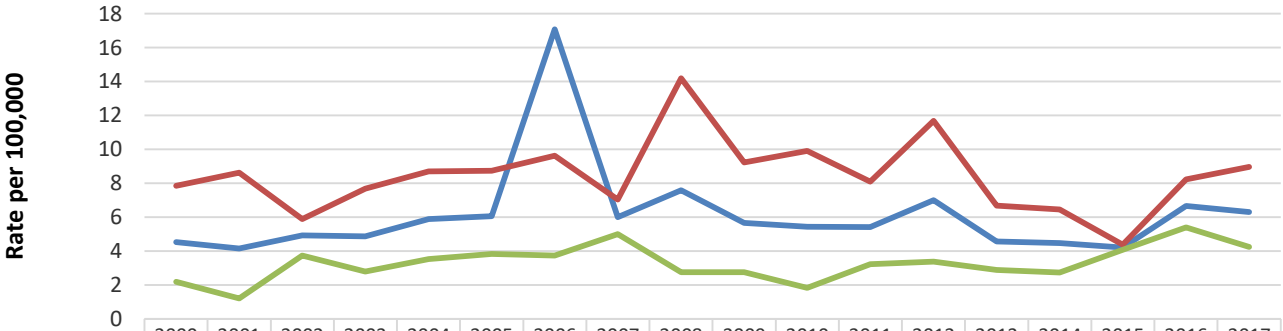
Liver Cancer

Liver cancer has a significant correlation with Hepatitis C infection. The 2017 liver cancer mortality rate of 6.3 per 100,000 population marked a 10% relative percent decrease from the 2012 rate of 7.0 per 100,000 population. Liver cancer mortality rates are higher among the black and male sub-populations. The increased liver cancer mortality rate was especially pronounced in black male residents of Jefferson County in 2017. The disparity in liver cancer rates between the black and white sub-populations increased between 2012 and 2017.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	4.5	4.2	4.9	4.9	5.9	6.1	17.1	6.0	7.6	5.7	5.4	5.4	7.0	4.6	4.5	4.2	6.7	6.3
White	5.0	2.9	4.6	3.5	5.2	5.3	5.8	4.5	5.5	5.1	5.4	4.5	6.5	2.4	2.5	3.4	5.0	4.0
Black	3.6	6.8	5.3	7.5	7.3	7.7	6.9	8.6	12.1	7.0	5.1	7.1	8.2	8.4	6.7	4.8	9.6	10.3
Other	0.0	0.0	0.0	0.0	0.0	8.3	0.0	8.9	6.3	0.0	6.5	0.0	0.0	14.8	18.0	15.0	0.0	0.0

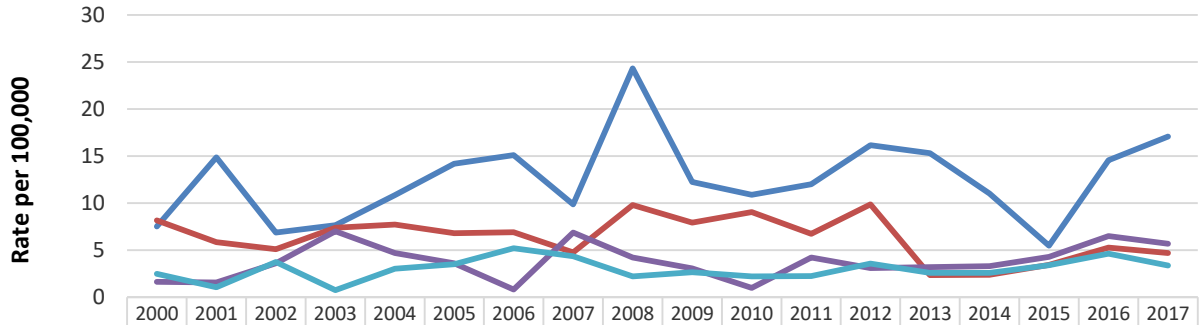
Liver Cancer Mortality Rates per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	4.5	4.2	4.9	4.9	5.9	6.1	17.1	6.0	7.6	5.7	5.4	5.4	7.0	4.6	4.5	4.2	6.7	6.3
Male	7.8	8.6	5.9	7.7	8.7	8.7	9.6	7.1	14.2	9.2	9.9	8.1	11.7	6.7	6.5	4.4	8.2	9.0
Female	2.2	1.2	3.7	2.8	3.5	3.8	3.8	5.0	2.8	2.8	1.8	3.2	3.4	2.9	2.7	4.1	5.4	4.3

Year

Liver Cancer Mortality Rates per 100,000 Jefferson County Residents by Race and Sex 2000-2017



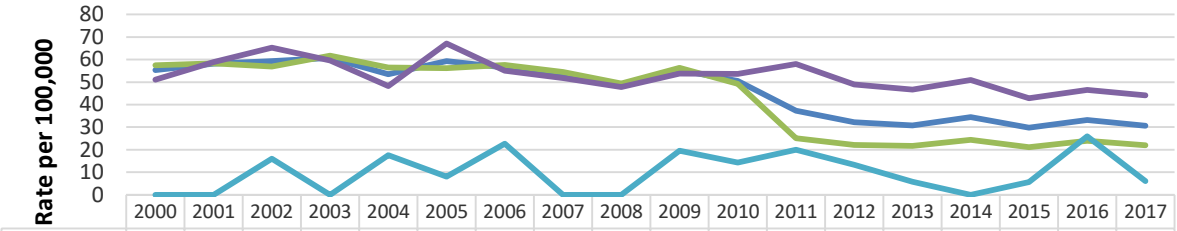
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	7.5	14.9	6.9	7.6	10.9	14.2	15.1	9.9	24.3	12.3	10.9	12.0	16.2	15.3	11.0	5.5	14.6	17.1
White Male	8.2	5.9	5.1	7.4	7.7	6.8	6.9	4.8	9.8	7.9	9.0	6.7	9.9	2.3	2.4	3.4	5.3	4.7
Black Female	1.6	1.6	3.6	7.0	4.7	3.6	0.8	6.9	4.2	3.1	1.0	4.2	3.1	3.2	3.3	4.3	6.5	5.7
White Female	2.5	1.0	3.7	0.8	3.0	3.5	5.2	4.4	2.2	2.7	2.2	2.3	3.6	2.6	2.6	3.4	4.6	3.4

Year

Lung Cancer

Lung cancer mortality is linked to smoking, exposure to second-hand smoke and other environmental risk factors such as asbestos exposure. Overall mortality rates for lung cancer have declined since the 2000 with the 2017 rate at 30.6 per 100,000 population. Between 2012 and 2017, the mortality rate from lung cancer declined 4.5%, and the race-based disparity in this cause of death also decreased.

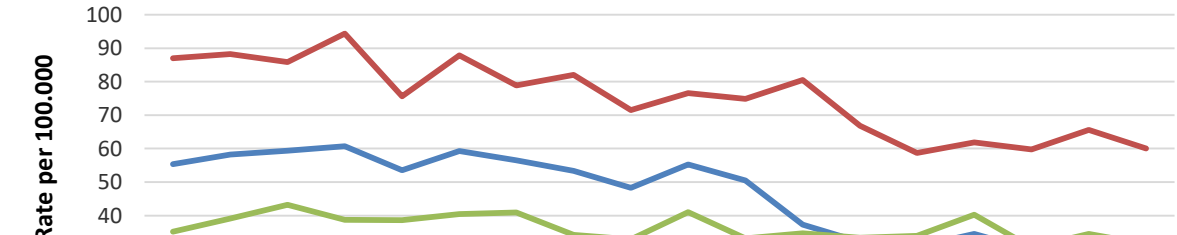
Lung Cancer Mortality Rates per 100,000 Jefferson County Residents by Race 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	55.3	58.2	59.3	60.7	53.5	59.3	56.5	53.3	48.3	55.3	50.5	37.3	32.2	30.7	34.5	29.7	33.2	30.6
White	57.4	58.4	56.9	61.8	56.4	56.2	57.6	54.4	49.4	56.3	49.2	25.1	22.2	21.6	24.3	21.1	23.9	22.0
Black	51.1	58.9	65.3	59.6	48.3	67.1	55.0	51.8	47.8	53.7	53.6	58.0	48.9	46.6	51.0	42.9	46.5	44.1
Other	0.0	0.0	16.0	0.0	17.6	8.0	22.6	0.0	0.0	19.6	14.2	19.9	13.2	5.8	0.0	5.7	25.9	6.1

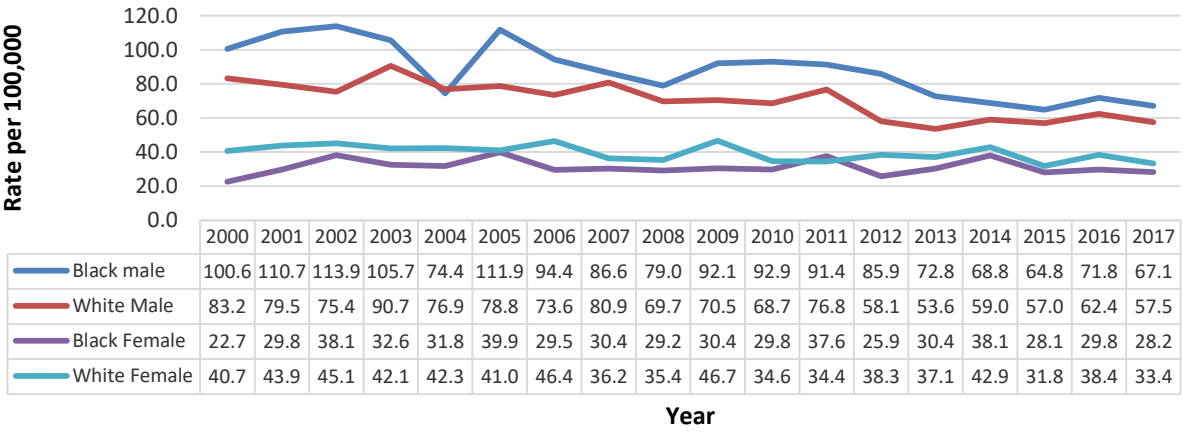
Year

Lung Cancer Mortality Rates per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	55.3	58.2	59.3	60.7	53.5	59.3	56.5	53.3	48.3	55.3	50.5	37.3	32.2	30.7	34.5	29.7	33.2	30.6
Male	87.0	88.2	85.8	94.4	75.6	87.8	78.9	82.0	71.5	76.5	74.9	80.5	66.8	58.7	61.9	59.8	65.6	60.0
Female	35.1	39.1	43.2	38.7	38.6	40.4	41.0	34.2	32.9	41.0	33.2	34.7	33.3	34.0	40.2	30.5	34.5	31.5

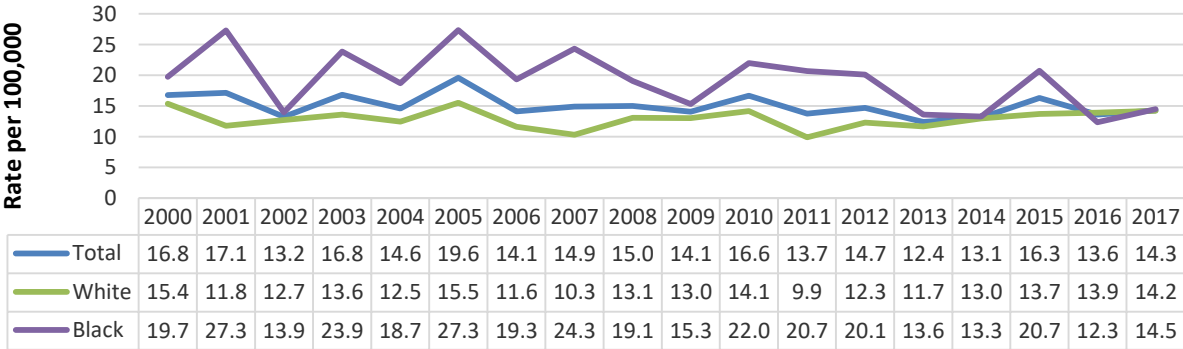
Year



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black male	100.6	110.7	113.9	105.7	74.4	111.9	94.4	86.6	79.0	92.1	92.9	91.4	85.9	72.8	68.8	64.8	71.8	67.1
White Male	83.2	79.5	75.4	90.7	76.9	78.8	73.6	80.9	69.7	70.5	68.7	76.8	58.1	53.6	59.0	57.0	62.4	57.5
Black Female	22.7	29.8	38.1	32.6	31.8	39.9	29.5	30.4	29.2	30.4	29.8	37.6	25.9	30.4	38.1	28.1	29.8	28.2
White Female	40.7	43.9	45.1	42.1	42.3	41.0	46.4	36.2	35.4	46.7	34.6	34.4	38.3	37.1	42.9	31.8	38.4	33.4

Breast Cancer

Breast cancer mortality rates have fluctuated in Jefferson County between 12.4 and 16.3 deaths per 100,000 between 2012 and 2017. The overall rate of breast cancer deaths decreased from a rate of 14.7 per 100,000 population in 2012 to 14.3 per 100,000 population in 2017.

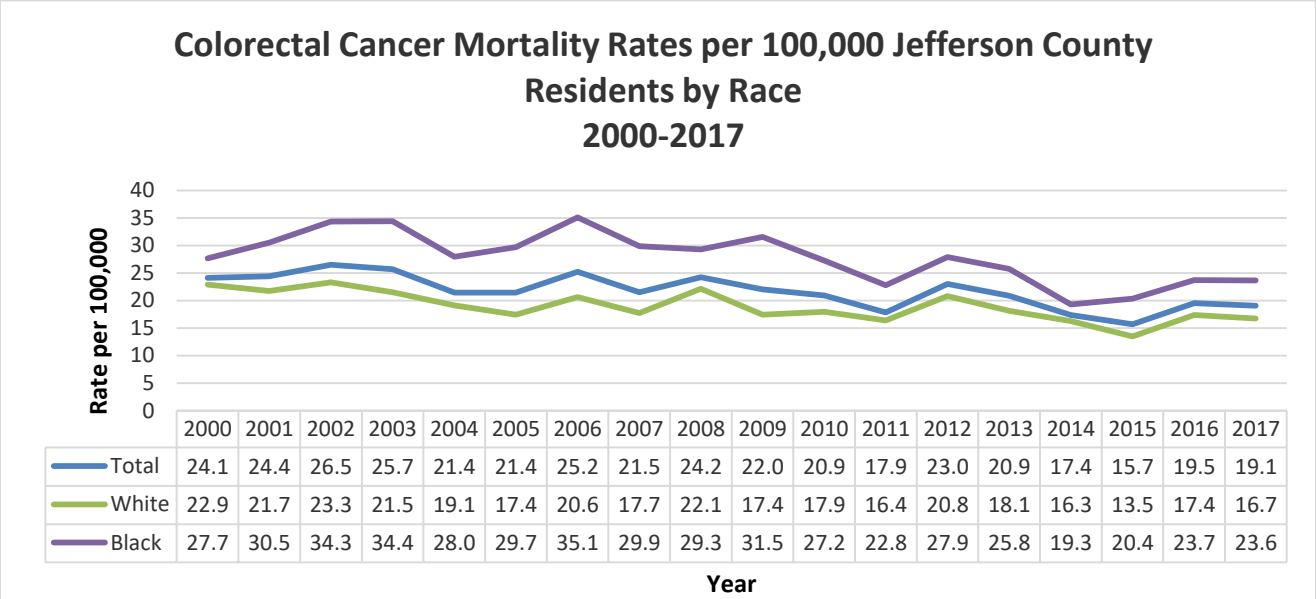


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	16.8	17.1	13.2	16.8	14.6	19.6	14.1	14.9	15.0	14.1	16.6	13.7	14.7	12.4	13.1	16.3	13.6	14.3
White	15.4	11.8	12.7	13.6	12.5	15.5	11.6	10.3	13.1	13.0	14.1	9.9	12.3	11.7	13.0	13.7	13.9	14.2
Black	19.7	27.3	13.9	23.9	18.7	27.3	19.3	24.3	19.1	15.3	22.0	20.7	20.1	13.6	13.3	20.7	12.3	14.5

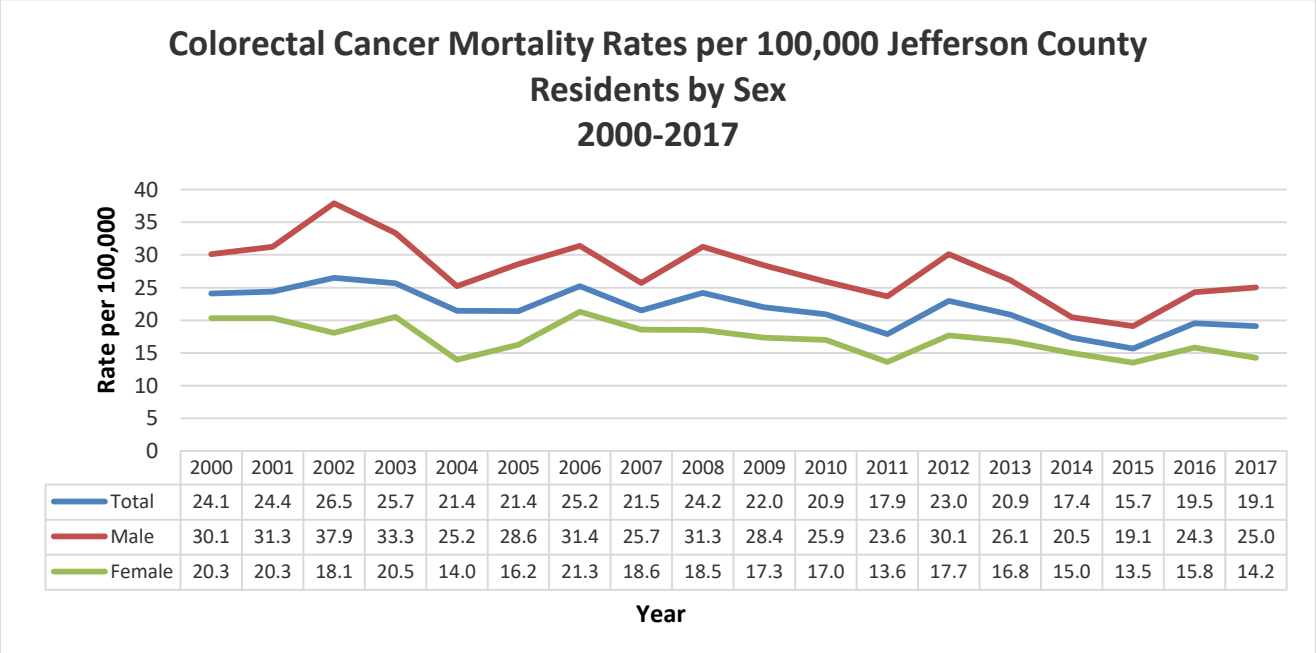
Colorectal Cancer

Overall, colorectal cancer mortality rates have experienced a relative percent change of 17% from the 2012 rate of 23.0 deaths per 100,000 population to 19.1 deaths per 100,000 population in 2017. Rate declines between 2012 and 2017 were noted among the white and black sub-populations and among

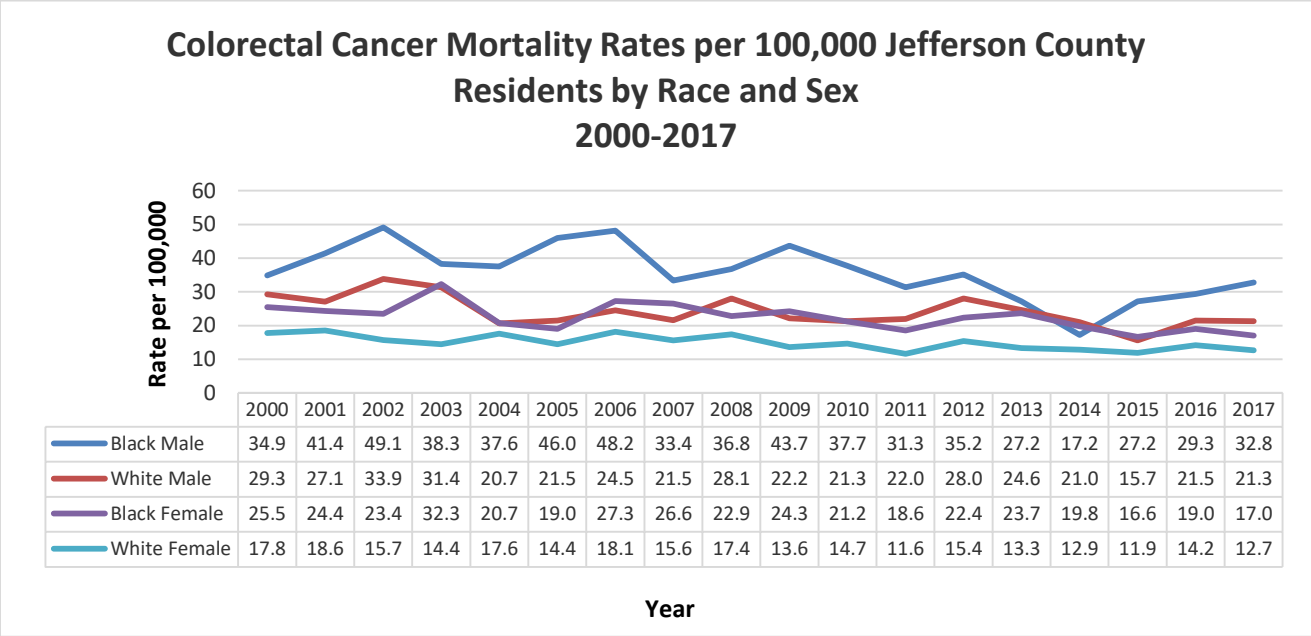
males and females. Additionally, the race-based disparity in colorectal cancer rates slightly declined between 2012 and 2017.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	24.1	24.4	26.5	25.7	21.4	21.4	25.2	21.5	24.2	22.0	20.9	17.9	23.0	20.9	17.4	15.7	19.5	19.1
White	22.9	21.7	23.3	21.5	19.1	17.4	20.6	17.7	22.1	17.4	17.9	16.4	20.8	18.1	16.3	13.5	17.4	16.7
Black	27.7	30.5	34.3	34.4	28.0	29.7	35.1	29.9	29.3	31.5	27.2	22.8	27.9	25.8	19.3	20.4	23.7	23.6



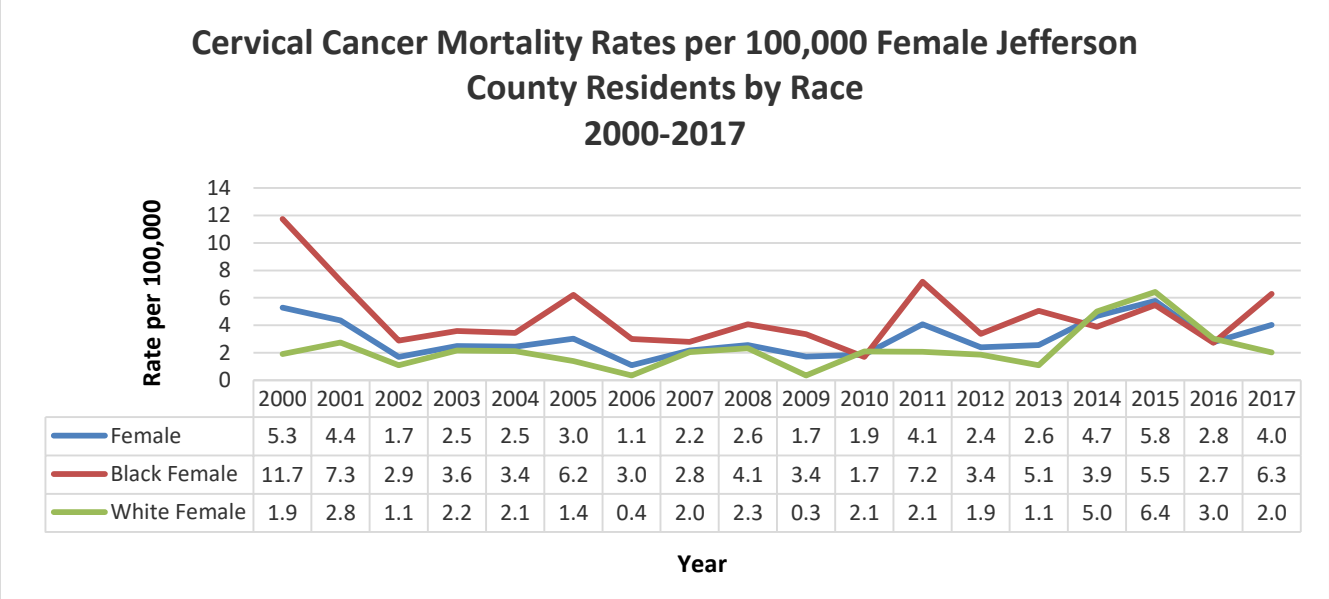
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	24.1	24.4	26.5	25.7	21.4	21.4	25.2	21.5	24.2	22.0	20.9	17.9	23.0	20.9	17.4	15.7	19.5	19.1
Male	30.1	31.3	37.9	33.3	25.2	28.6	31.4	25.7	31.3	28.4	25.9	23.6	30.1	26.1	20.5	19.1	24.3	25.0
Female	20.3	20.3	18.1	20.5	14.0	16.2	21.3	18.6	18.5	17.3	17.0	13.6	17.7	16.8	15.0	13.5	15.8	14.2



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	34.9	41.4	49.1	38.3	37.6	46.0	48.2	33.4	36.8	43.7	37.7	31.3	35.2	27.2	17.2	27.2	29.3	32.8
White Male	29.3	27.1	33.9	31.4	20.7	21.5	24.5	21.5	28.1	22.2	21.3	22.0	28.0	24.6	21.0	15.7	21.5	21.3
Black Female	25.5	24.4	23.4	32.3	20.7	19.0	27.3	26.6	22.9	24.3	21.2	18.6	22.4	23.7	19.8	16.6	19.0	17.0
White Female	17.8	18.6	15.7	14.4	17.6	14.4	18.1	15.6	17.4	13.6	14.7	11.6	15.4	13.3	12.9	11.9	14.2	12.7

Cervical Cancer

The 2017 cervical cancer mortality rate of 4.0 deaths per 100,000 females is 66.7% higher than the 2012 rate of 2.4 per 100,000 females. Cervical cancer rates among increased among the white and black sub-populations, with a larger increase in the black sub-population.

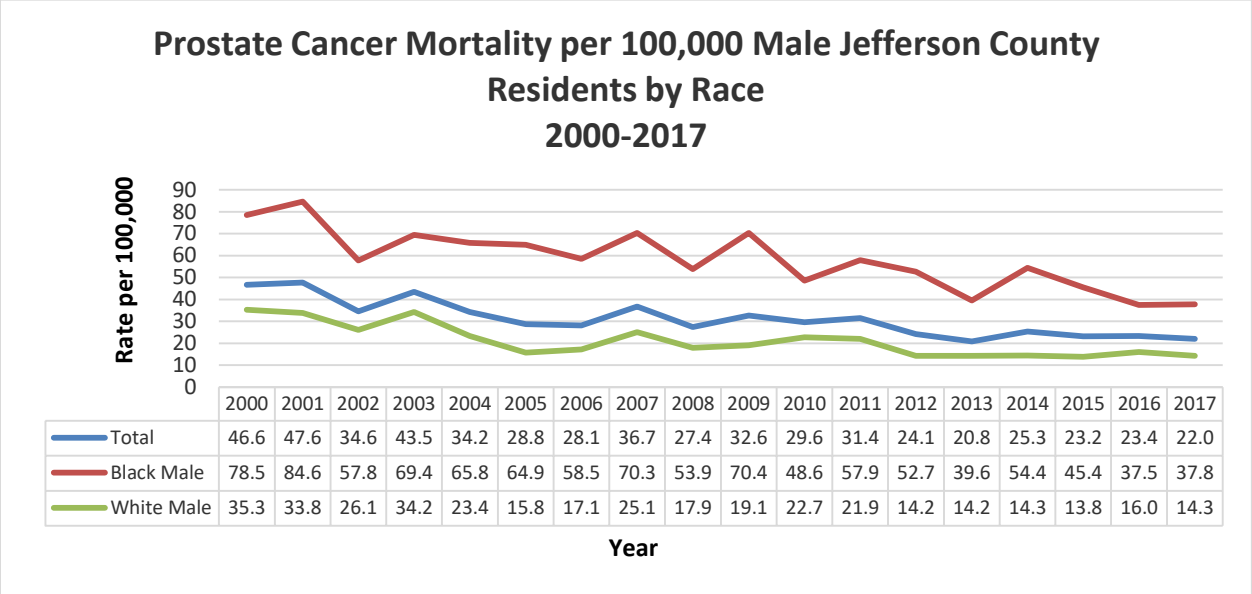


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Female	5.3	4.4	1.7	2.5	2.5	3.0	1.1	2.2	2.6	1.7	1.9	4.1	2.4	2.6	4.7	5.8	2.8	4.0
Black Female	11.7	7.3	2.9	3.6	3.4	6.2	3.0	2.8	4.1	3.4	1.7	7.2	3.4	5.1	3.9	5.5	2.7	6.3
White Female	1.9	2.8	1.1	2.2	2.1	1.4	0.4	2.0	2.3	0.3	2.1	2.1	1.9	1.1	5.0	6.4	3.0	2.0

Prostate Cancer

Prostate cancer mortality decreased by 8.7% (relative percent change) from the 2012 rate of 24.1 per 100,000 males to the 2017 rate of 22.0 per 100,000 males. Prostate cancer mortality rates declined

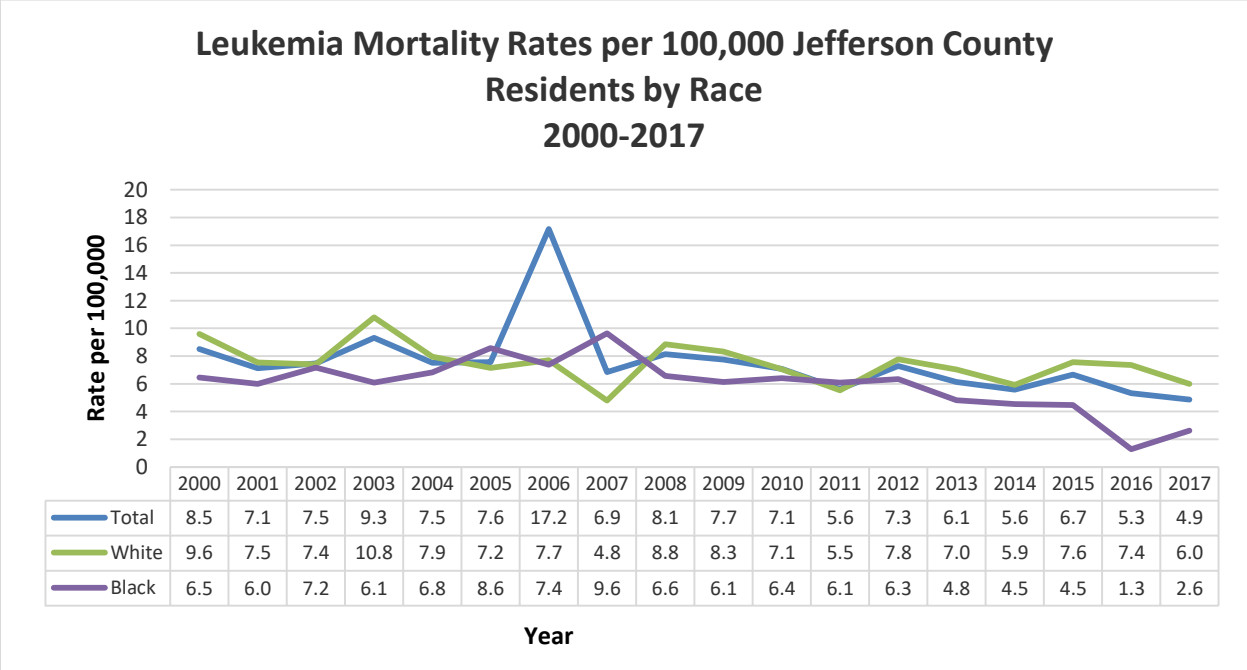
among white and black males, and the disparity in mortality rates between the white and black sub-populations declined by 4.6 deaths between 2012 and 2017 and was statistically significant.



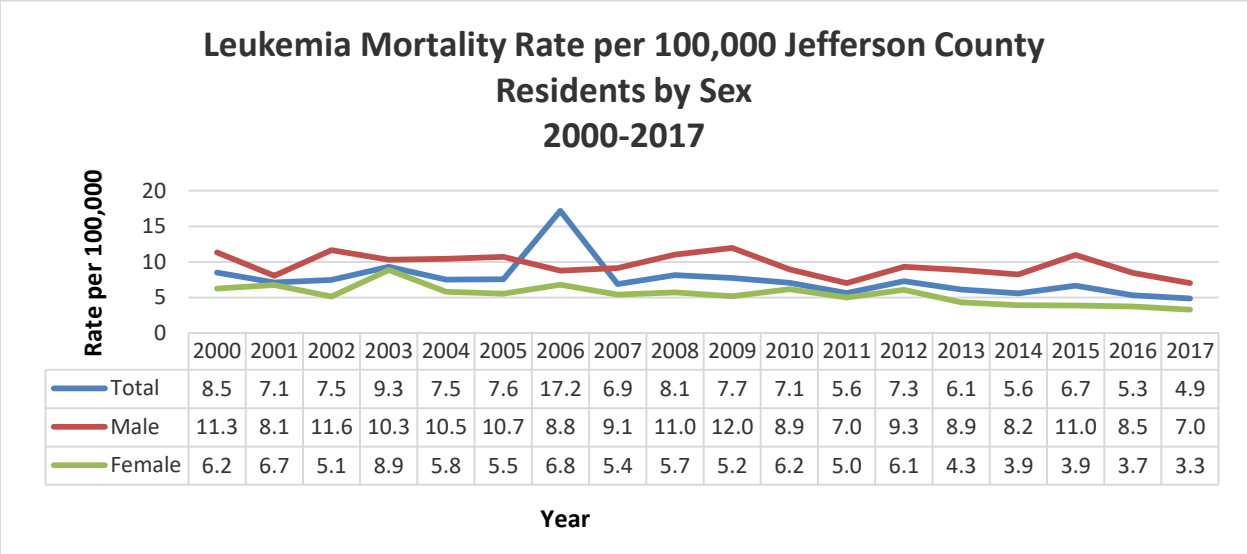
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	46.6	47.6	34.6	43.5	34.2	28.8	28.1	36.7	27.4	32.6	29.6	31.4	24.1	20.8	25.3	23.2	23.4	22.0
Black Male	78.5	84.6	57.8	69.4	65.8	64.9	58.5	70.3	53.9	70.4	48.6	57.9	52.7	39.6	54.4	45.4	37.5	37.8
White Male	35.3	33.8	26.1	34.2	23.4	15.8	17.1	25.1	17.9	19.1	22.7	21.9	14.2	14.2	14.3	13.8	16.0	14.3

Leukemia

The overall leukemia mortality rate decreased by 49% (relative percent change) from the 2012 rate of 7.3 per 100,000 population to 4.9 per 100,000 population in 2017. Leukemia mortality rates declined between 2012 and 2017 for both the white and black sub-populations and among males and females during this time frame.



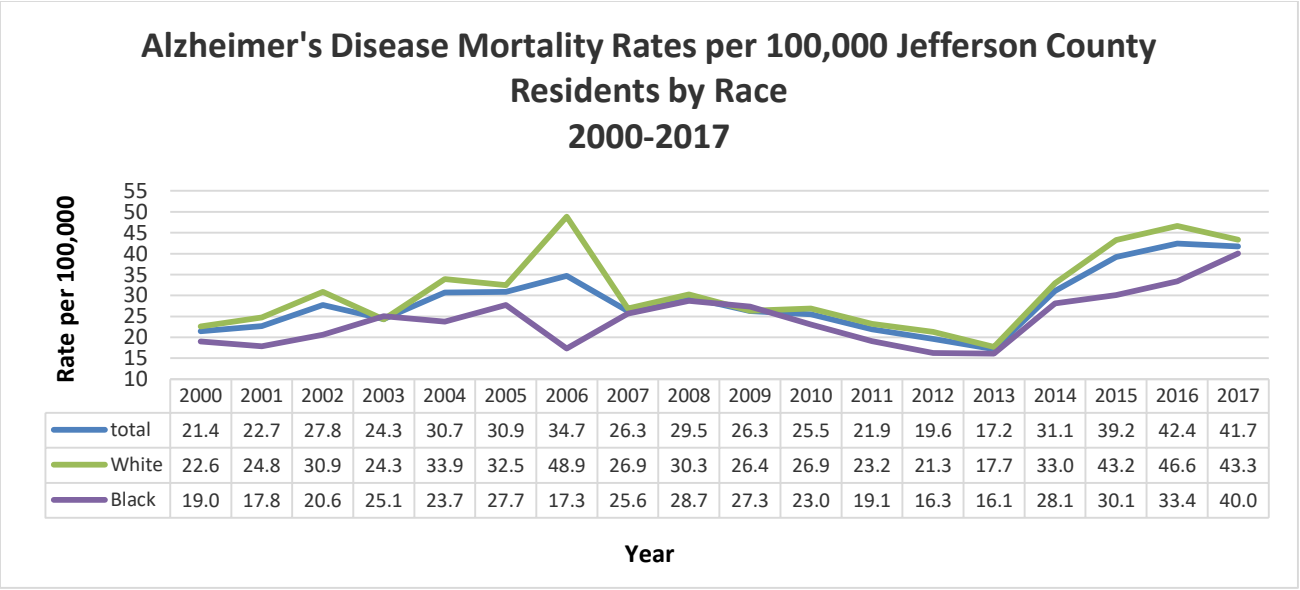
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	8.5	7.1	7.5	9.3	7.5	7.6	17.2	6.9	8.1	7.7	7.1	5.6	7.3	6.1	5.6	6.7	5.3	4.9
White	9.6	7.5	7.4	10.8	7.9	7.2	7.7	4.8	8.8	8.3	7.1	5.5	7.8	7.0	5.9	7.6	7.4	6.0
Black	6.5	6.0	7.2	6.1	6.8	8.6	7.4	9.6	6.6	6.1	6.4	6.1	6.3	4.8	4.5	4.5	1.3	2.6



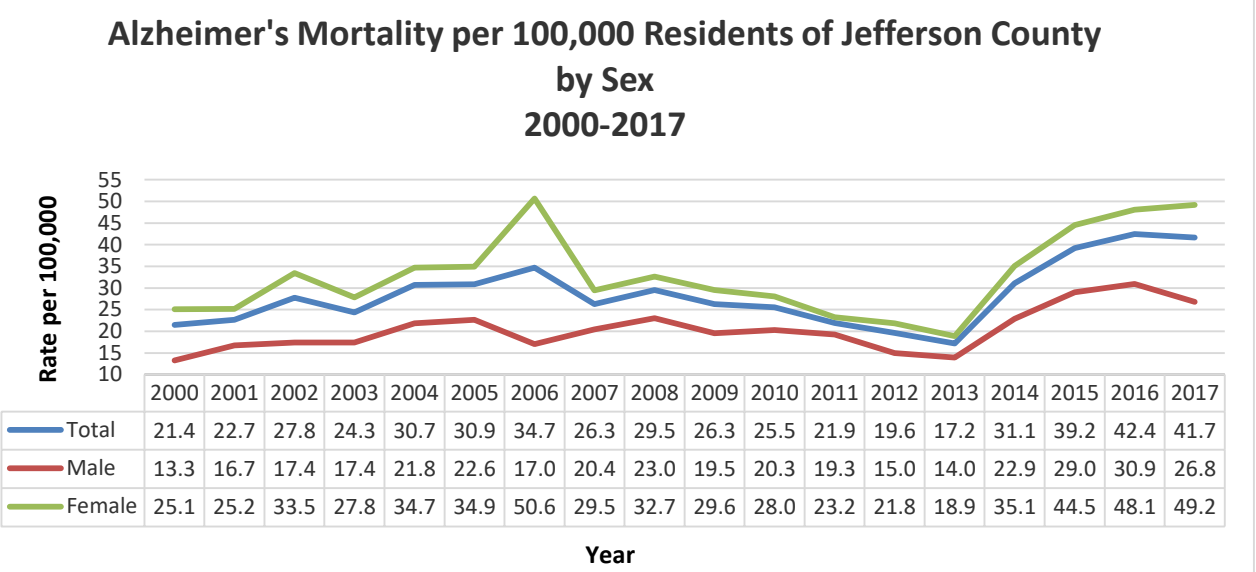
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	8.5	7.1	7.5	9.3	7.5	7.6	17.2	6.9	8.1	7.7	7.1	5.6	7.3	6.1	5.6	6.7	5.3	4.9
Male	11.3	8.1	11.6	10.3	10.5	10.7	8.8	9.1	11.0	12.0	8.9	7.0	9.3	8.9	8.2	11.0	8.5	7.0
Female	6.2	6.7	5.1	8.9	5.8	5.5	6.8	5.4	5.7	5.2	6.2	5.0	6.1	4.3	3.9	3.9	3.7	3.3

Alzheimer's Disease Mortality

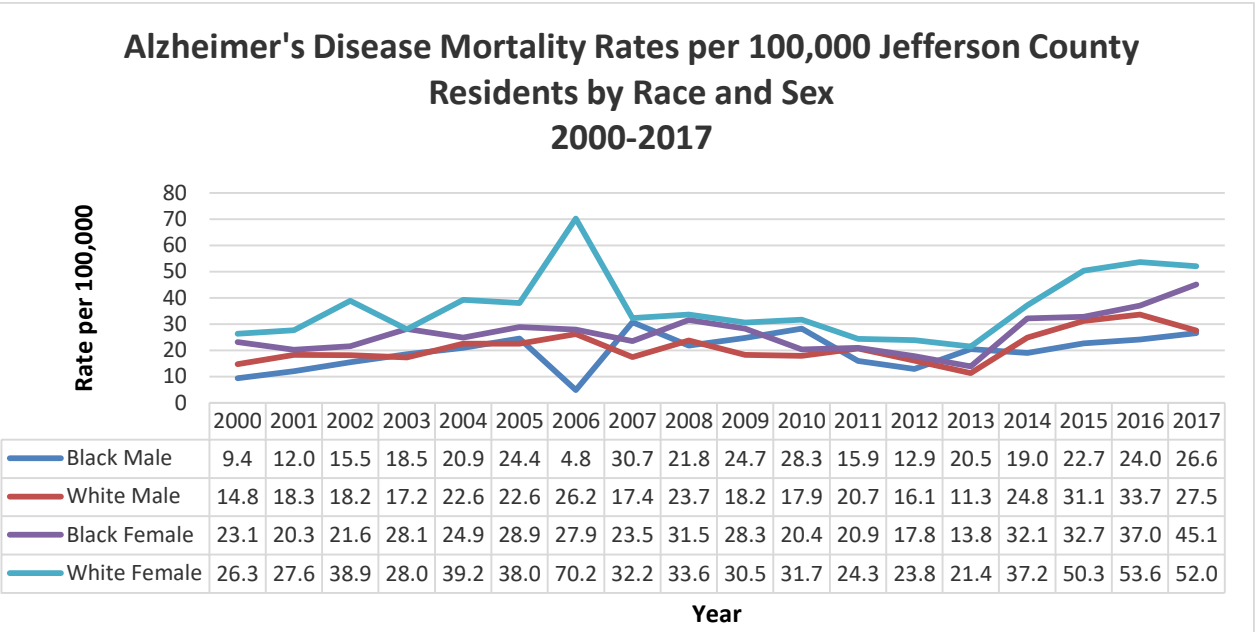
Alzheimer's disease was the ninth leading cause of death in Jefferson County in 2003 and 2012. In 2017, Alzheimer's disease became the sixth leading cause of death in the county. This irreversible progressive brain disease destroys memory and cognitive abilities, and its mortality rate has increased since 2011. The 2017 Alzheimer's disease mortality rate of 41.7 per 100,000 population is 113% higher (relative percent change) than the 2012 Alzheimer's disease mortality rate of 19.6 per 100,000 population. White females typically experience the highest Alzheimer's disease mortality rates within Jefferson County, and the 2017 Alzheimer's mortality rates were statistically significantly higher for both the white and black sub-populations than in 2012. The mortality rate disparity by race declined between 2012 and 2017.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
total	21.4	22.7	27.8	24.3	30.7	30.9	34.7	26.3	29.5	26.3	25.5	21.9	19.6	17.2	31.1	39.2	42.4	41.7
White	22.6	24.8	30.9	24.3	33.9	32.5	48.9	26.9	30.3	26.4	26.9	23.2	21.3	17.7	33.0	43.2	46.6	43.3
Black	19.0	17.8	20.6	25.1	23.7	27.7	17.3	25.6	28.7	27.3	23.0	19.1	16.3	16.1	28.1	30.1	33.4	40.0



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	21.4	22.7	27.8	24.3	30.7	30.9	34.7	26.3	29.5	26.3	25.5	21.9	19.6	17.2	31.1	39.2	42.4	41.7
Male	13.3	16.7	17.4	17.4	21.8	22.6	17.0	20.4	23.0	19.5	20.3	19.3	15.0	14.0	22.9	29.0	30.9	26.8
Female	25.1	25.2	33.5	27.8	34.7	34.9	50.6	29.5	32.7	29.6	28.0	23.2	21.8	18.9	35.1	44.5	48.1	49.2

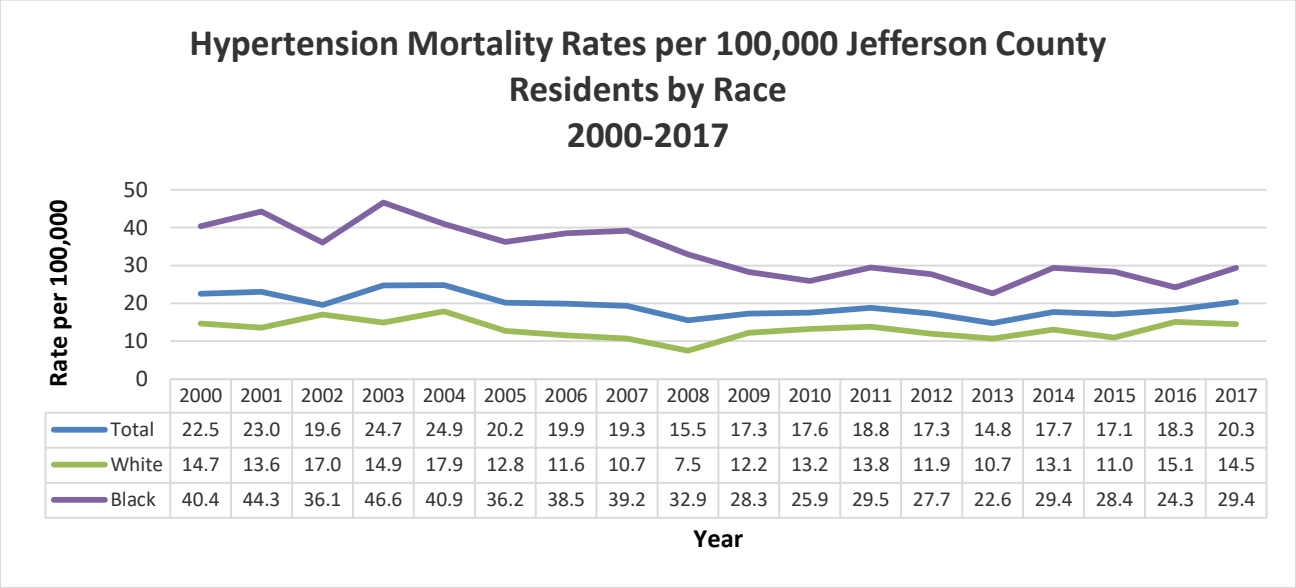


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	9.4	12.0	15.5	18.5	20.9	24.4	4.8	30.7	21.8	24.7	28.3	15.9	12.9	20.5	19.0	22.7	24.0	26.6
White Male	14.8	18.3	18.2	17.2	22.6	22.6	26.2	17.4	23.7	18.2	17.9	20.7	16.1	11.3	24.8	31.1	33.7	27.5
Black Female	23.1	20.3	21.6	28.1	24.9	28.9	27.9	23.5	31.5	28.3	20.4	20.9	17.8	13.8	32.1	32.7	37.0	45.1
White Female	26.3	27.6	38.9	28.0	39.2	38.0	70.2	32.2	33.6	30.5	31.7	24.3	23.8	21.4	37.2	50.3	53.6	52.0

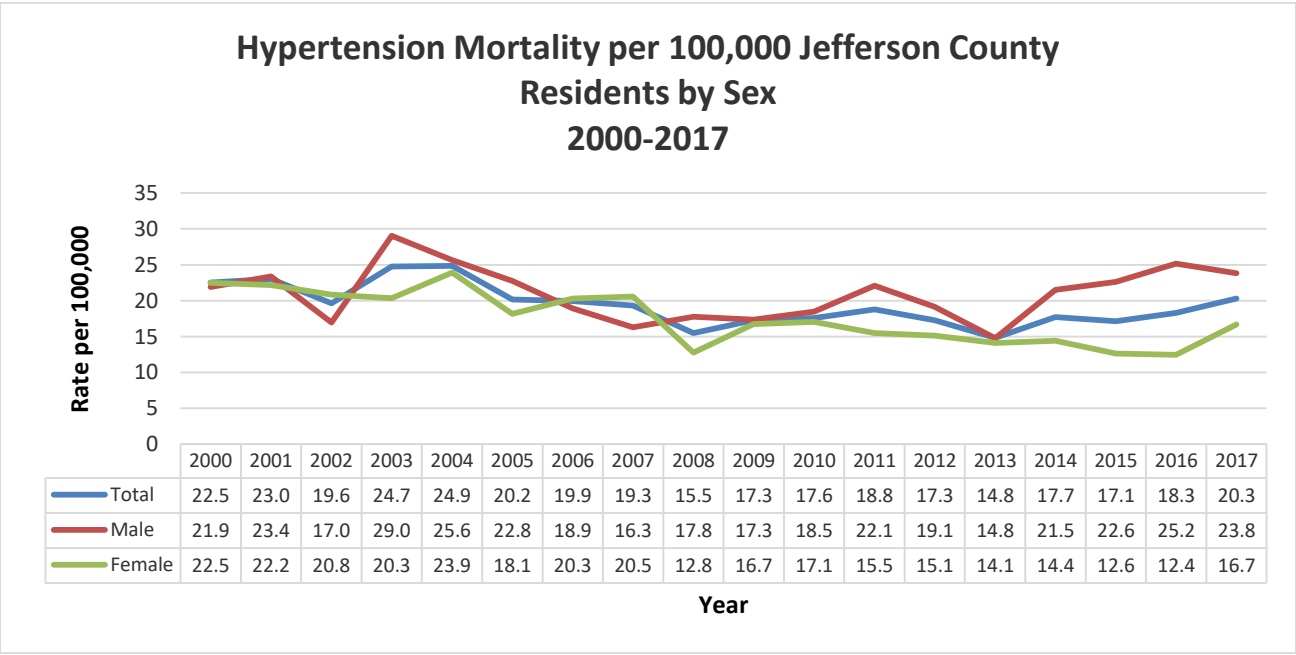
Hypertension Mortality

Hypertension is the most common form of cardiovascular disease in the United States. Hypertension, or high blood pressure, is defined as a blood pressure reading of at least 130/80 or higher on two separate occasions. Hypertension mortality has increased from the 2012 rate of 17.3 per 100,000 population to 20.3 per 100,000 population in 2017. Hypertension mortality rates remain higher in the black sub-

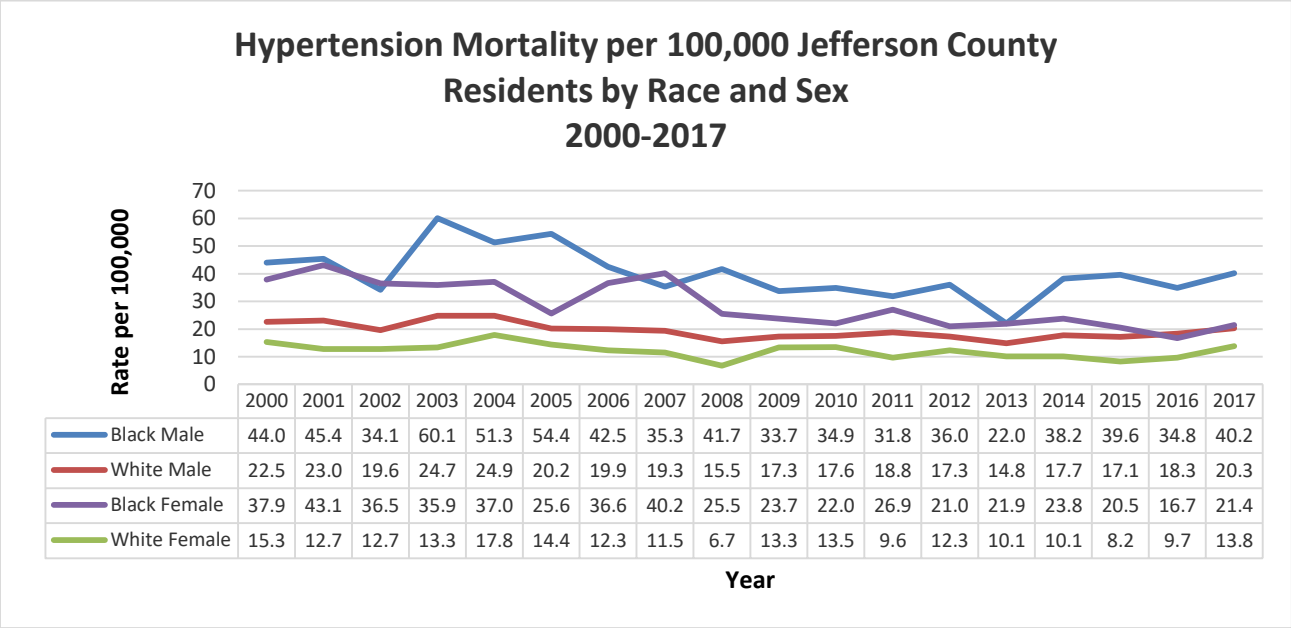
population as compared to the white sub-population; however, the gap between the rates has overall demonstrated decline since 2008.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	22.5	23.0	19.6	24.7	24.9	20.2	19.9	19.3	15.5	17.3	17.6	18.8	17.3	14.8	17.7	17.1	18.3	20.3
White	14.7	13.6	17.0	14.9	17.9	12.8	11.6	10.7	7.5	12.2	13.2	13.8	11.9	10.7	13.1	11.0	15.1	14.5
Black	40.4	44.3	36.1	46.6	40.9	36.2	38.5	39.2	32.9	28.3	25.9	29.5	27.7	22.6	29.4	28.4	24.3	29.4



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	22.5	23.0	19.6	24.7	24.9	20.2	19.9	19.3	15.5	17.3	17.6	18.8	17.3	14.8	17.7	17.1	18.3	20.3
Male	21.9	23.4	17.0	29.0	25.6	22.8	18.9	16.3	17.8	17.3	18.5	22.1	19.1	14.8	21.5	22.6	25.2	23.8
Female	22.5	22.2	20.8	20.3	23.9	18.1	20.3	20.5	12.8	16.7	17.1	15.5	15.1	14.1	14.4	12.6	12.4	16.7

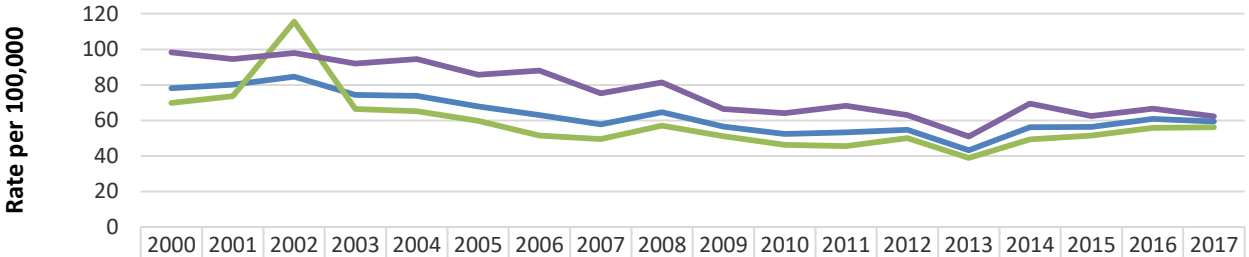


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	44.0	45.4	34.1	60.1	51.3	54.4	42.5	35.3	41.7	33.7	34.9	31.8	36.0	22.0	38.2	39.6	34.8	40.2
White Male	22.5	23.0	19.6	24.7	24.9	20.2	19.9	19.3	15.5	17.3	17.6	18.8	17.3	14.8	17.7	17.1	18.3	20.3
Black Female	37.9	43.1	36.5	35.9	37.0	25.6	36.6	40.2	25.5	23.7	22.0	26.9	21.0	21.9	23.8	20.5	16.7	21.4
White Female	15.3	12.7	12.7	13.3	17.8	14.4	12.3	11.5	6.7	13.3	13.5	9.6	12.3	10.1	10.1	8.2	9.7	13.8

Cerebrovascular Disease Mortality

Cerebrovascular disease includes all disorders in which an area of the brain is temporarily or permanently damaged due to ischemia or bleeding from one or more of the cerebral blood vessels. Cerebrovascular disease includes stroke, aneurysm, and vascular malformations. Cerebrovascular disease also includes vertebral, carotid and intracranial stenosis. Cerebrovascular disease mortality was the third leading cause of death in Jefferson County during in 2017. Since 2012, the overall cerebrovascular disease mortality rates increased to the 2017 rate of 59.5 deaths per 100,000 population. Cerebrovascular disease mortality rates have trended downward over the past 17 years for the black and white sub-populations. The black sub-populations rate of death from cerebrovascular disease has consistently remained higher than for the white sub-population; however, between 2012 and 2017, the disparity in rates diminished. Among individuals of other races, cerebrovascular disease mortality rates fluctuated, and no trend can be determined at this time.

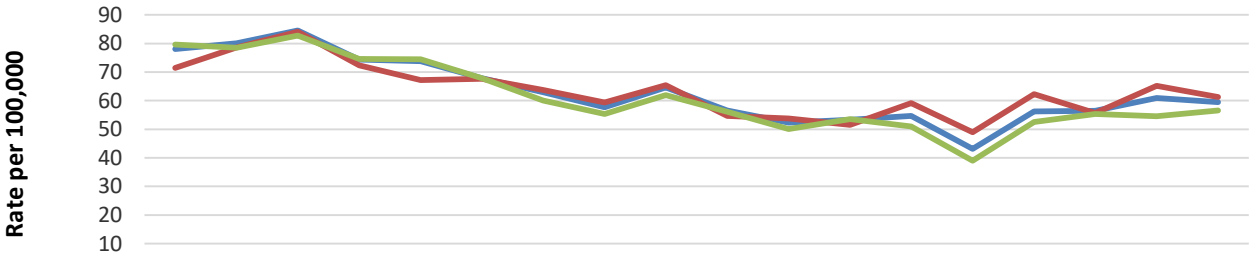
Cerebrovascular Disease Mortality per 100,000 Jefferson County Residents by Race 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	78.1	80.1	84.6	74.3	73.8	67.9	62.9	57.7	64.6	56.6	52.4	53.4	54.7	43.1	56.2	56.4	60.9	59.5
White	69.9	73.7	115.5	66.5	65.2	59.8	51.6	49.5	57.1	51.2	46.2	45.6	50.1	39.0	49.4	51.6	55.8	56.2
Black	98.3	94.5	98.0	91.9	94.5	85.6	88.0	75.3	81.4	66.4	64.1	68.3	63.0	50.9	69.5	62.4	66.6	62.3

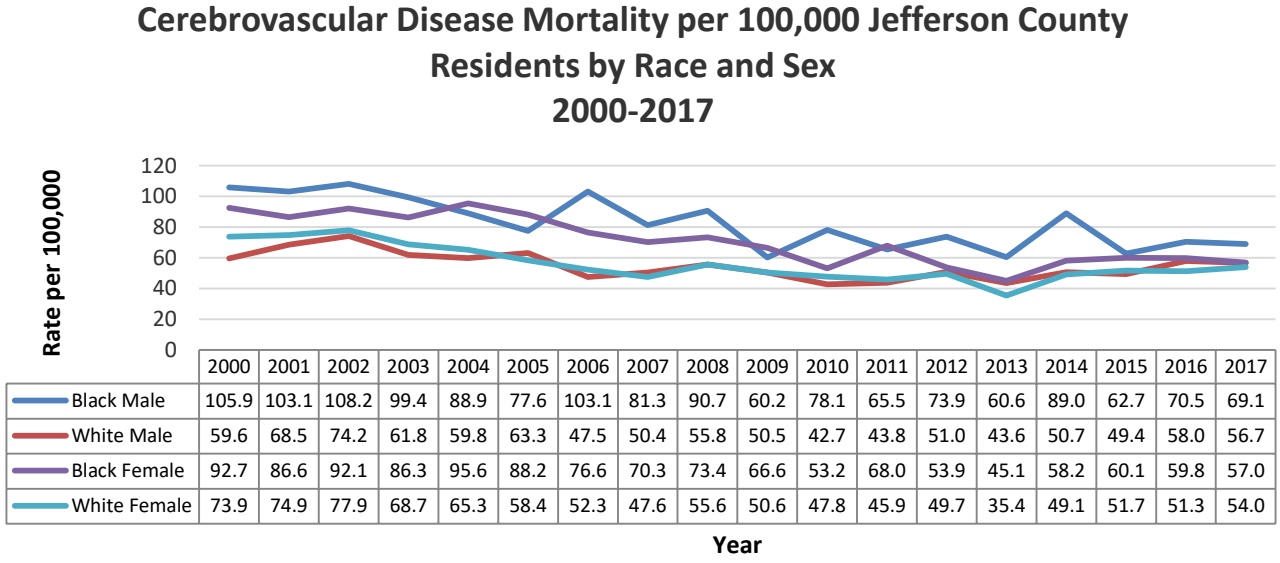
Year

Cerebrovascular Disease Mortality per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	78.1	80.1	84.6	74.3	73.8	67.9	62.9	57.7	64.6	56.6	52.4	53.4	54.7	43.1	56.2	56.4	60.9	59.5
Male	71.5	78.7	84.1	72.4	67.3	67.7	63.7	59.4	65.4	54.6	53.8	51.5	59.1	49.0	62.3	55.7	65.2	61.3
Female	79.6	78.5	82.8	74.6	74.4	67.9	60.1	55.4	62.0	56.1	50.1	53.6	51.0	39.0	52.5	55.4	54.5	56.6

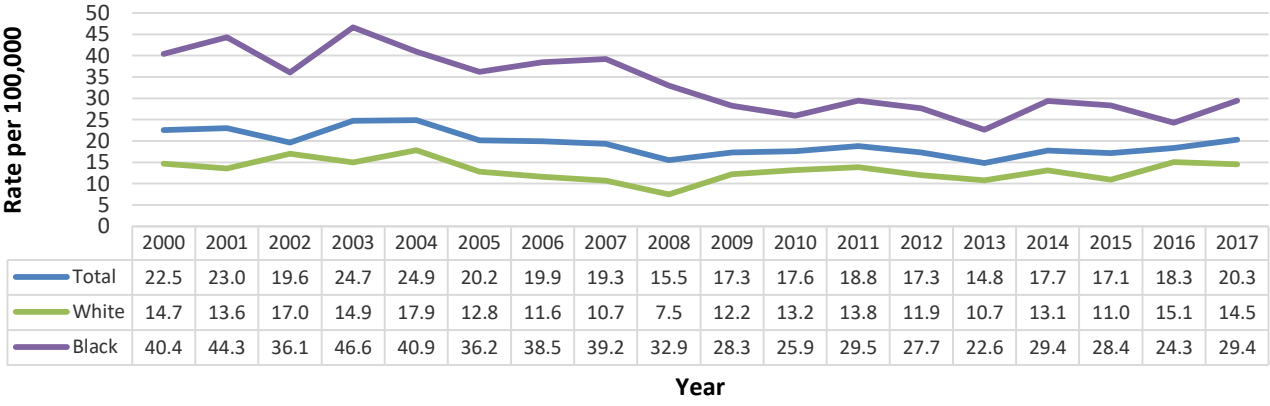
Year



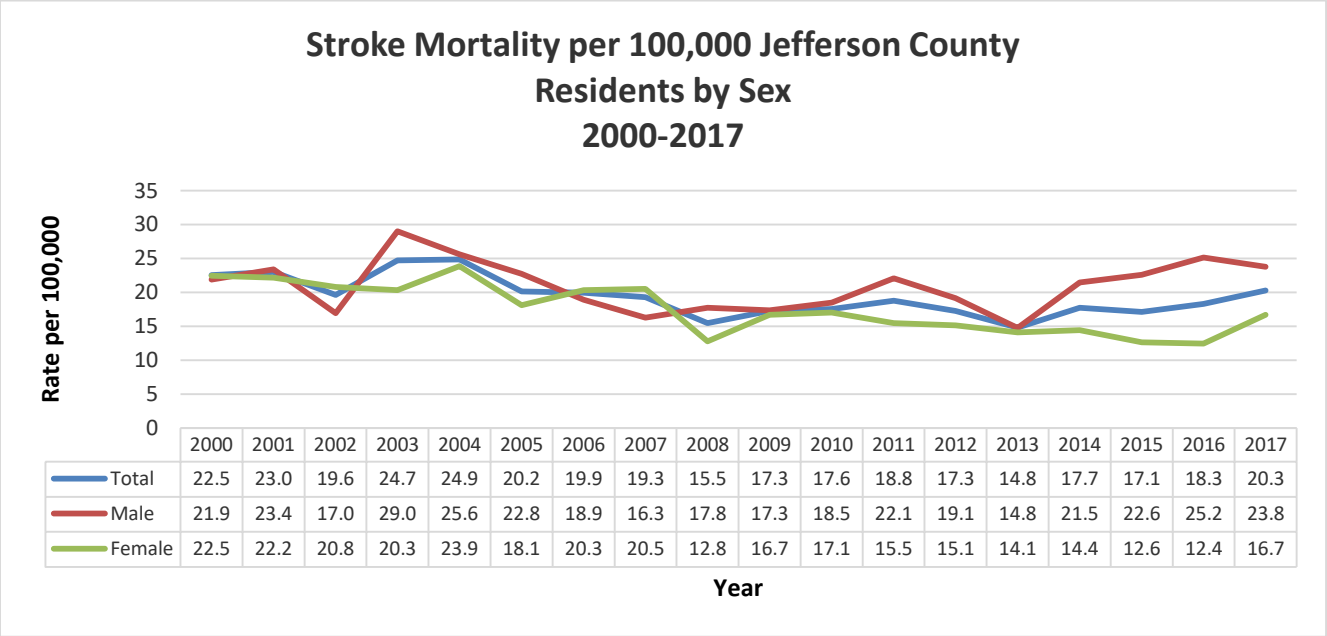
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	105.9	103.1	108.2	99.4	88.9	77.6	103.1	81.3	90.7	60.2	78.1	65.5	73.9	60.6	89.0	62.7	70.5	69.1
White Male	59.6	68.5	74.2	61.8	59.8	63.3	47.5	50.4	55.8	50.5	42.7	43.8	51.0	43.6	50.7	49.4	58.0	56.7
Black Female	92.7	86.6	92.1	86.3	95.6	88.2	76.6	70.3	73.4	66.6	53.2	68.0	53.9	45.1	58.2	60.1	59.8	57.0
White Female	73.9	74.9	77.9	68.7	65.3	58.4	52.3	47.6	55.6	50.6	47.8	45.9	49.7	35.4	49.1	51.7	51.3	54.0

Stroke Mortality

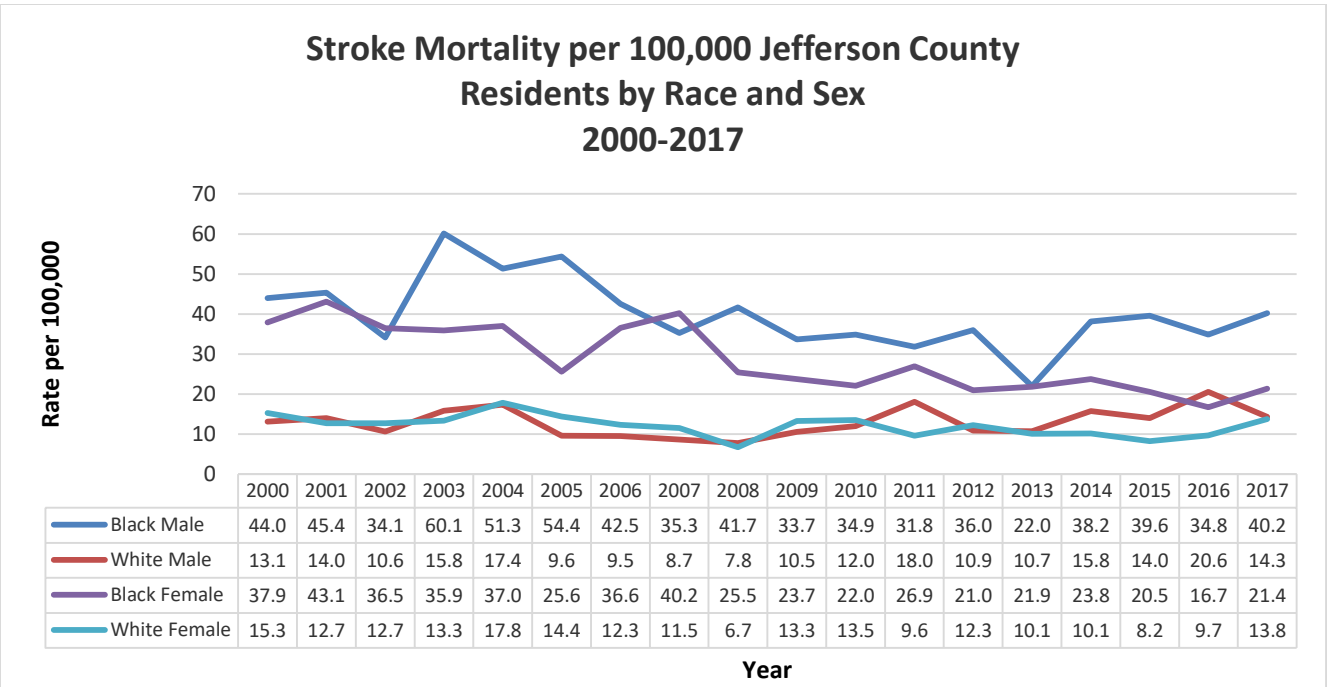
Stroke is the leading cause of cerebrovascular disease mortality in the United States. Overall stroke mortality has increased in Jefferson County since 2013. The stroke mortality rate was higher in the black sub-population and, since 2014, among males.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	22.5	23.0	19.6	24.7	24.9	20.2	19.9	19.3	15.5	17.3	17.6	18.8	17.3	14.8	17.7	17.1	18.3	20.3
White	14.7	13.6	17.0	14.9	17.9	12.8	11.6	10.7	7.5	12.2	13.2	13.8	11.9	10.7	13.1	11.0	15.1	14.5
Black	40.4	44.3	36.1	46.6	40.9	36.2	38.5	39.2	32.9	28.3	25.9	29.5	27.7	22.6	29.4	28.4	24.3	29.4



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	22.5	23.0	19.6	24.7	24.9	20.2	19.9	19.3	15.5	17.3	17.6	18.8	17.3	14.8	17.7	17.1	18.3	20.3
Male	21.9	23.4	17.0	29.0	25.6	22.8	18.9	16.3	17.8	17.3	18.5	22.1	19.1	14.8	21.5	22.6	25.2	23.8
Female	22.5	22.2	20.8	20.3	23.9	18.1	20.3	20.5	12.8	16.7	17.1	15.5	15.1	14.1	14.4	12.6	12.4	16.7

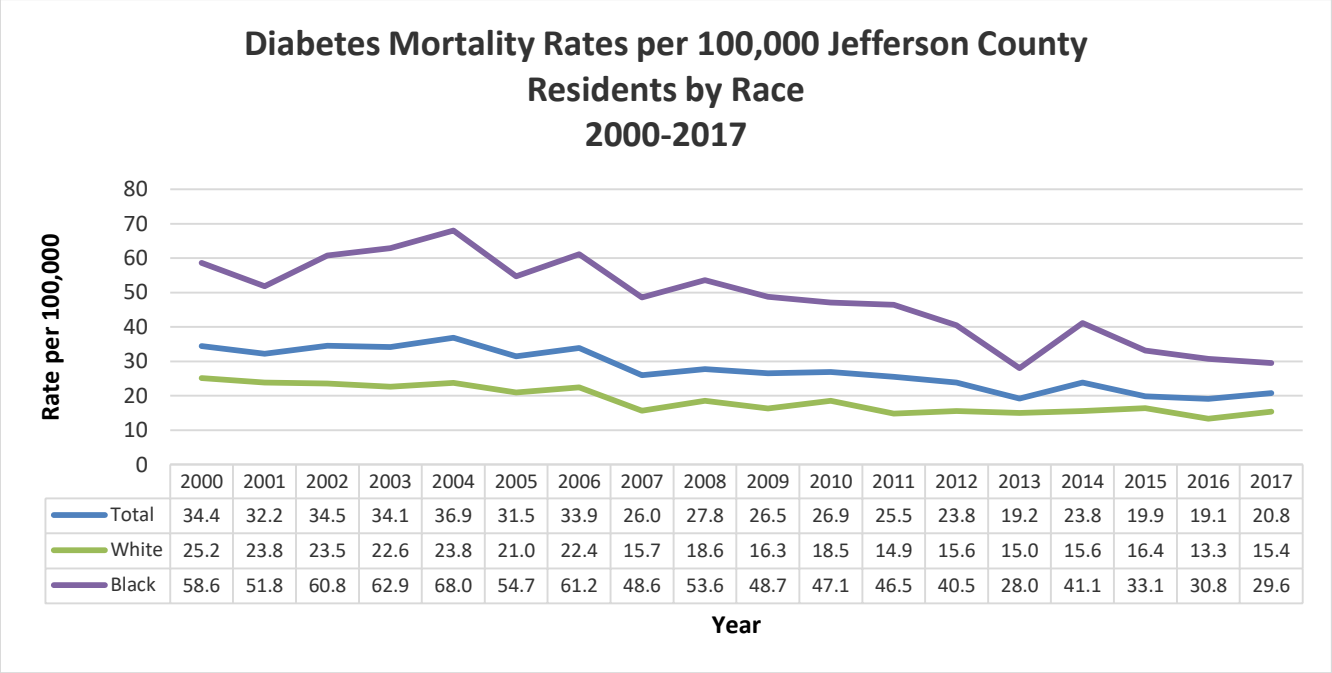


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	44.0	45.4	34.1	60.1	51.3	54.4	42.5	35.3	41.7	33.7	34.9	31.8	36.0	22.0	38.2	39.6	34.8	40.2
White Male	13.1	14.0	10.6	15.8	17.4	9.6	9.5	8.7	7.8	10.5	12.0	18.0	10.9	10.7	15.8	14.0	20.6	14.3
Black Female	37.9	43.1	36.5	35.9	37.0	25.6	36.6	40.2	25.5	23.7	22.0	26.9	21.0	21.9	23.8	20.5	16.7	21.4
White Female	15.3	12.7	12.7	13.3	17.8	14.4	12.3	11.5	6.7	13.3	13.5	9.6	12.3	10.1	10.1	8.2	9.7	13.8

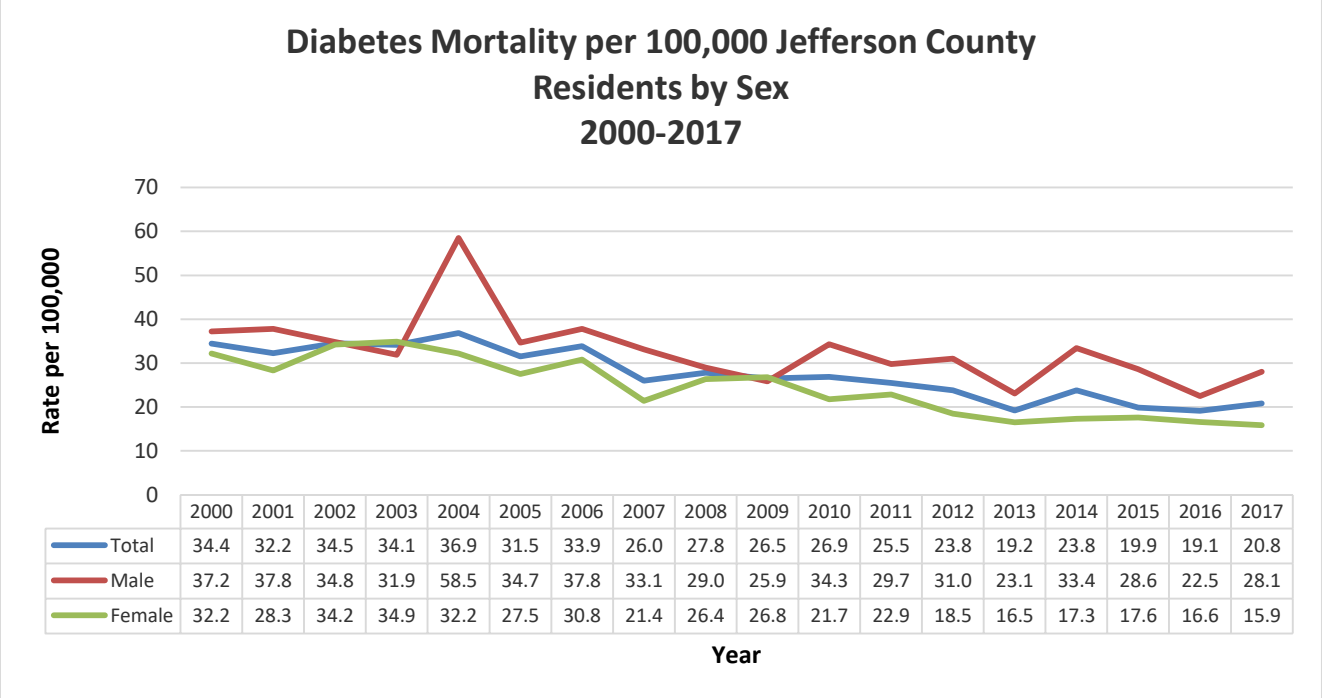
Diabetes Mortality

Diabetes is a group of diseases that affect how the body uses and metabolizes blood glucose. Diabetes mortality rate demonstrated a declining trend beginning in 2004, to the overall 2017 Diabetes mortality rate at 20.8 deaths per 100,000 population. Death rates from diabetes in 2017 demonstrated a 12.6%

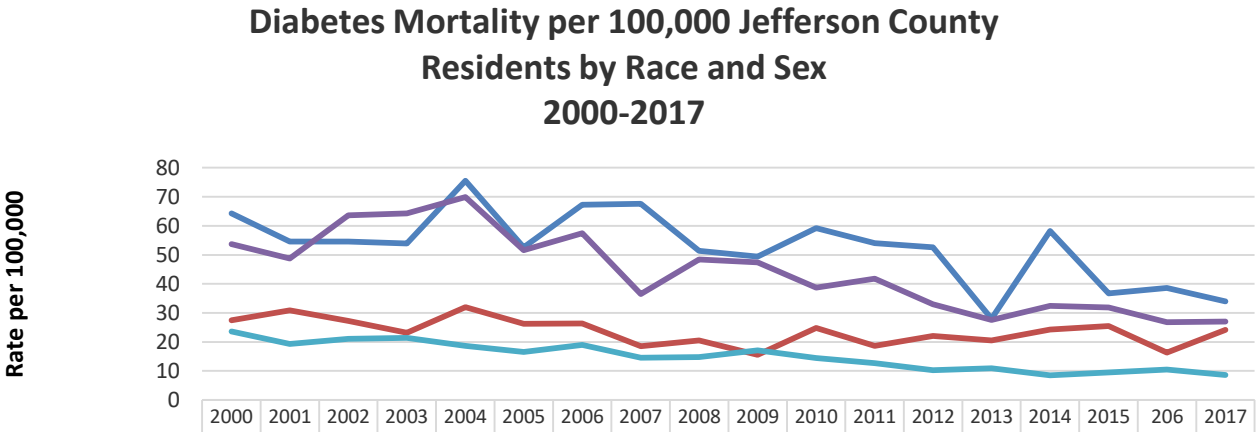
relative percent decrease from the 2012 death rate. Additionally, the race-based disparity between the black and white sub-populations between 2012 and 2017 narrowed by more than 10 deaths per 100,000 population. However, the disparity in diabetes death rates between black and white sub-populations in 2017 was statistically significant. Since 2010, a greater percentage of males have died from diabetes than females.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	34.4	32.2	34.5	34.1	36.9	31.5	33.9	26.0	27.8	26.5	26.9	25.5	23.8	19.2	23.8	19.9	19.1	20.8
White	25.2	23.8	23.5	22.6	23.8	21.0	22.4	15.7	18.6	16.3	18.5	14.9	15.6	15.0	15.6	16.4	13.3	15.4
Black	58.6	51.8	60.8	62.9	68.0	54.7	61.2	48.6	53.6	48.7	47.1	46.5	40.5	28.0	41.1	33.1	30.8	29.6



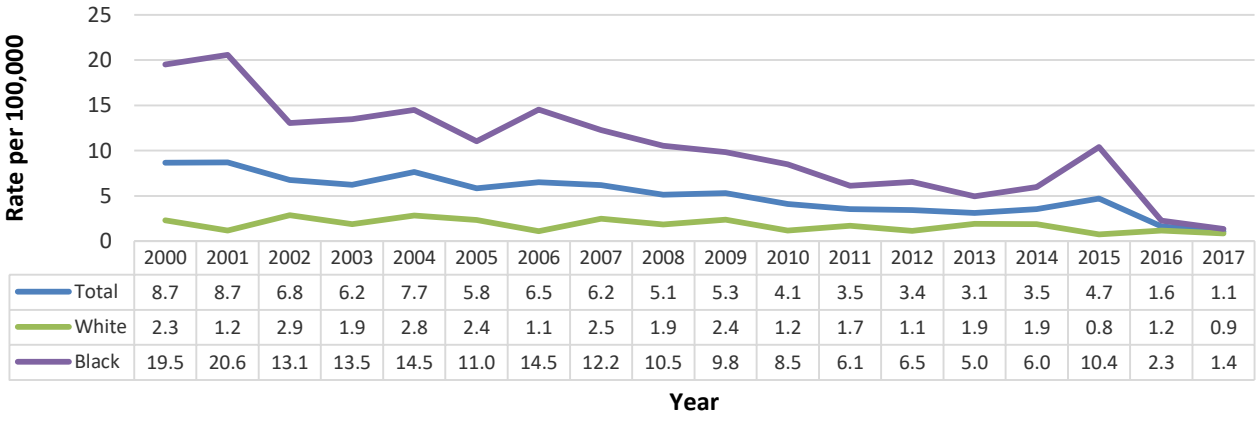
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	34.4	32.2	34.5	34.1	36.9	31.5	33.9	26.0	27.8	26.5	26.9	25.5	23.8	19.2	23.8	19.9	19.1	20.8
Male	37.2	37.8	34.8	31.9	58.5	34.7	37.8	33.1	29.0	25.9	34.3	29.7	31.0	23.1	33.4	28.6	22.5	28.1
Female	32.2	28.3	34.2	34.9	32.2	27.5	30.8	21.4	26.4	26.8	21.7	22.9	18.5	16.5	17.3	17.6	16.6	15.9



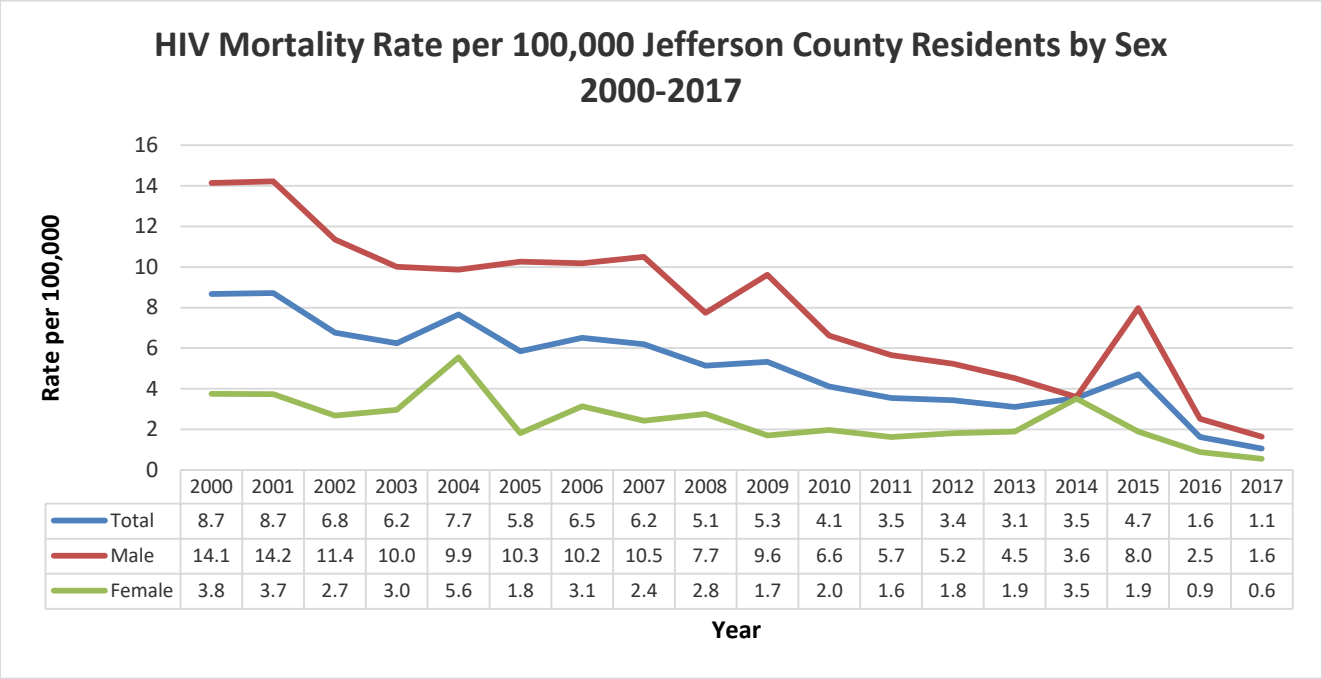
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	206	2017
Black Male	64.3	54.6	54.5	53.9	75.6	52.6	67.2	67.6	51.3	49.4	59.2	54.0	52.6	28.0	58.3	36.7	38.6	34.0
White Male	27.5	30.9	27.3	23.2	32.0	26.2	26.4	18.5	20.5	15.6	24.8	18.6	22.1	20.5	24.3	25.5	16.3	24.2
Black Female	53.7	48.8	63.6	64.3	69.9	51.7	57.4	36.5	48.4	47.4	38.7	41.8	33.0	27.5	32.4	31.8	26.8	27.0
White Female	23.6	19.3	21.0	21.4	18.7	16.6	19.0	14.6	14.8	17.1	14.5	12.7	10.3	10.9	8.5	9.5	10.5	8.7

HIV Mortality

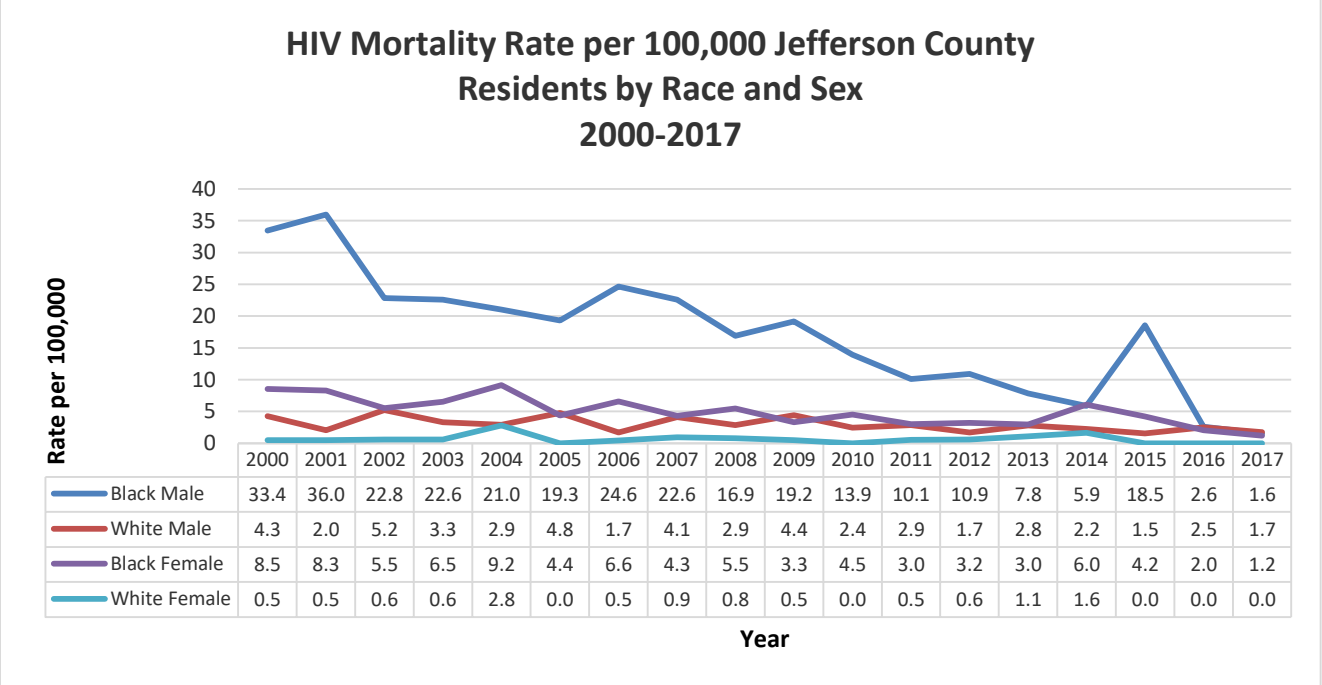
The Human Immunodeficiency Virus (HIV) is a sexually transmitted infection impacting the health of an individual. Overall in Jefferson County, HIV mortality has statistically significantly decreased by 67.6% (relative percent change) from the 2012 rate of 3.4 deaths per 100,000 population to the 2017 rate of 1.1 deaths per 100,000 population. Much of this decrease has occurred within the black sub-population, especially among black males.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	8.7	8.7	6.8	6.2	7.7	5.8	6.5	6.2	5.1	5.3	4.1	3.5	3.4	3.1	3.5	4.7	1.6	1.1
White	2.3	1.2	2.9	1.9	2.8	2.4	1.1	2.5	1.9	2.4	1.2	1.7	1.1	1.9	1.9	0.8	1.2	0.9
Black	19.5	20.6	13.1	13.5	14.5	11.0	14.5	12.2	10.5	9.8	8.5	6.1	6.5	5.0	6.0	10.4	2.3	1.4



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	8.7	8.7	6.8	6.2	7.7	5.8	6.5	6.2	5.1	5.3	4.1	3.5	3.4	3.1	3.5	4.7	1.6	1.1
Male	14.1	14.2	11.4	10.0	9.9	10.3	10.2	10.5	7.7	9.6	6.6	5.7	5.2	4.5	3.6	8.0	2.5	1.6
Female	3.8	3.7	2.7	3.0	5.6	1.8	3.1	2.4	2.8	1.7	2.0	1.6	1.8	1.9	3.5	1.9	0.9	0.6

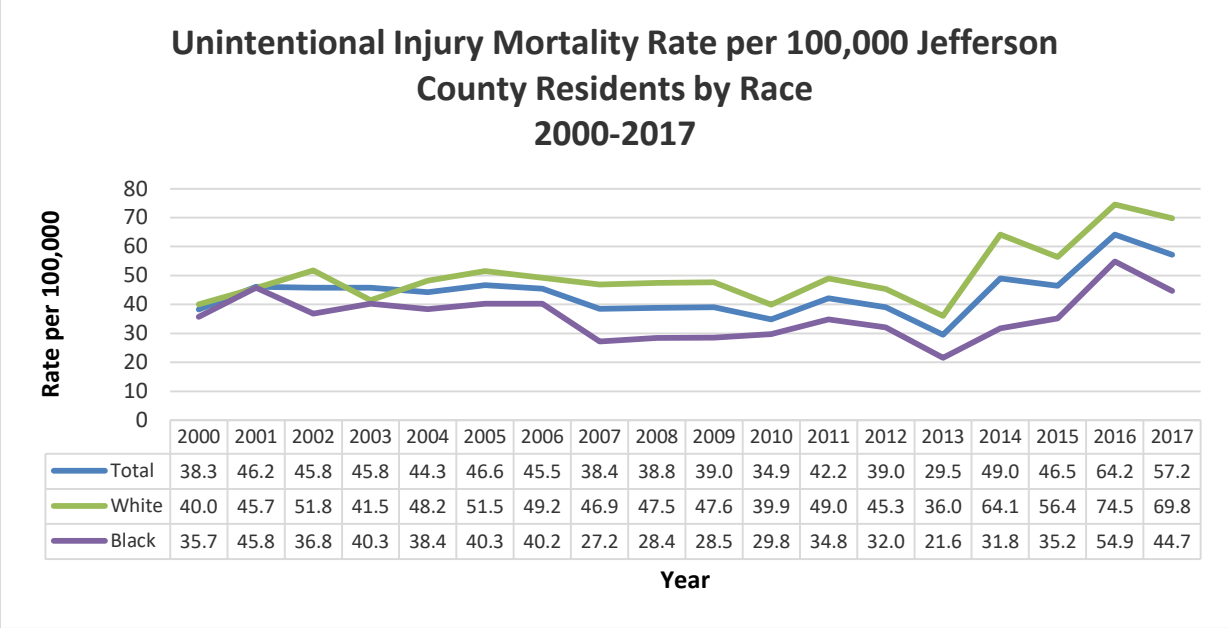


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	33.4	36.0	22.8	22.6	21.0	19.3	24.6	22.6	16.9	19.2	13.9	10.1	10.9	7.8	5.9	18.5	2.6	1.6
White Male	4.3	2.0	5.2	3.3	2.9	4.8	1.7	4.1	2.9	4.4	2.4	2.9	1.7	2.8	2.2	1.5	2.5	1.7
Black Female	8.5	8.3	5.5	6.5	9.2	4.4	6.6	4.3	5.5	3.3	4.5	3.0	3.2	3.0	6.0	4.2	2.0	1.2
White Female	0.5	0.5	0.6	0.6	2.8	0.0	0.5	0.9	0.8	0.5	0.0	0.5	0.6	1.1	1.6	0.0	0.0	0.0

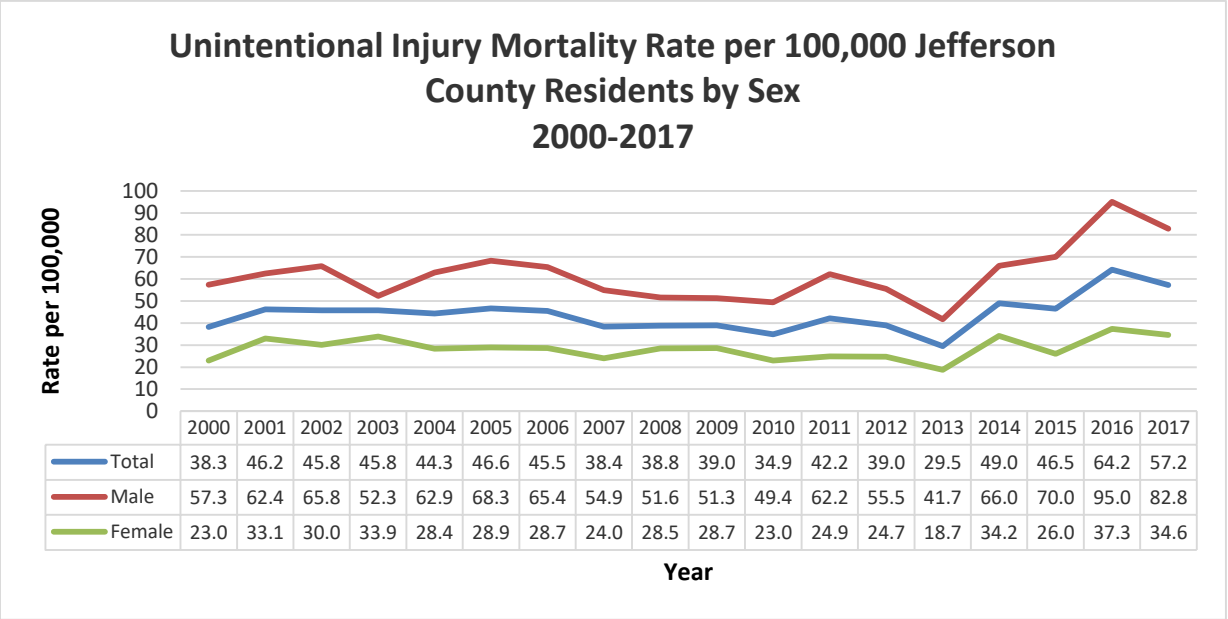
Unintentional Injury Mortality

Unintentional injury mortality is any death due to an accident that is not coded as a homicide or suicide. The 2017 mortality rate of 57.2 per 100,000 population represents a 46.7% higher relative percent change from the 2012 rate of 39.0 per 100,000 population. Rates of unintentional injury mortality

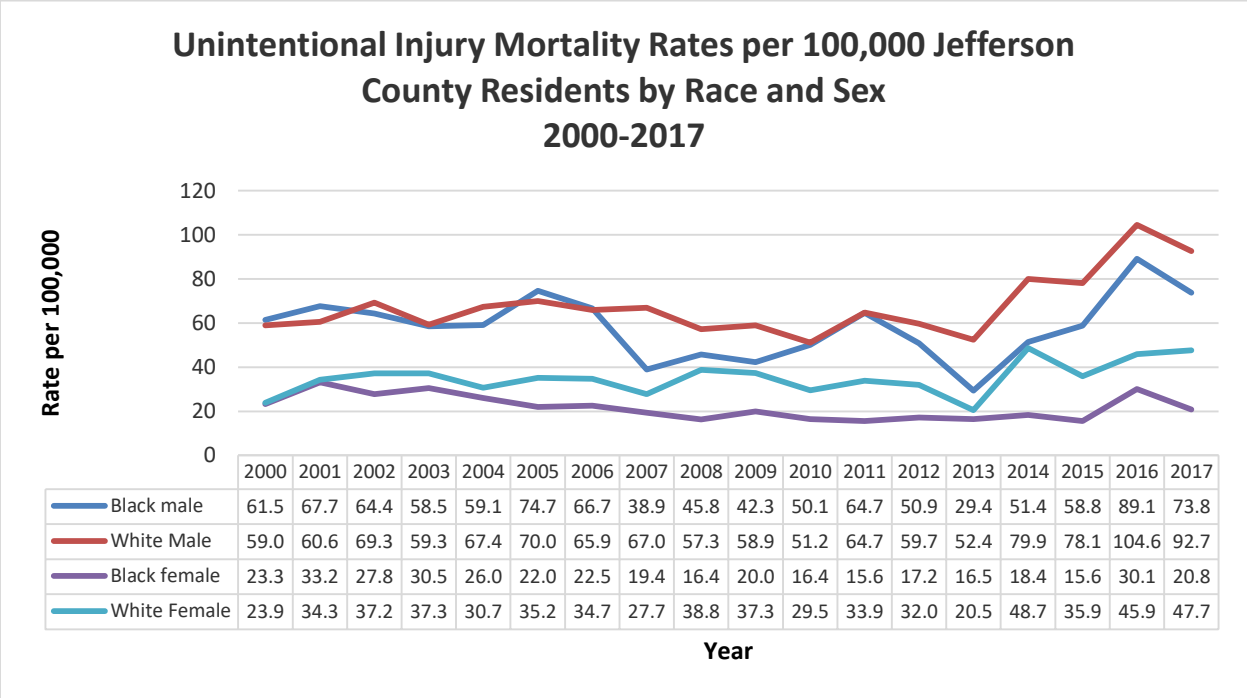
remained consistently higher among males than females from 2000-2017. Both the black and white sub-populations demonstrated higher death rates from unintentional injuries in 2017 as compared to 2012, and the change in mortality rate between the two years reached statistical significance for the population overall and for the white sub-population. Additionally, the disparity in death rates between the white and black sub-populations increased between 2012 and 2017. A major contributing factor to the increased overall death rate from unintentional injuries has been the substantial increase in drug-related deaths.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	38.3	46.2	45.8	45.8	44.3	46.6	45.5	38.4	38.8	39.0	34.9	42.2	39.0	29.5	49.0	46.5	64.2	57.2
White	40.0	45.7	51.8	41.5	48.2	51.5	49.2	46.9	47.5	47.6	39.9	49.0	45.3	36.0	64.1	56.4	74.5	69.8
Black	35.7	45.8	36.8	40.3	38.4	40.3	40.2	27.2	28.4	28.5	29.8	34.8	32.0	21.6	31.8	35.2	54.9	44.7



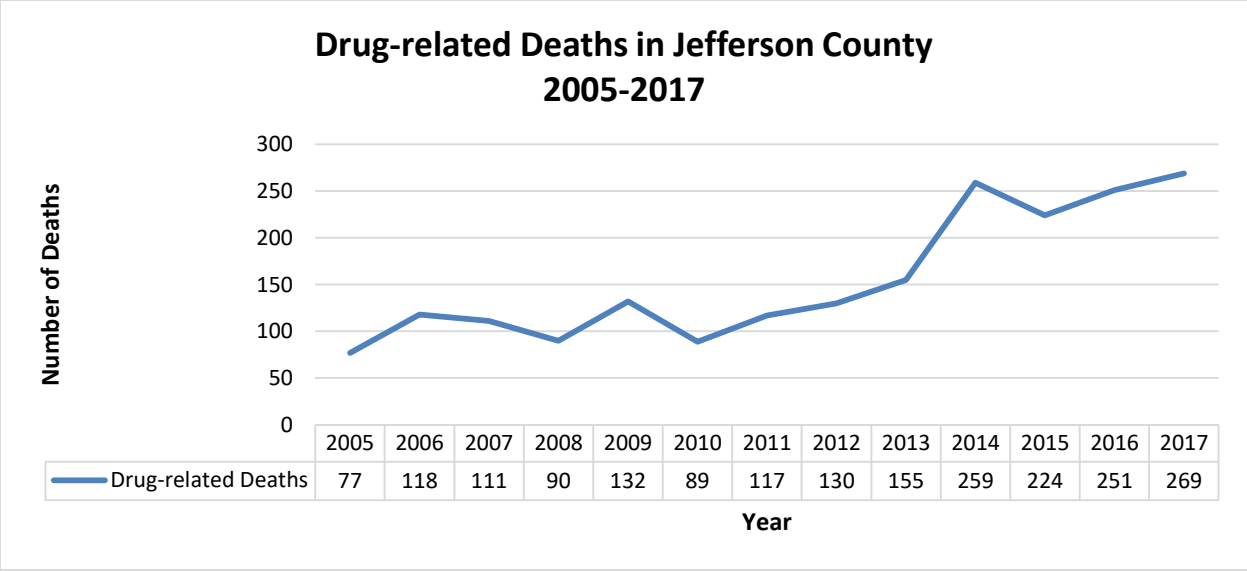
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	38.3	46.2	45.8	45.8	44.3	46.6	45.5	38.4	38.8	39.0	34.9	42.2	39.0	29.5	49.0	46.5	64.2	57.2
Male	57.3	62.4	65.8	52.3	62.9	68.3	65.4	54.9	51.6	51.3	49.4	62.2	55.5	41.7	66.0	70.0	95.0	82.8
Female	23.0	33.1	30.0	33.9	28.4	28.9	28.7	24.0	28.5	28.7	23.0	24.9	24.7	18.7	34.2	26.0	37.3	34.6



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black male	61.5	67.7	64.4	58.5	59.1	74.7	66.7	38.9	45.8	42.3	50.1	64.7	50.9	29.4	51.4	58.8	89.1	73.8
White Male	59.0	60.6	69.3	59.3	67.4	70.0	65.9	67.0	57.3	58.9	51.2	64.7	59.7	52.4	79.9	78.1	104.6	92.7
Black female	23.3	33.2	27.8	30.5	26.0	22.0	22.5	19.4	16.4	20.0	16.4	15.6	17.2	16.5	18.4	15.6	30.1	20.8
White Female	23.9	34.3	37.2	37.3	30.7	35.2	34.7	27.7	38.8	37.3	29.5	33.9	32.0	20.5	48.7	35.9	45.9	47.7

Drug-related Deaths

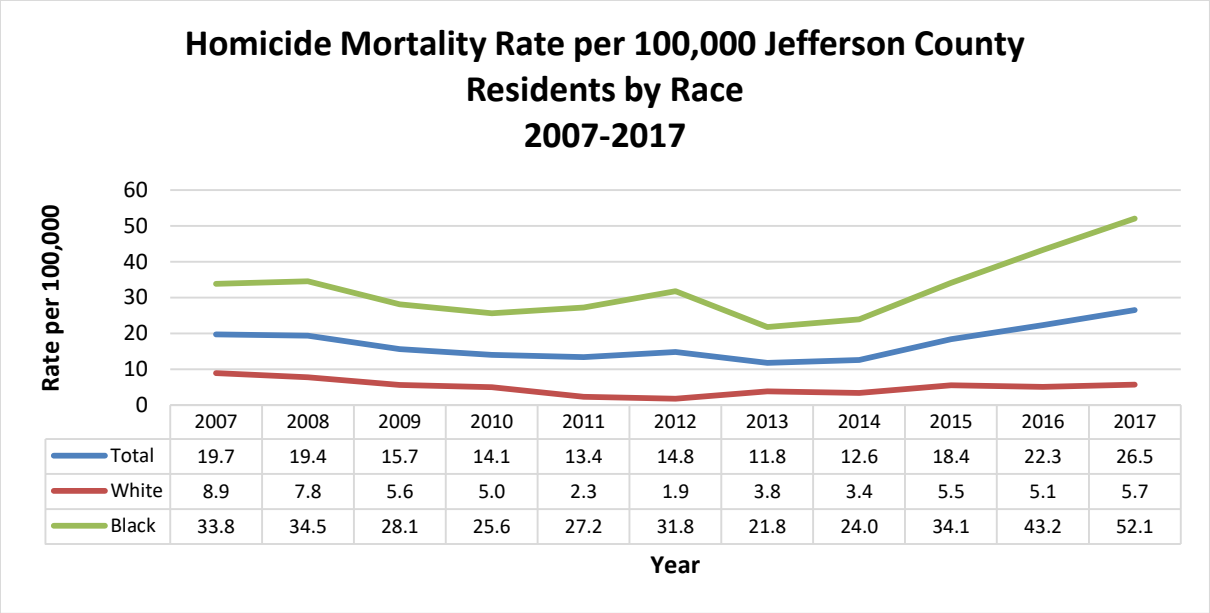
The number of drug-related deaths in Jefferson County doubled between 2012 and 2017. This increase in drug-related deaths contributed to lower life expectancy as well as an increased rate of unintentional injury mortality.



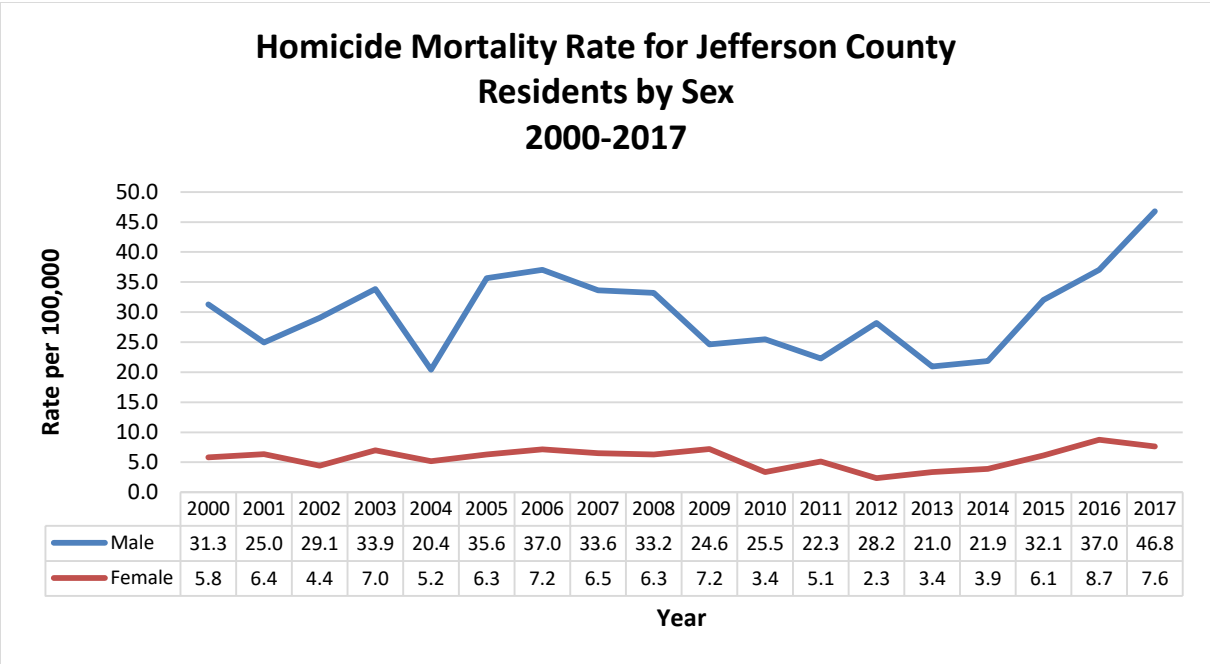
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Drug-related Deaths	77	118	111	90	132	89	117	130	155	259	224	251	269

Homicide Mortality

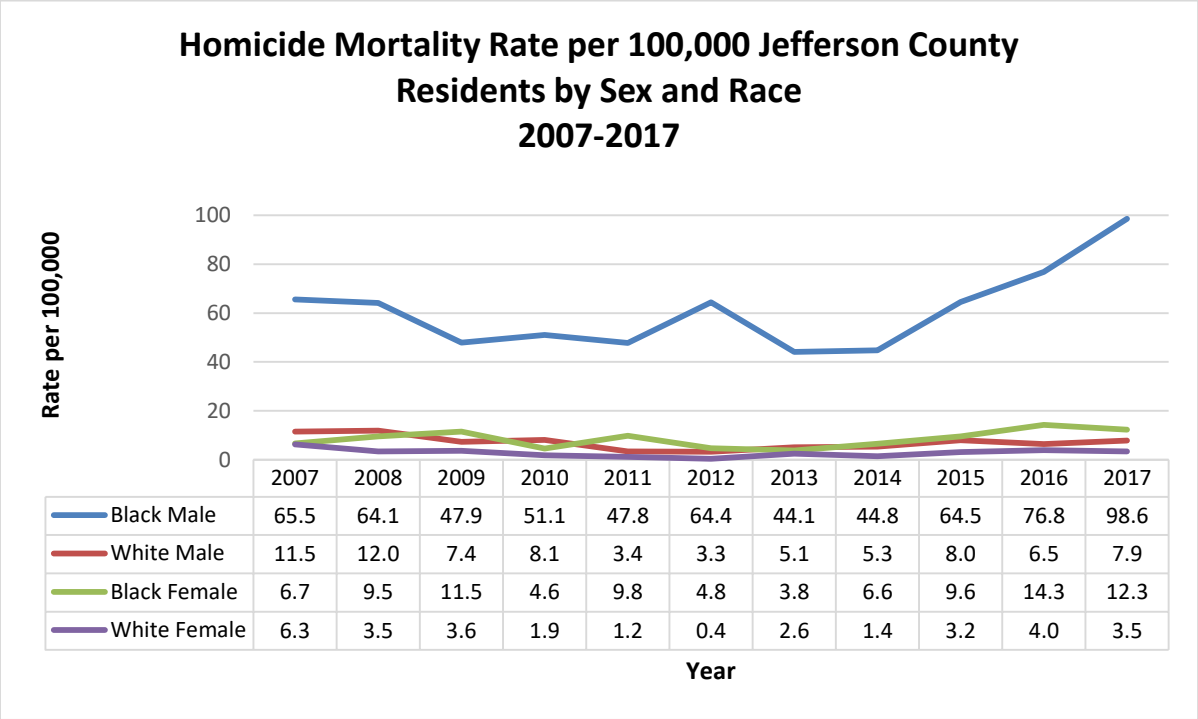
Overall homicide mortality rates in Jefferson County increased statistically significantly from 14.8 in 2012 to 26.5 in 2017. The black, white, and male sub-populations exhibited increased rates during this time frame. The rate increase in the black sub-population was reached statistical significance during this time frame.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	19.7	19.4	15.7	14.1	13.4	14.8	11.8	12.6	18.4	22.3	26.5
White	8.9	7.8	5.6	5.0	2.3	1.9	3.8	3.4	5.5	5.1	5.7
Black	33.8	34.5	28.1	25.6	27.2	31.8	21.8	24.0	34.1	43.2	52.1



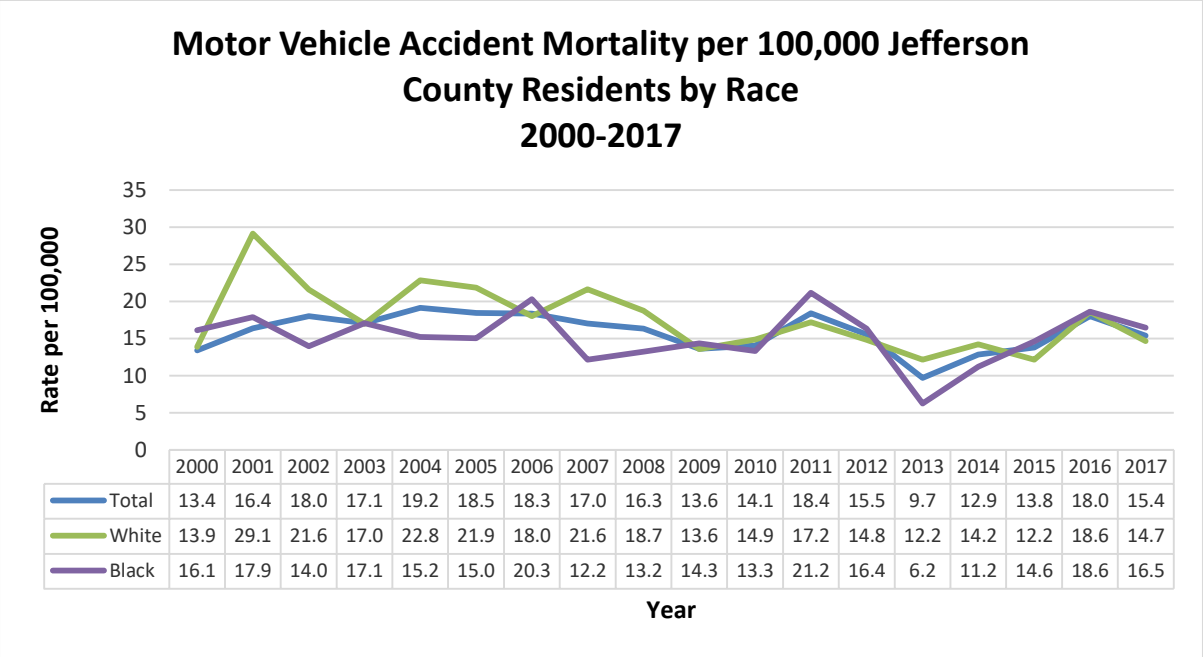
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Male	31.3	25.0	29.1	33.9	20.4	35.6	37.0	33.6	33.2	24.6	25.5	22.3	28.2	21.0	21.9	32.1	37.0	46.8
Female	5.8	6.4	4.4	7.0	5.2	6.3	7.2	6.5	6.3	7.2	3.4	5.1	2.3	3.4	3.9	6.1	8.7	7.6



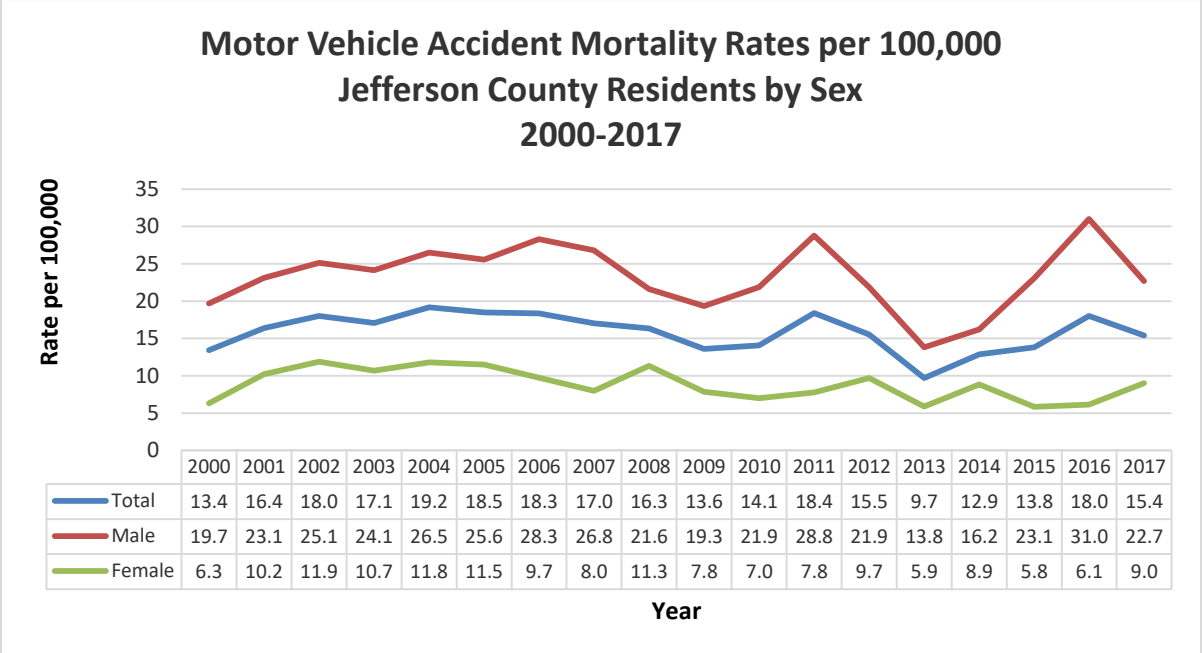
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	65.5	64.1	47.9	51.1	47.8	64.4	44.1	44.8	64.5	76.8	98.6
White Male	11.5	12.0	7.4	8.1	3.4	3.3	5.1	5.3	8.0	6.5	7.9
Black Female	6.7	9.5	11.5	4.6	9.8	4.8	3.8	6.6	9.6	14.3	12.3
White Female	6.3	3.5	3.6	1.9	1.2	0.4	2.6	1.4	3.2	4.0	3.5

Motor Vehicle Accident Mortality

Mortality from motor vehicle accidents in Jefferson County decreased by 0.6% from the 2012 rate of 15.5 per 100,000 population to the 2017 rate of 15.4 per 100,000 population. There was a spike in 2015 with a rate of 18.0 deaths from motor vehicle accidents per 100,000 population. During most years since 2000, the teen death rate from motor vehicle accidents exceeded the rate for the overall population.

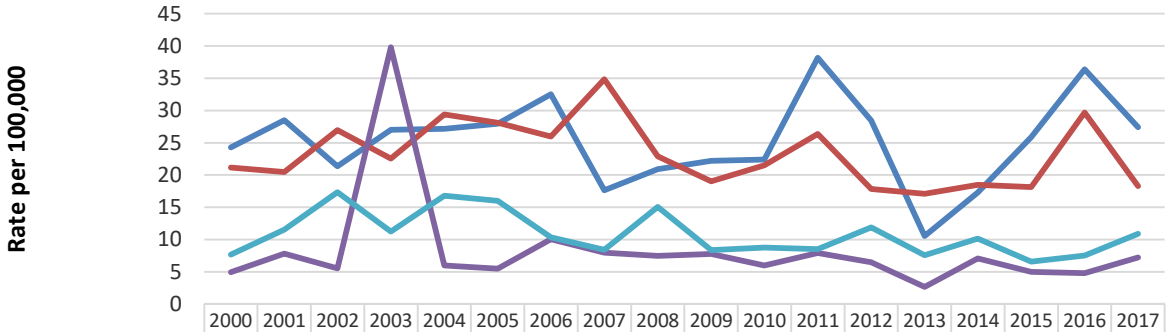


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	13.4	16.4	18.0	17.1	19.2	18.5	18.3	17.0	16.3	13.6	14.1	18.4	15.5	9.7	12.9	13.8	18.0	15.4
White	13.9	29.1	21.6	17.0	22.8	21.9	18.0	21.6	18.7	13.6	14.9	17.2	14.8	12.2	14.2	12.2	18.6	14.7
Black	16.1	17.9	14.0	17.1	15.2	15.0	20.3	12.2	13.2	14.3	13.3	21.2	16.4	6.2	11.2	14.6	18.6	16.5



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	13.4	16.4	18.0	17.1	19.2	18.5	18.3	17.0	16.3	13.6	14.1	18.4	15.5	9.7	12.9	13.8	18.0	15.4
Male	19.7	23.1	25.1	24.1	26.5	25.6	28.3	26.8	21.6	19.3	21.9	28.8	21.9	13.8	16.2	23.1	31.0	22.7
Female	6.3	10.2	11.9	10.7	11.8	11.5	9.7	8.0	11.3	7.8	7.0	7.8	9.7	5.9	8.9	5.8	6.1	9.0

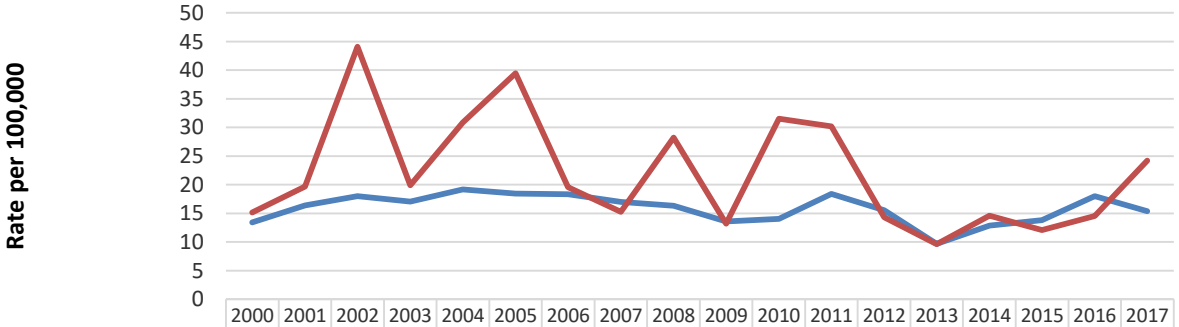
Motor Vehicle Accident Mortality Rate per 100,000 Jefferson County Residents by Race and Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	24.3	28.5	21.3	27.0	27.2	27.9	32.5	17.6	20.9	22.2	22.4	38.2	28.4	10.6	17.3	25.9	36.4	27.4
White Male	21.2	20.5	27.0	22.5	29.4	28.1	26.0	34.9	22.9	19.0	21.5	26.4	17.8	17.1	18.5	18.1	29.7	18.3
Black Female	4.9	7.8	5.5	39.8	6.0	5.5	10.1	8.0	7.4	7.8	6.0	7.9	6.5	2.7	7.0	5.0	4.8	7.2
White Female	7.7	11.5	17.3	11.2	16.8	16.0	10.3	8.4	15.1	8.3	8.7	8.5	11.9	7.6	10.1	6.6	7.5	10.9

Year

Motor Vehicle Accident Mortality Rate per 100,000 Among Teens Ages 15 to 19 2000-2017

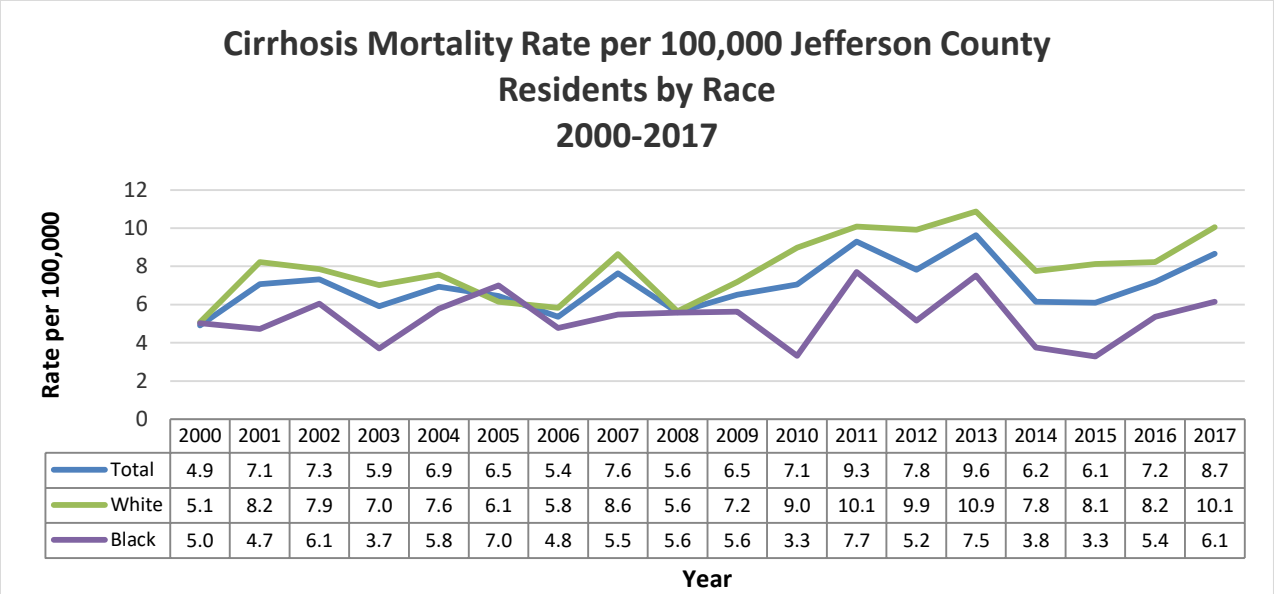


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	13.4	16.4	18.0	17.1	19.2	18.5	18.3	17.0	16.3	13.6	14.1	18.4	15.5	9.7	12.9	13.8	18.0	15.4
Teen Ages 15-19	15.2	19.7	44.1	19.9	30.9	39.4	19.6	15.3	28.3	13.2	31.5	30.2	14.3	9.6	14.6	12.1	14.5	24.2

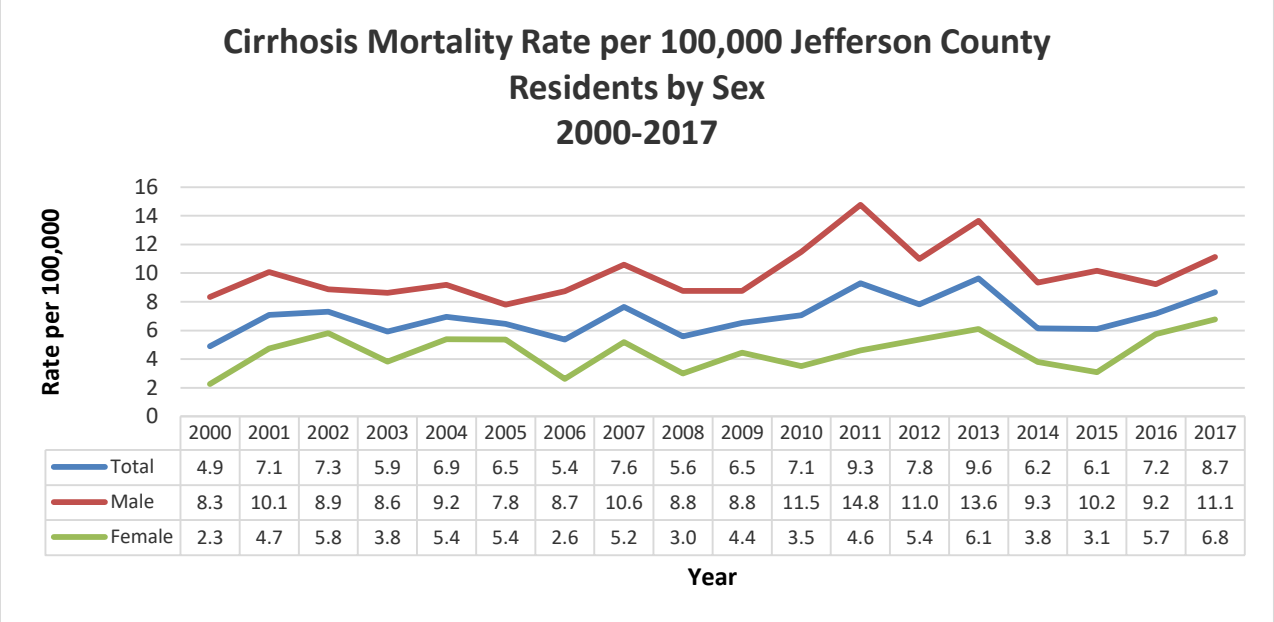
Year

Cirrhosis Mortality

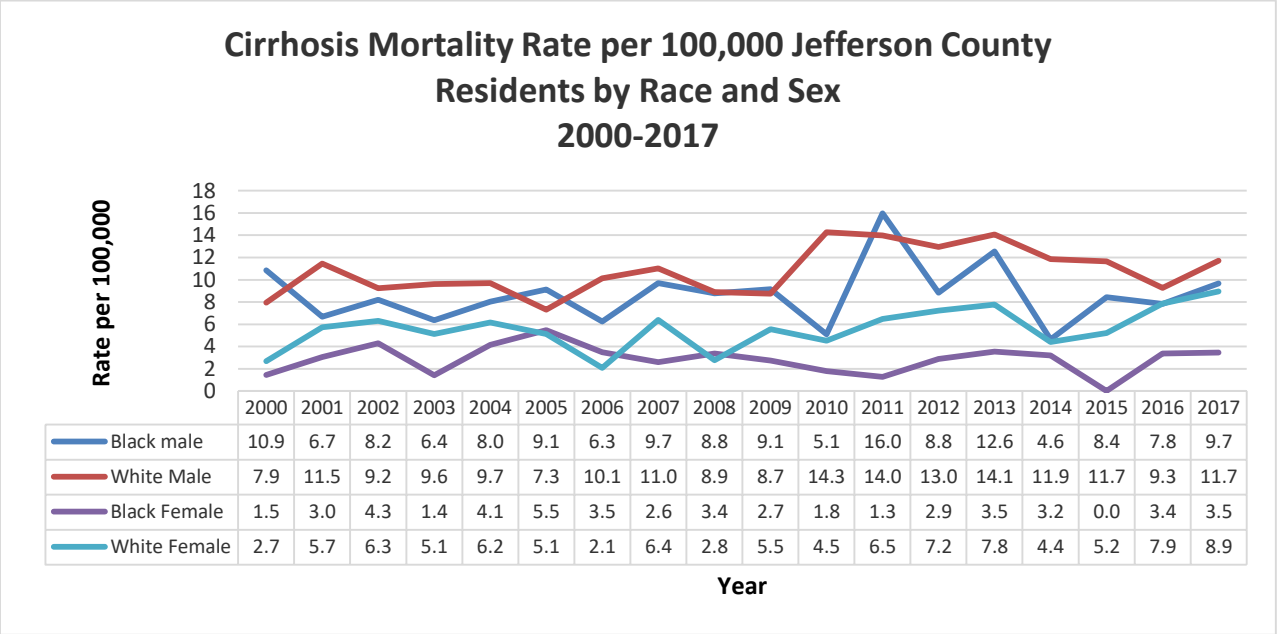
Cirrhosis of the liver is linked to alcoholism and other liver-related diseases, including Hepatitis. Cirrhosis mortality within Jefferson County increased 11.5% from the 2012 rate of 7.8 per 100,000 population to the 2017 rate of 8.7 per 100,000 population. Mortality for this disease is typically higher among the white sub-population and among males.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	4.9	7.1	7.3	5.9	6.9	6.5	5.4	7.6	5.6	6.5	7.1	9.3	7.8	9.6	6.2	6.1	7.2	8.7
White	5.1	8.2	7.9	7.0	7.6	6.1	5.8	8.6	5.6	7.2	9.0	10.1	9.9	10.9	7.8	8.1	8.2	10.1
Black	5.0	4.7	6.1	3.7	5.8	7.0	4.8	5.5	5.6	5.6	3.3	7.7	5.2	7.5	3.8	3.3	5.4	6.1



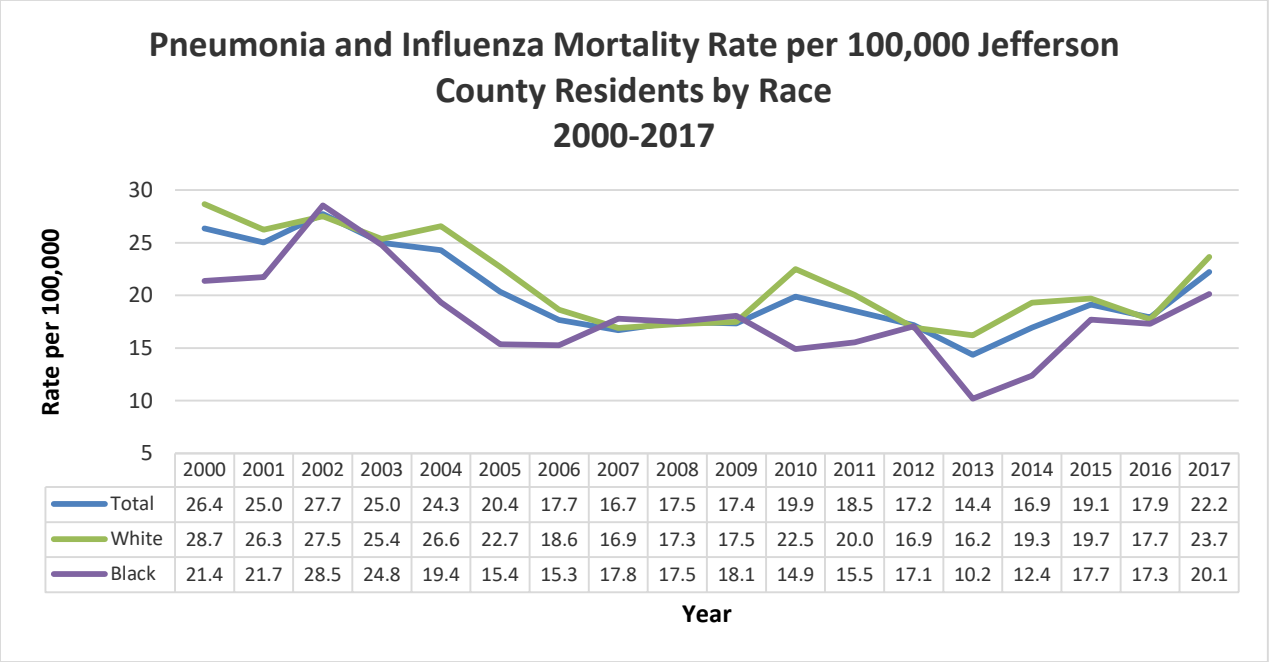
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	4.9	7.1	7.3	5.9	6.9	6.5	5.4	7.6	5.6	6.5	7.1	9.3	7.8	9.6	6.2	6.1	7.2	8.7
Male	8.3	10.1	8.9	8.6	9.2	7.8	8.7	10.6	8.8	8.8	11.5	14.8	11.0	13.6	9.3	10.2	9.2	11.1
Female	2.3	4.7	5.8	3.8	5.4	5.4	2.6	5.2	3.0	4.4	3.5	4.6	5.4	6.1	3.8	3.1	5.7	6.8



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black male	10.9	6.7	8.2	6.4	8.0	9.1	6.3	9.7	8.8	9.1	5.1	16.0	8.8	12.6	4.6	8.4	7.8	9.7
White Male	7.9	11.5	9.2	9.6	9.7	7.3	10.1	11.0	8.9	8.7	14.3	14.0	13.0	14.1	11.9	11.7	9.3	11.7
Black Female	1.5	3.0	4.3	1.4	4.1	5.5	3.5	2.6	3.4	2.7	1.8	1.3	2.9	3.5	3.2	0.0	3.4	3.5
White Female	2.7	5.7	6.3	5.1	6.2	5.1	2.1	6.4	2.8	5.5	4.5	6.5	7.2	7.8	4.4	5.2	7.9	8.9

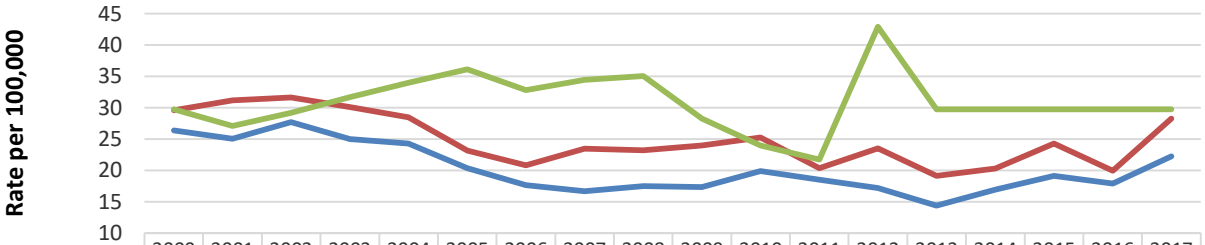
Pneumonia and Influenza Mortality

Pneumonia and influenza were the eighth, tenth and seventh leading cause of death in Jefferson County in 2003, 2012 and 2017, respectively. Rates of pneumonia and influenza mortality have exhibited an increasing trend since 2012, with the 2017 rate of 22.2 deaths per 100,000 population. Pneumonia and influenza mortality rates are generally higher among the female and white sub-populations.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	26.4	25.0	27.7	25.0	24.3	20.4	17.7	16.7	17.5	17.4	19.9	18.5	17.2	14.4	16.9	19.1	17.9	22.2
White	28.7	26.3	27.5	25.4	26.6	22.7	18.6	16.9	17.3	17.5	22.5	20.0	16.9	16.2	19.3	19.7	17.7	23.7
Black	21.4	21.7	28.5	24.8	19.4	15.4	15.3	17.8	17.5	18.1	14.9	15.5	17.1	10.2	12.4	17.7	17.3	20.1

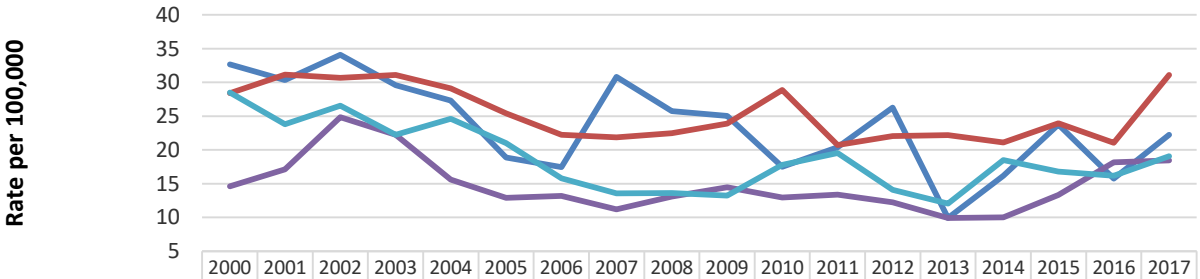
Pneumonia and Influenza Mortality Rate per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	26.4	25.0	27.7	25.0	24.3	20.4	17.7	16.7	17.5	17.4	19.9	18.5	17.2	14.4	16.9	19.1	17.9	22.2
Male	29.6	31.2	31.6	30.1	28.4	23.2	20.8	23.5	23.2	24.0	25.3	20.4	23.5	19.1	20.3	24.3	19.9	28.3
Female	29.8	27.1	29.2	31.7	34.0	36.1	32.8	34.4	35.0	28.3	24.0	21.7	42.9	29.8	29.8	29.8	29.8	29.8

Year

Pneumonia and Influenza Mortality Rate per 100,000 Jefferson County Residents by Race and Sex 2000-2017



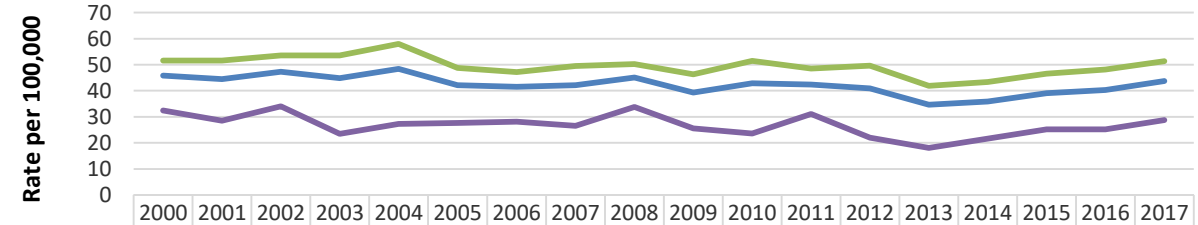
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	32.7	30.3	34.1	29.6	27.3	18.9	17.5	30.8	25.7	25.0	17.5	20.4	26.3	9.9	16.2	23.8	15.8	22.3
White Male	28.4	31.2	30.7	31.1	29.1	25.4	22.2	21.9	22.5	23.9	28.9	20.7	22.0	22.2	21.1	24.0	21.1	31.1
Black Female	14.6	17.1	24.9	22.3	15.6	12.9	13.2	11.2	13.1	14.5	13.0	13.4	12.3	9.9	10.0	13.3	18.2	18.5
White Female	28.5	23.8	26.6	22.3	24.6	21.0	15.8	13.6	13.6	13.2	17.8	19.5	14.1	12.1	18.5	16.8	16.2	19.1

Year

Chronic Obstructive Pulmonary Disease and Allied Disease Mortality

Chronic Obstructive Pulmonary Disease (COPD) is associated with smoking and includes chronic bronchitis, emphysema and chronic obstructive asthma. COPD mortality rates have gradually increased from the 2012 rate of 40.9 per 100,000 population to the 2017 rate of 43.7 per 100,000 population, representing a 6.8% (relative percent change) increase. The white and male sub-population's rates of COPD mortality remained consistently higher than those of the black and female sub-populations between 2000 and 2017. The disparity in death rates from COPD between the white and black sub-populations was reduced by five deaths per 100,000 populations between 2012 and 2017, however, the rate disparity by race was statistically significant in 2017.

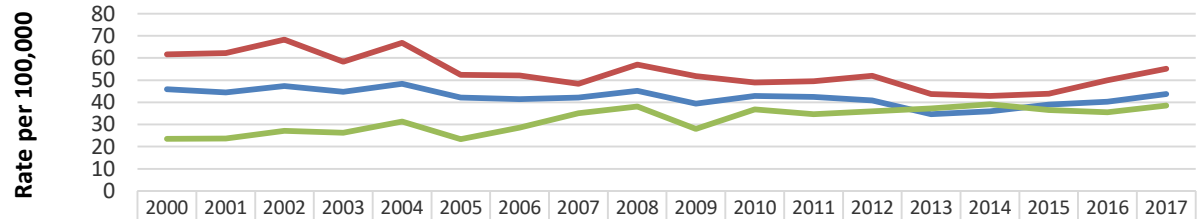
COPD and Allied Disease Mortality Rate per 100,000 Jefferson County Residents by Race 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	45.9	44.5	47.3	44.8	48.4	42.2	41.5	42.1	45.1	39.3	42.9	42.5	40.9	34.7	35.9	39.0	40.3	43.7
White	51.6	51.6	53.5	53.6	58.0	48.8	47.2	49.6	50.3	46.3	51.5	48.6	49.7	41.9	43.4	46.6	48.1	51.4
Black	32.4	28.5	34.1	23.5	27.3	27.7	28.2	26.6	33.8	25.6	23.6	31.1	22.0	18.1	21.7	25.1	25.2	28.7

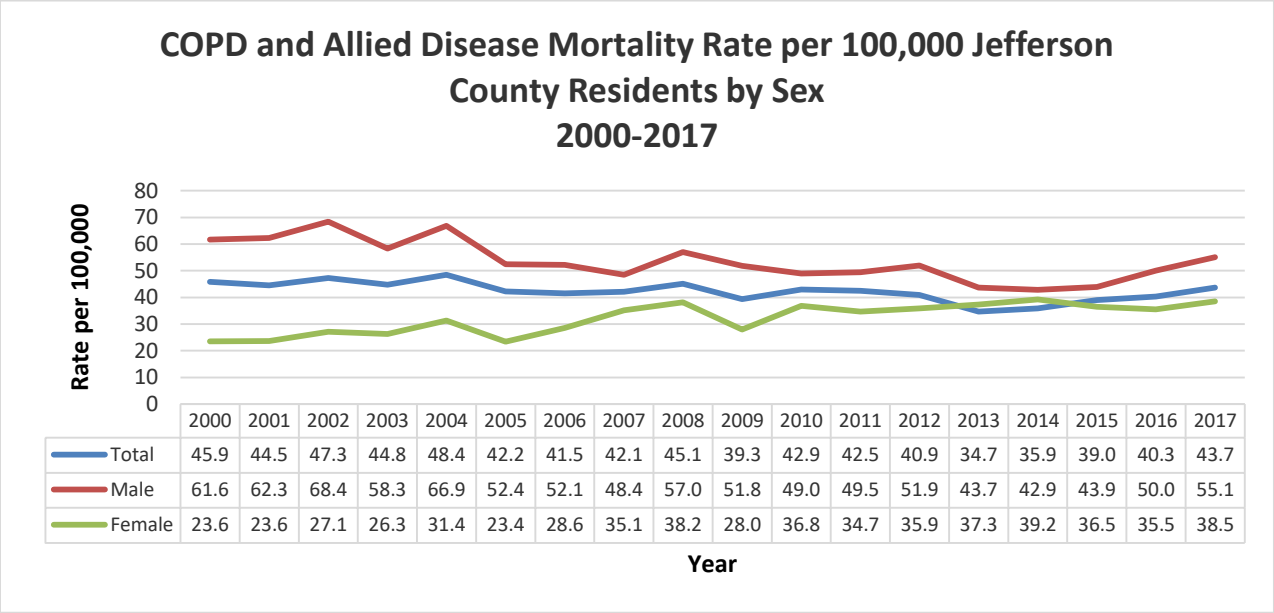
Year

COPD and Allied Disease Mortality Rate per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	45.9	44.5	47.3	44.8	48.4	42.2	41.5	42.1	45.1	39.3	42.9	42.5	40.9	34.7	35.9	39.0	40.3	43.7
Male	61.6	62.3	68.4	58.3	66.9	52.4	52.1	48.4	57.0	51.8	49.0	49.5	51.9	43.7	42.9	43.9	50.0	55.1
Female	23.6	23.6	27.1	26.3	31.4	23.4	28.6	35.1	38.2	28.0	36.8	34.7	35.9	37.3	39.2	36.5	35.5	38.5

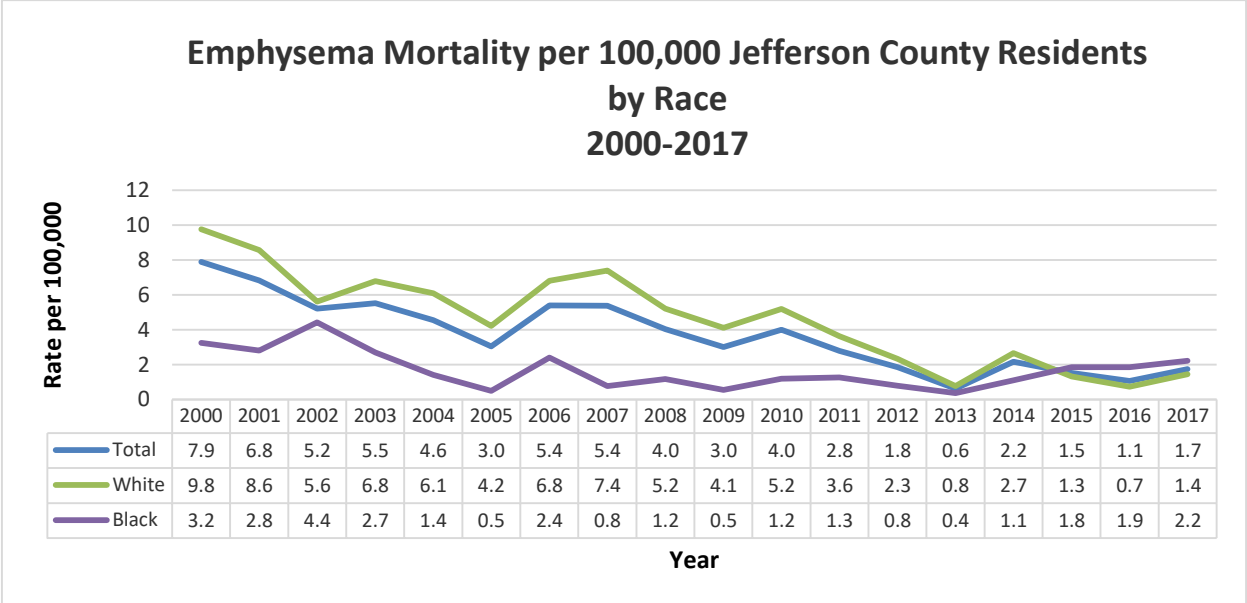
Year



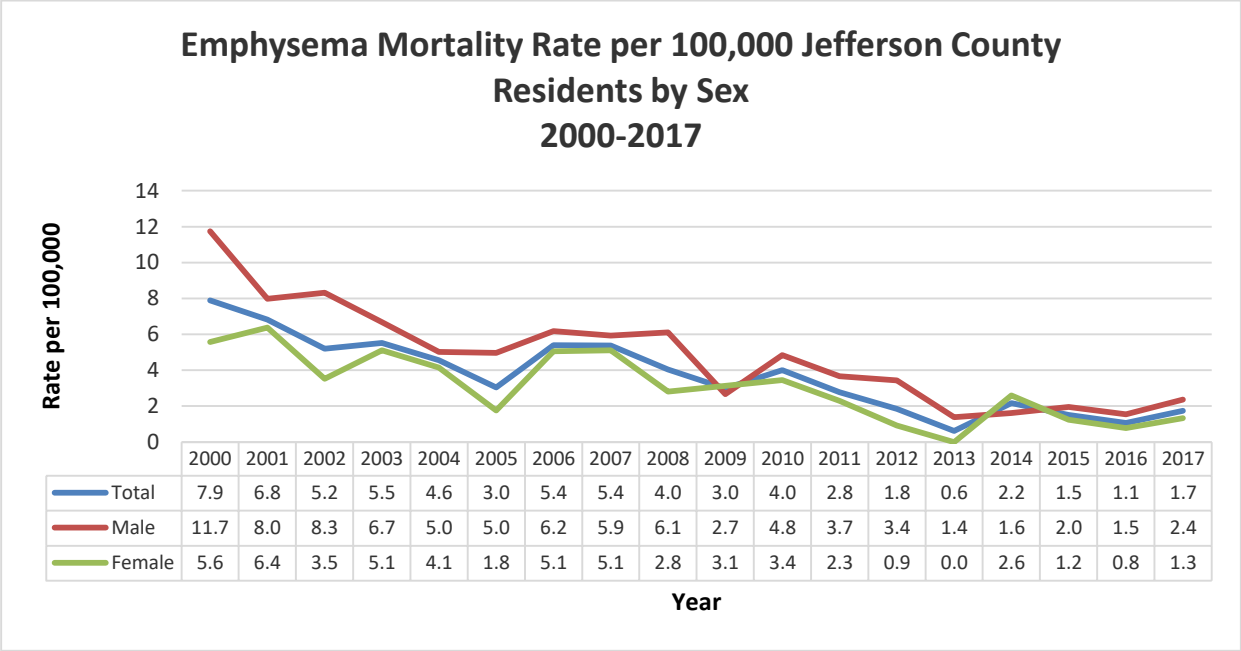
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	45.9	44.5	47.3	44.8	48.4	42.2	41.5	42.1	45.1	39.3	42.9	42.5	40.9	34.7	35.9	39.0	40.3	43.7
Male	61.6	62.3	68.4	58.3	66.9	52.4	52.1	48.4	57.0	51.8	49.0	49.5	51.9	43.7	42.9	43.9	50.0	55.1
Female	23.6	23.6	27.1	26.3	31.4	23.4	28.6	35.1	38.2	28.0	36.8	34.7	35.9	37.3	39.2	36.5	35.5	38.5

Emphysema Mortality

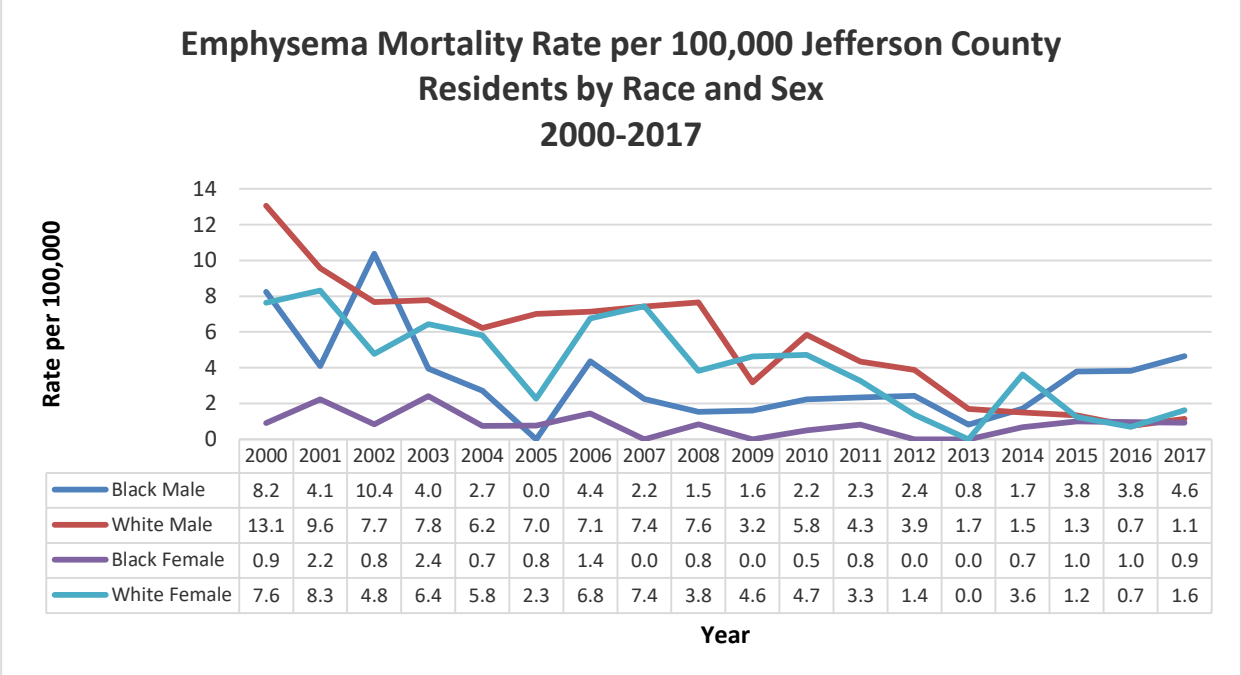
Emphysema, a form of chronic obstructive pulmonary disease, is a destructive lung disease associated with smoking. Jefferson County's overall emphysema mortality rate decreased by 5.6% (a relative percent change) from the 2012 rate of 1.8 per 100,000 population to the 2017 rate of 1.7 per 100,000 population. The declining rates have been most pronounced among white males.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	7.9	6.8	5.2	5.5	4.6	3.0	5.4	5.4	4.0	3.0	4.0	2.8	1.8	0.6	2.2	1.5	1.1	1.7
White	9.8	8.6	5.6	6.8	6.1	4.2	6.8	7.4	5.2	4.1	5.2	3.6	2.3	0.8	2.7	1.3	0.7	1.4
Black	3.2	2.8	4.4	2.7	1.4	0.5	2.4	0.8	1.2	0.5	1.2	1.3	0.8	0.4	1.1	1.8	1.9	2.2



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	7.9	6.8	5.2	5.5	4.6	3.0	5.4	5.4	4.0	3.0	4.0	2.8	1.8	0.6	2.2	1.5	1.1	1.7
Male	11.7	8.0	8.3	6.7	5.0	5.0	6.2	5.9	6.1	2.7	4.8	3.7	3.4	1.4	1.6	2.0	1.5	2.4
Female	5.6	6.4	3.5	5.1	4.1	1.8	5.1	5.1	2.8	3.1	3.4	2.3	0.9	0.0	2.6	1.2	0.8	1.3

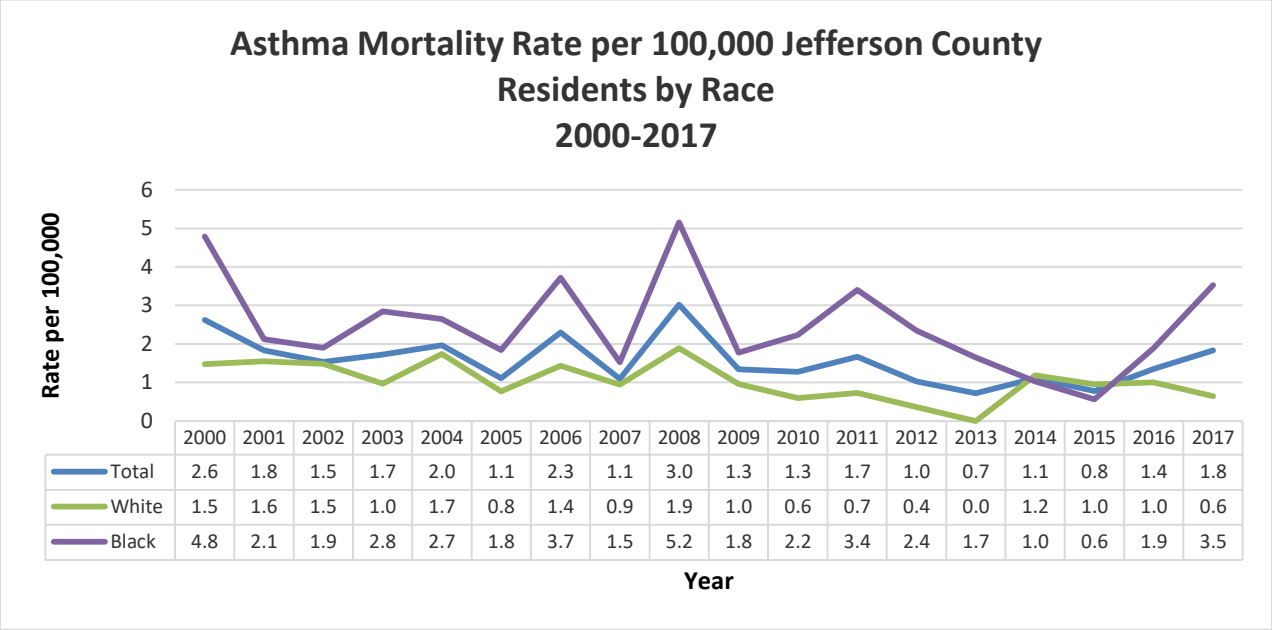


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	8.2	4.1	10.4	4.0	2.7	0.0	4.4	2.2	1.5	1.6	2.2	2.3	2.4	0.8	1.7	3.8	3.8	4.6
White Male	13.1	9.6	7.7	7.8	6.2	7.0	7.1	7.4	7.6	3.2	5.8	4.3	3.9	1.7	1.5	1.3	0.7	1.1
Black Female	0.9	2.2	0.8	2.4	0.7	0.8	1.4	0.0	0.8	0.0	0.5	0.8	0.0	0.0	0.7	1.0	1.0	0.9
White Female	7.6	8.3	4.8	6.4	5.8	2.3	6.8	7.4	3.8	4.6	4.7	3.3	1.4	0.0	3.6	1.2	0.7	1.6

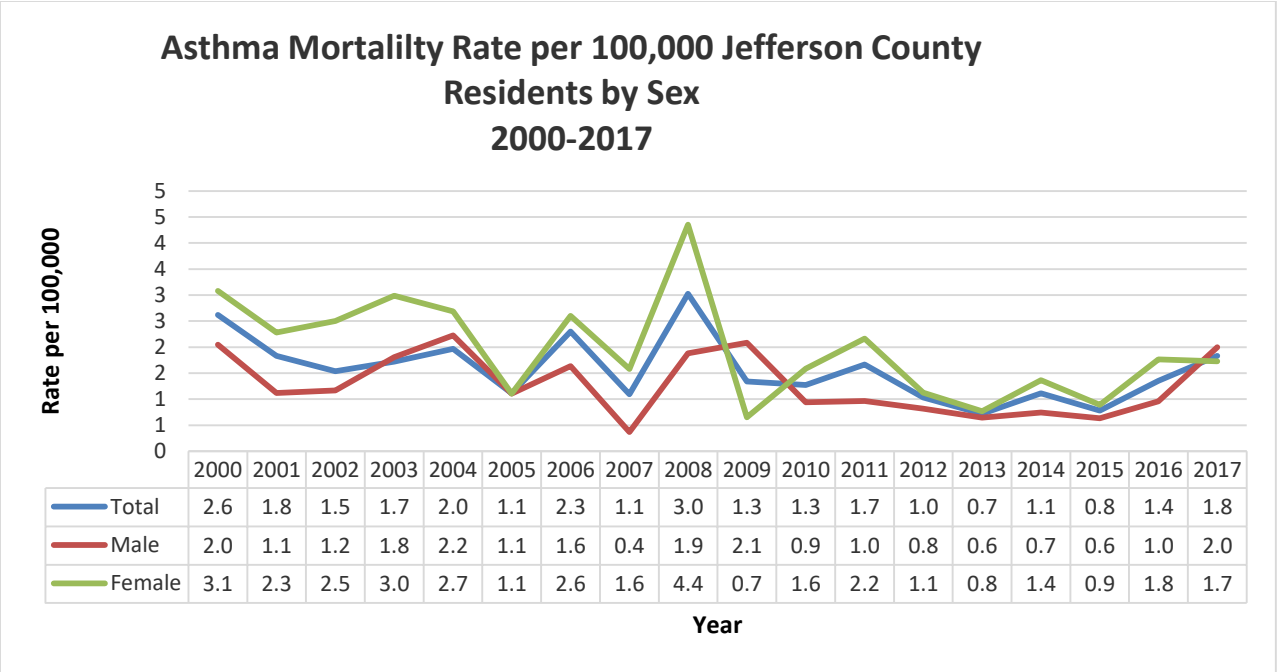
Asthma Mortality

Asthma is an inflammatory lung disease causing bronchiolar constriction and resulting in breathing difficulties. Overall asthma mortality rates have decreased by 80% from the 2012 rate of 1.0 deaths per 100,000 population to the 2017 rate of 1.8 death per 100,000 population. The black sub-population's

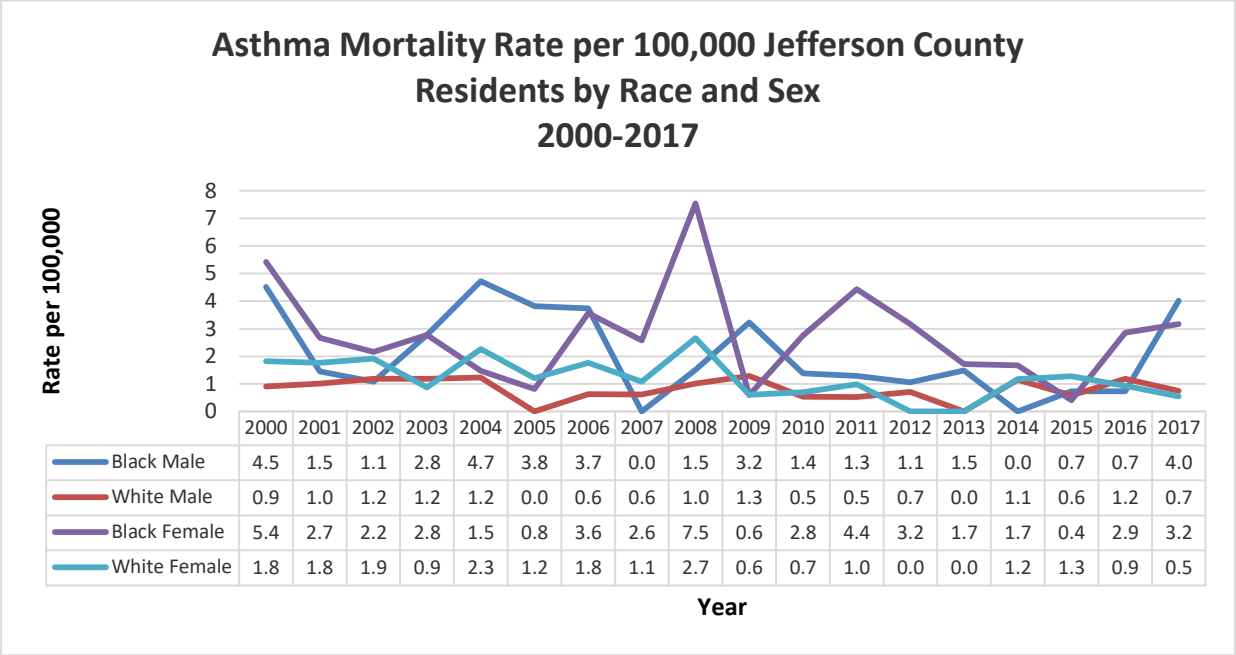
asthma mortality rate in 2017 was nearly six times higher than that of the white sub-population. Asthma mortality rates have typically remained higher for females than males in Jefferson County.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	2.6	1.8	1.5	1.7	2.0	1.1	2.3	1.1	3.0	1.3	1.3	1.7	1.0	0.7	1.1	0.8	1.4	1.8
White	1.5	1.6	1.5	1.0	1.7	0.8	1.4	0.9	1.9	1.0	0.6	0.7	0.4	0.0	1.2	1.0	1.0	0.6
Black	4.8	2.1	1.9	2.8	2.7	1.8	3.7	1.5	5.2	1.8	2.2	3.4	2.4	1.7	1.0	0.6	1.9	3.5



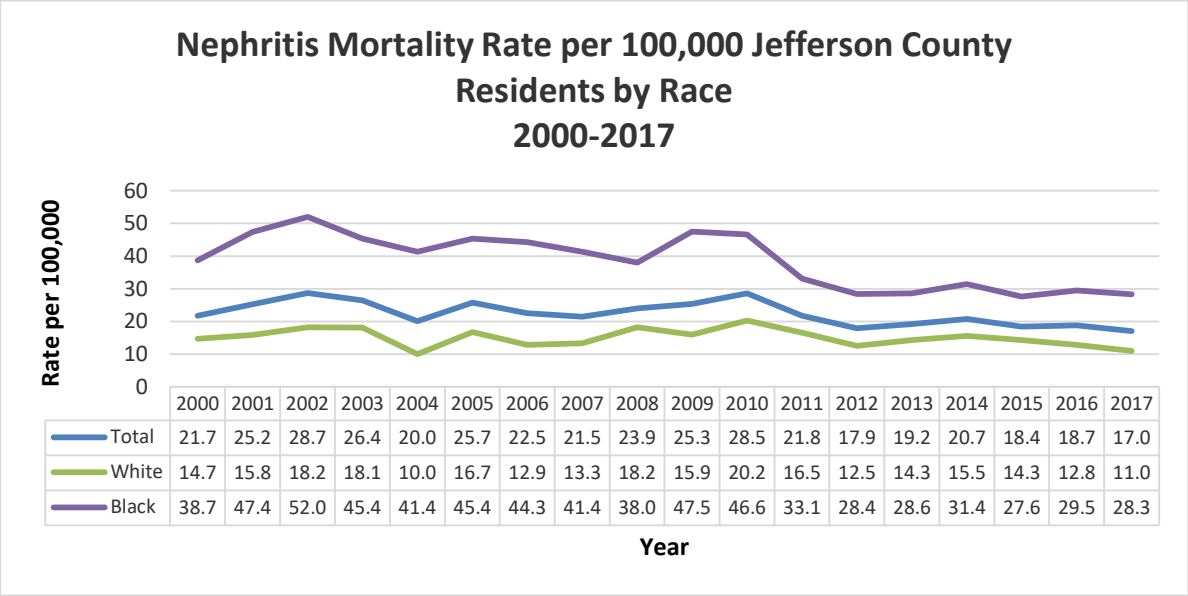
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	2.6	1.8	1.5	1.7	2.0	1.1	2.3	1.1	3.0	1.3	1.3	1.7	1.0	0.7	1.1	0.8	1.4	1.8
Male	2.0	1.1	1.2	1.8	2.2	1.1	1.6	0.4	1.9	2.1	0.9	1.0	0.8	0.6	0.7	0.6	1.0	2.0
Female	3.1	2.3	2.5	3.0	2.7	1.1	2.6	1.6	4.4	0.7	1.6	2.2	1.1	0.8	1.4	0.9	1.8	1.7



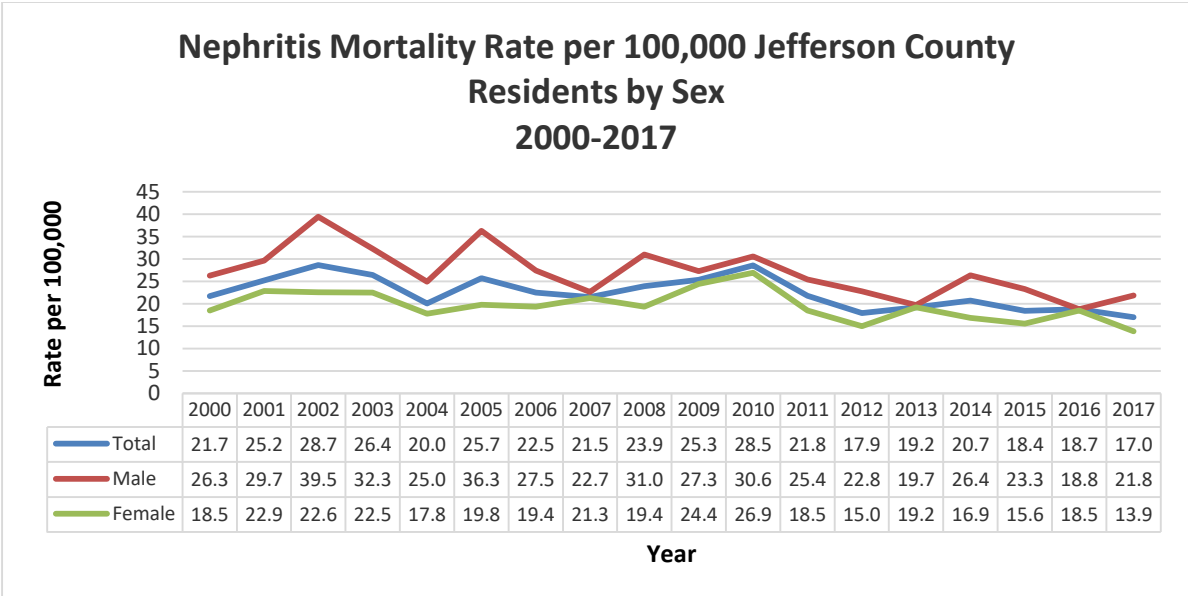
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	4.5	1.5	1.1	2.8	4.7	3.8	3.7	0.0	1.5	3.2	1.4	1.3	1.1	1.5	0.0	0.7	0.7	4.0
White Male	0.9	1.0	1.2	1.2	1.2	0.0	0.6	0.6	1.0	1.3	0.5	0.5	0.7	0.0	1.1	0.6	1.2	0.7
Black Female	5.4	2.7	2.2	2.8	1.5	0.8	3.6	2.6	7.5	0.6	2.8	4.4	3.2	1.7	1.7	0.4	2.9	3.2
White Female	1.8	1.8	1.9	0.9	2.3	1.2	1.8	1.1	2.7	0.6	0.7	1.0	0.0	0.0	1.2	1.3	0.9	0.5

Nephritis Mortality

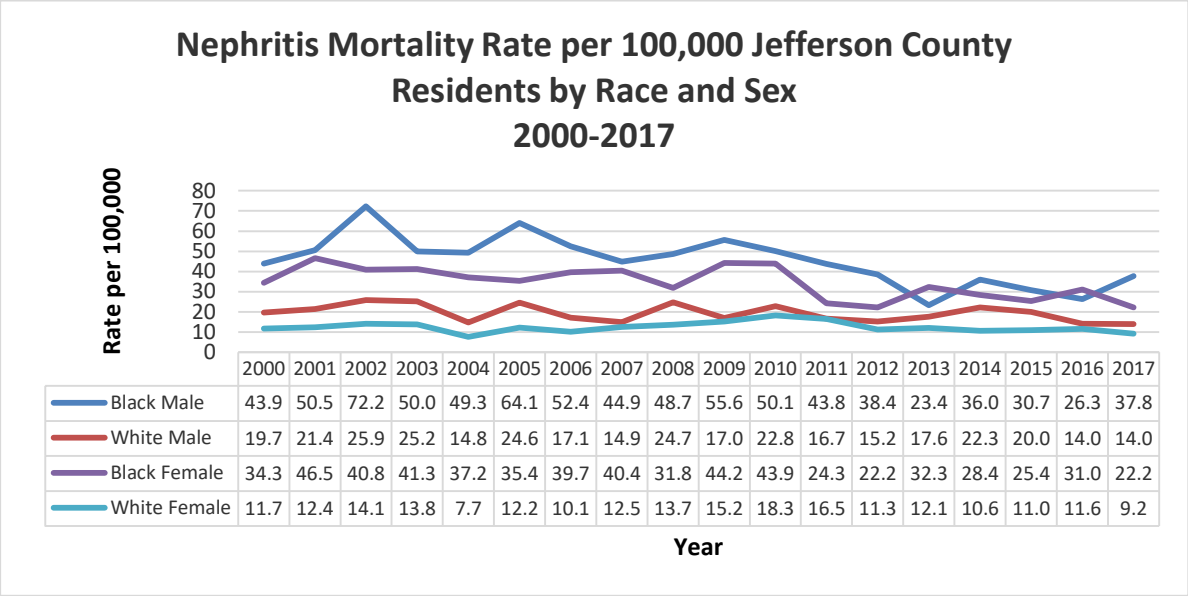
Nephritis is kidney disease caused by inflammation of the kidney and was seventh and sixth leading cause of death in Jefferson County during 2003 and 2012, respectively. In 2017, however, nephritis was not one of the county's ten leading causes of death. Overall nephritis mortality rates have declined since 2012 in comparison to death rates from nephritis from 2000 - 2011. Between 2012 and 2017, the gap in nephritis death rates between the black and white sub-populations increased. The 2017 nephritis mortality rate of 17.0 per 100,000 population is 5% (relative percent change) lower than the 2012 rate of 17.9 per 100,000 population. Nephritis mortality rates remain historically higher among the black sub-population and are typically higher among males than females. In 2017, the disparity in mortality rates from nephritis by race was statically significant.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	21.7	25.2	28.7	26.4	20.0	25.7	22.5	21.5	23.9	25.3	28.5	21.8	17.9	19.2	20.7	18.4	18.7	17.0
White	14.7	15.8	18.2	18.1	10.0	16.7	12.9	13.3	18.2	15.9	20.2	16.5	12.5	14.3	15.5	14.3	12.8	11.0
Black	38.7	47.4	52.0	45.4	41.4	45.4	44.3	41.4	38.0	47.5	46.6	33.1	28.4	28.6	31.4	27.6	29.5	28.3



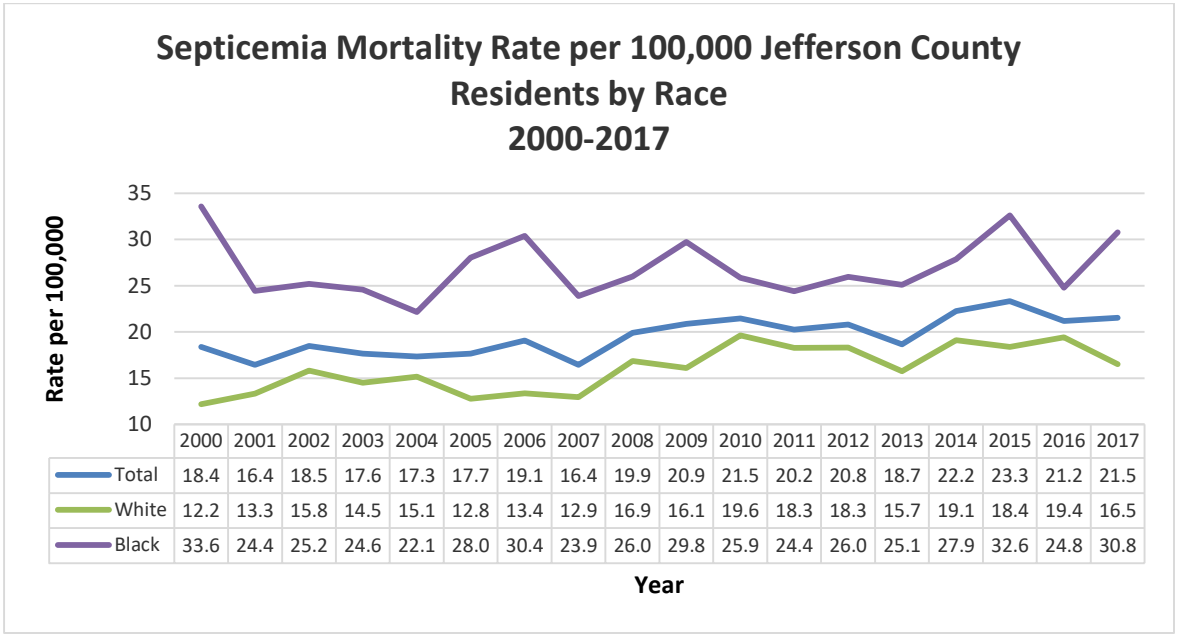
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	21.7	25.2	28.7	26.4	20.0	25.7	22.5	21.5	23.9	25.3	28.5	21.8	17.9	19.2	20.7	18.4	18.7	17.0
Male	26.3	29.7	39.5	32.3	25.0	36.3	27.5	22.7	31.0	27.3	30.6	25.4	22.8	19.7	26.4	23.3	18.8	21.8
Female	18.5	22.9	22.6	22.5	17.8	19.8	19.4	21.3	19.4	24.4	26.9	18.5	15.0	19.2	16.9	15.6	18.5	13.9



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	43.9	50.5	72.2	50.0	49.3	64.1	52.4	44.9	48.7	55.6	50.1	43.8	38.4	23.4	36.0	30.7	26.3	37.8
White Male	19.7	21.4	25.9	25.2	14.8	24.6	17.1	14.9	24.7	17.0	22.8	16.7	15.2	17.6	22.3	20.0	14.0	14.0
Black Female	34.3	46.5	40.8	41.3	37.2	35.4	39.7	40.4	31.8	44.2	43.9	24.3	22.2	32.3	28.4	25.4	31.0	22.2
White Female	11.7	12.4	14.1	13.8	7.7	12.2	10.1	12.5	13.7	15.2	18.3	16.5	11.3	12.1	10.6	11.0	11.6	9.2

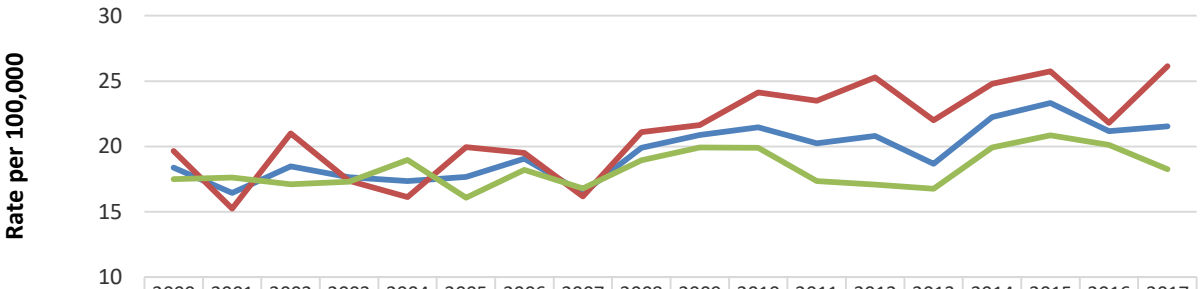
Septicemia Mortality

Septicemia is the result of a bacterial infection that enters the bloodstream and was the eighth leading cause of death in Jefferson County for 2012 and 2017. Overall septicemia mortality has increased since 2012. The 2017 rate of septicemia mortality at 21.5 per 100,000 population is 3.4% (relative percent change) higher than the 2012 septicemia mortality rate of 20.8 per 100,000 population. The disparity in death rates from septicemia was statistically significant in 2017.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	18.4	16.4	18.5	17.6	17.3	17.7	19.1	16.4	19.9	20.9	21.5	20.2	20.8	18.7	22.2	23.3	21.2	21.5
White	12.2	13.3	15.8	14.5	15.1	12.8	13.4	12.9	16.9	16.1	19.6	18.3	18.3	15.7	19.1	18.4	19.4	16.5
Black	33.6	24.4	25.2	24.6	22.1	28.0	30.4	23.9	26.0	29.8	25.9	24.4	26.0	25.1	27.9	32.6	24.8	30.8

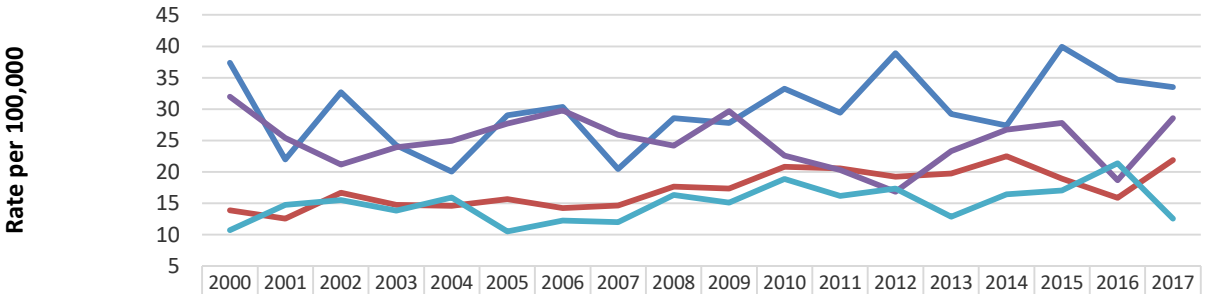
Septicemia Mortality Rates per 100,000 Jefferson County Residents by Sex 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	18.4	16.4	18.5	17.6	17.3	17.7	19.1	16.4	19.9	20.9	21.5	20.2	20.8	18.7	22.2	23.3	21.2	21.5
Male	19.6	15.2	21.0	17.4	16.1	19.9	19.5	16.2	21.1	21.6	24.1	23.5	25.3	22.0	24.8	25.8	21.8	26.1
Female	17.5	17.6	17.1	17.3	19.0	16.1	18.2	16.8	18.9	19.9	19.9	17.3	17.1	16.8	19.9	20.9	20.1	18.2

Year

Septicemia Mortality Rate per 100,000 Jefferson County Residents by Race and Sex 2000-2017

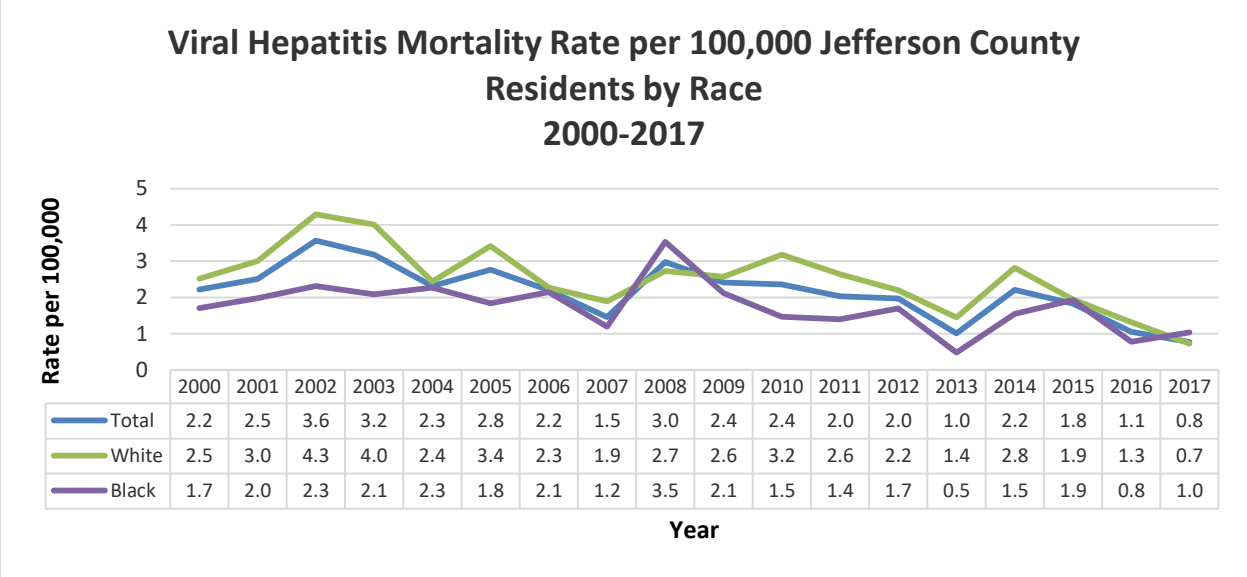


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	37.4	22.0	32.7	24.2	20.0	29.0	30.3	20.5	28.5	27.8	33.2	29.4	38.9	29.2	27.4	39.9	34.7	33.5
White Male	13.9	12.5	16.7	14.8	14.6	15.7	14.2	14.6	17.6	17.3	20.8	20.6	19.2	19.7	22.5	18.9	15.9	21.9
Black Female	32.0	25.4	21.1	23.9	24.9	27.7	29.8	25.9	24.2	29.7	22.6	20.3	16.8	23.3	26.7	27.8	18.7	28.6
White Female	10.7	14.7	15.5	13.8	15.9	10.5	12.3	12.0	16.3	15.1	18.9	16.1	17.3	12.9	16.4	17.0	21.4	12.5

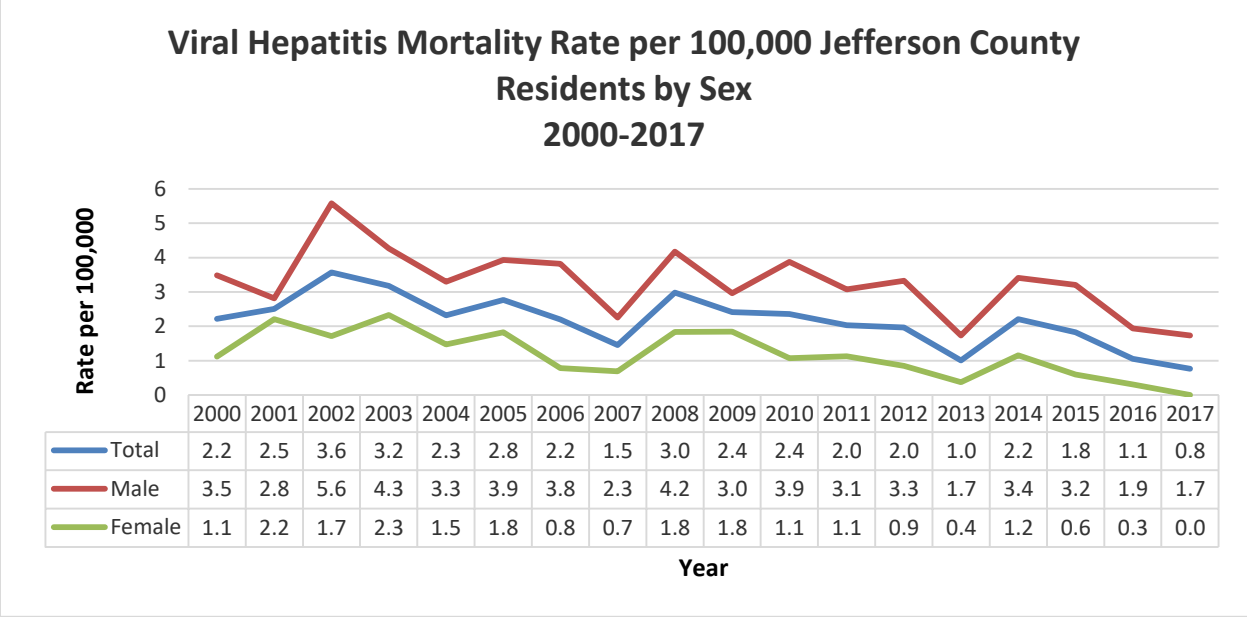
Year

Viral Hepatitis Mortality

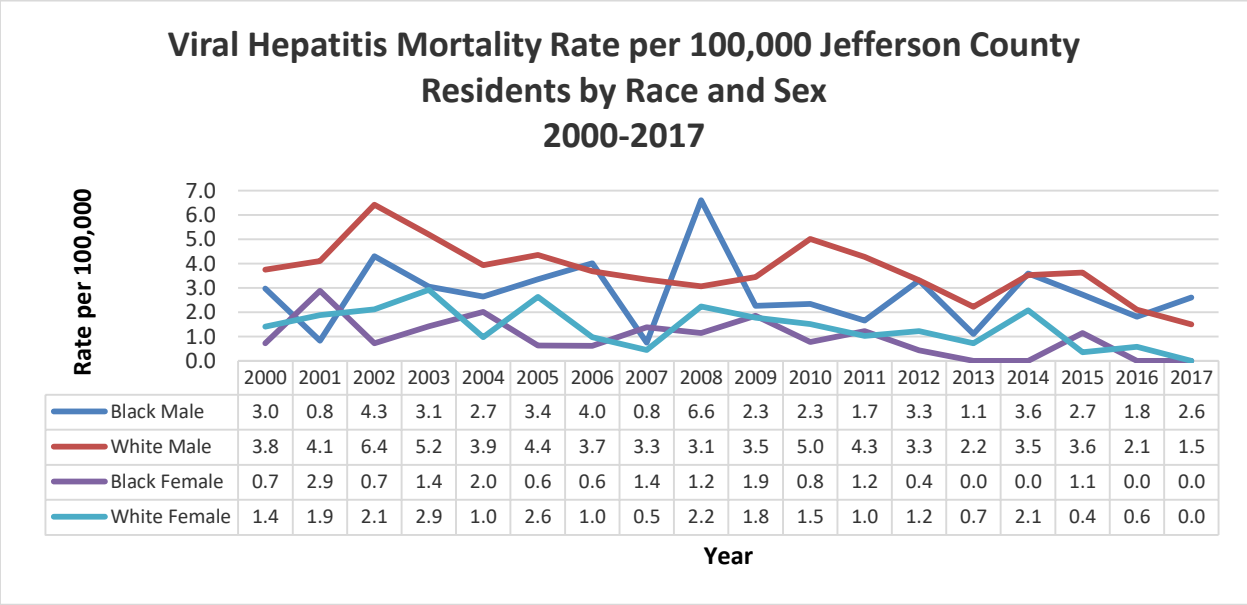
Viral Hepatitis is a virus which affects the liver. The most common types of viral hepatitis include hepatitis A, B and C. The overall rate of viral hepatitis in Jefferson County decreased from 2.0 in 2012 to 0.8 in 2017. The male sub-population has exhibited higher viral hepatitis mortality rates since 2000.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	2.2	2.5	3.6	3.2	2.3	2.8	2.2	1.5	3.0	2.4	2.4	2.0	2.0	1.0	2.2	1.8	1.1	0.8
White	2.5	3.0	4.3	4.0	2.4	3.4	2.3	1.9	2.7	2.6	3.2	2.6	2.2	1.4	2.8	1.9	1.3	0.7
Black	1.7	2.0	2.3	2.1	2.3	1.8	2.1	1.2	3.5	2.1	1.5	1.4	1.7	0.5	1.5	1.9	0.8	1.0



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	2.2	2.5	3.6	3.2	2.3	2.8	2.2	1.5	3.0	2.4	2.4	2.0	2.0	1.0	2.2	1.8	1.1	0.8
Male	3.5	2.8	5.6	4.3	3.3	3.9	3.8	2.3	4.2	3.0	3.9	3.1	3.3	1.7	3.4	3.2	1.9	1.7
Female	1.1	2.2	1.7	2.3	1.5	1.8	0.8	0.7	1.8	1.8	1.1	1.1	0.9	0.4	1.2	0.6	0.3	0.0



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Black Male	3.0	0.8	4.3	3.1	2.7	3.4	4.0	0.8	6.6	2.3	2.3	1.7	3.3	1.1	3.6	2.7	1.8	2.6
White Male	3.8	4.1	6.4	5.2	3.9	4.4	3.7	3.3	3.1	3.5	5.0	4.3	3.3	2.2	3.5	3.6	2.1	1.5
Black Female	0.7	2.9	0.7	1.4	2.0	0.6	0.6	1.4	1.2	1.9	0.8	1.2	0.4	0.0	0.0	1.1	0.0	0.0
White Female	1.4	1.9	2.1	2.9	1.0	2.6	1.0	0.5	2.2	1.8	1.5	1.0	1.2	0.7	2.1	0.4	0.6	0.0

Mortality Findings

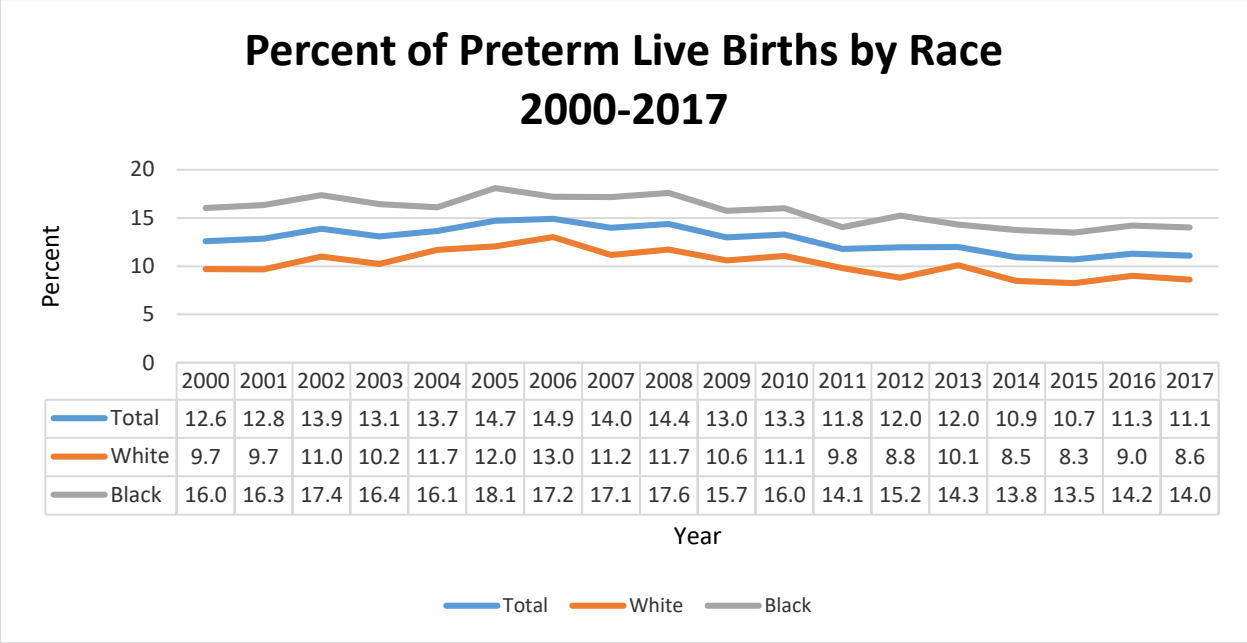
The overall all-cause mortality rate for Jefferson County has increased statically significantly between 2012 and 2017. The increased overall mortality rates were observed in the male, female, and white sub-populations and reached statistical significance for male and white residents. Notably, black females experienced a slight reduction in overall mortality between 2012 and 2017. The leading three causes of death in Jefferson County are heart disease, cancer and cerebrovascular disease, respectively. While heart disease and overall cancer mortality rates decreased between 2012 and 2017, the cerebrovascular disease mortality rate increased. The cerebrovascular disease mortality rate has decreased among the black sub-population but increased among the white sub-population. While heart disease and overall cancer mortality decreased in the black and white sub-populations, it increased in the other race category. Among different types of cancer, mortality rates for liver, lung, breast and colorectal cancers decreased. Prostate and cervical cancer mortality increased from 2012 to 2017. During this time frame, rates of homicide and drug-related deaths increased. In 2017, the overall homicide rate at 26.5 per 100,000 population was statically higher than 2012. The homicide rate for the black sub-population was statistically higher in 2017 than in 2012. Rates of stroke, cirrhosis, unintentional injury, pneumonia/influenza, Alzheimer's, hypertension, COPD, asthma and septicemia mortality increased from 2012 to 2017. Rates of diabetes, HIV, motor vehicle accident, emphysema, nephritis and viral hepatitis mortality decreased from 2012 to 2017.

Maternal and Child Health[1, 54-65]

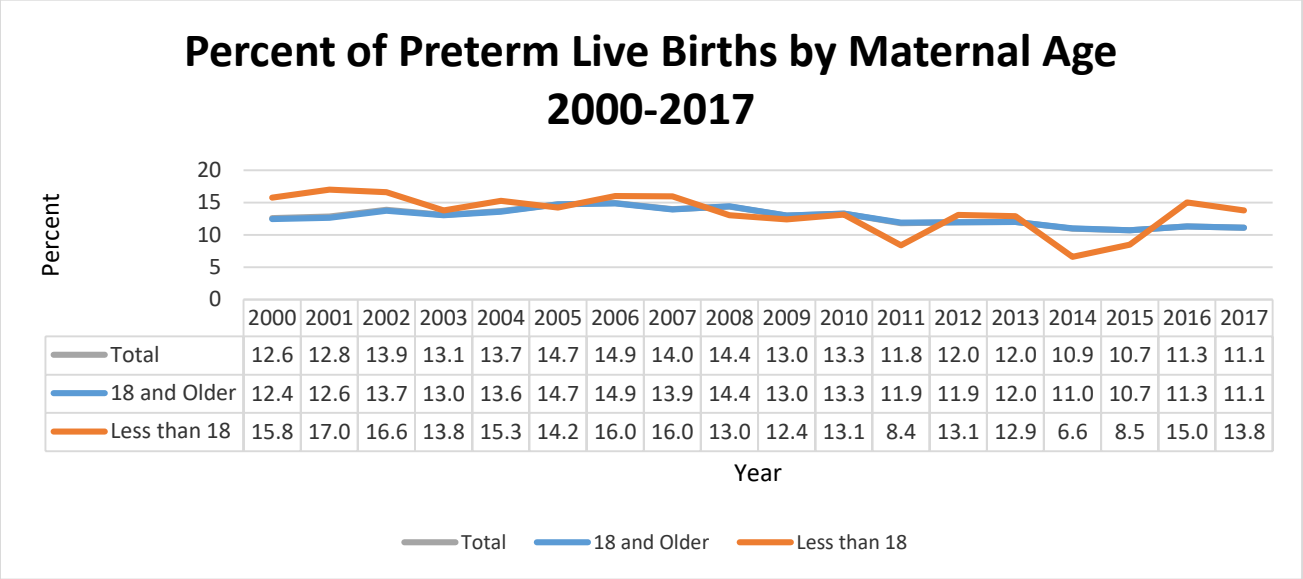
The indicators in the maternal and child health category represent the health of women and children. Data indicators include preterm births, very low birth weight, smoking status during pregnancy, adequate prenatal care, intrauterine growth restriction, short interconceptional time period, previous fetal loss, teen pregnancy, teen fertility rates, Caesarean Section deliveries, and infant and childhood mortality rates.

Preterm Births

Preterm births are defined as births that occur before 37 weeks' gestation. Preterm birth rates decreased among the white and black sub-populations since 2000; however this trend is inconclusive and will need continued monitoring to determine significance. Among teens, preterm births rates have fluctuated, but decreased slightly for women age 18 years and older. The national Healthy People 2020 goal is 11.4% of live births are preterm deliveries. In 2017, the Jefferson County preterm birth rate was 11.1%.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	12.6	12.8	13.9	13.1	13.7	14.7	14.9	14.0	14.4	13.0	13.3	11.8	12.0	12.0	10.9	10.7	11.3	11.1
White	9.7	9.7	11.0	10.2	11.7	12.0	13.0	11.2	11.7	10.6	11.1	9.8	8.8	10.1	8.5	8.3	9.0	8.6
Black	16.0	16.3	17.4	16.4	16.1	18.1	17.2	17.1	17.6	15.7	16.0	14.1	15.2	14.3	13.8	13.5	14.2	14.0

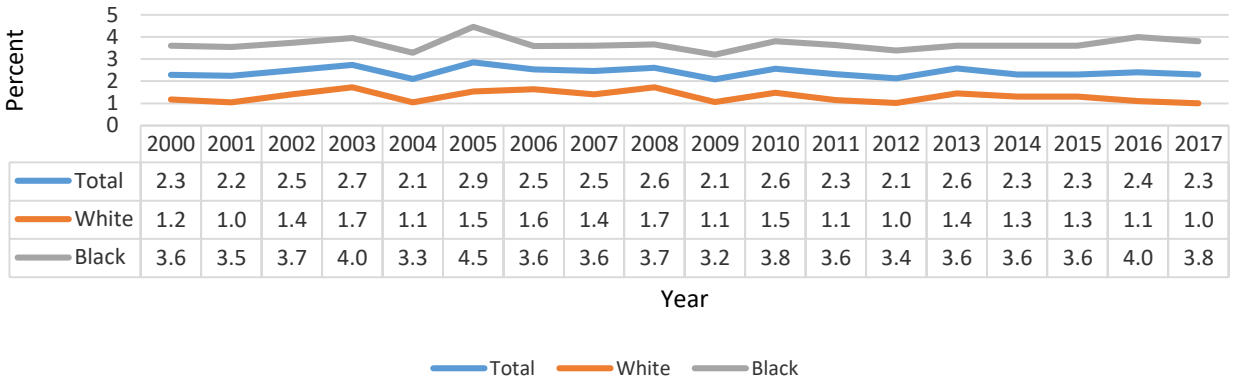


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	12.6	12.8	13.9	13.1	13.7	14.7	14.9	14.0	14.4	13.0	13.3	11.8	12.0	12.0	10.9	10.7	11.3	11.1
18 and Older	12.4	12.6	13.7	13.0	13.6	14.7	14.9	13.9	14.4	13.0	13.3	11.9	11.9	12.0	11.0	10.7	11.3	11.1
Less than 18	15.8	17.0	16.6	13.8	15.3	14.2	16.0	16.0	13.0	12.4	13.1	8.4	13.1	12.9	6.6	8.5	15.0	13.8

Very Low Birth Weight

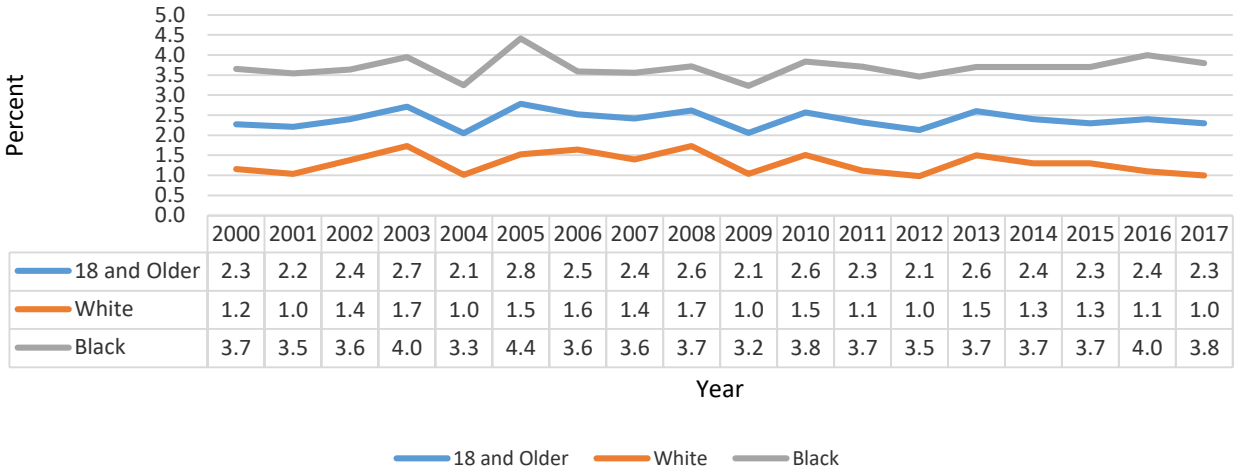
Very low birth weight infants, those weighing less than 1,500 grams at birth, are often preterm and have more health risks than normal weight infants. The black sub-population of Jefferson County has a higher percentage (3.8%) of very low birth weight infants than the white sub-population (1.0%). Although there are fluctuations year to year in the percentage of very low birth weight infants, the index measure is small, so even a small change from year to year leads to a large percent change. The Healthy People 2020 goal is that no more than 1.4% of live births are very low birth weight infants; in 2017, 2.3% of Jefferson County live births were very low birth weight infants indicating a rate higher than the national goal and a need for improvement in this measure. Although Jefferson County has experienced an increase in the percentage of very low birth weight infants since 2012, the variance between the 2012 and 2017 rates was not statistically significant.

Percent of Live Births that are Very Low Birth Weight by Race 2000-2017



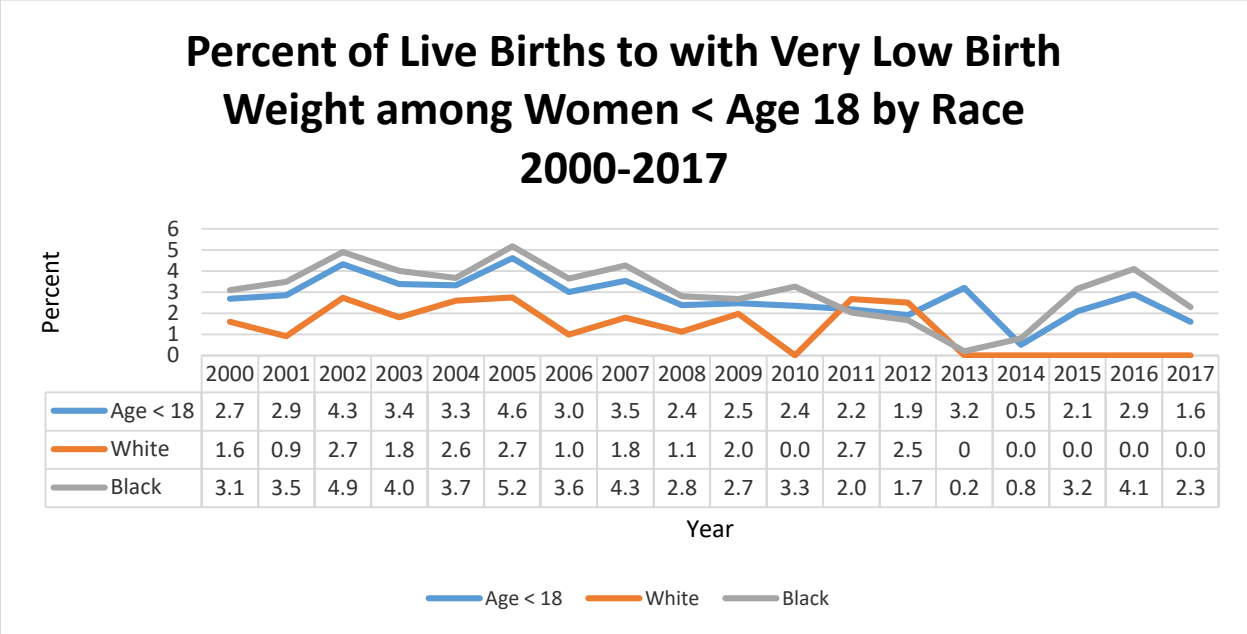
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	2.3	2.2	2.5	2.7	2.1	2.9	2.5	2.5	2.6	2.1	2.6	2.3	2.1	2.6	2.3	2.3	2.4	2.3
White	1.2	1.0	1.4	1.7	1.1	1.5	1.6	1.4	1.7	1.1	1.5	1.1	1.0	1.4	1.3	1.3	1.1	1.0
Black	3.6	3.5	3.7	4.0	3.3	4.5	3.6	3.6	3.7	3.2	3.8	3.6	3.4	3.6	3.6	3.6	4.0	3.8

Percent of Live Births with Very Low Birth Weight among Women Age ≥ 18 by Race 2000-2017



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
18 and Older	2.3	2.2	2.4	2.7	2.1	2.8	2.5	2.4	2.6	2.1	2.6	2.3	2.1	2.6	2.4	2.3	2.4	2.3
White	1.2	1.0	1.4	1.7	1.0	1.5	1.6	1.4	1.7	1.0	1.5	1.1	1.0	1.5	1.3	1.3	1.1	1.0
Black	3.7	3.5	3.6	4.0	3.3	4.4	3.6	3.6	3.7	3.2	3.8	3.7	3.5	3.7	3.7	3.7	4.0	3.8

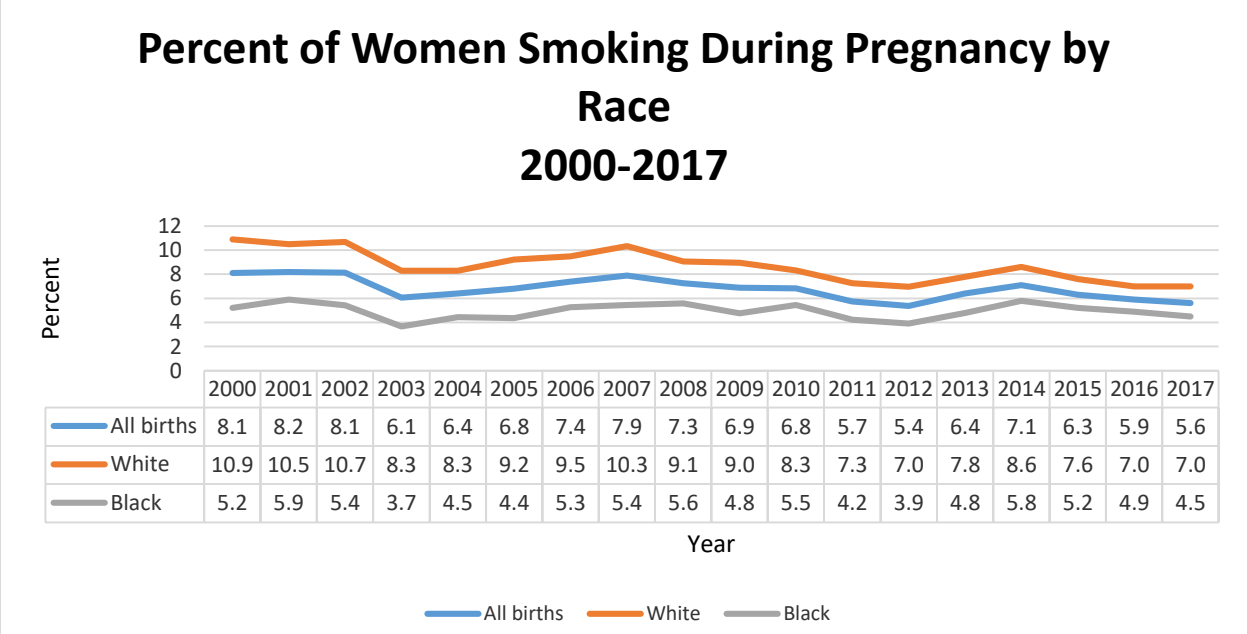
Among women less than 18 years of age, the percent of live births that are very low birth weight has decreased over time.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Age < 18	2.7	2.9	4.3	3.4	3.3	4.6	3.0	3.5	2.4	2.5	2.4	2.2	1.9	3.2	0.5	2.1	2.9	1.6
White	1.6	0.9	2.7	1.8	2.6	2.7	1.0	1.8	1.1	2.0	0.0	2.7	2.5	0	0.0	0.0	0.0	0.0
Black	3.1	3.5	4.9	4.0	3.7	5.2	3.6	4.3	2.8	2.7	3.3	2.0	1.7	0.2	0.8	3.2	4.1	2.3

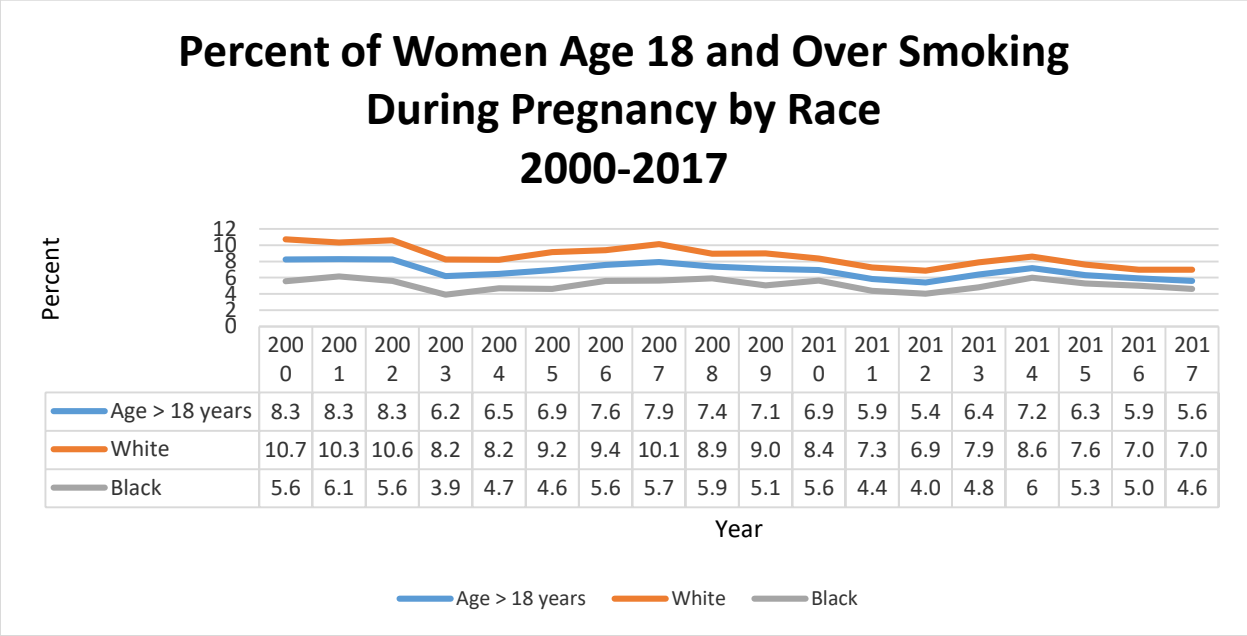
Smoking during Pregnancy

The percent of Jefferson County women who smoked during pregnancy has decreased since 2000 across all race and age categories. Jefferson County had 94.4% of women abstaining from smoking during pregnancy in 2017, exceeding the national Healthy People 2020 goal of 89.6% women abstaining from smoking during pregnancy.

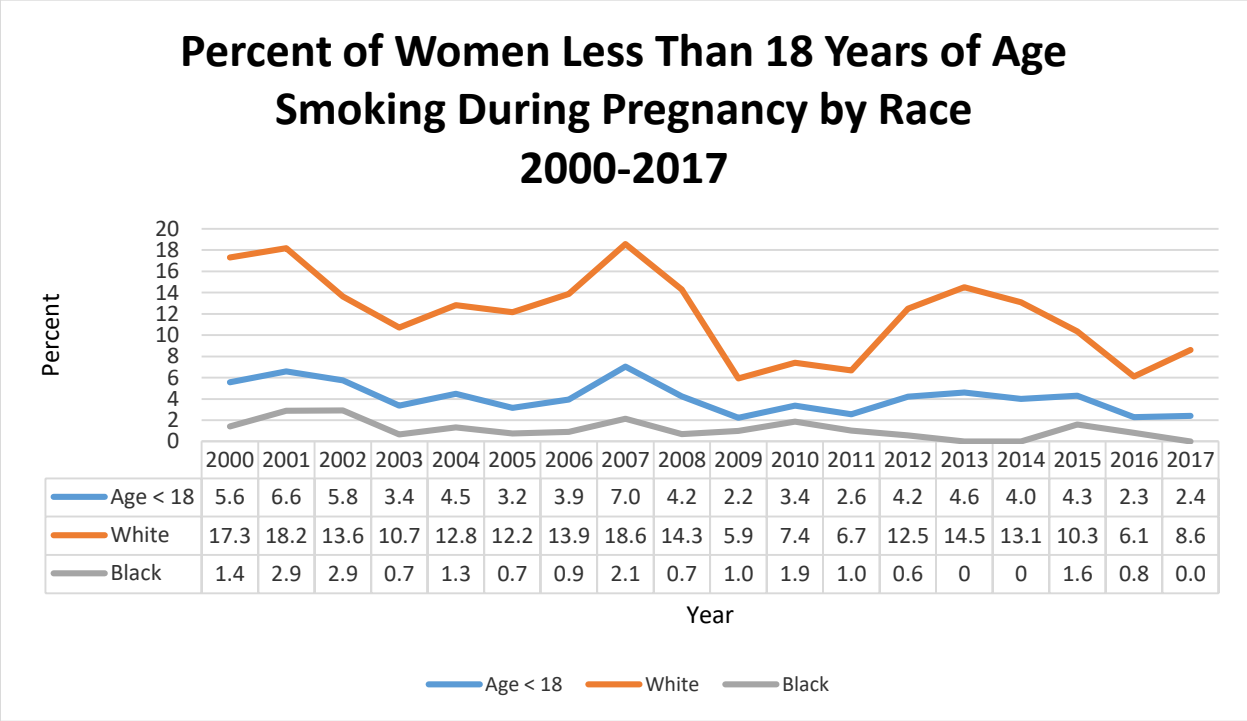


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All births	8.1	8.2	8.1	6.1	6.4	6.8	7.4	7.9	7.3	6.9	6.8	5.7	5.4	6.4	7.1	6.3	5.9	5.6
White	10.9	10.5	10.7	8.3	8.3	9.2	9.5	10.3	9.1	9.0	8.3	7.3	7.0	7.8	8.6	7.6	7.0	7.0
Black	5.2	5.9	5.4	3.7	4.5	4.4	5.3	5.4	5.6	4.8	5.5	4.2	3.9	4.8	5.8	5.2	4.9	4.5

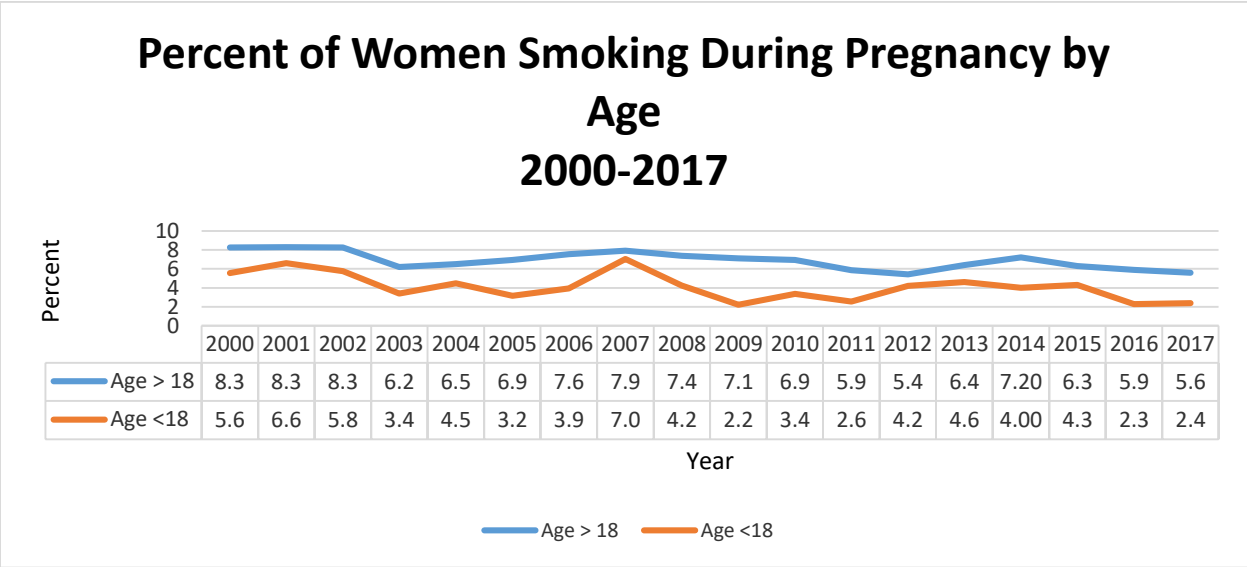
Among women less than 18 years of age, the percent of mothers who smoked during pregnancy was higher among the white sub-population as compared to the black sub-population, but was not statistically different.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Age > 18 years	8.3	8.3	8.3	6.2	6.5	6.9	7.6	7.9	7.4	7.1	6.9	5.9	5.4	6.4	7.2	6.3	5.9	5.6
White	10.7	10.3	10.6	8.2	8.2	9.2	9.4	10.1	8.9	9.0	8.4	7.3	6.9	7.9	8.6	7.6	7.0	7.0
Black	5.6	6.1	5.6	3.9	4.7	4.6	5.6	5.7	5.9	5.1	5.6	4.4	4.0	4.8	6	5.3	5.0	4.6



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Age < 18	5.6	6.6	5.8	3.4	4.5	3.2	3.9	7.0	4.2	2.2	3.4	2.6	4.2	4.6	4.0	4.3	2.3	2.4
White	17.3	18.2	13.6	10.7	12.8	12.2	13.9	18.6	14.3	5.9	7.4	6.7	12.5	14.5	13.1	10.3	6.1	8.6
Black	1.4	2.9	2.9	0.7	1.3	0.7	0.9	2.1	0.7	1.0	1.9	1.0	0.6	0	0	1.6	0.8	0.0

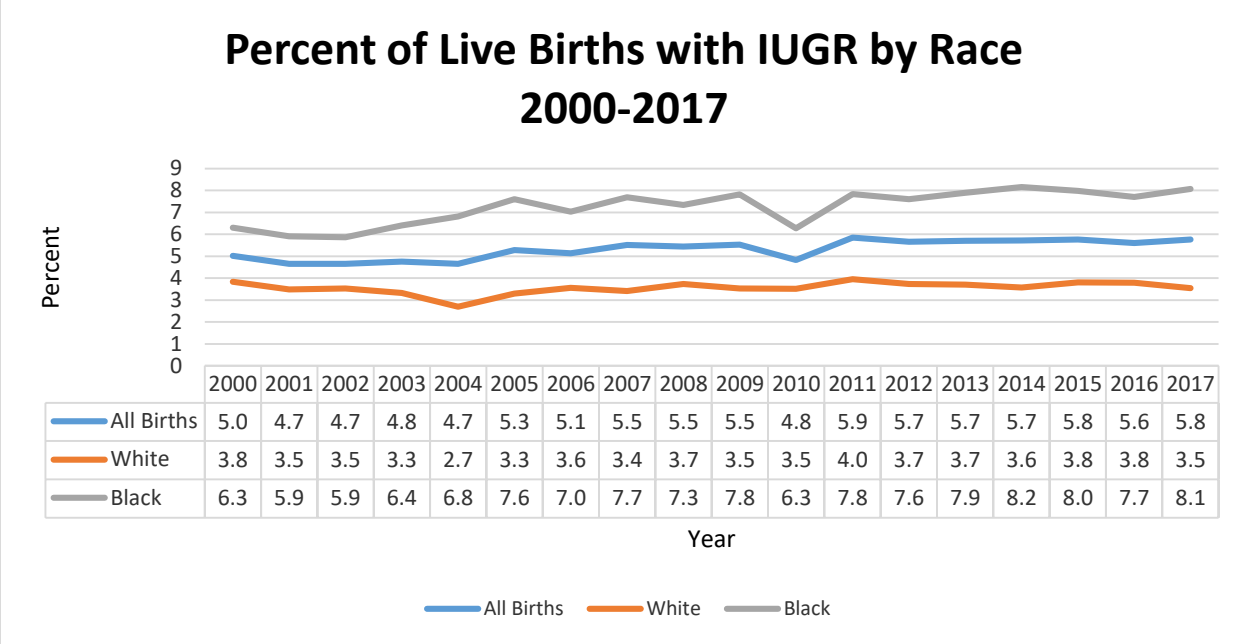


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Age > 18	8.3	8.3	8.3	6.2	6.5	6.9	7.6	7.9	7.4	7.1	6.9	5.9	5.4	6.4	7.20	6.3	5.9	5.6
Age <18	5.6	6.6	5.8	3.4	4.5	3.2	3.9	7.0	4.2	2.2	3.4	2.6	4.2	4.6	4.00	4.3	2.3	2.4

Intrauterine Growth Restriction

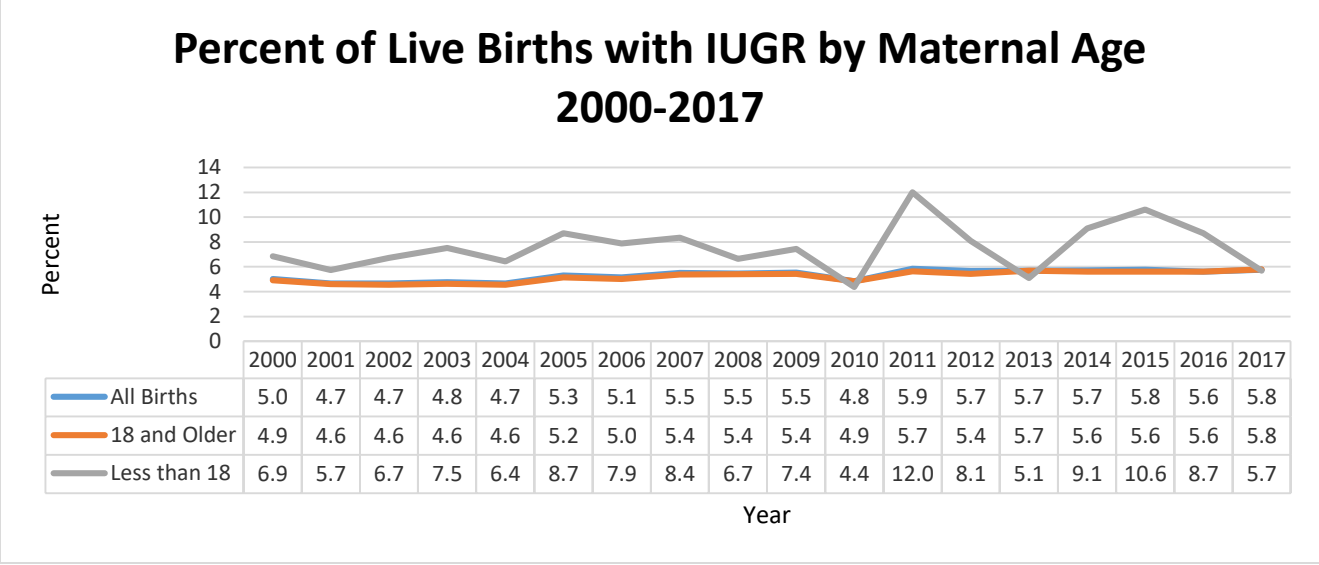
Intrauterine growth restriction (IUGR) indicates limited fetal growth potential and carries an increased risk of perinatal morbidity and mortality. Intrauterine growth restriction is defined as a fetus whose estimated weight is below the tenth percentile for gestational age and whose abdominal circumference is less than the 2.5th percentile. Accurate early dating in pregnancy is important for the diagnosis of

intrauterine growth restriction. IUGR increased slightly since 2000 in Jefferson County. The percentage of live births with IUGR disproportionately impacts black infants. As IUGR is present in only a small percentage of live births, a small change in the number of cases can translate to large percent change in this indicator.

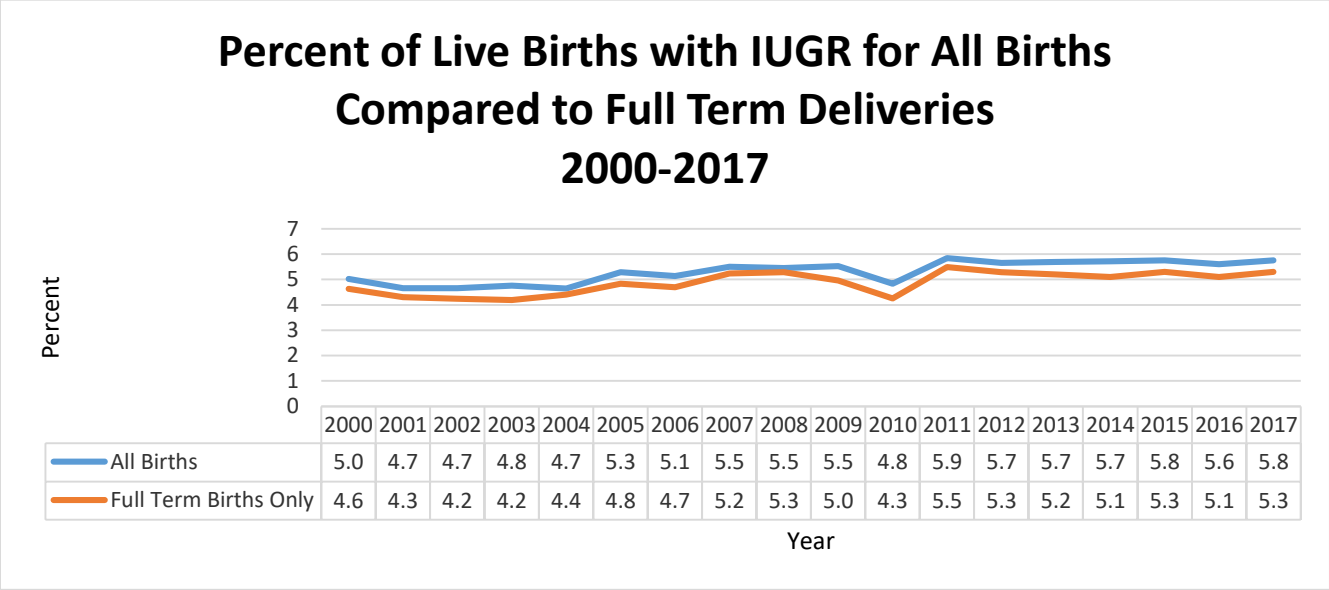


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	5.0	4.7	4.7	4.8	4.7	5.3	5.1	5.5	5.5	5.5	4.8	5.9	5.7	5.7	5.7	5.8	5.6	5.8
White	3.8	3.5	3.5	3.3	2.7	3.3	3.6	3.4	3.7	3.5	3.5	4.0	3.7	3.7	3.6	3.8	3.8	3.5
Black	6.3	5.9	5.9	6.4	6.8	7.6	7.0	7.7	7.3	7.8	6.3	7.8	7.6	7.9	8.2	8.0	7.7	8.1

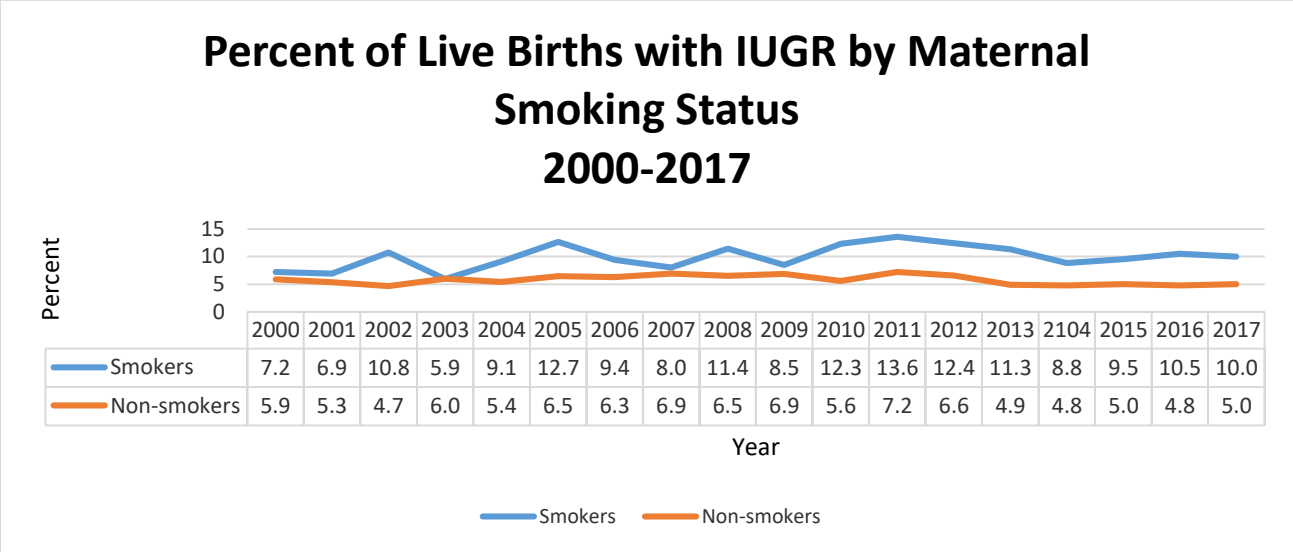
Rates of IUGR are higher among preterm deliveries than among full term deliveries.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	5.0	4.7	4.7	4.8	4.7	5.3	5.1	5.5	5.5	5.5	4.8	5.9	5.7	5.7	5.7	5.8	5.6	5.8
18 and Older	4.9	4.6	4.6	4.6	4.6	5.2	5.0	5.4	5.4	5.4	4.9	5.7	5.4	5.7	5.6	5.6	5.6	5.8
Less than 18	6.9	5.7	6.7	7.5	6.4	8.7	7.9	8.4	6.7	7.4	4.4	12.0	8.1	5.1	9.1	10.6	8.7	5.7



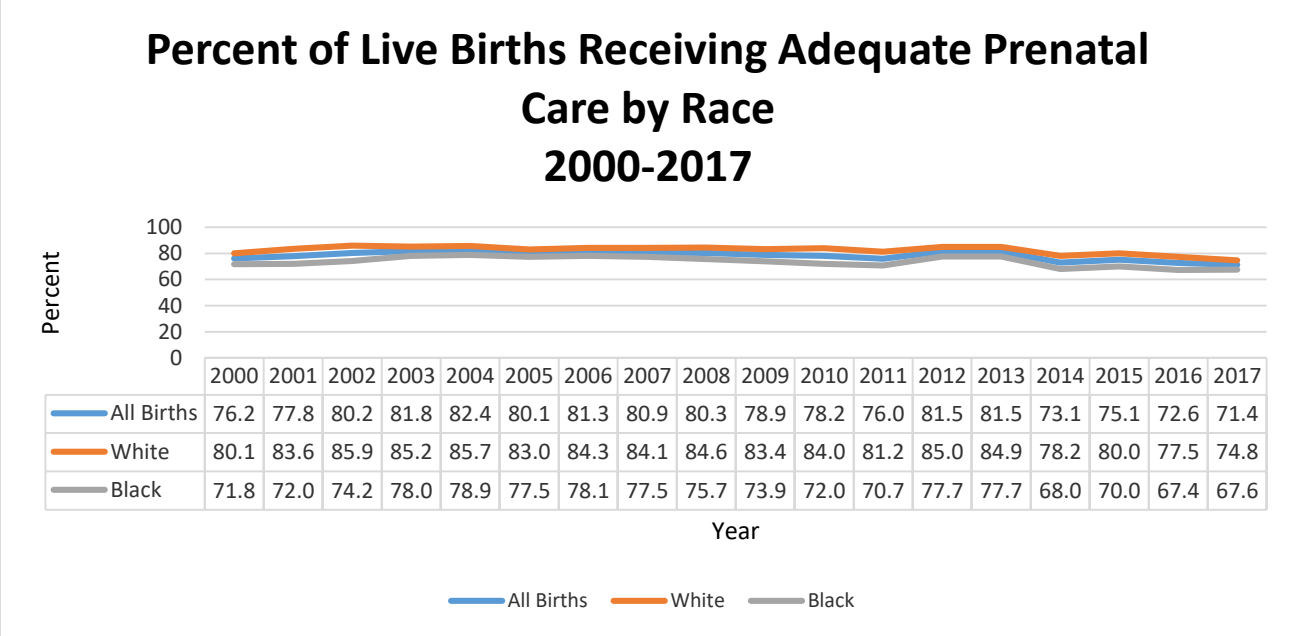
Among mothers who smoke, the percent of live births with IUGR is higher than the percent with IUGR among maternal non-smokers.



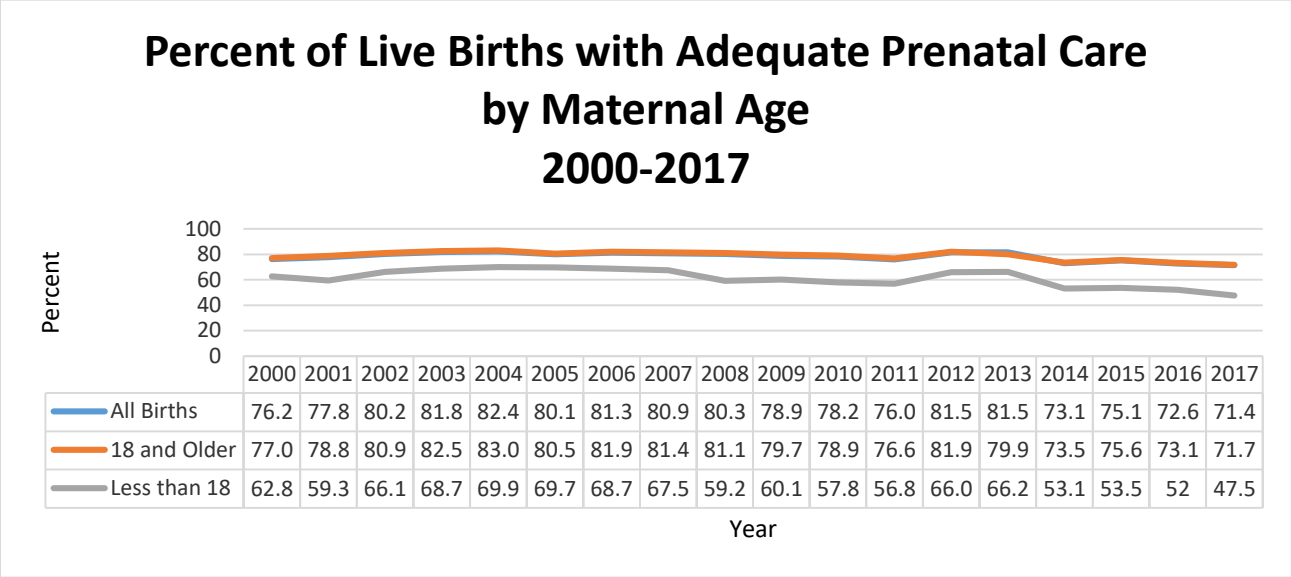
Adequate Prenatal Care

Adequacy of prenatal care is measured by the Adequacy of Prenatal Care Utilization Index. This index is based on the timing of prenatal care initiation and the adequacy of received services once prenatal care begins. Adequate prenatal care is considered to be initiation of prenatal care in the first month of pregnancy, followed by prenatal visits every four weeks through 28 weeks gestation, a prenatal visit

every 2 weeks between 28 weeks and 36 weeks gestation, and weekly prenatal visits from 36 weeks gestation until delivery. The Adequacy of Prenatal Care Utilization Index measures the expected number of visits adjusted for the timing of the initial prenatal visit. In 2017, 71.4% of live births in Jefferson County received adequate prenatal care. There has been a statistically significant decrease in this measure since the last Community Health Assessment, which used 2012 data as a reference. This statistically significant decrease was observed in both the white and black sub-populations. Jefferson County's 2017 percentage of live births receiving adequate prenatal care is less than the Healthy People 2020 goal of 77.6%. The mothers of black infants and mothers less than 18 years of age are more likely to have received inadequate prenatal care based on the Adequacy of Prenatal Care Index than older and white mothers.



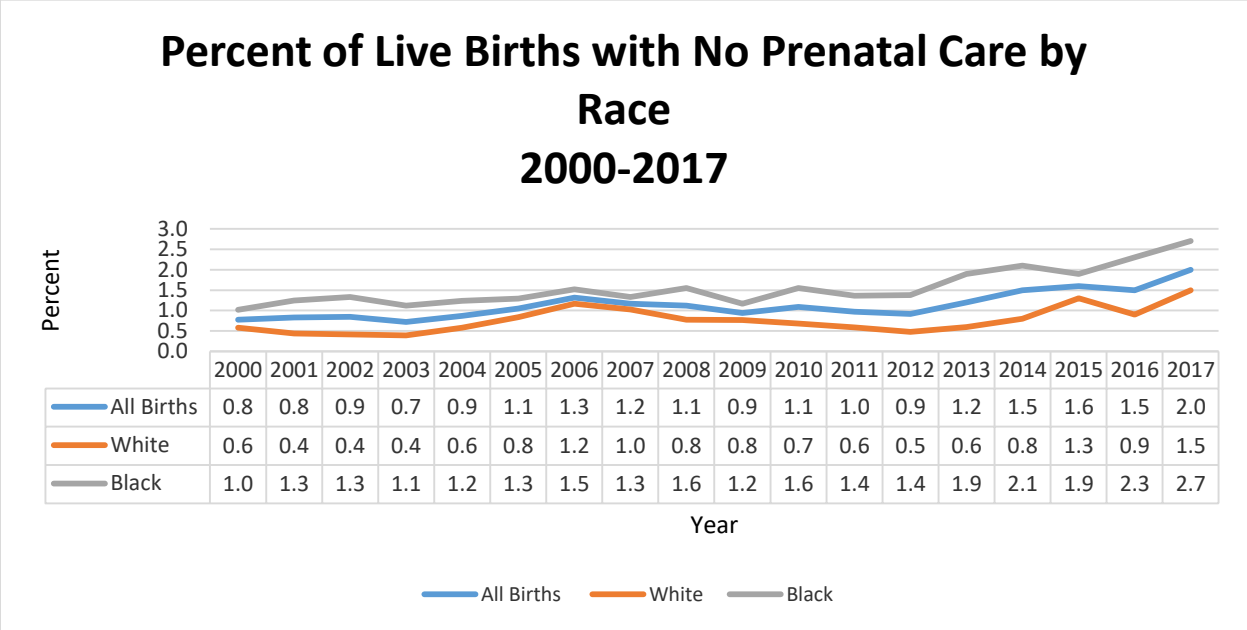
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	76.2	77.8	80.2	81.8	82.4	80.1	81.3	80.9	80.3	78.9	78.2	76.0	81.5	81.5	73.1	75.1	72.6	71.4
White	80.1	83.6	85.9	85.2	85.7	83.0	84.3	84.1	84.6	83.4	84.0	81.2	85.0	84.9	78.2	80.0	77.5	74.8
Black	71.8	72.0	74.2	78.0	78.9	77.5	78.1	77.5	75.7	73.9	72.0	70.7	77.7	77.7	68.0	70.0	67.4	67.6



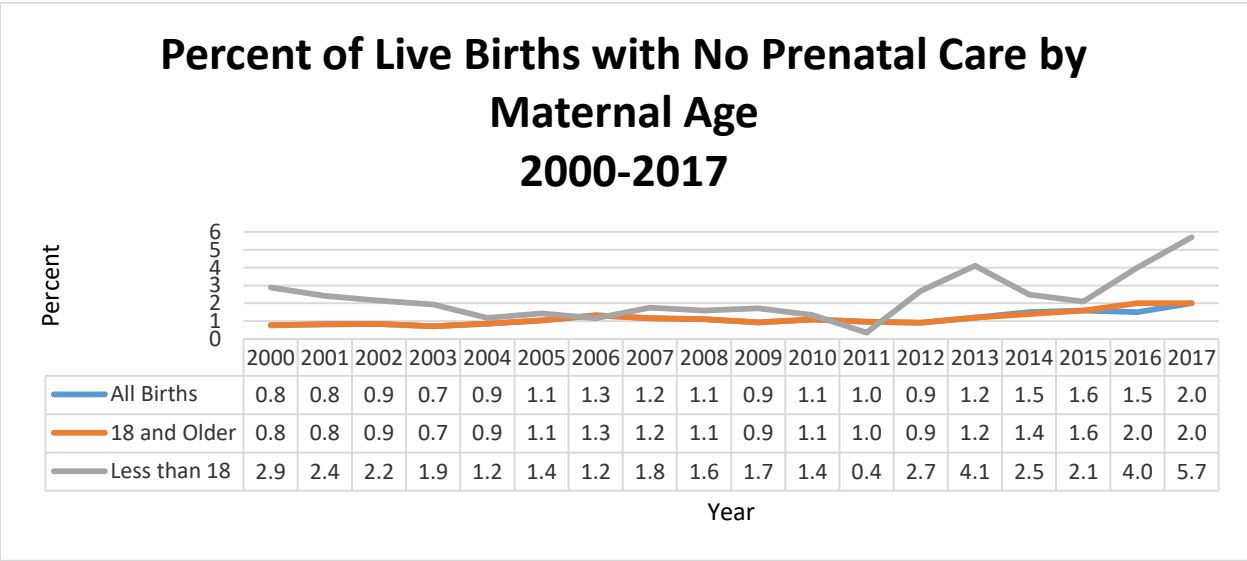
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	76.2	77.8	80.2	81.8	82.4	80.1	81.3	80.9	80.3	78.9	78.2	76.0	81.5	81.5	73.1	75.1	72.6	71.4
18 and Older	77.0	78.8	80.9	82.5	83.0	80.5	81.9	81.4	81.1	79.7	78.9	76.6	81.9	79.9	73.5	75.6	73.1	71.7
Less than 18	62.8	59.3	66.1	68.7	69.9	69.7	68.7	67.5	59.2	60.1	57.8	56.8	66.0	66.2	53.1	53.5	52	47.5

No Prenatal Care

Prenatal care is important in a healthy and safe pregnancy and delivery. Without prenatal care, risk factors contributing to maternal and infant morbidity and mortality may not be identified and increase the risk of maternal and infant complications from the pregnancy. Jefferson County experienced an increase in the percent of women not receiving prenatal care since 2000. The number of pregnant women receiving no prenatal care is very small; however, increasing a small amount in the number of pregnant women who did not receive prenatal care results in a large percent change. The black sub-population has a number of women who did not receive prenatal care, as did the sub-population under age 18. In 2017, pregnant women receiving no prenatal care spiked at approximately 1.5% of all live births, and among women less than 18 years of age, the rate spiked at 5.7% of live births. The increase in women with no prenatal care was a statistically significant increase from the 2012 data used in the previous assessment.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	0.8	0.8	0.9	0.7	0.9	1.1	1.3	1.2	1.1	0.9	1.1	1.0	0.9	1.2	1.5	1.6	1.5	2.0
White	0.6	0.4	0.4	0.4	0.6	0.8	1.2	1.0	0.8	0.8	0.7	0.6	0.5	0.6	0.8	1.3	0.9	1.5
Black	1.0	1.3	1.3	1.1	1.2	1.3	1.5	1.3	1.6	1.2	1.6	1.4	1.4	1.9	2.1	1.9	2.3	2.7

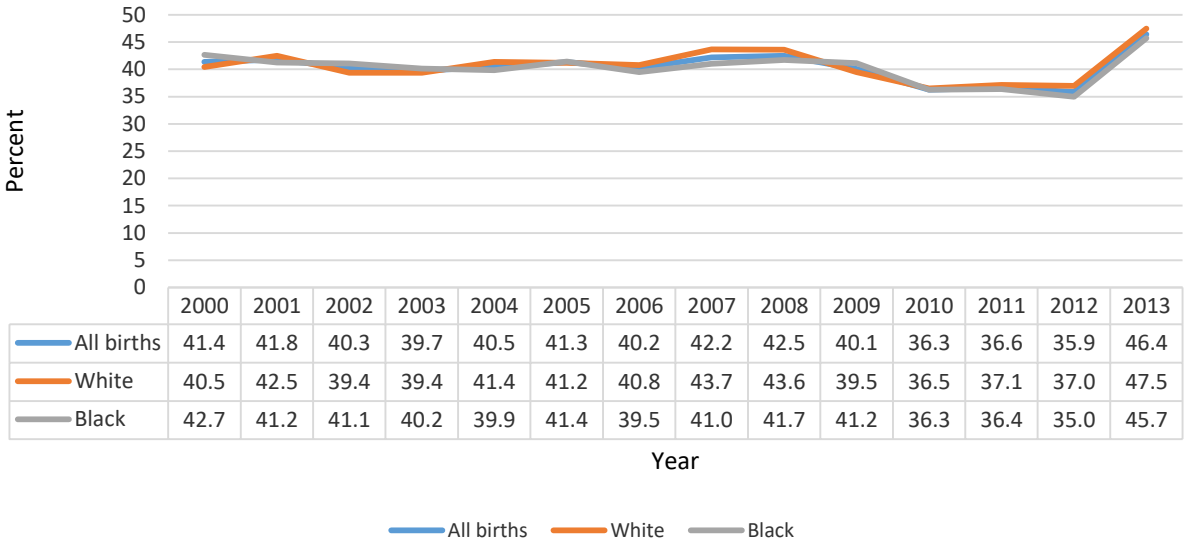


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	0.8	0.8	0.9	0.7	0.9	1.1	1.3	1.2	1.1	0.9	1.1	1.0	0.9	1.2	1.5	1.6	1.5	2.0
18 and Older	0.8	0.8	0.9	0.7	0.9	1.1	1.3	1.2	1.1	0.9	1.1	1.0	0.9	1.2	1.4	1.6	2.0	2.0
Less than 18	2.9	2.4	2.2	1.9	1.2	1.4	1.2	1.8	1.6	1.7	1.4	0.4	2.7	4.1	2.5	2.1	4.0	5.7

Short Interconceptional Interval

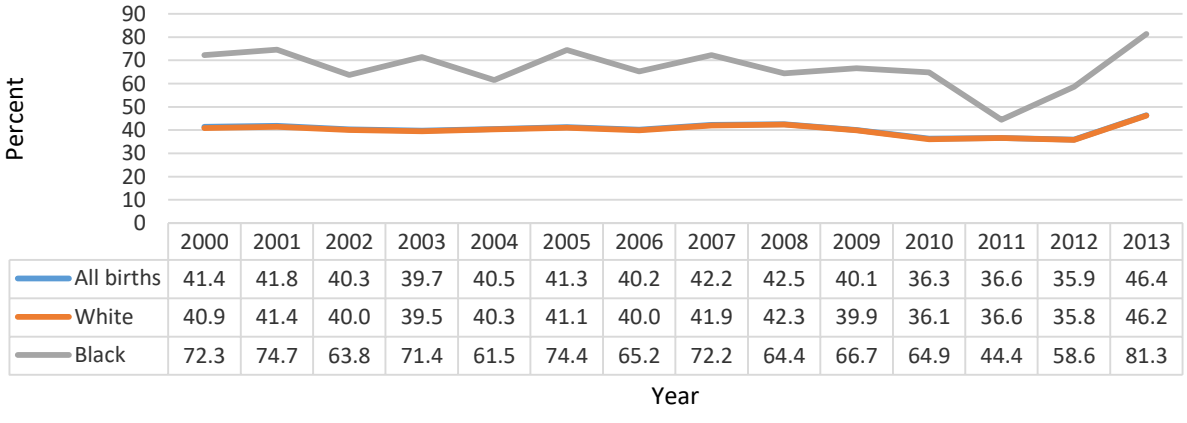
A short interconceptional interval is defined as a time period of less than two years between a woman's last delivery and current pregnancy conception. A woman with a multigravid pregnancy is one in which the woman has had more than one pregnancy. The percent of women with a short interconceptional interval decreased during 2000-2012 but increased in 2013. The short inteconceptional interval rate is higher among multigravida women less than age 18.

Percent of Multigravid Pregnancies with a Short Interconceptional Interval 2000-2013



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All births	41.4	41.8	40.3	39.7	40.5	41.3	40.2	42.2	42.5	40.1	36.3	36.6	35.9	46.4
White	40.5	42.5	39.4	39.4	41.4	41.2	40.8	43.7	43.6	39.5	36.5	37.1	37.0	47.5
Black	42.7	41.2	41.1	40.2	39.9	41.4	39.5	41.0	41.7	41.2	36.3	36.4	35.0	45.7

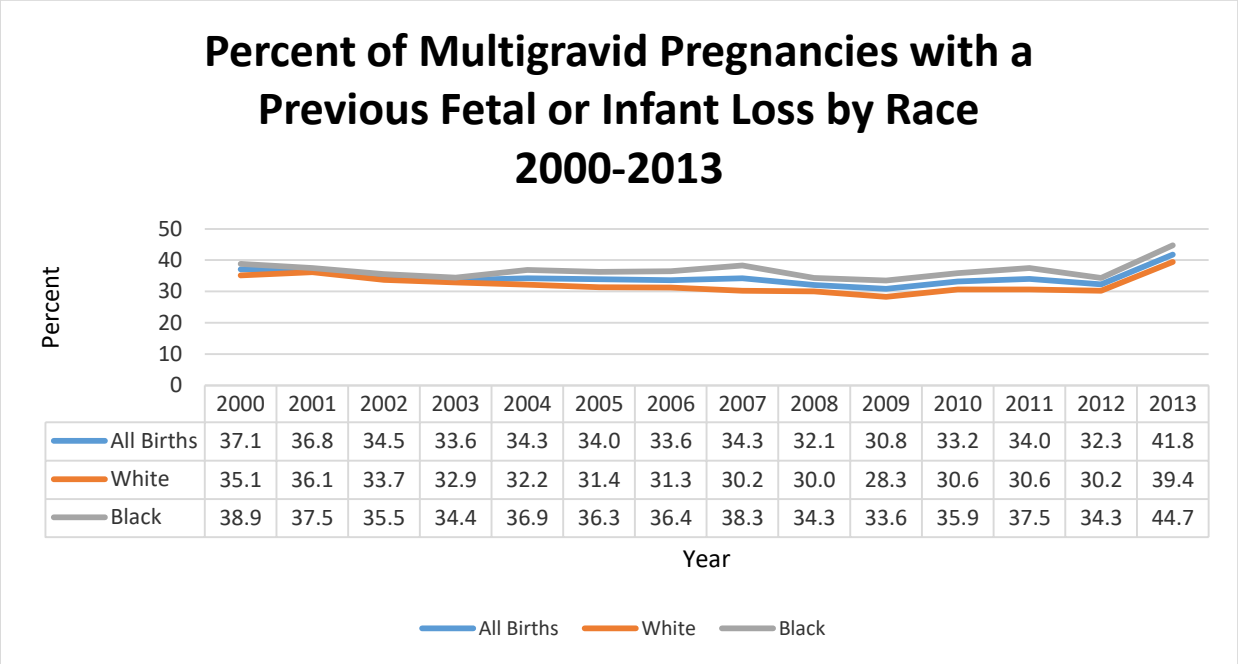
Percent of Multigravid Pregnancies with a Short Interconceptional Interval by Maternal Age 2000-2013



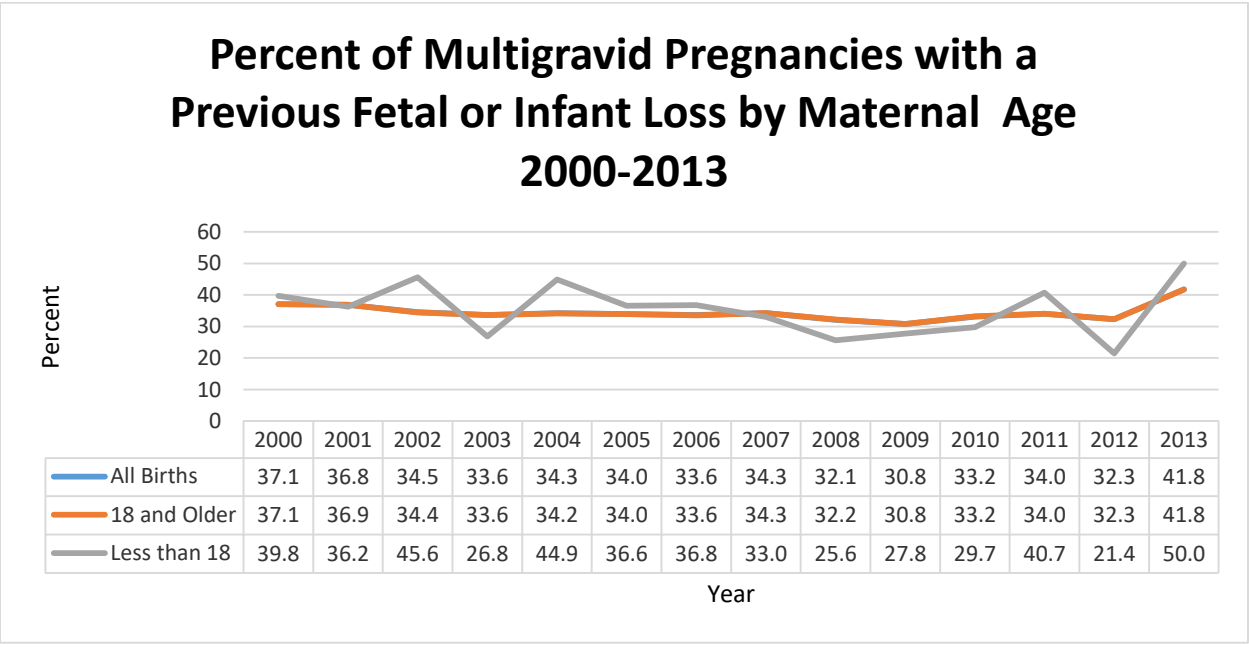
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All births	41.4	41.8	40.3	39.7	40.5	41.3	40.2	42.2	42.5	40.1	36.3	36.6	35.9	46.4
White	40.9	41.4	40.0	39.5	40.3	41.1	40.0	41.9	42.3	39.9	36.1	36.6	35.8	46.2
Black	72.3	74.7	63.8	71.4	61.5	74.4	65.2	72.2	64.4	66.7	64.9	44.4	58.6	81.3

Previous Loss (Fetal or Infant)

This indicator is the percent of pregnancies in which the mother has had a fetal or infant loss prior to the current pregnancy. The rate of previous loss for pregnancies declined from 2000 to 2012 and increased in 2013. The rate is higher among women less than 18 years of age.



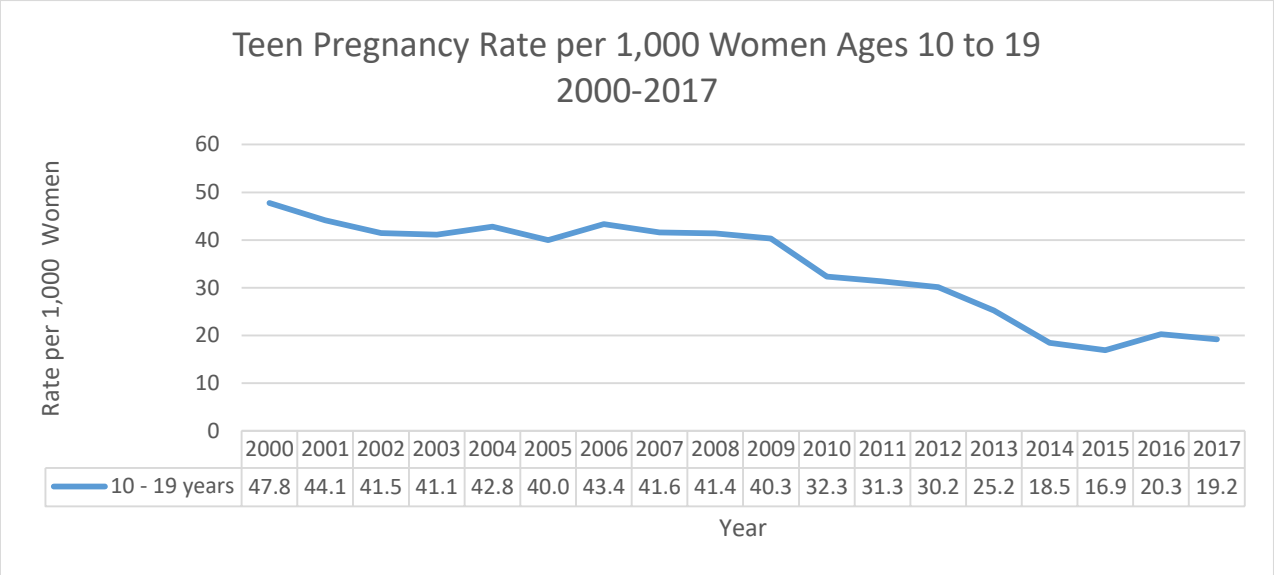
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All Births	37.1	36.8	34.5	33.6	34.3	34.0	33.6	34.3	32.1	30.8	33.2	34.0	32.3	41.8
White	35.1	36.1	33.7	32.9	32.2	31.4	31.3	30.2	30.0	28.3	30.6	30.6	30.2	39.4
Black	38.9	37.5	35.5	34.4	36.9	36.3	36.4	38.3	34.3	33.6	35.9	37.5	34.3	44.7



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All Births	37.1	36.8	34.5	33.6	34.3	34.0	33.6	34.3	32.1	30.8	33.2	34.0	32.3	41.8
18 and Older	37.1	36.9	34.4	33.6	34.2	34.0	33.6	34.3	32.2	30.8	33.2	34.0	32.3	41.8
Less than 18	39.8	36.2	45.6	26.8	44.9	36.6	36.8	33.0	25.6	27.8	29.7	40.7	21.4	50.0

Teen Pregnancy Rates

The teen pregnancy rate is calculated as the rate of teen pregnancies per 1,000 women between the ages of 10 and 19. This rate includes live births to teens, as well as induced terminations of a pregnancy and fetal losses. The overall teen pregnancy rate for Jefferson County has remained decreased in 2017 as compared to 2000, with a statistically significant decrease since 2012 when the last Community Health Assessment was completed.

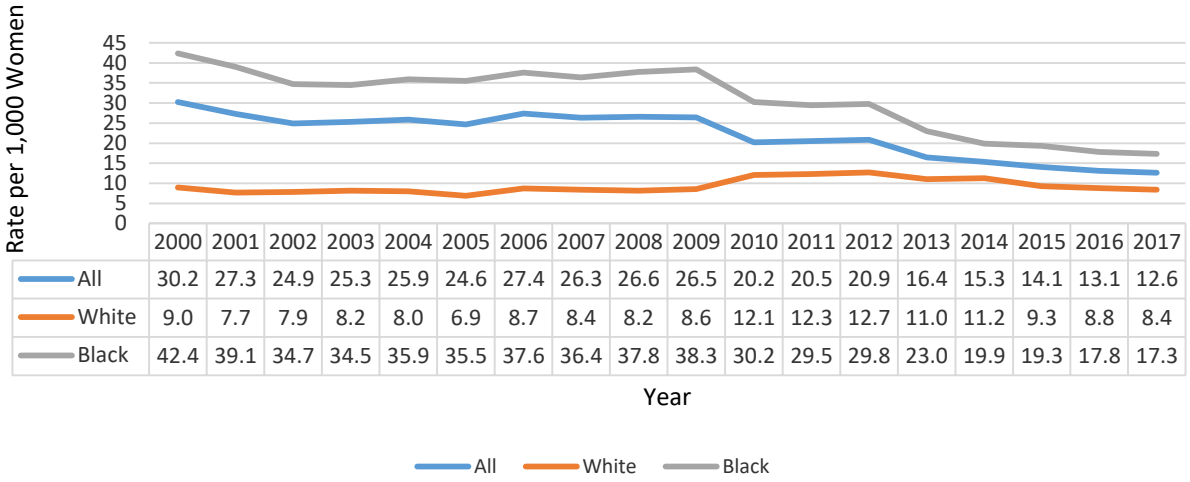


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
10 - 19 years	47.8	44.1	41.5	41.1	42.8	40.0	43.4	41.6	41.4	40.3	32.3	31.3	30.2	25.2	18.5	16.9	20.3	19.2

Teen Fertility Rate

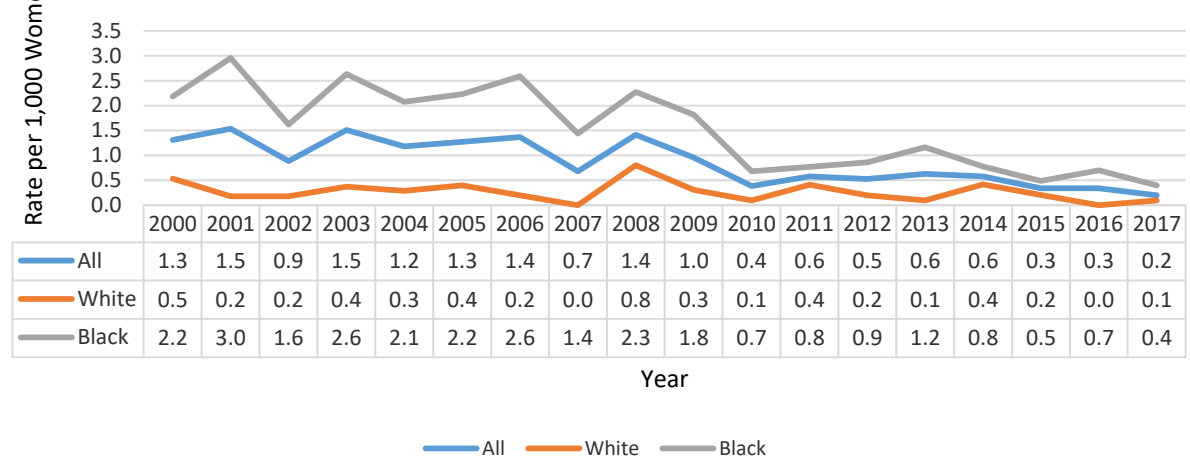
The teen fertility rate is the rate of live births to the population ages 10 through 19 years. The teen fertility rate has statistically significantly decreased from a rate of 30.2 live births per 1,000 women ages 10 to 19 years since 2000 to 12.6 live births per 1,000 women ages 10 to 19 years in Jefferson County.

Teen Fertility Rate: Live Births per 1,000 Women Ages 10 to 19 2000-2017

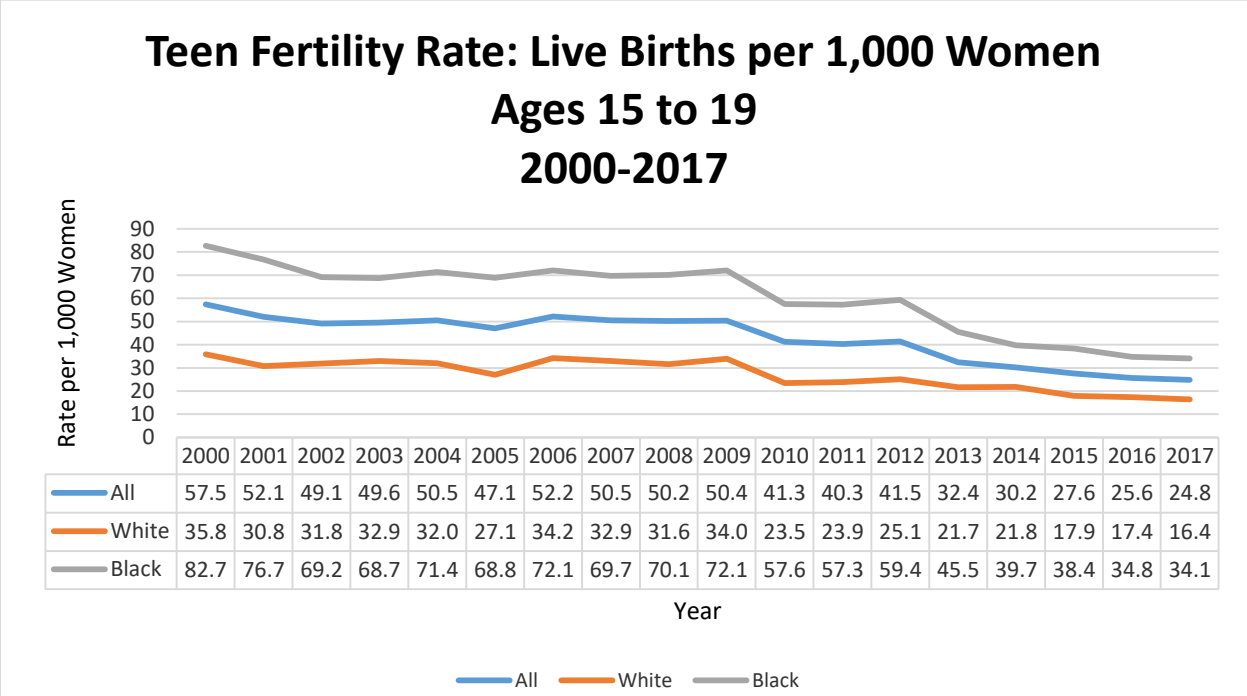


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	30.2	27.3	24.9	25.3	25.9	24.6	27.4	26.3	26.6	26.5	20.2	20.5	20.9	16.4	15.3	14.1	13.1	12.6
White	9.0	7.7	7.9	8.2	8.0	6.9	8.7	8.4	8.2	8.6	12.1	12.3	12.7	11.0	11.2	9.3	8.8	8.4
Black	42.4	39.1	34.7	34.5	35.9	35.5	37.6	36.4	37.8	38.3	30.2	29.5	29.8	23.0	19.9	19.3	17.8	17.3

Teen Fertility Rate: Live Births per 1,000 Women Ages 10 to 14 2000-2017



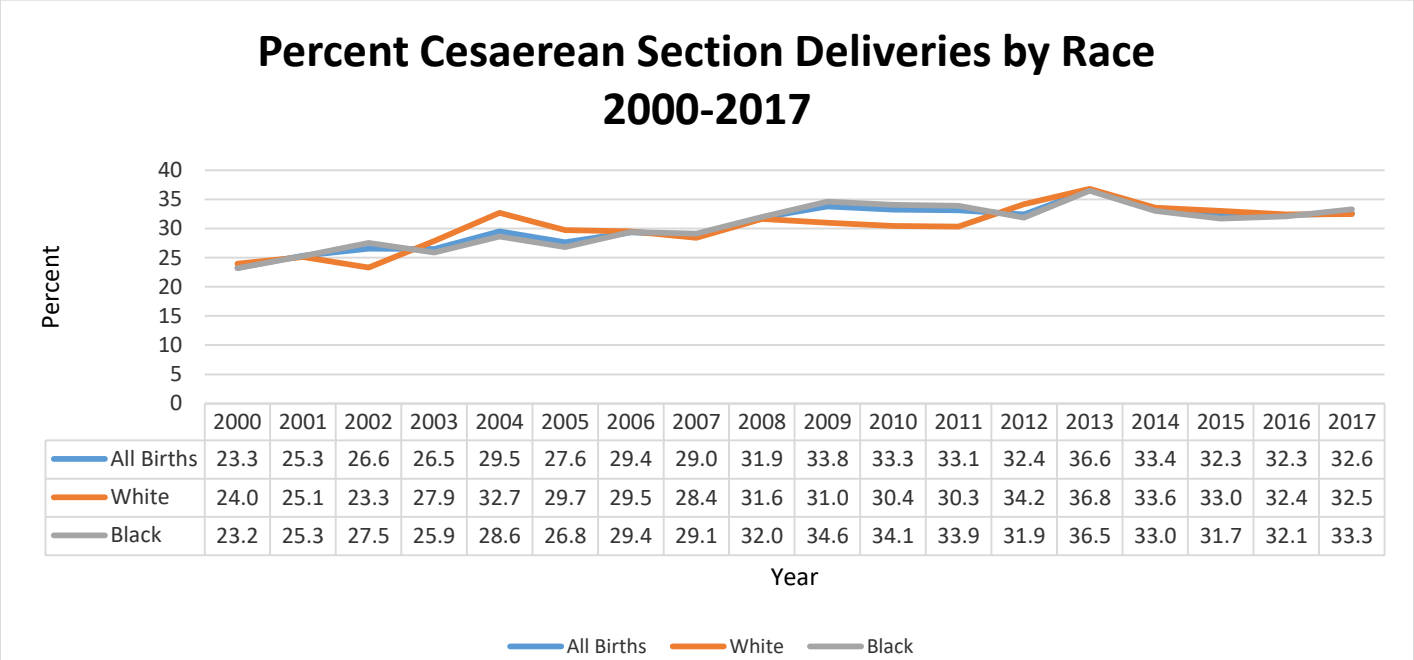
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	1.3	1.5	0.9	1.5	1.2	1.3	1.4	0.7	1.4	1.0	0.4	0.6	0.5	0.6	0.6	0.3	0.3	0.2
White	0.5	0.2	0.2	0.4	0.3	0.4	0.2	0.0	0.8	0.3	0.1	0.4	0.2	0.1	0.4	0.2	0.0	0.1
Black	2.2	3.0	1.6	2.6	2.1	2.2	2.6	1.4	2.3	1.8	0.7	0.8	0.9	1.2	0.8	0.5	0.7	0.4



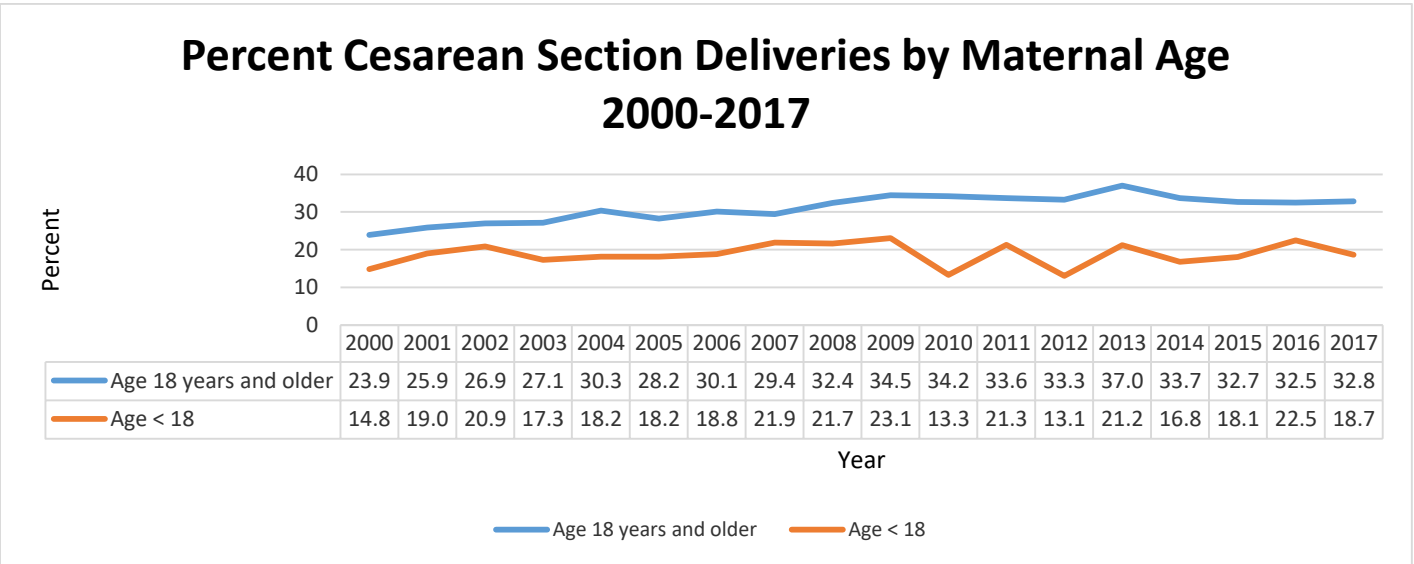
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	57.5	52.1	49.1	49.6	50.5	47.1	52.2	50.5	50.2	50.4	41.3	40.3	41.5	32.4	30.2	27.6	25.6	24.8
White	35.8	30.8	31.8	32.9	32.0	27.1	34.2	32.9	31.6	34.0	23.5	23.9	25.1	21.7	21.8	17.9	17.4	16.4
Black	82.7	76.7	69.2	68.7	71.4	68.8	72.1	69.7	70.1	72.1	57.6	57.3	59.4	45.5	39.7	38.4	34.8	34.1

Cesarean Section Deliveries

Cesarean Section is a medical intervention that can reduce maternal or infant death during obstructed labor, and when other medical indications of a complex delivery are present. Cesarean Section deliveries, however, can also result in adverse maternal and infant complications whose impact may be avoided when the Cesarean Section delivery is not indicated. An increasing Caesarean Section delivery rate may indicate an increase in risky deliveries or an increased rate for non-indicated Cesarean Section deliveries. The rate of Caesarean Section deliveries in Jefferson County has increased by 39.9% since 2000 to represent 32.6% of the total deliveries in 2017. The increased rate of Caesarean Section deliveries in women under the age of 18 years between 2012 and 2017 was not statistically significant.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All Births	23.3	25.3	26.6	26.5	29.5	27.6	29.4	29.0	31.9	33.8	33.3	33.1	32.4	36.6	33.4	32.3	32.3	32.6
White	24.0	25.1	23.3	27.9	32.7	29.7	29.5	28.4	31.6	31.0	30.4	30.3	34.2	36.8	33.6	33.0	32.4	32.5
Black	23.2	25.3	27.5	25.9	28.6	26.8	29.4	29.1	32.0	34.6	34.1	33.9	31.9	36.5	33.0	31.7	32.1	33.3

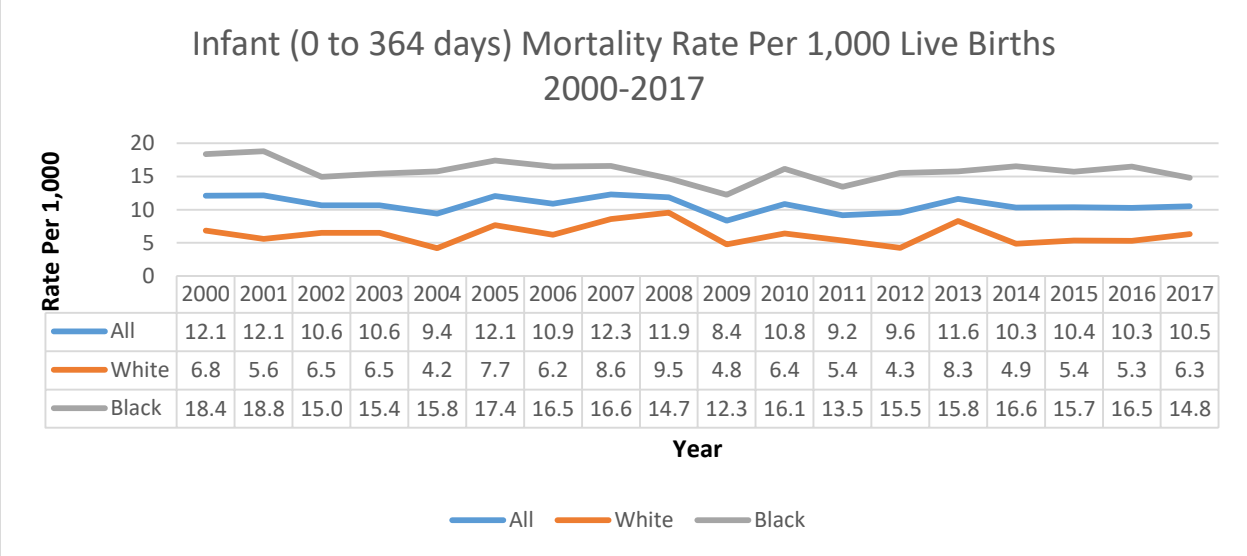


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Age 18 years and older	23.9	25.9	26.9	27.1	30.3	28.2	30.1	29.4	32.4	34.5	34.2	33.6	33.3	37.0	33.7	32.7	32.5	32.8
Age < 18	14.8	19.0	20.9	17.3	18.2	18.2	18.8	21.9	21.7	23.1	13.3	21.3	13.1	21.2	16.8	18.1	22.5	18.7

Infant Mortality

The infant mortality rate is a critical indicator of community health. Infant mortality is defined as the death of an infant between live birth and 364 days of after birth. There are two methods for calculating an infant mortality rate. The most common infant mortality calculation is established by taking the

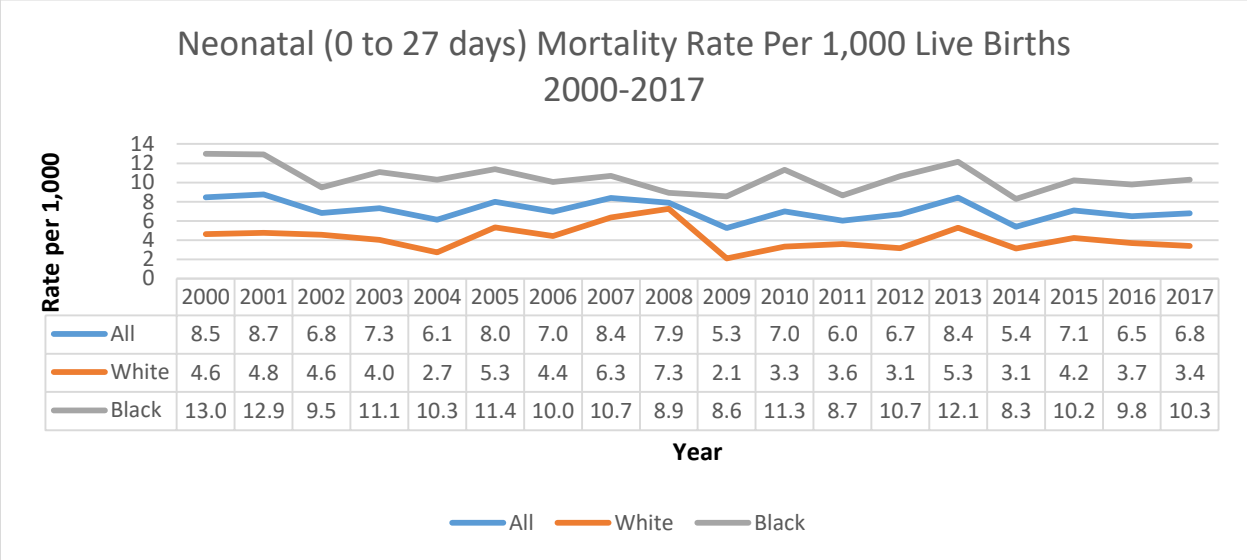
number of infant deaths occurring in a given year and dividing that number by the total number of live births during the same year; however, this method does not take into consideration the year in which the deceased infant was actually born. An infant born in 2013 may die in 2014 and have experienced mortality within his or her first year of life. The more accurate method of calculating infant mortality is to use the birth cohort which links the infant death record with the birth record for that infant. This method provides a more accurate representation of the actual mortality experience of a group of infants born within a particular year. The overall infant mortality rate for Jefferson County has decreased slightly from 12.1 deaths per 1,000 live births in 2000 to 10.5 deaths per 1,000 live births in 2017. This trend is seen in the white and black sub-populations; however, the 2017 infant mortality rate of 14.8 deaths per 1,000 live births in the black sub-population was 134.9% higher than the infant mortality rate of 6.3 deaths per 1,000 live births in the white sub-population. This disparity in rates by race is statistically significant. Jefferson County's infant mortality rate remains substantially higher than the 2016 US infant mortality rate of 5.87 deaths per 1,000 live births and is higher than the Healthy People 2020 goal of 6.6 infant deaths per 1,000 live births.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	12.1	12.1	10.6	10.6	9.4	12.1	10.9	12.3	11.9	8.4	10.8	9.2	9.6	11.6	10.3	10.4	10.3	10.5
White	6.8	5.6	6.5	6.5	4.2	7.7	6.2	8.6	9.5	4.8	6.4	5.4	4.3	8.3	4.9	5.4	5.3	6.3
Black	18.4	18.8	15.0	15.4	15.8	17.4	16.5	16.6	14.7	12.3	16.1	13.5	15.5	15.8	16.6	15.7	16.5	14.8

Neonatal Mortality

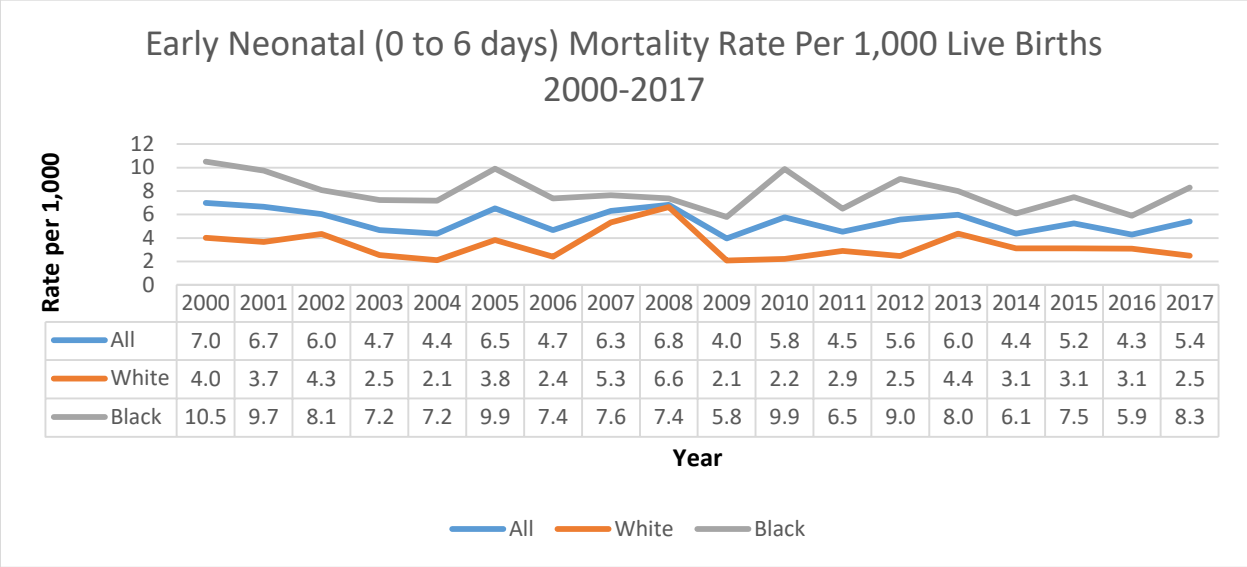
Neonatal mortality is an infant death that occurs from live birth to 27 days following the live birth. Most infant deaths occur during the neonatal period. Neonatal infant mortality rates have decreased since 2000 among the white and black sub-populations within Jefferson County. The Healthy People 2020 neonatal mortality goal is 4.1 or fewer neonatal deaths per 1,000 live births; the Jefferson County rate is 6.8 neonatal deaths per 1,000 live births.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	8.5	8.7	6.8	7.3	6.1	8.0	7.0	8.4	7.9	5.3	7.0	6.0	6.7	8.4	5.4	7.1	6.5	6.8
White	4.6	4.8	4.6	4.0	2.7	5.3	4.4	6.3	7.3	2.1	3.3	3.6	3.1	5.3	3.1	4.2	3.7	3.4
Black	13.0	12.9	9.5	11.1	10.3	11.4	10.0	10.7	8.9	8.6	11.3	8.7	10.7	12.1	8.3	10.2	9.8	10.3

Early Neonatal Infant Mortality

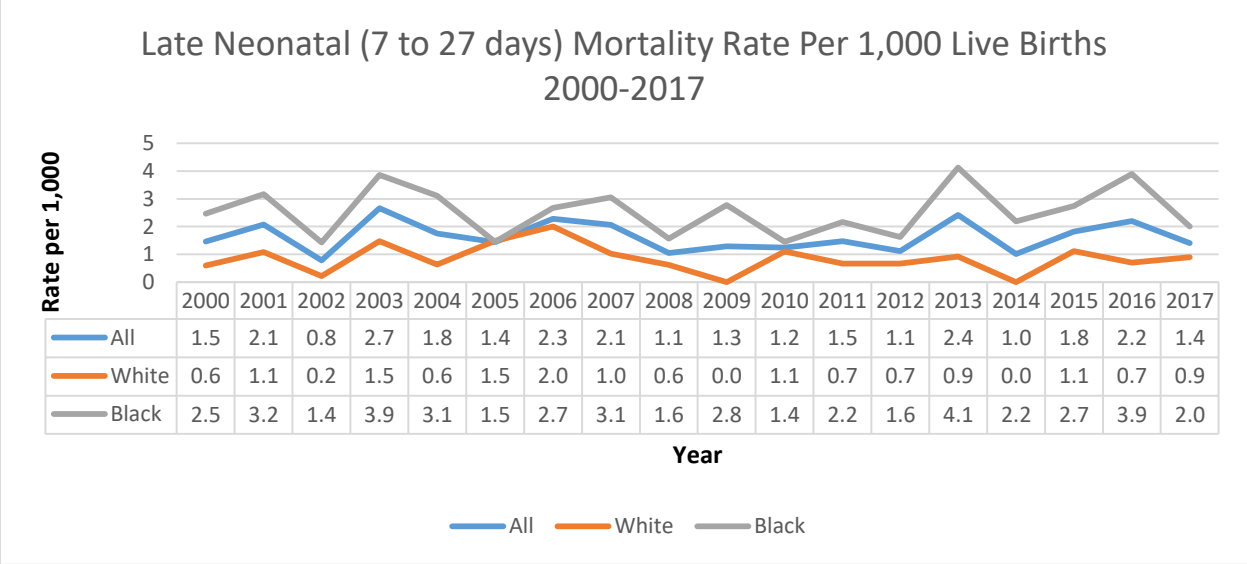
Early neonatal infant mortality is infant death occurring between live birth and six days after live birth. Early neonatal mortality makes up the majority of neonatal infant deaths. Early neonatal mortality rates have decreased for both the white and black sub-populations since 2000; however in 2017, the overall early neonatal mortality rate and this rate among the black sub-population decreased slightly from the 2012 rate of nine infant deaths per 1,000 live births.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	7.0	6.7	6.0	4.7	4.4	6.5	4.7	6.3	6.8	4.0	5.8	4.5	5.6	6.0	4.4	5.2	4.3	5.4
White	4.0	3.7	4.3	2.5	2.1	3.8	2.4	5.3	6.6	2.1	2.2	2.9	2.5	4.4	3.1	3.1	3.1	2.5
Black	10.5	9.7	8.1	7.2	7.2	9.9	7.4	7.6	7.4	5.8	9.9	6.5	9.0	8.0	6.1	7.5	5.9	8.3

Late Neonatal Infant Mortality

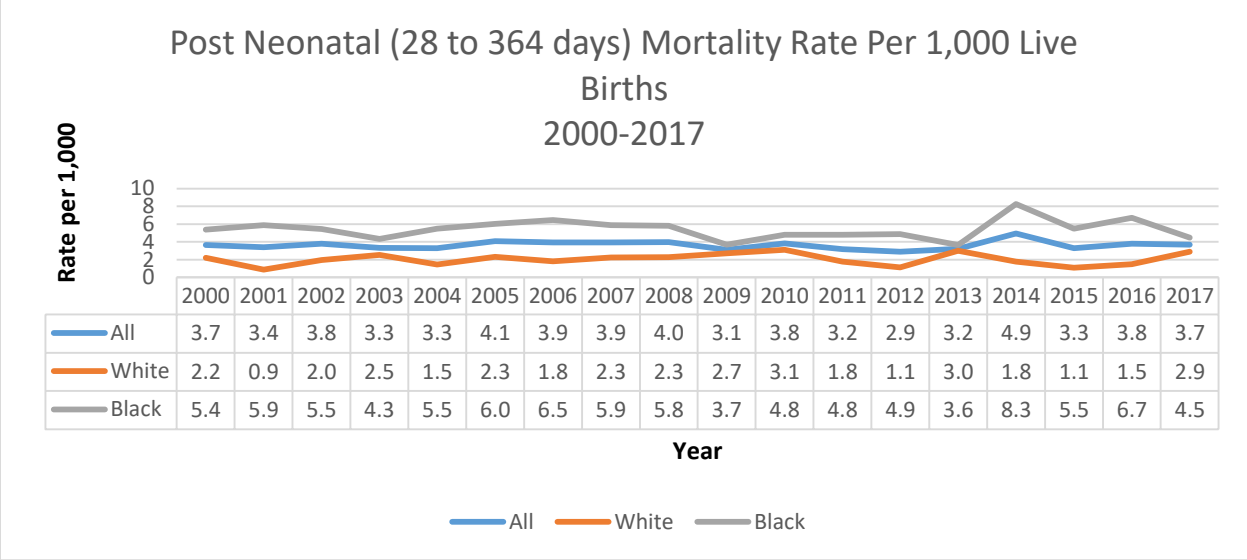
Late neonatal infant mortality is infant death that occurs between seven and 27 days following live birth. Late neonatal mortality rates fluctuate in Jefferson County, but generally are higher in the black sub-population.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	1.5	2.1	0.8	2.7	1.8	1.4	2.3	2.1	1.1	1.3	1.2	1.5	1.1	2.4	1.0	1.8	2.2	1.4
White	0.6	1.1	0.2	1.5	0.6	1.5	2.0	1.0	0.6	0.0	1.1	0.7	0.7	0.9	0.0	1.1	0.7	0.9
Black	2.5	3.2	1.4	3.9	3.1	1.5	2.7	3.1	1.6	2.8	1.4	2.2	1.6	4.1	2.2	2.7	3.9	2.0

Post-neonatal Mortality

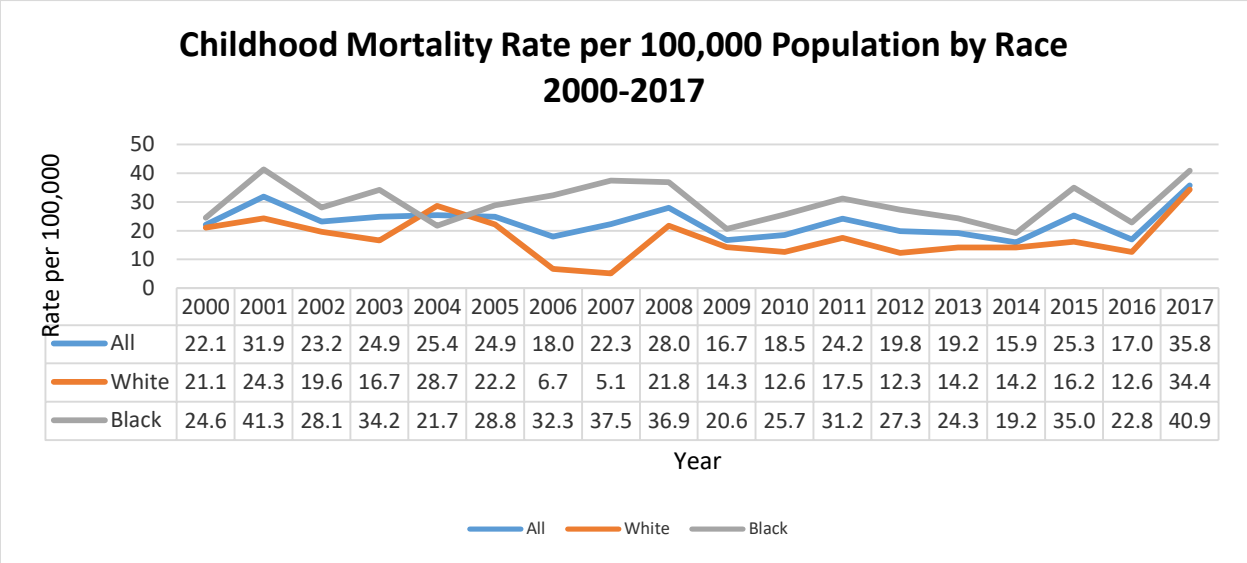
Post-neonatal mortality is infant death occurring between 28 and 364 days after live birth. Post-neonatal infant mortality rates increased among the black sub-population and white sub-populations.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	3.7	3.4	3.8	3.3	3.3	4.1	3.9	3.9	4.0	3.1	3.8	3.2	2.9	3.2	4.9	3.3	3.8	3.7
White	2.2	0.9	2.0	2.5	1.5	2.3	1.8	2.3	2.3	2.7	3.1	1.8	1.1	3.0	1.8	1.1	1.5	2.9
Black	5.4	5.9	5.5	4.3	5.5	6.0	6.5	5.9	5.8	3.7	4.8	4.8	4.9	3.6	8.3	5.5	6.7	4.5

Childhood Mortality

Childhood mortality is defined as the death of a child between one and fourteen years of age. This measure is an important indicator of early death in a population. Jefferson County childhood mortality rates have increased by 62.9% from the 2000 rate of 22.1 per 100,000 population to the 2017 rate of 35.8 per 100,000 population. Notably, the child mortality rate in 2017 has increased overall and in both the white and black sub-populations.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All	22.1	31.9	23.2	24.9	25.4	24.9	18.0	22.3	28.0	16.7	18.5	24.2	19.8	19.2	15.9	25.3	17.0	35.8
White	21.1	24.3	19.6	16.7	28.7	22.2	6.7	5.1	21.8	14.3	12.6	17.5	12.3	14.2	14.2	16.2	12.6	34.4
Black	24.6	41.3	28.1	34.2	21.7	28.8	32.3	37.5	36.9	20.6	25.7	31.2	27.3	24.3	19.2	35.0	22.8	40.9

Maternal and Child Health Findings

There is desirable change among some of Jefferson County's maternal and child health indicators which demonstrate areas of improved maternal and child health. The rate of preterm births, the rate of smoking during pregnancy, and infant mortality rate have decreased since 2000. Among teenagers, pregnancy in women between the ages of 10 and 19, overall pregnancy outcomes and birth outcomes are indicating improvement as well. The teen pregnancy rate in 2017 decreased statistically significantly as compared to the 2012 teen pregnancy rate, as has the overall rate of teen smoking during pregnancy, and the percent of very low birth weight infants born to teens. These indicators demonstrate that Jefferson County women exceed the national averages in the percentage of women who abstain from smoking during pregnancy and in percentage of preterm deliveries, both of which improve the health outcomes for the mother and infant.

Despite improvements in outcomes such as infant mortality and preterm births over time, Jefferson County continues to fall behind the national goals and averages for these birth outcomes. The statistically significant gap between infant mortality in the black and white populations and in other maternal and child health indicators demonstrates health disparities that need to be addressed to

improve maternal and child health in Jefferson County. Jefferson County continues to lag behind the United States with an infant mortality rate that is much higher than the national infant mortality rate. The decrease in adequate prenatal care received by Jefferson County mothers and the increase in the percent of mothers who receive no prenatal care are alarming trends that need to be addressed.

Rates of very low birth weight have remained static, but Intrauterine Growth Restriction has increased slightly since 2000 in Jefferson County. Rates of Caesarean Section deliveries, especially in women over the age of 18, have continued to increase since 2000. High rates of very low birth weight infants, Intrauterine Growth Restriction and Cesarean Section deliveries represent areas for continued health improvement in Jefferson County.

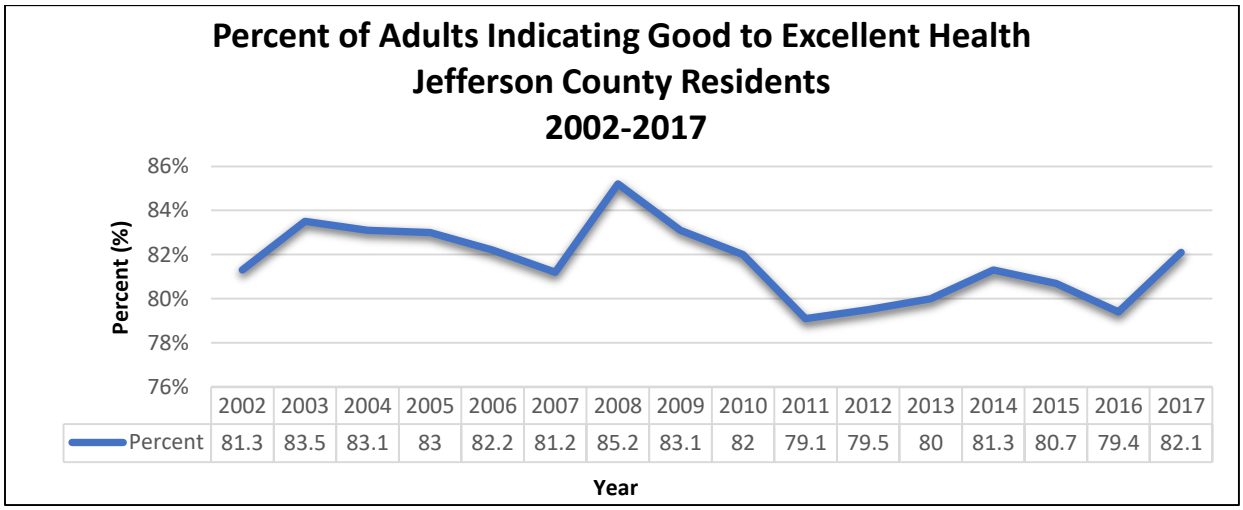
Quality of Life[1,66-71]

Quality of Life indicators include population self-reported categorization of health, number of self-reported poor mental and physical health days, voter registration/turnout, and data on violent crimes. These indicators represent aspects of daily residential life that play a role in overall health and well-being. Quality of Life indicators have significant implications for health-related policies within Jefferson County. Healthy People 2020 included Quality of Life as one of its overarching goals, and one of the Healthy People 2020 four foundation measures. Quality of life indicators are multi-dimensional and assist with promoting health behaviors that not only minimize illness and disease but foster improved health outcomes.

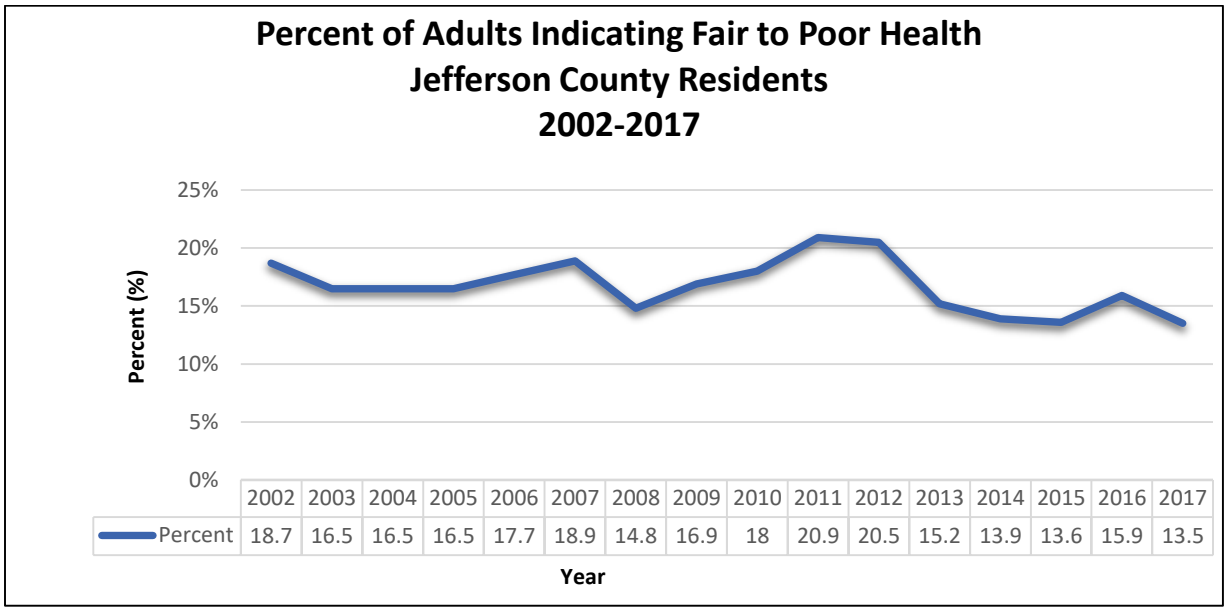
General Health

The Behavioral Risk Factor Surveillance System (BRFSS) asks each telephone respondent to describe his or her general health as excellent, very good, good, fair or poor. In 2011, the BRFSS changed its telephone sampling methodology to include cell phone numbers. Considering this change in methodology, results following 2011 cannot be accurately compared to results prior to the 2011 sampling change.

From 2002 to 2017, the BRFSS results of those indicating that their health rated between excellent and good remained static at an average of 81.6% of survey respondents. During the same years, those indicating fair or poor health remained static at an average of 15.7%. Following the 2011 sampling change, the percent of the population indicating excellent to good health decreased to an average of 80.3% and an average of 16.2% indicated fair or poor health.

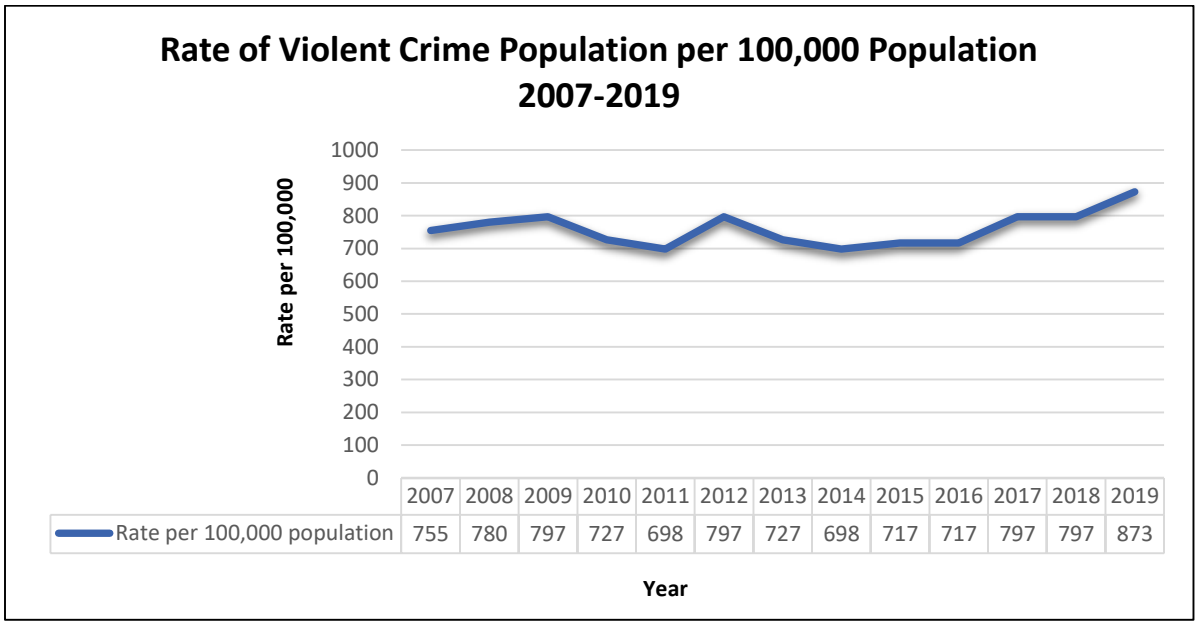


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent	81.3	83.5	83.1	83	82.2	81.2	85.2	83.1	82	79.1	79.5	80	81.3	80.7	79.4	82.1



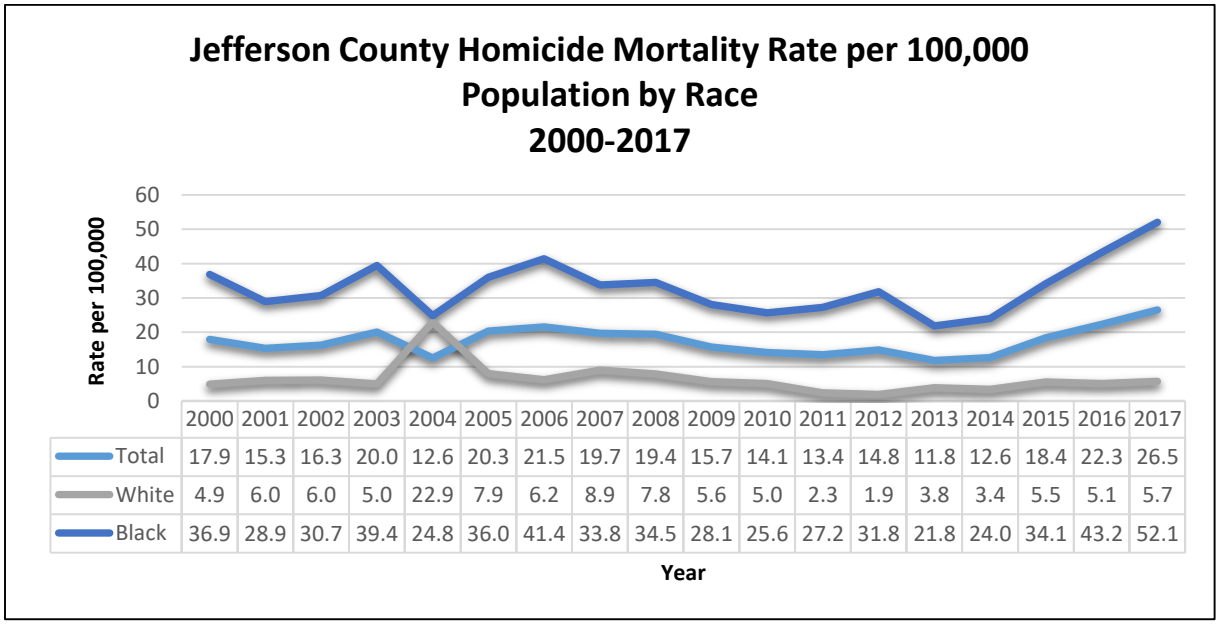
Violent Crime

Violent crime is defined as offenses that involve face-to-face confrontation between the victim and the perpetrator and is represented as a rate per 100,000 population. Crimes included in this rate are homicide, forcible rape, robbery and aggravated assault. The violent crime rate is represented as a two year rolling average, and the rate is reported as the last year. Violent crime exposure impacts the community in various aspects. According to Healthy People 2020, Children and adolescents exposed to violence are at risk for poor long-term behavioral and mental health outcomes regardless of whether they are victims, direct witnesses or hear about crime. The rolling two year violent crime rate decreased from 727 to 698 per 100,000 population for 2013-2014 and has gradually increased since 2015. Jefferson County's 2019 Violent Crime Rate is 873 per 100,000 population; which is higher than the state of Alabama's 2019 violent crime rate of 480 violent crimes per 100,000 population. Addressing violent crime as a public health issue within Jefferson County may help to improve quality of life indicators by reducing violent crime exposure that may ultimately influence the health and well-being of the community and improve life expectancy.



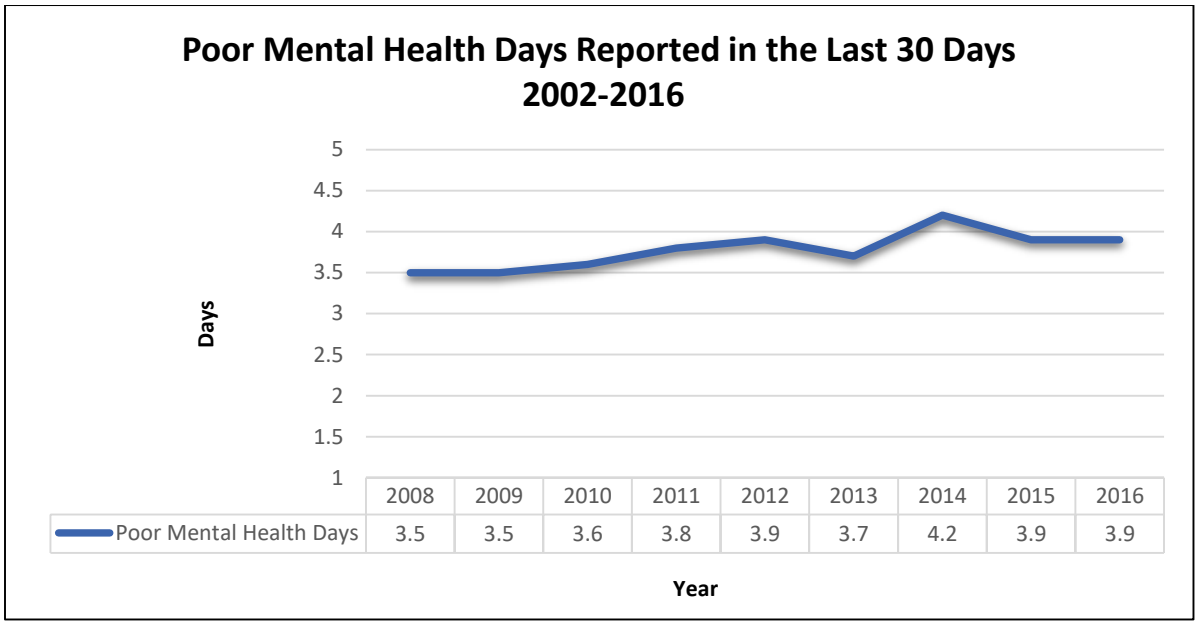
Homicide

Homicide rates increased in Jefferson County by 16.8% from 14.8 per 100,000 population in 2012 to 26.5 per 100,000 population in 2017. Although statistically significantly higher in the overall population and among the black sub-population, an increased homicide rate was also noted in the white sub-populations of Jefferson County between 2012 and 2017.



Poor Mental Health Days

This measure represents the age-adjusted average number of mentally unhealthy days reported by BRFSS respondents during the 30 days prior to the survey. An increase in the mean number of poor mental health days has been reported since 2008; however, this increase is not statistically significant. This data is reported as the last year of a six year rolling average.



Voter Registration and Turnout

Voter registration and turnout for elections represents Jefferson County's residents' level of engagement in the local, state and national political process.

Local Elections:

Data for the table below represents the primary run-off election held on July 15, 2014 and Jefferson County primary run-off election held on November 6, 2018. Data from other local elections are not provided due to difficulties in combining data from the variety of local municipalities and differing local items considered by each municipality.

	Registered Voters	Number Voted	Percent Voted
Primary Run-off Election- July 15, 2014	425,580	58,532	13.8%
Primary Run-off Election –July 17, 2018	479,959	258,920	53.9%

State-wide Elections:

State-wide elections held every four years, include elections for state-wide representatives and statewide issues. While the percent of registered voters increased during state-wide election years, the percentage of registered voters that actually voted in the election fluctuated.

Year	Eligible to Vote	Registered to Vote	Percent Registered	Number Voted	Percent Voted
2002	497,029	343,861	69.2%	216,211	62.9%
2006	499,219	356,242	71.4%	180,792	50.7%
2010	503,804	380,260	75.5%	213,704	56.2%
2014	507,954	411,086	81.0 %	Not available	Not available
2018	Not available	479,959	Not available	258,920	54.0%

National Elections:

National elections, held every four years, include presidential elections. The percent of registered voters has fluctuated during election years; however, the percent of registered voters who voted increased between 2004 and 2012, but declined in 2016.

Year	Eligible to Vote	Registered to Vote	Percent Registered	Number Voted	Percent Voted
2004	497,763	385,386	77.4%	293,355	76.1%
2008	500,578	414,002	82.7%	318,968	77%
2012	504,877	385,364	76.3%	305,014	79.1%
2016	508,102	456,841	89.9%	305,851	66.9%

Quality of Life Findings

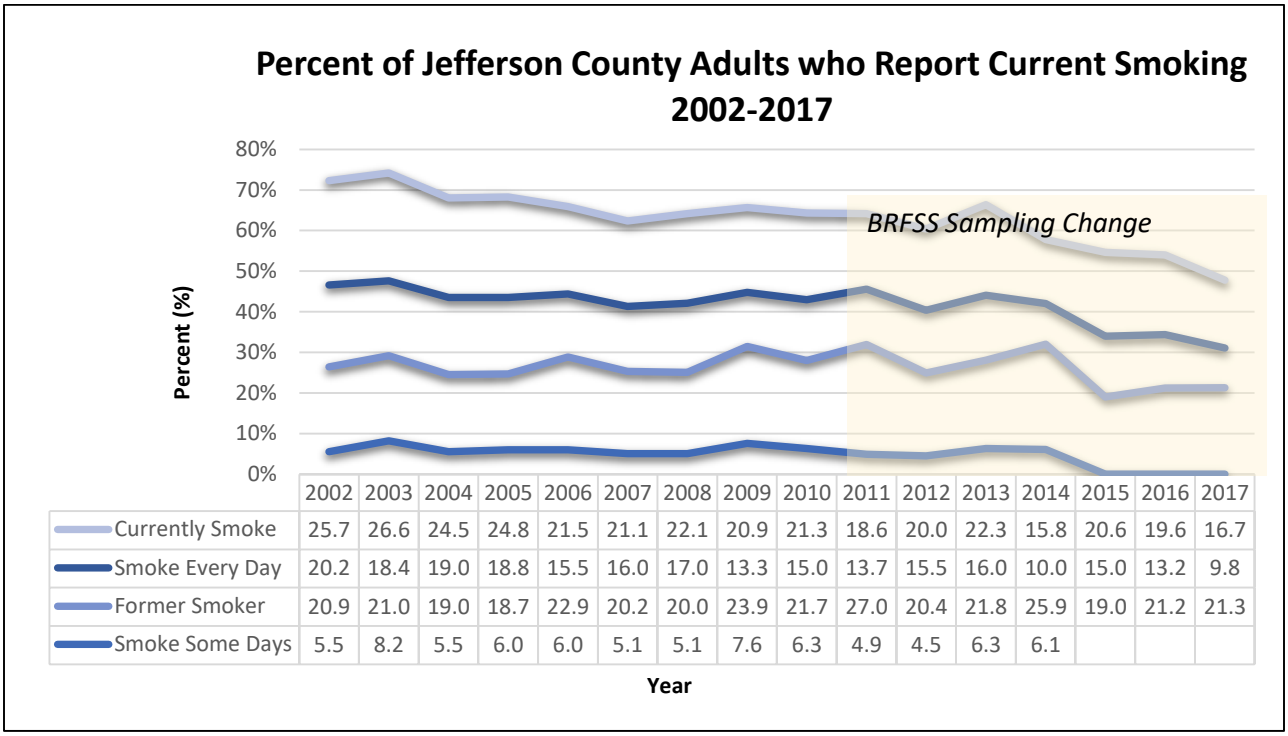
Healthy People 2020 identified improving quality of life as a core public health goal. Quality of Life trending among the quality of life indicators is difficult to determine. The percent of the population reporting less than good health has decreased. Poor physical and mental health days have increased, but these increases are not statistically significant. Rates of Violent Crime per 100,000 population have gradually increased across a five year timespan. While voter registration and turnout trends have fluctuated by election year, it appears that more voters are registering during state election years and more voters are voting during national election years, with the exception of 2016.

Behavioral Risk Factors[1,66-71]

Behavioral risk factors represent individual behaviors that play a role in determining an individual's health status. Measures included in this category are tobacco use, alcohol use, exercise, overweight, obesity, seatbelt use and depression.

Smoking

The percent of the Jefferson County adult population reporting current smoking has decreased over time. In 2017, 16.7% of Jefferson County adults reported currently smoking. The US Healthy People 2020 goal is 12% of the adult population reporting current smoking. The "Smoke Some Days" category data for 2015-2017 was suppressed due to a small sample size.

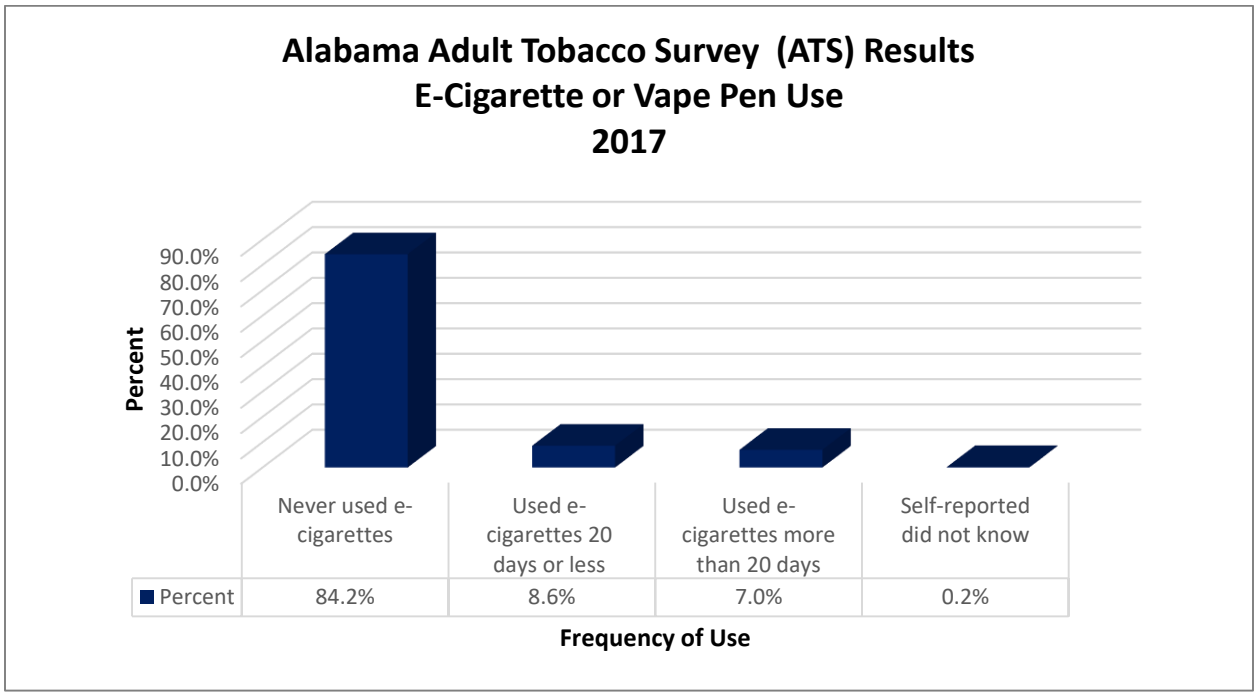


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Currently Smoke	25.7	26.6	24.5	24.8	21.5	21.1	22.1	20.9	21.3	18.6	20.0	22.3	15.8	20.6	19.6	16.7
Smoke Every Day	20.2	18.4	19.0	18.8	15.5	16.0	17.0	13.3	15.0	13.7	15.5	16.0	10.0	15.0	13.2	9.8
Former Smoker	20.9	21.0	19.0	18.7	22.9	20.2	20.0	23.9	21.7	27.0	20.4	21.8	25.9	19.0	21.2	21.3
Smoke Some Days	5.5	8.2	5.5	6.0	6.0	5.1	5.1	7.6	6.3	4.9	4.5	6.3	6.1			

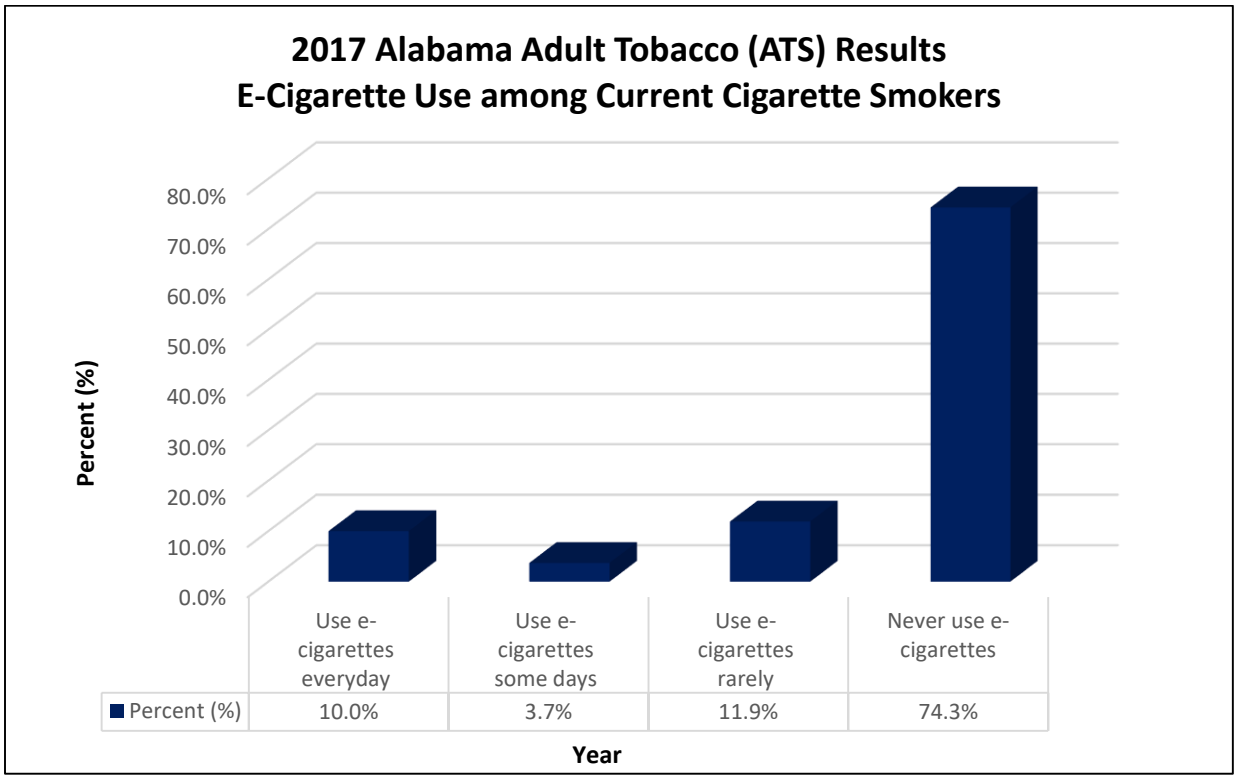
E-Cigarette or Vape Pen Use

E-Cigarettes produce a heated aerosol typically containing nicotine, which users inhale through a mouthpiece. The health effects of nicotine are well known; however, the health consequences of nicotine as an aerosol has become an increasing public health concern. The 2017 Alabama Adult Tobacco Survey (ATS) is a telephone survey of 1,131 adult Alabama residents. This survey contains self-reported data that assesses tobacco related behaviors and attitudes at the state level. However, according to Alabama Department of Public Health, the sampling is not designed to provide sub-state level data. Additionally, 2016 ATS data only asked current cigarette users about e-cigarette use. As a result, prevalence data for e-cigarette use cannot be compared across years.

In 2017, respondents were asked how many days in their entire life they had used e-cigarettes. The bar chart presents 2017 ATS data for each of the response categories. Percentages are based on a full sample with a margin of error of ±3% and a 95% confidence interval.

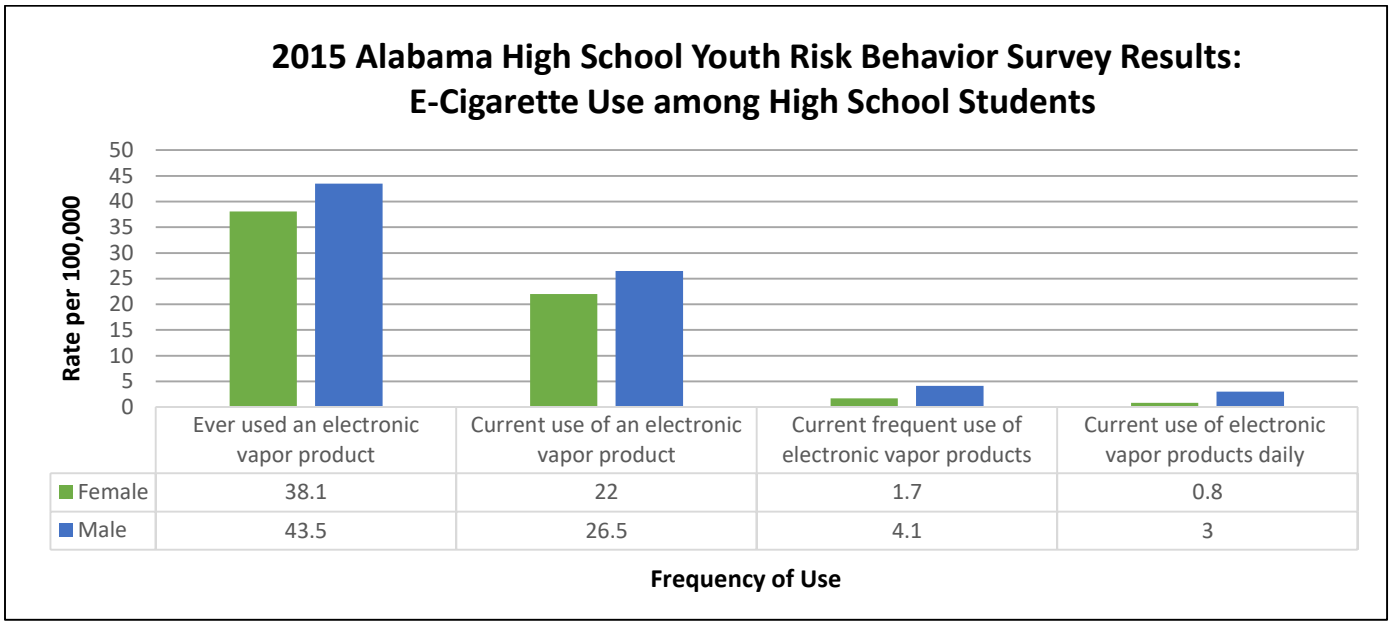


Respondents that had used e-cigarettes on one or more days became the sample for the remaining e-cigarette questions in the ATS. The bar graph depicts the full sample of e-cigarette users with a margin of error of ±3% and a 95% confidence interval. The majority of current cigarette smokers indicated they had not used e-cigarettes in the past 30 days.[4] ATS results indicated that Individuals who were current smokers and males were more likely than non-smokers and females to have used e-cigarettes. Females were more likely to use flavored cigarettes. Non-smokers tried to quit e-cigarette more times than smokers in the past year. More males than females tried to quit e-cigarettes in the past year and females were more likely to say they did not know how many times they tried to quit.



E-Cigarette or Vape Pen Use in Youth
Youth Risk Behavior Surveillance (YRBS)

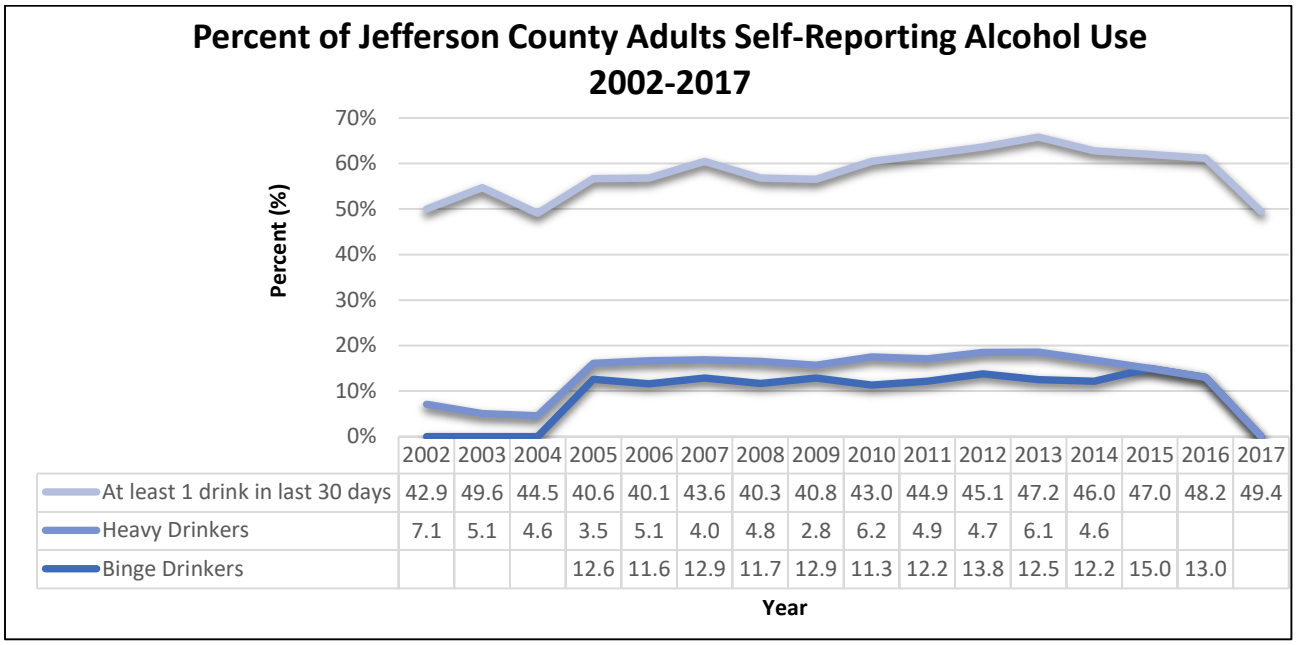
The Youth Risk Behavior Surveillance System (YRBSS) has a school-based Youth Risk Behavior Survey (YRBS) which conducts school based surveys by state, local education and health agencies. All respondents were asked if they had ever used an electronic vapor product, currently use an electronic vapor product, currently use electronic vapor products frequently, or currently use electronic vapor products daily. The bar graph presents responses from the full sample with a 95% confidence interval. There was no statistical difference between females and males who ever used an electronic vapor product and currently used an electronic vapor product. However, there was a statistical difference in the percentage of males who reported current frequent use of electronic vapor products and current use of electronic vapor products daily. In the state of Alabama, males are more likely than females to frequently use electronic vapor products. Males are also more likely than females to use electronic vapor products daily.



Data Source: Alabama, High School Youth Risk Behavior Survey, 2015

Alcohol Use

Alcohol use is defined as having one or more alcoholic beverages within the last 30 days, heavy drinkers are defined as males who drink two or more alcoholic drinks per day or females who drink one or more alcoholic drinks per day. Binge drinking is defined as consuming five or more alcoholic drinks on a single occasion for a male or four or more alcoholic drinks on a single occasion for a female. The percent of the adult population reporting alcohol use in each of these categories has not changed significantly over time. In 2016, 13.0% of residents self-reported binge drinking. In 2017, the Jefferson County Coroner's office reported 18.6% of Jefferson County driving deaths were associated with alcohol impairment. Jefferson County's percentage of heavy and binge drinkers is less than the Healthy People 2020 goal of 25.4% for heavy drinkers and 24.4% for binge drinkers. Some data for binge and heavy drinker categories was suppressed due to small sample sizes. Data is suppressed if there are fewer than 50 respondents.

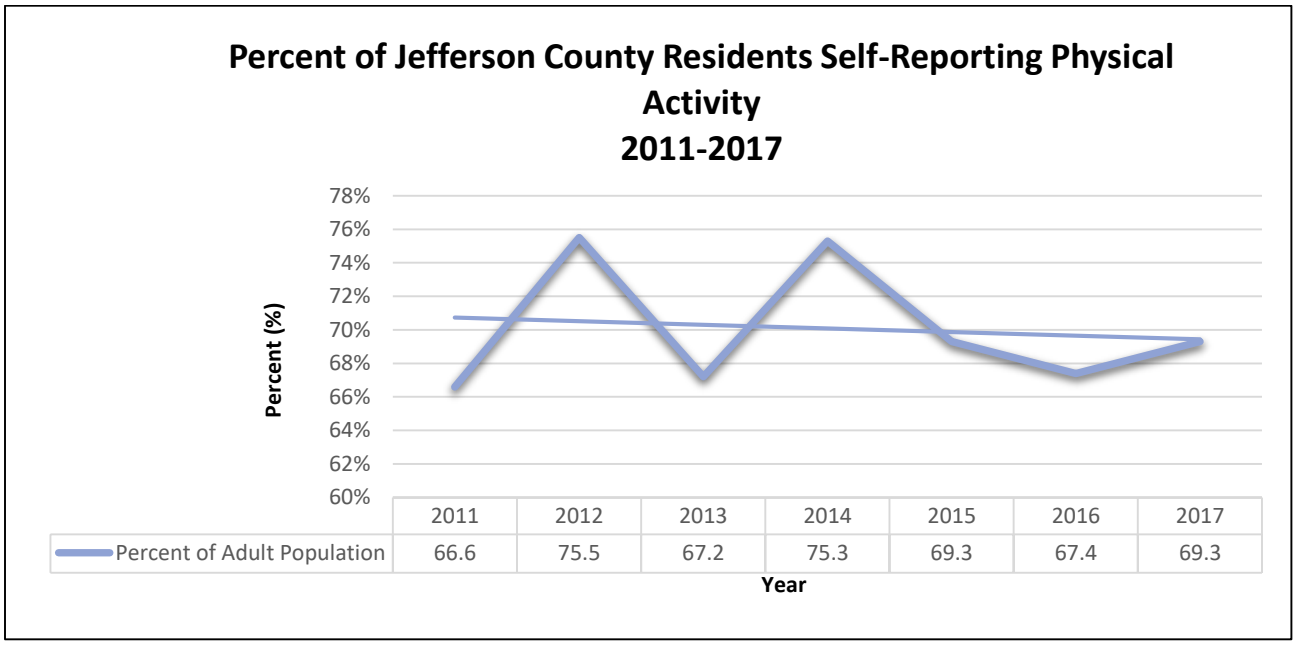


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
At least 1 drink in last 30 days	42.9	49.6	44.5	40.6	40.1	43.6	40.3	40.8	43.0	44.9	45.1	47.2	46.0	47.0	48.2	49.4
Heavy Drinkers	7.1	5.1	4.6	3.5	5.1	4.0	4.8	2.8	6.2	4.9	4.7	6.1	4.6			
Binge Drinkers				12.6	11.6	12.9	11.7	12.9	11.3	12.2	13.8	12.5	12.2	15.0	13.0	

**Note: Due to a small sample size, binge drinker rates and heavy drinker rates were suppressed for the following years 2002-2004 and 2015-2017.*

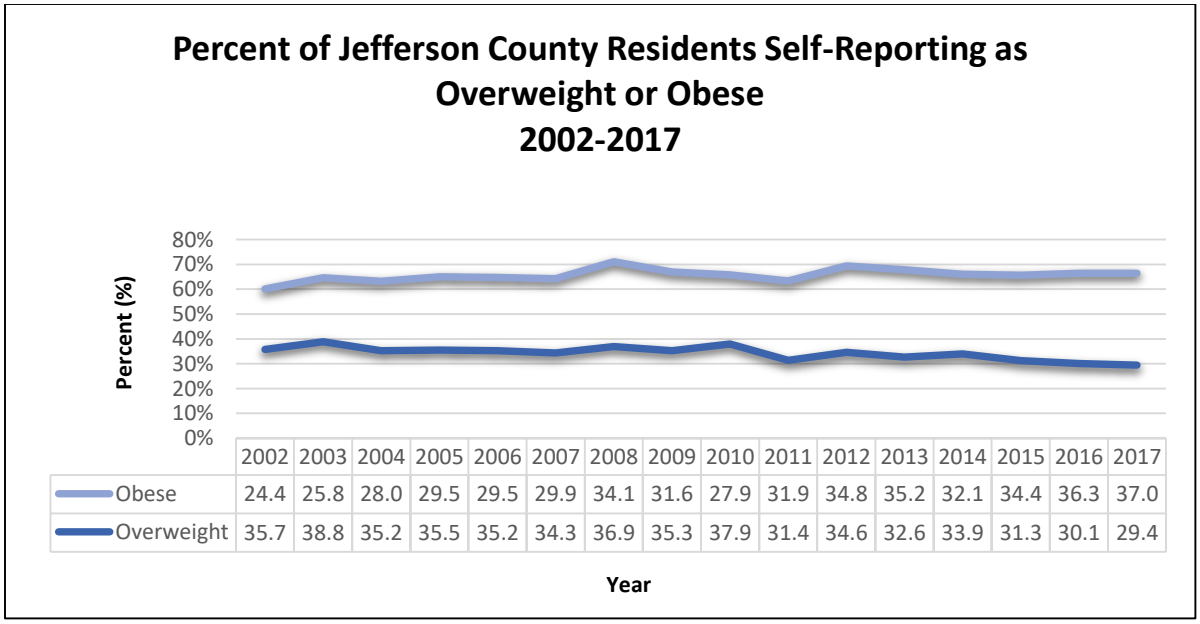
Physical Activity

When BRFSS survey participants were asked, "During the past month, did you participate in any physical activity?", 66.6% of the adult population reported physical activity in 2011. In 2017, there was a 4.1 % increase in self-reported physical activity from 2011 with 69.3% of the adult population reporting physical activity within the past month.



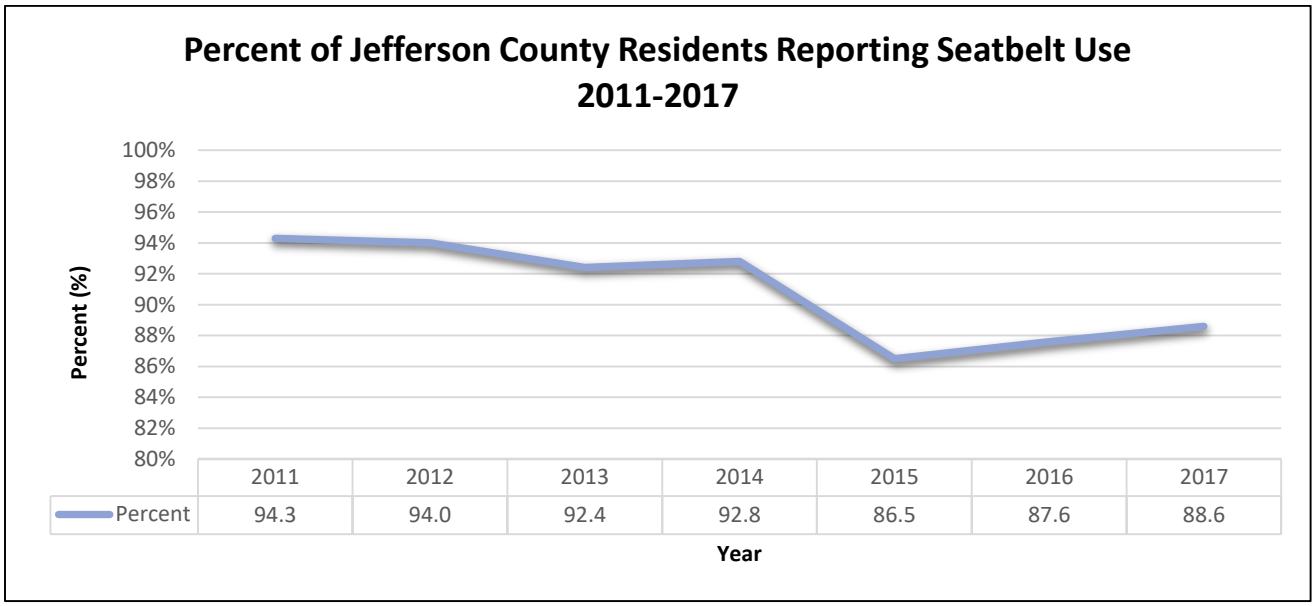
Overweight and Obesity

The percent of the adult Jefferson County population self-reported as obese increased between 2012 and 2017; while the percentage of adults self-reporting as overweight declined during the same time period. In 2017, Jefferson County reported adult obesity rates of 37.0%, higher than the Healthy People 2020 target of 30%.



Seatbelt Use

Seatbelt use has overall declined since 2011. In 2011, 94.3% of Jefferson County adults self-reported always using a seatbelt. In 2017, 88.6% of adults reported seatbelt use. Despite the decrease in the percentage of residents self-reporting seat-belt use, these deviations are not statistically significant.

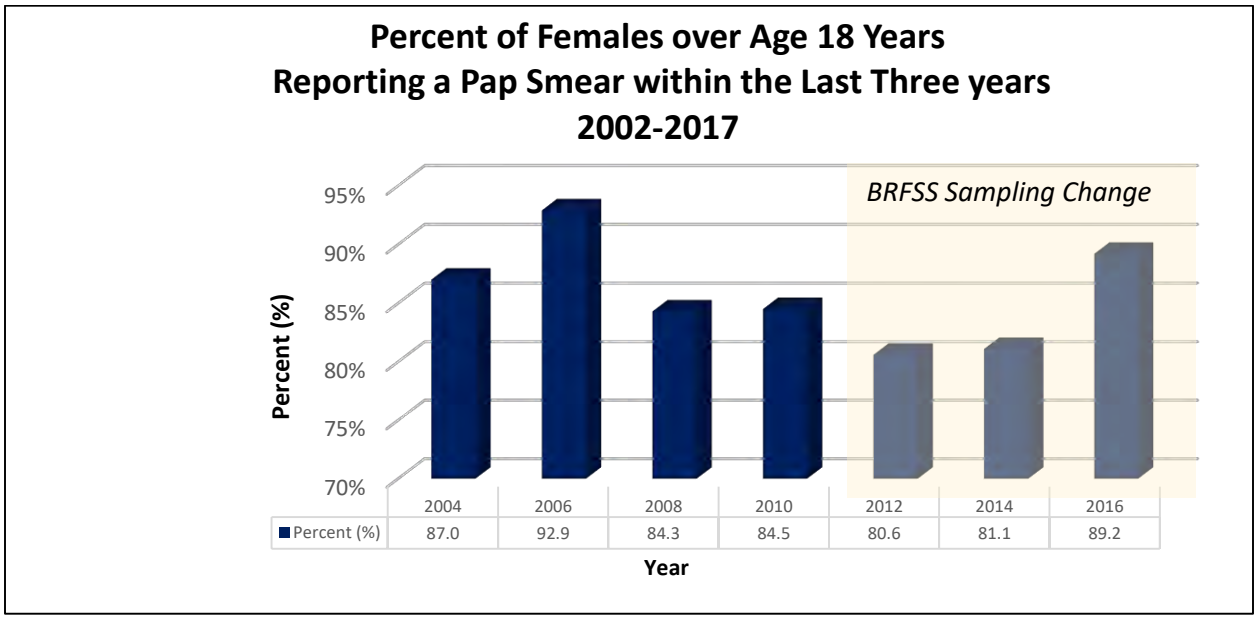


Screenings

Overall, the self-reported disease screening rates for Jefferson County residents are declining for some diseases and are remaining static for other disease states.

Pap Smear

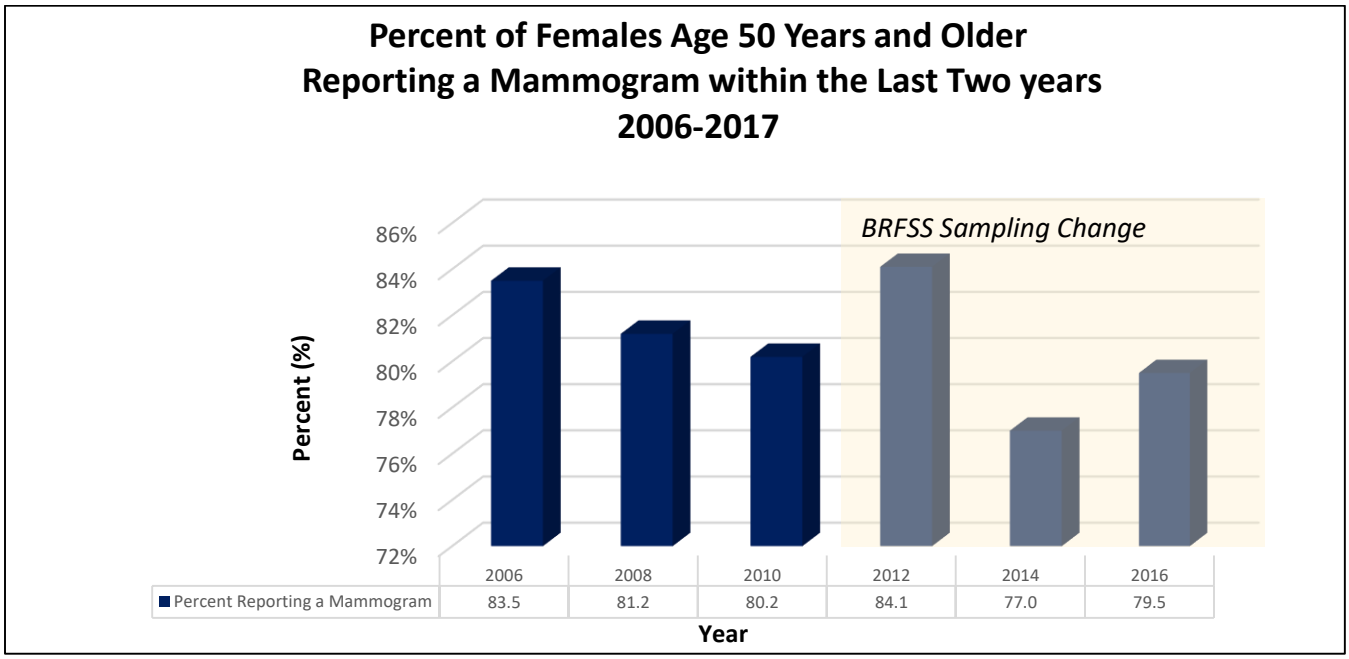
The percent of females over age 18 years reporting receipt of a Pap smear within the last three years decreased from 92.9%, a screening high, in 2006. Jefferson County's 2016 rate of 89.2% of age appropriate females receiving a Pap smear is less than the Healthy People 2020 goal of 93% of females ages 21 to 65 receiving a Pap smear every three years. Between 2012 and 2016, the Jefferson County Pap smear completion rate demonstrated a 9.6% relative change; this improvement is statistically significant.



*Pap smear indicators are assessed every other year via the BRFSS Survey.

Mammograms

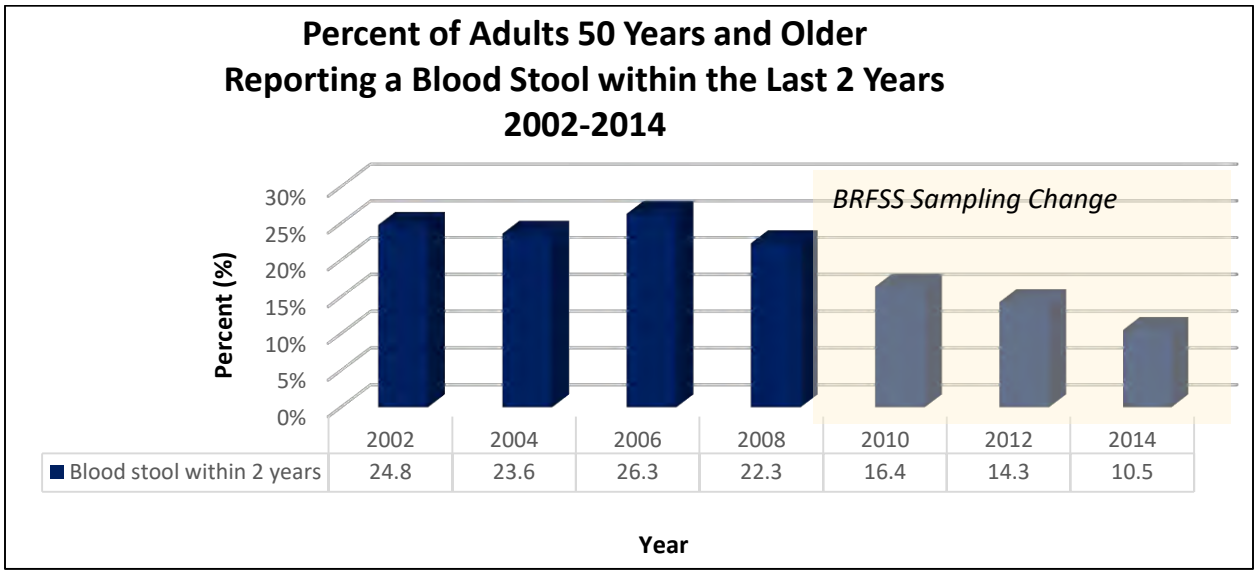
In 2012, 84.1% of women over age 50 reported receiving a mammogram within the past two years. In 2016 the percentage decreased with 79.5% of women over age 50 reported receiving a mammogram within the past two years. The healthy people 2020 target is 81.1%.

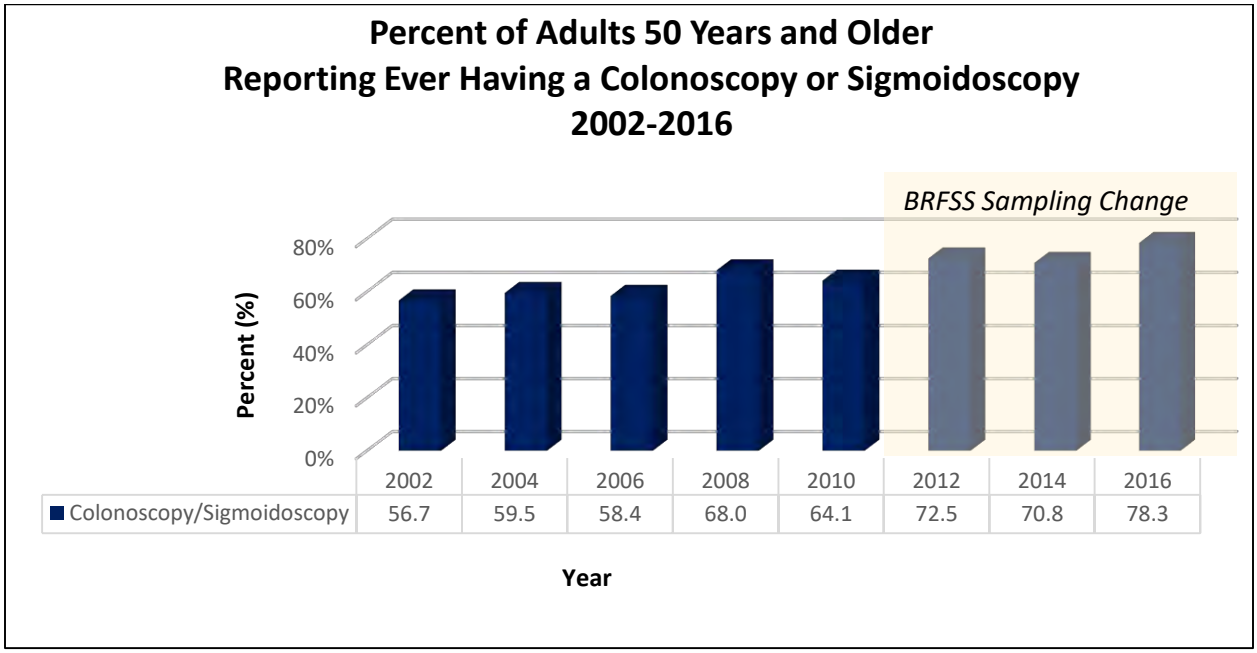


*Mammography completion is reported every other year via the BRFSS Survey

Colorectal Cancer Screenings

The national Healthy People 2020 goal for colorectal cancer screening is that 70% of adults over the age of 50 receive some type of colorectal screening. The percent of Jefferson County adults reporting a blood stool test within the last two years has reduced significantly from 24.8% in 2002 to 10.5% in 2014. The 2016 blood stool test data was suppressed due to a small sample size. The percent of the county's population reporting a colonoscopy/sigmoidoscopy, however, increased from 56.7% in 2002 to 78.3% in 2016, a 38.1% increase. Between 2012 and 2016, the percentage of age-eligible Jefferson County residents reporting a colonoscopy or sigmoidoscopy increased to 78.3%, a change that is statistically significant.

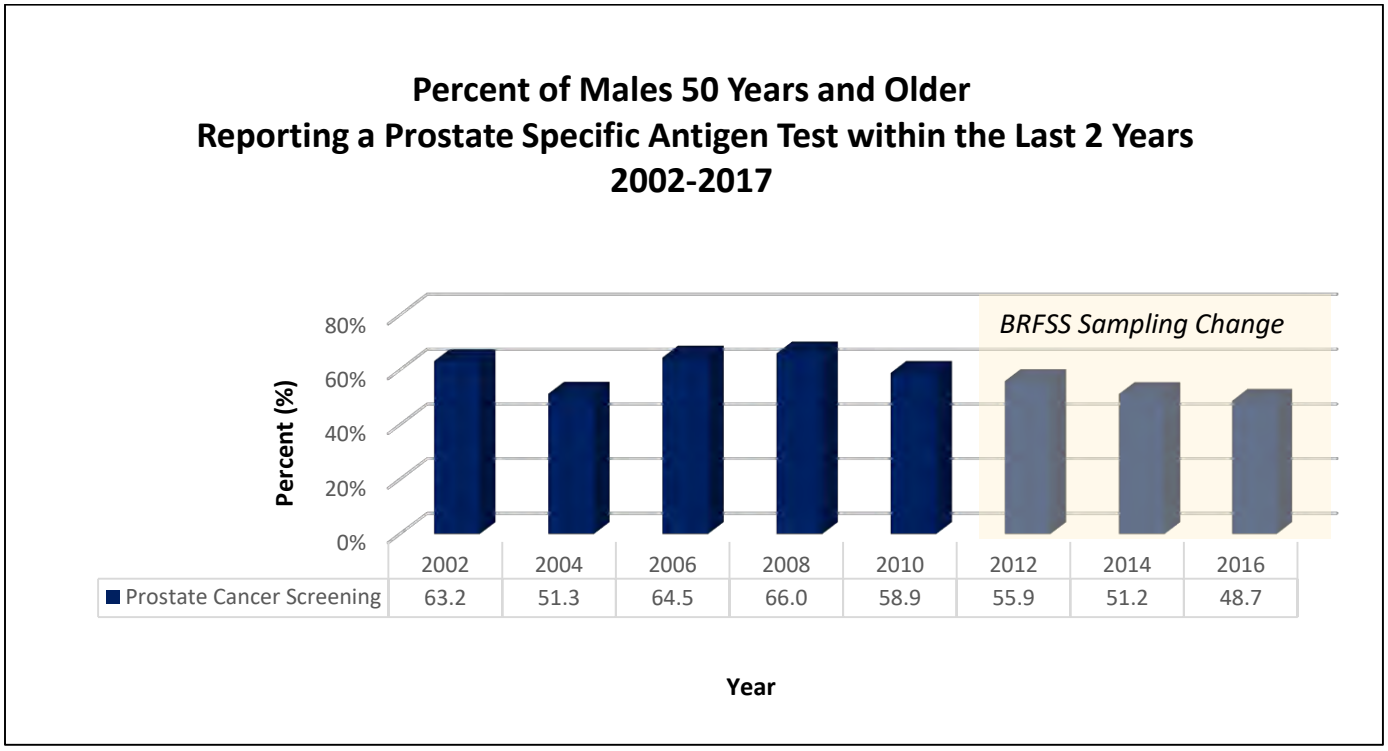




*Colorectal Cancer Screenings are reported every other year via BRFSS

Prostate Cancer Screening

In 2016, prostate cancer screening decreased by 12.9% from the 2012 screening percentage of 55.9%. Approximately 48.7% of males over age 50 reported a Prostate Specific Antigen test within the last two years.



*Prostate Specific Antigen testing rates are reported every other year via BRFSS.

Behavioral Risk Factor Findings

Tobacco use, the number one cause of preventable death in the United States, remains a significant health issue in Jefferson County. While smoking rates have decreased over the past ten years, to 16.7% of the adult population in 2017, Jefferson County continues to have a significantly higher percentage of current smokers than the national Healthy People 2020 goal of 12%. Another behavioral risk factor that represents a substantial risk for the Jefferson County population is obesity. Jefferson County's 2017 obesity rate, 37.0%; exceeds the national Healthy People 2020 target of 30% and has continued to increase between 2014 and 2017.

Disease-specific screening rates in Jefferson County vary by disease state. Among women in Jefferson County, Pap smear rates increased from 80.6% in 2012 to 89.2% in 2016; but remained below the Healthy People 2020 goal of 93% of age-appropriate women receiving a Pap smear. Mammography completion rates for age-appropriate women declined from 2012 to 2017. Among men, Prostate Specific

Antigen (PSA) screening rates declined between 2012 and 2017 with about 48.79% of age- appropriate men reporting this testing in 2016. While blood stool screening rates for colorectal cancer have decreased, the rates of colonoscopy or sigmoidoscopy have demonstrated a statistically significant increase between 2012 and 2016.

Alcohol use among Jefferson County adults demonstrated a statistically significant increase between 2012 and 2016 but still remains lower than the Healthy People 2020 goal. Although 69.3 % of Jefferson County's residents self-reported physical activity for 2016, this percentage marginally declined from the 2014 high of 75.3%. In 2017, the self-reported seatbelt use rate declined to 88.6% of the population reporting regular seat belt use from a previous high of 94.3% in 2011; this change is not statistically significant.

Environmental Health[72-74]

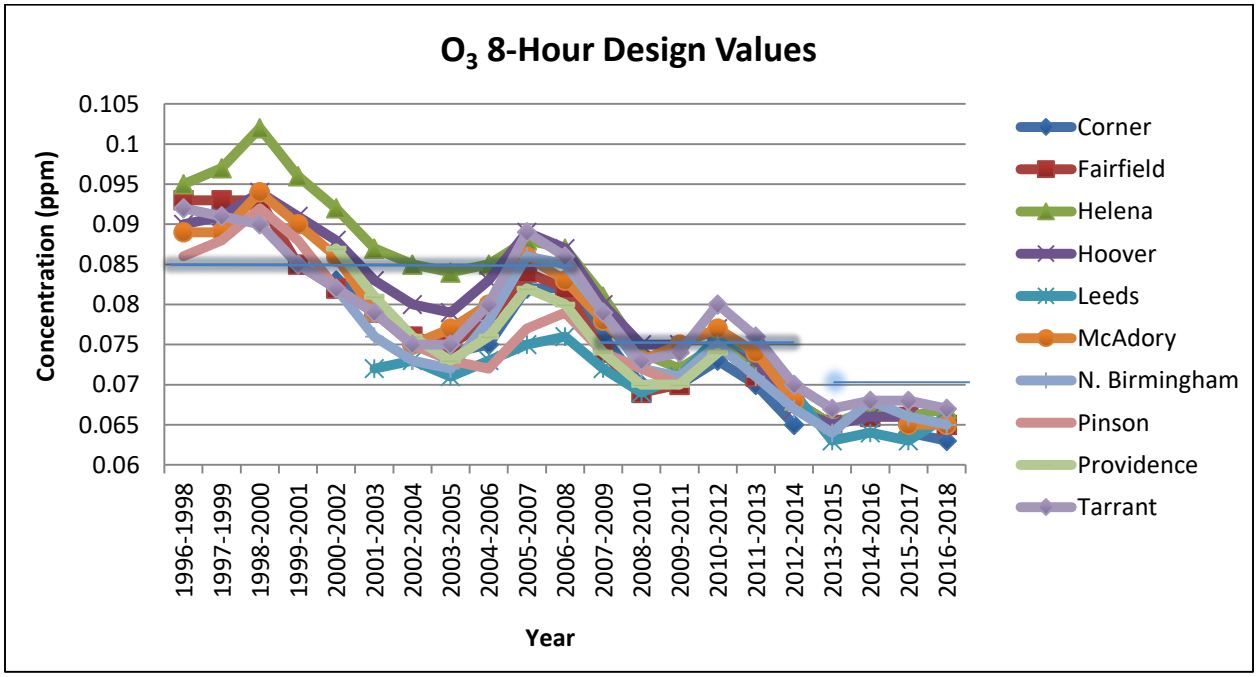
Indicators within the Environmental Health category represent measures of environmental health that can impact human health and disease states. Environmental Health indicators include measures of outdoor air quality, indoor air quality, food safety, water safety, lead exposure, and the miles of trails in Jefferson County.

Outdoor Air Quality

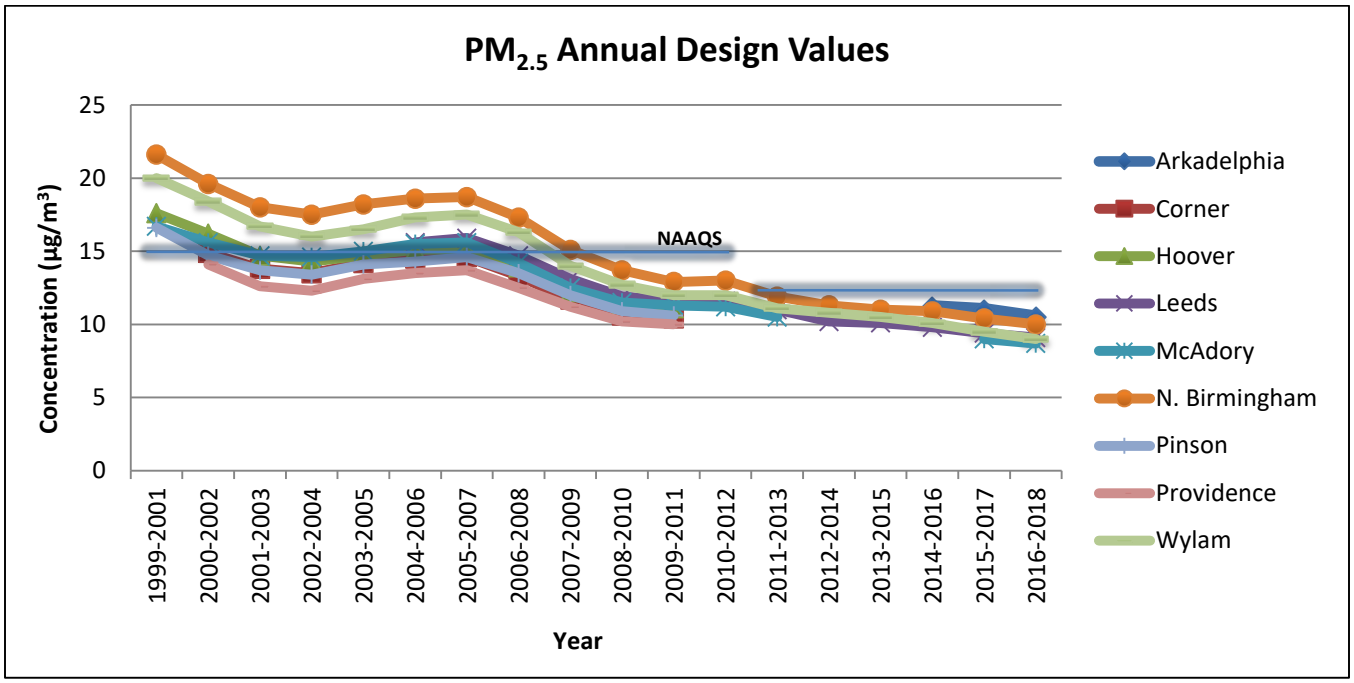
Outdoor air quality standards for air pollutants are established by the Environmental Protection Agency (EPA) for each air pollutant. The Jefferson County Department of Health enforces pollution regulations for major air pollution sources to assure outdoor air quality meets healthy clean air standards.

Ozone

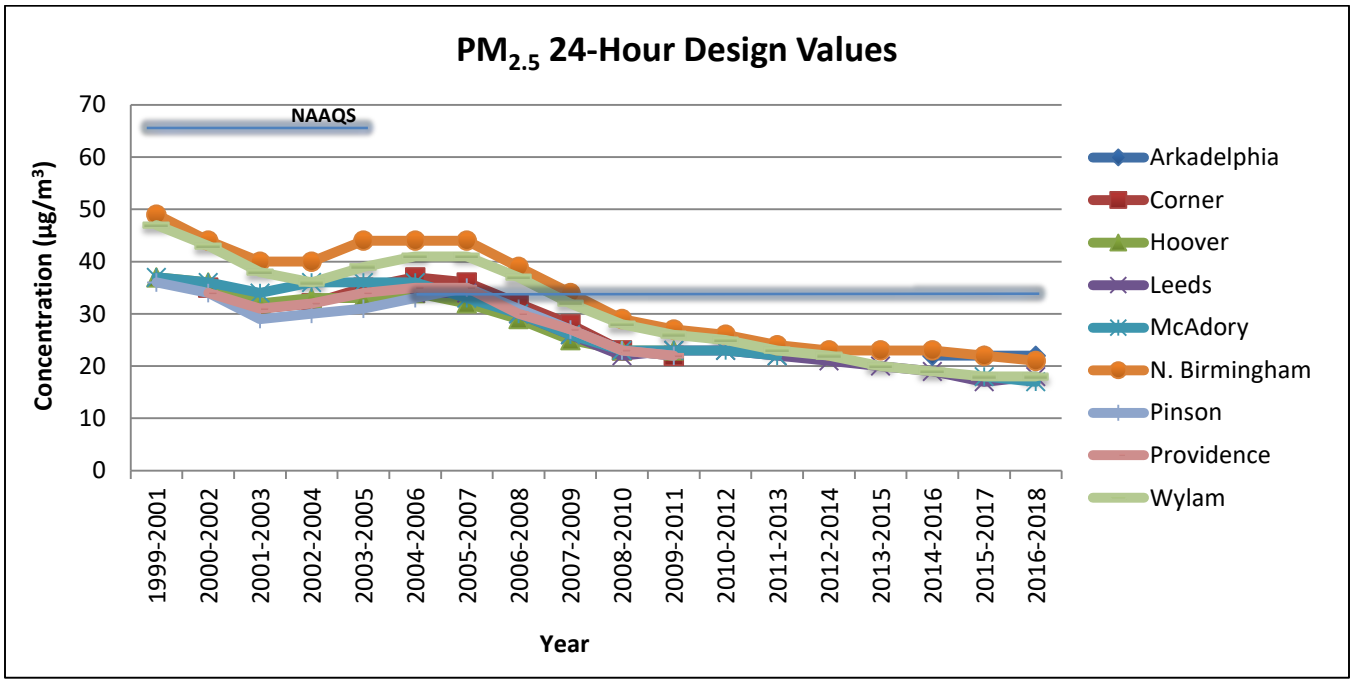
Ozone is the principal component of smog and represents a health risk if inhaled in high concentrations. In 1997, the eight hour Ozone Compliance Standard was established at 0.085 parts per million; this standard was revised in 2008 to 0.075 parts per million. In 2015, The Environmental Protection Agency revised the 8-hour O_3 standard and lowered it to 0.070 parts per million. The graph below represents the 8-hour ozone design values in parts per million (ppm) for 1996-2018. The highlighted blue line indicates the National Ambient Air Quality Standards (NAAQS). There has been a downward trend in O_3 levels since 1996. The Birmingham area was designated as attainment of the 2015 8-hour ozone standard in 2017.



Particulate matter consists of solid particles and liquid droplets. $PM_{2.5}$ represents fine particles that are less than or equal to 2.5 micrometers in diameter, and PM_{10} consists of coarse particles that are less than 10 micrometers in diameter. These are used as the basis for the ambient air quality standard. Exposure to high concentrations of particulate pollution causes eye, nose and throat irritation, aggravation of chronic lung disease and symptoms of heart and respiratory problems. The following graph represents Annual $PM_{2.5}$ design values in (µg/m^3) for 1999-2018. The highlighted blue line indicates the National Ambient Air Quality Standards (NAAQS), which is 12 µg/m^3 (previously 15 µg/m^3). There has been a downward trend in $PM_{2.5}$ concentrations since 1996, current concentrations are below both current standards.



In 2018, The Environmental Protection Agency (EPA) established a primary 24-hour standard for PM_{10} of 150 µg/m^3. During the most recent three years of monitoring data, all monitors were in compliance with the 24-hour standard. The graph below represents 24-hour $PM_{2.5}$ design values in (µg/m^3) for 1999-2018. The highlighted blue line indicates the National Ambient Air Quality Standards (NAAQS), of 35 µg/m^3(previously 65 µg/m^3). There has been an overall downward trend in PM_{10} concentrations over time. The Birmingham area is designated as attainment of the standard for PM_{10}.



Indoor Air Quality

Indoor air quality is measured by the percent of Jefferson County residents protected from indoor smoke exposure through smoke-free public policies.

Percent of Jefferson County Municipalities and Residents Protected by *Any* Smoke-Free Public Policy			
	Reference Percent Protected (Year)	**Index Percent Protected (Year)**	**Endpoint Percent Protected (Year)**
Municipalities	**2.6%** (1990)	**52.6%** (2013)	**51.2 %** (2019)
Residents	**62.4%** (2000)	**76.3%** (2013)	**84.2 %** (2019)

The first comprehensive smoke-free public ordinance was passed in Jefferson County in 2011. As of 2019, 47.8% of Jefferson County residents are protected under a comprehensive smoke-free policy.

Percent of Jefferson County Municipalities and Residents Protected by *Comprehensive* Smoke-Free Public Policy			
	Reference Percent Protected (Year)	**Index Percent Protected** (Year)	**Endpoint Percent Protected** (Year)
Municipalities	**5.3%** (2011)	**10.5%** (2013)	**16.3%** (2019)
Residents	**2.1%** (2011)	**39.1%** (2013)	**47.8%** (2019)

Food Safety

Foodborne illnesses represent a significant public health concern. Food safety plays a crucial role in preventing the spread of foodborne illnesses. The Healthy People 2020 goal is to reduce foodborne illnesses in the United States by improving food safety-related behaviors and practices. Foodborne illnesses are preventable and present a significant risk to highly susceptible populations.

Inspections

The number of food establishments and mandated inspections fluctuate in Jefferson County annually as facilities begin and end business. The type of food establishment determines the number of inspections required, so trends cannot reliably be established for these indicators. However, the number of food establishments and mandated inspections have increased since 1998 to 2018, based on the number of food permits issued. In 2018, 4,317 food permits were issued in Jefferson County.

JCDH regulates, permits, inspects, and investigates complaints within Jefferson County. The tables below represent the number of inspections and complaint investigations performed in 2018.

Inspections by Type	Number of Inspections
Food	11,872
Lodging (hotel/motel)	107
Child Care	95
Communal Living	52
Camp	1
Total All Inspections	**12,108**

Complaints Investigated	Number
Total Complaints	**939**
Total Complaint Investigations	**1,466**

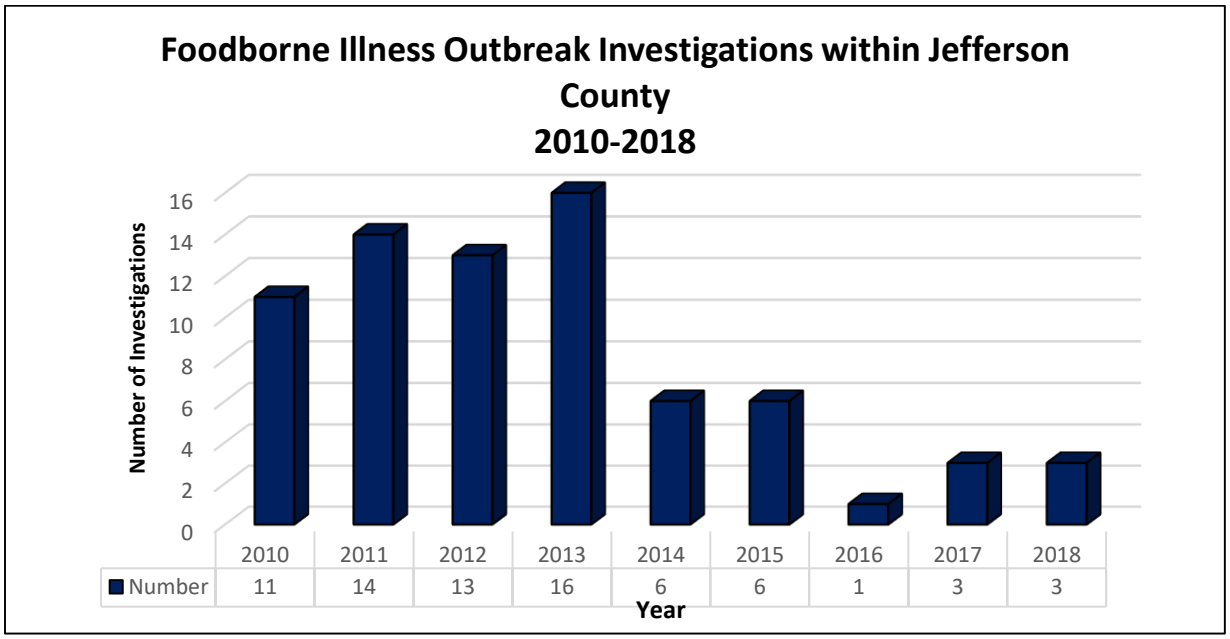
In addition to permitting and regulating food establishments, JCDH also provides food safety education to individuals through online, classroom and satellite classes. The table below represent the number of individuals trained and managers certified during 2018 within Jefferson County.

Food Safety Education	Number
Food Handler Training	
Total Participants	14,129
Online Option	11,184
Classroom (JCDH) Option	2,380
Satellite (off-site) Option	565
Certified Manager Courses	
Total Participants	384
Certifications	222
Classes/Exams	18

Foodborne Illness

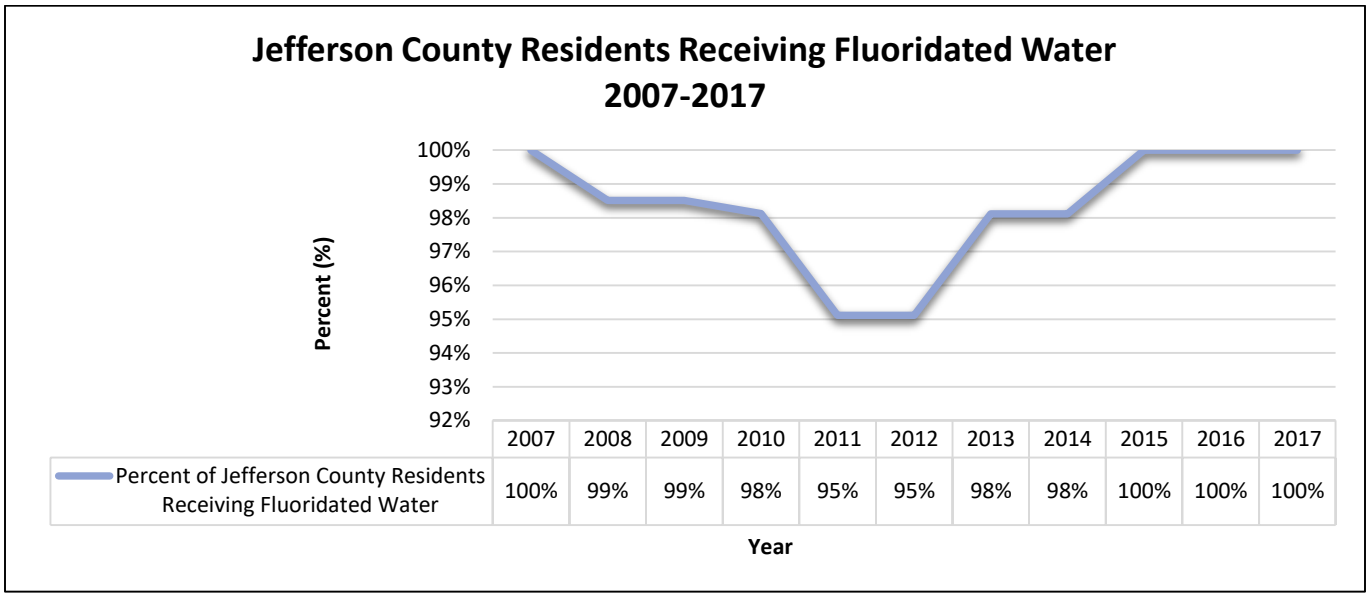
While the case rate of known foodborne illness showed a slight downward trend from 2006 to the present, the variation in the number of outbreaks associated with these cases has not coincided with changes in the number of outbreaks. Foodborne illness outbreaks peaked at 80 in 1999 and have gradually decreased since that time.

When a foodborne illness outbreak is detected within Jefferson County, JCDH initiates an outbreak investigation. Foodborne illness outbreak investigations peaked at 16 in 2013 and have gradually decreased to 3 in 2018.



Water Quality

Fluoridated water is an important preventive intervention for dental caries. After the city of Irondale eliminated public water fluoridation in 2008, the proportion of Jefferson County residents on municipal water systems receiving fluoridated water dropped to 98.1% in 2012. In 2017, 100% of Jefferson County's Residents were receiving fluoridated water. No other Jefferson County municipality is expected to eliminate public water fluoridation. Data is unavailable on the number of individuals utilizing unfluoridated wells.



Lead Exposure (Children)

Protecting children from lead exposure plays a significant role in improving health outcomes. Low levels of lead in blood have been proven to affect IQ, concentration and academic achievement. Since 1992 when lead testing was first instituted, the total number of cases of Elevated Blood Lead Levels significantly decreased from 128 cases in 1992 to 22 cases in 2010; however, the threshold for the case definition changed during this timeframe from > 15 mcg/dL to > 10 mcg/dL in 2000, then to > 5 mcg/dL in 2013. With each expansion of case inclusion, there was an expected increase in the number of cases. Lead data prior to 2013 was collected in the Center for Disease Control and Prevention's (CDC) Systemic Tracking of Elevated Lead Levels and Remediation (STELLAR) system. Mid 2013, STELLAR was replaced by Healthy Homes and Lead Poisoning Surveillance System (HHLPSS). Due to the data migration, data prior to 2013 may be inaccurate. In 2013, 329 cases were reported to have blood lead level results ≥ 5 mcg/dL. In 2018, 227 cases were reported to have blood lead level results ≥ 5 mcg/dL; which represents a 31% decrease from 2013.

Trails

Trails positively impact communities by encouraging residents to adopt healthy lifestyles by providing an opportunity for increasing physical activity in the beauty of Jefferson County. The number of miles of both on-street bike infrastructure and multi-use trails in Jefferson County has significantly increased across a five-year time frame.

	Reference Miles (2012)	Index Miles (2014)	Endpoint Miles (2019)	Relative Percent Change
On-street Bike Infrastructure	4.4	7.4	18.9	329.5%
Multi-Use Trails	12.3	13.4	101.86	728.1%

Environmental Health Findings

Environmental health indicators related to outdoor air quality show that air quality in Jefferson County is improving, with fewer days out of compliance with ozone and $PM_{2.5}$ standards. Indoor air quality in Jefferson County continues to improve as well with the implementation of comprehensive tobacco-free public ordinances. The opportunity to improve indoor air quality continues, as less than 50% of the Jefferson County population is protected with comprehensive smoke-free policies.

With an increasing number of food establishments and a higher number of recommended FDA standard inspections per food establishment, the gap in the number of inspections performed and the FDA standard inspections has continued to widen. This indicates an increased need for food inspectors to meet national food safety standards. It is difficult to track foodborne illness outbreak due to the difficulty is establishing the causative agent for the outbreak; however, the data indicates a decrease in food related outbreaks.

As the population of the city of Irondale has increased over the last five years, the city's decision to eliminate fluoridation from its public water supply in 2008 has increased the risk of dental cares.

The number of cases of elevated blood lead levels among children in Jefferson County has decreased despite the changing case definitions to the elevated blood lead level threshold. With a new threshold level established in 2013, no trend for this case definition can be determined at this time.

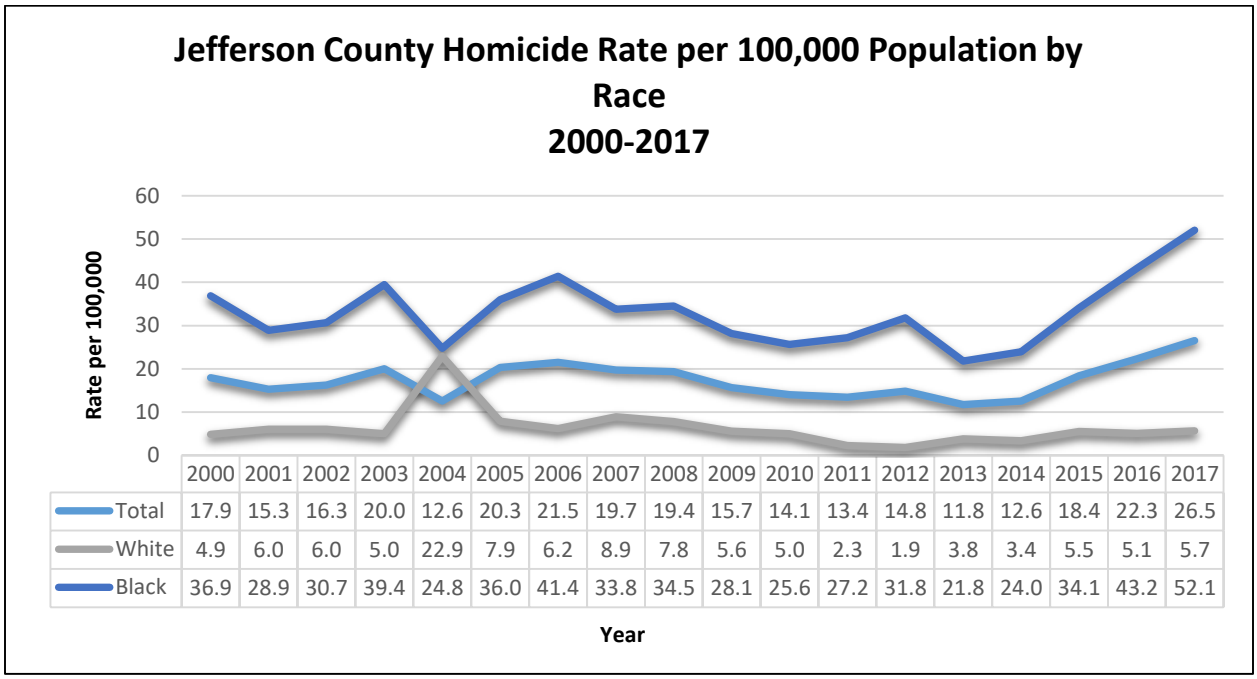
Opportunities for physical activity through the use of trails and bike lanes are increasing in Jefferson County.

Social and Mental Health[1,66]

Measures of social and mental health include suicide and homicide rates, as well as the number of poor mental health days and depression status.

Homicide

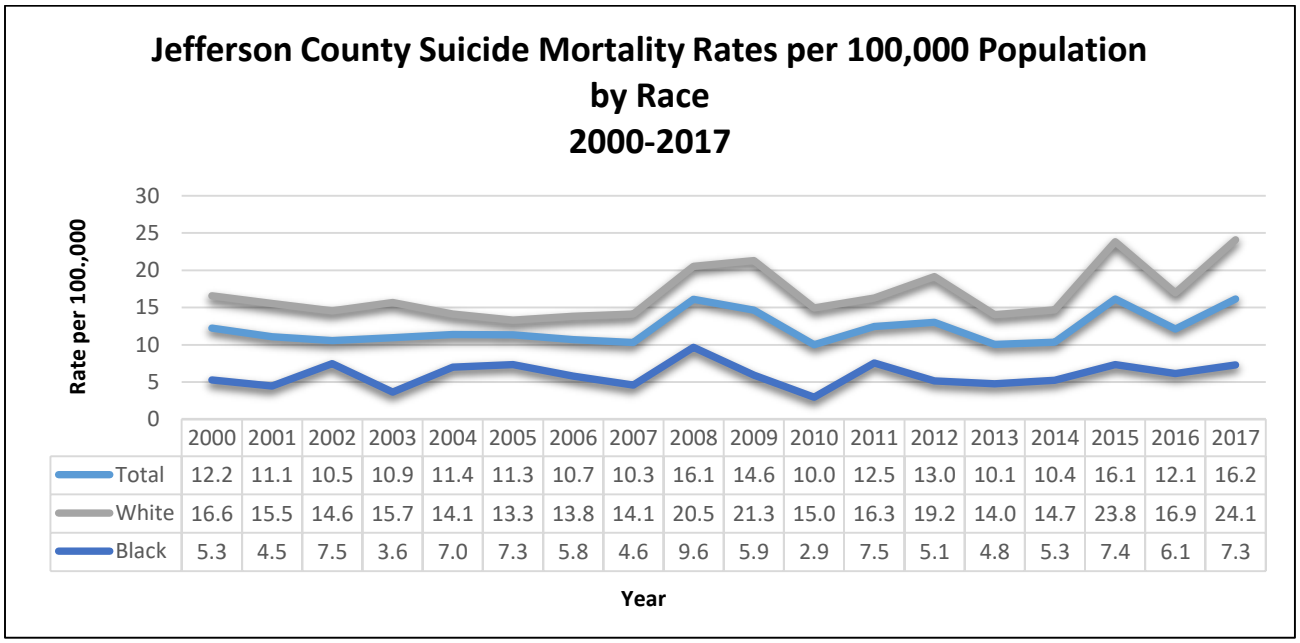
Homicide rates increased in Jefferson County by 16.8% from 14.8 per 100,000 population in 2012 to 26.5 per 100,000 population in 2017. Although significantly higher among the black population, this increase has been detected among both white and black populations of Jefferson County.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	17.9	15.3	16.3	20.0	12.6	20.3	21.5	19.7	19.4	15.7	14.1	13.4	14.8	11.8	12.6	18.4	22.3	26.5
White	4.9	6.0	6.0	5.0	22.9	7.9	6.2	8.9	7.8	5.6	5.0	2.3	1.9	3.8	3.4	5.5	5.1	5.7
Black	36.9	28.9	30.7	39.4	24.8	36.0	41.4	33.8	34.5	28.1	25.6	27.2	31.8	21.8	24.0	34.1	43.2	52.1

Suicide

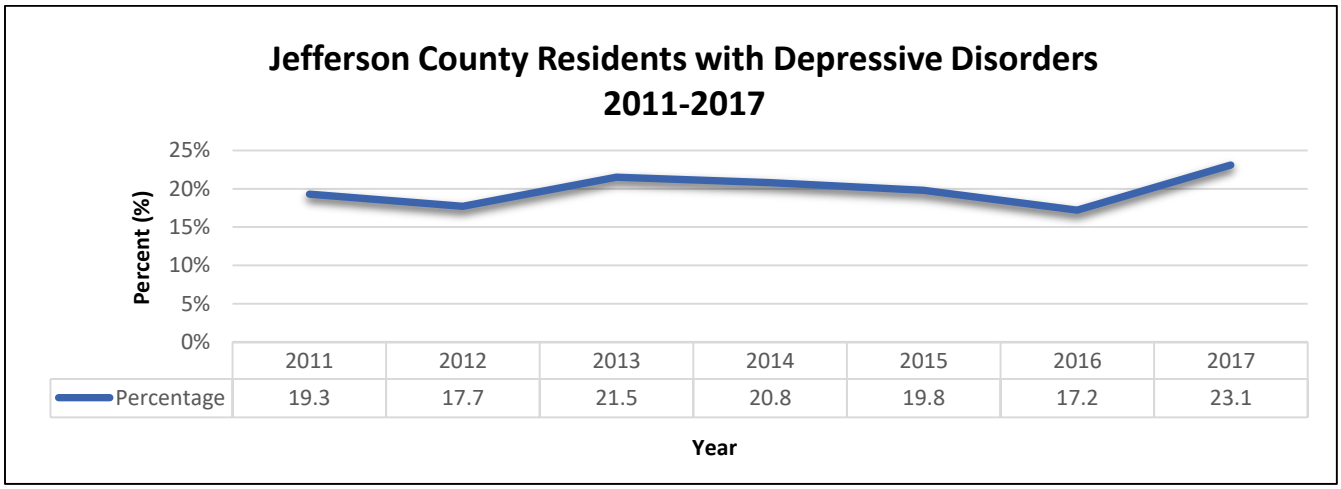
Suicide rates remained relatively static over time within Jefferson County. There was an increase in suicide mortality among the white and black populations in 2008 but declined and stabilized. However, since 2014 suicide rates have increased from 10.4 to 16.2 in 2017. This increase occurred among both white and black populations. Although the suicide rate has increased in both populations, it remains significantly higher among the white population.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	12.2	11.1	10.5	10.9	11.4	11.3	10.7	10.3	16.1	14.6	10.0	12.5	13.0	10.1	10.4	16.1	12.1	16.2
White	16.6	15.5	14.6	15.7	14.1	13.3	13.8	14.1	20.5	21.3	15.0	16.3	19.2	14.0	14.7	23.8	16.9	24.1
Black	5.3	4.5	7.5	3.6	7.0	7.3	5.8	4.6	9.6	5.9	2.9	7.5	5.1	4.8	5.3	7.4	6.1	7.3

Depression

In 2011, the BRFSS questionnaire asked a question regarding depressive disorders (including depression, major depression, dysthymia, or minor depression). In 2012, 17.7% of Jefferson County's adults indicated that they had been told they have a depressive disorder. In 2017, 23.1% of the county's adults indicated that they had been told by a physician they have depression.



	2011	2012	2013	2014	2015	2016	2017
Percentage	19.3	17.7	21.5	20.8	19.8	17.2	23.1

Social and Mental Health Findings

While Jefferson County's homicide rate has decreased since 2000, homicide remains a concern, especially among the black population. Suicide rates have increased since 2014. In 2017, 23.1% of the

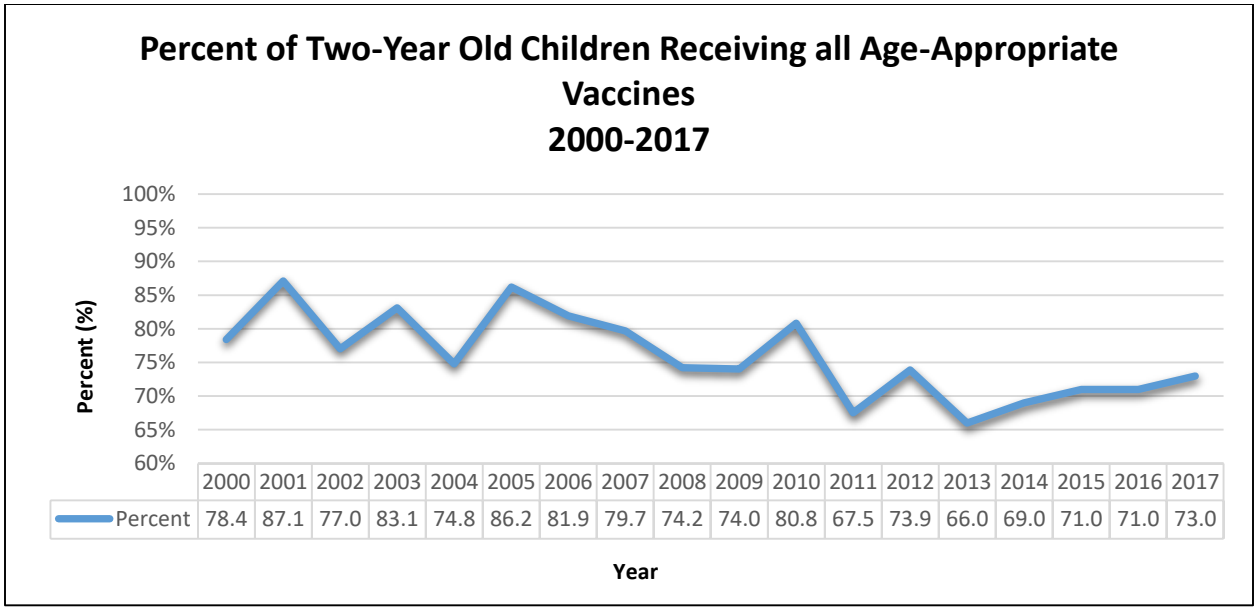
Jefferson County adult population indicated that they had been diagnosed by a physician with depression.

Communicable Diseases[1, 78-79]

Indicators in this category include data related to immunizations, sexually transmitted diseases, Tuberculosis and Hepatitis.

Proportion of Two Year Old Children Receiving Age-Appropriate Vaccinations

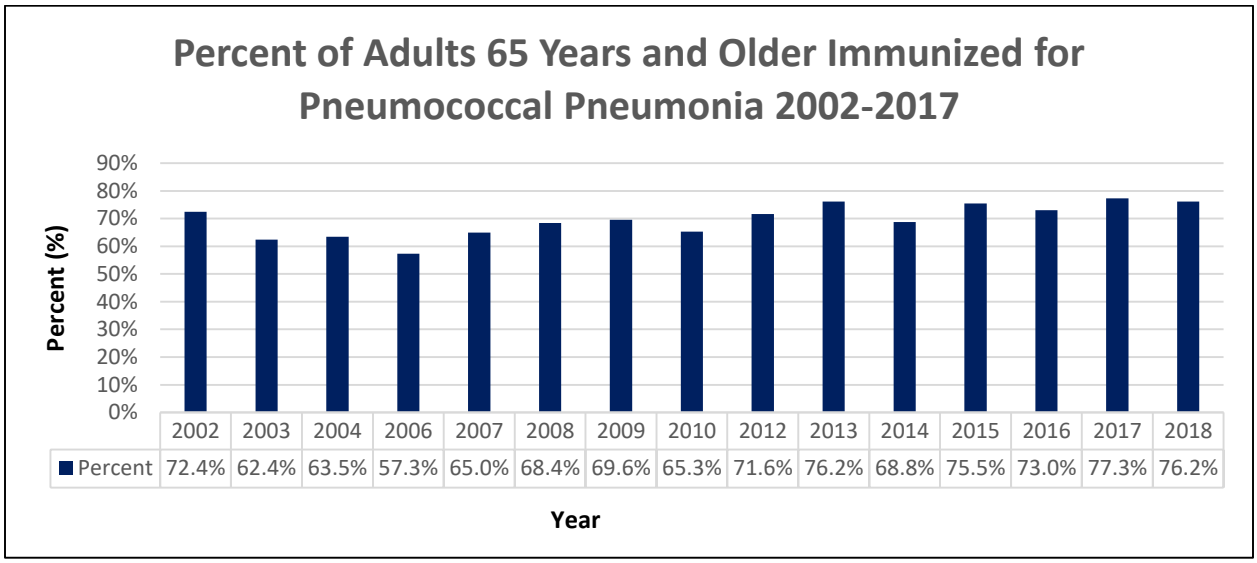
The Advisory Committee on Immunization Practices provides annual guidance on the recommended vaccinations for children and adults. Immunization recommendations for two year old children include vaccinations for Hepatitis B, Rotavirus, Diphtheria, Tetanus and Pertussis, Haemophilus Influenza B, Pneumoccocal virus, Polio, Influenza, Varicella, and Hepatitis A. While the variance in the rates of two year old age-appropriate vaccination between 2000 and 2017 is not significant, the percent of children who have received all age-appropriate vaccinations has not returned to the 2001 peak of 87.1%.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Percent	78.4	87.1	77.0	83.1	74.8	86.2	81.9	79.7	74.2	74.0	80.8	67.5	73.9	66.0	69.0	71.0	71.0	73.0

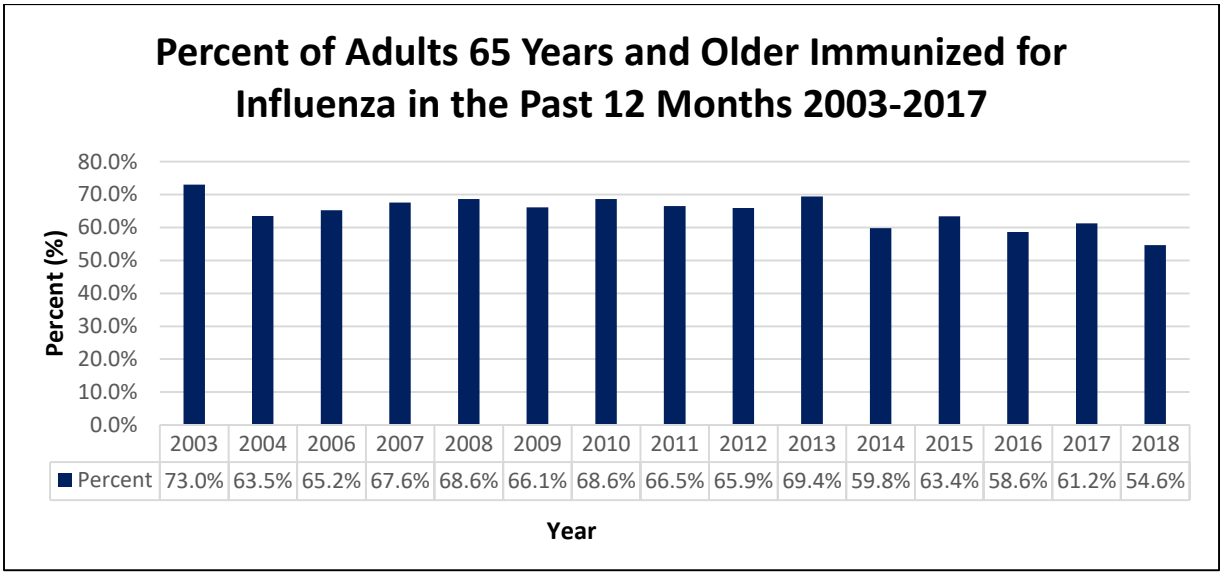
Proportion of Adults Over Age 65 Immunized for Pneumococcal Pneumonia

Pneumococcal pneumonia is a bacterial infection that can affect the lungs. This disease especially affects the sub-population over age 65 and can cause death. Immunization is important in preventing pneumococcal infection among this susceptible population. Since 2010, pneumococcal pneumonia immunization rates in Jefferson County have gradually increased by 16.7% for the sub-population over age 65. Overall, this change is not statistically significant.



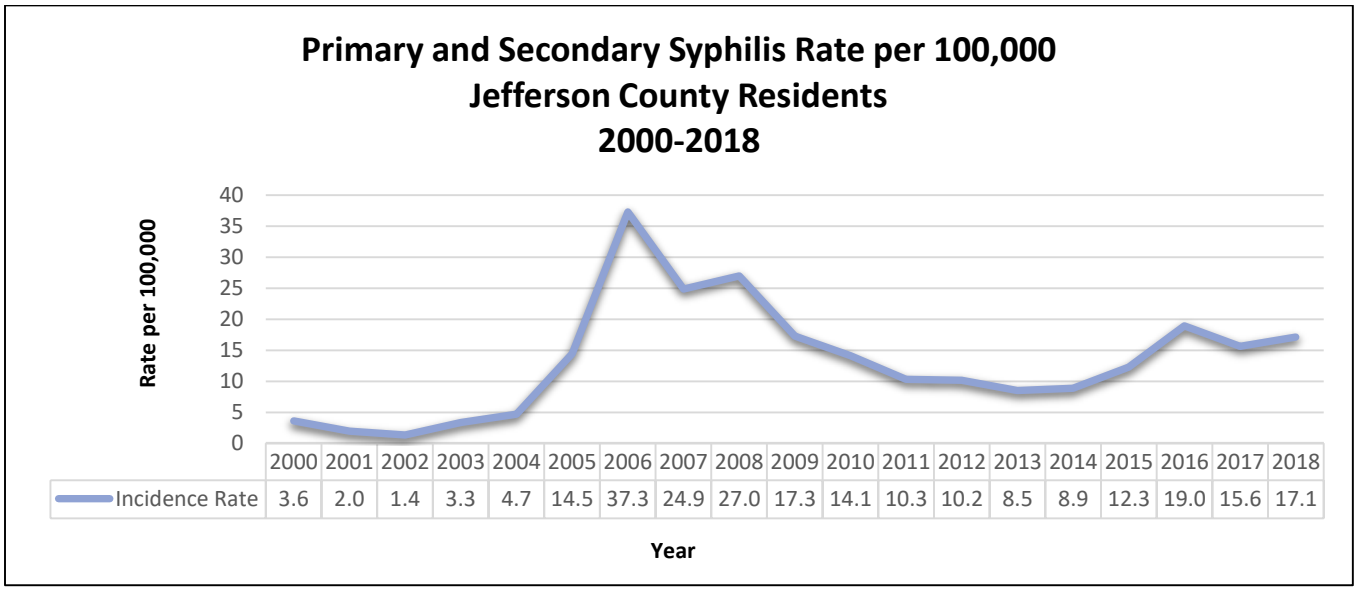
Proportion of Adults Age 65 and Older Immunized for Influenza in the Past 12 Months

Influenza is another disease that adversely affects people over age 65 and disproportionately causes illness and death in this sub-population. According to the CDC, people 65 years and older bear the greatest burden of severe flu disease. Annual influenza immunization rates in Jefferson County have fluctuated since 2013. However, there is no statistically significant difference in vaccination rates among Jefferson County's sub-population.



Syphilis

Syphilis is a sexually transmitted infection that can cause severe long-term complications if it is not treated properly or remains untreated. Syphilis infection is reported as primary, secondary or late stage, depending on the stage of illness at diagnosis. Jefferson County's syphilis rates remained static from 2000 to 2003. In 2005, there was a dramatic increase in the rates of primary and secondary syphilis infection. Jefferson County's Syphilis rate remains below the 2006 high of 37.3 per 100,000 population; however, the rates for this infection have not returned to the lowest levels observed in 2002.

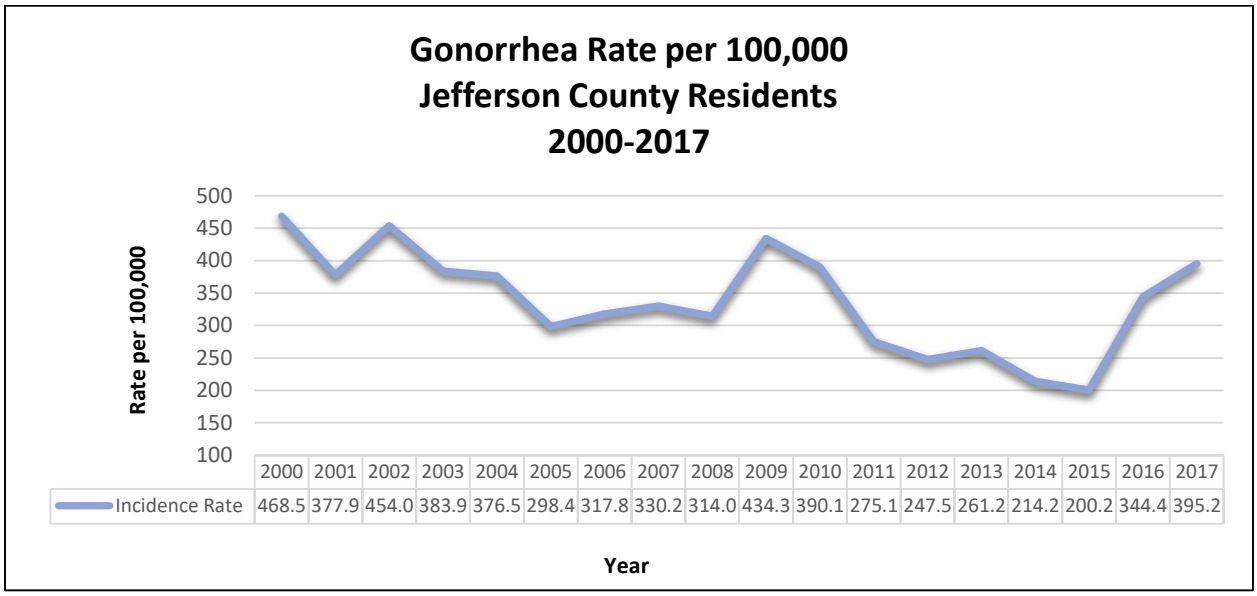


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incidence Rate	3.6	2.0	1.4	3.3	4.7	14.5	37.3	24.9	27.0	17.3	14.1	10.3	10.2	8.5	8.9	12.3	19.0	15.6	17.1

Among Jefferson County males, the 2018 rate of primary and secondary syphilis was 17.1 per 100,000 population, a rate which is more than double the Healthy People 2020 goal of 6.7 primary and secondary syphilis infections per 100,000 males. The primary and secondary syphilis rate among females was 3.6 per 100,000 which is more than double the Healthy People 2020 goal of 1.3 per 100,000 females.

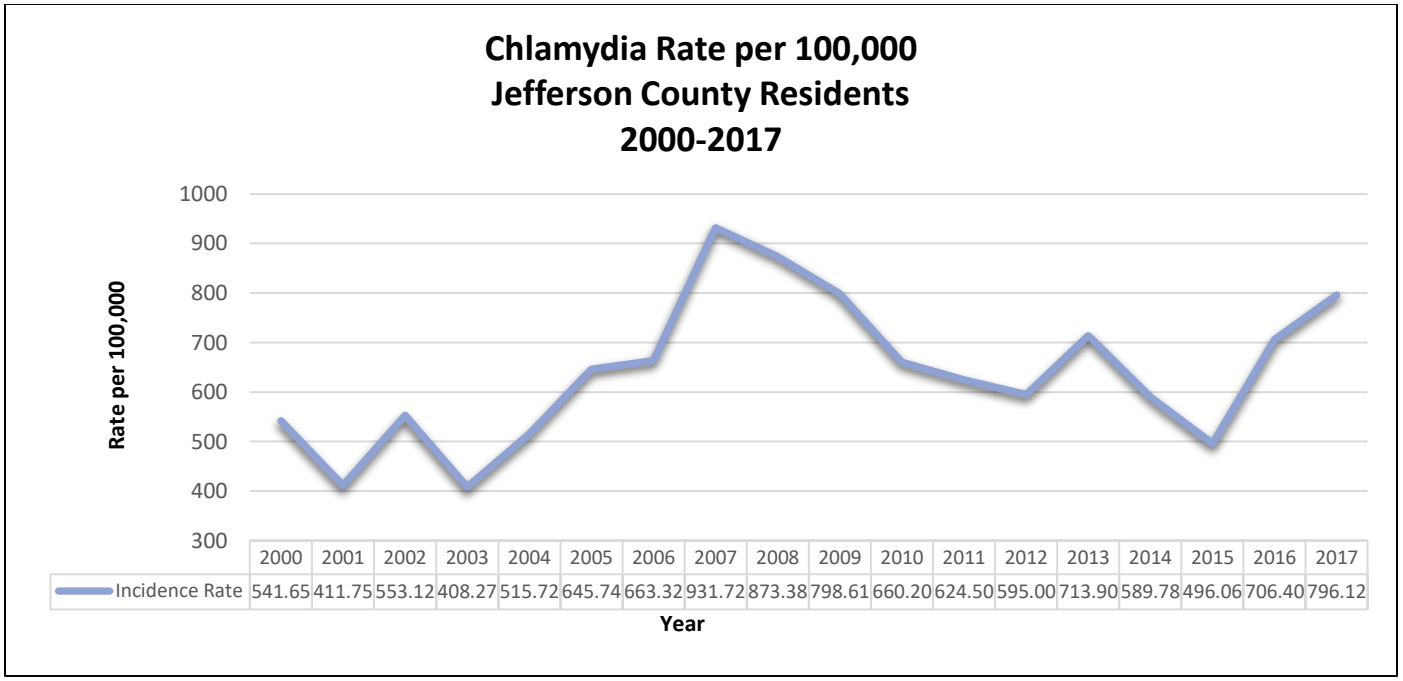
Gonorrhea

Gonorrhea is a sexually transmitted infection that can affect both men and women. Jefferson County's Gonorrhea rates decreased from the 2000 rate of 454 per 100,000 population to the 2017 rate of 395.2 per 100,000 population. Although the 2017 rate is lower, the rate increased from the 2015 low of 200.2 per 100,000 population. Due to reporting inconsistencies, the rates for 2011 and 2012 are not reliable.



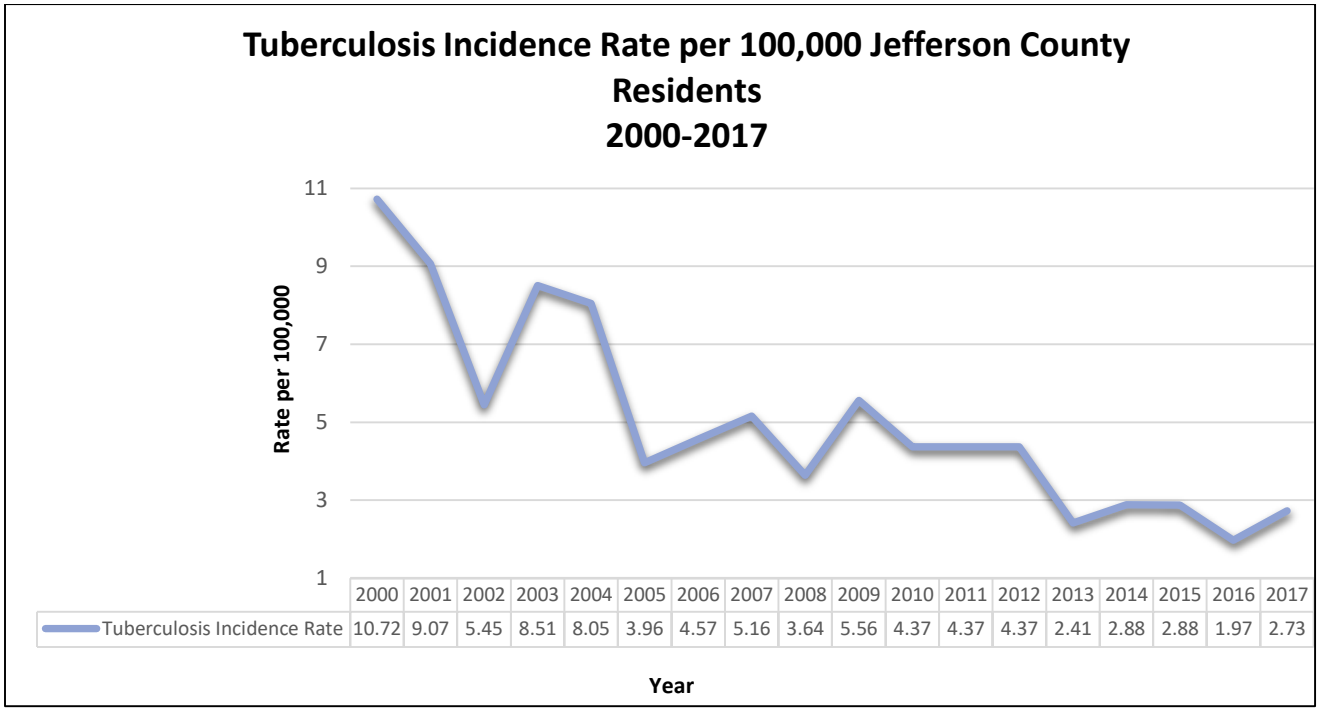
Chlamydia

Chlamydia is the most commonly reported sexually transmitted infection in the United States. If left untreated, Chlamydia infection can result in infertility in females. The 2017 Chlamydia rate for Jefferson County was 796.1 per 100,000 population which is 32% higher than the 2000 rate of 541.7 per 100,000 population. Due to reporting inconsistencies, the Chlamydia rates for 2011 and 2012 are not reliable.

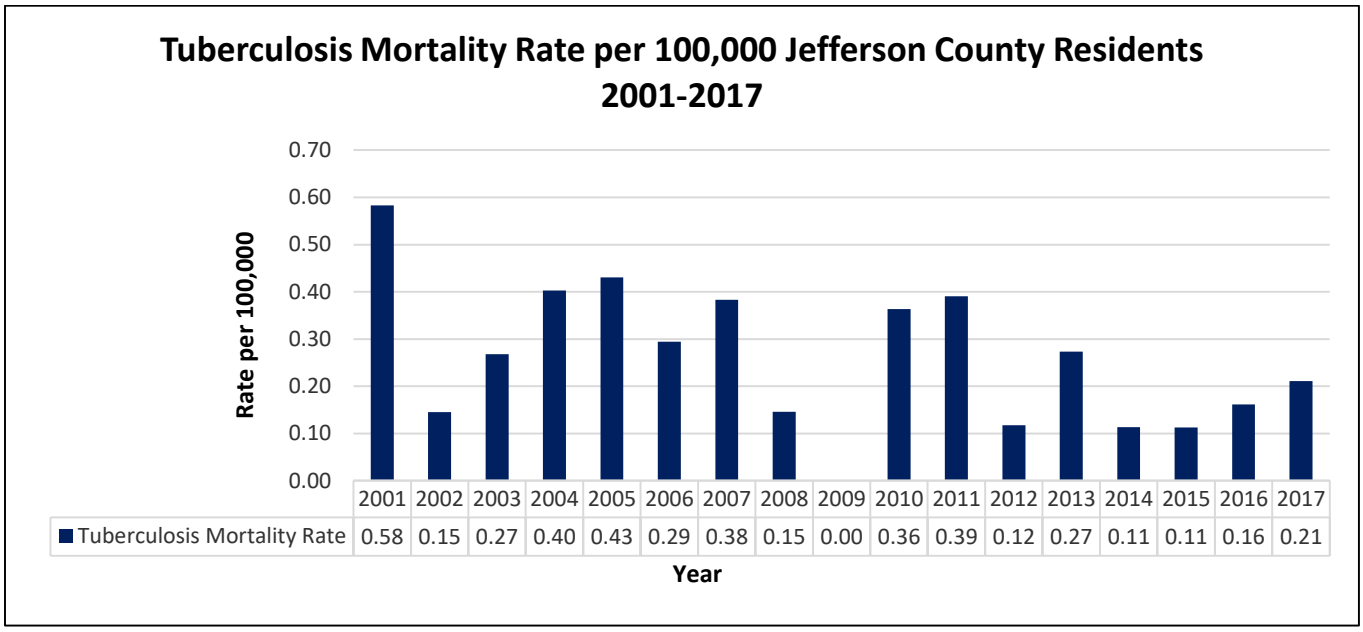


Tuberculosis

Tuberculosis is a bacterial illness that usually affects the lungs, but can affect other parts of the body and be fatal if left untreated. Tuberculosis incidence in Jefferson County declined steadily since 2000. The 2017 Tuberculosis infection rate of 2.7 per 100,000 population is 74.5% lower than the 2000 rate of 10.7 per 100,000 population. Although Tuberculosis mortality rates fluctuate from year to year, there is an overall decreasing trend in incidence for this disease.

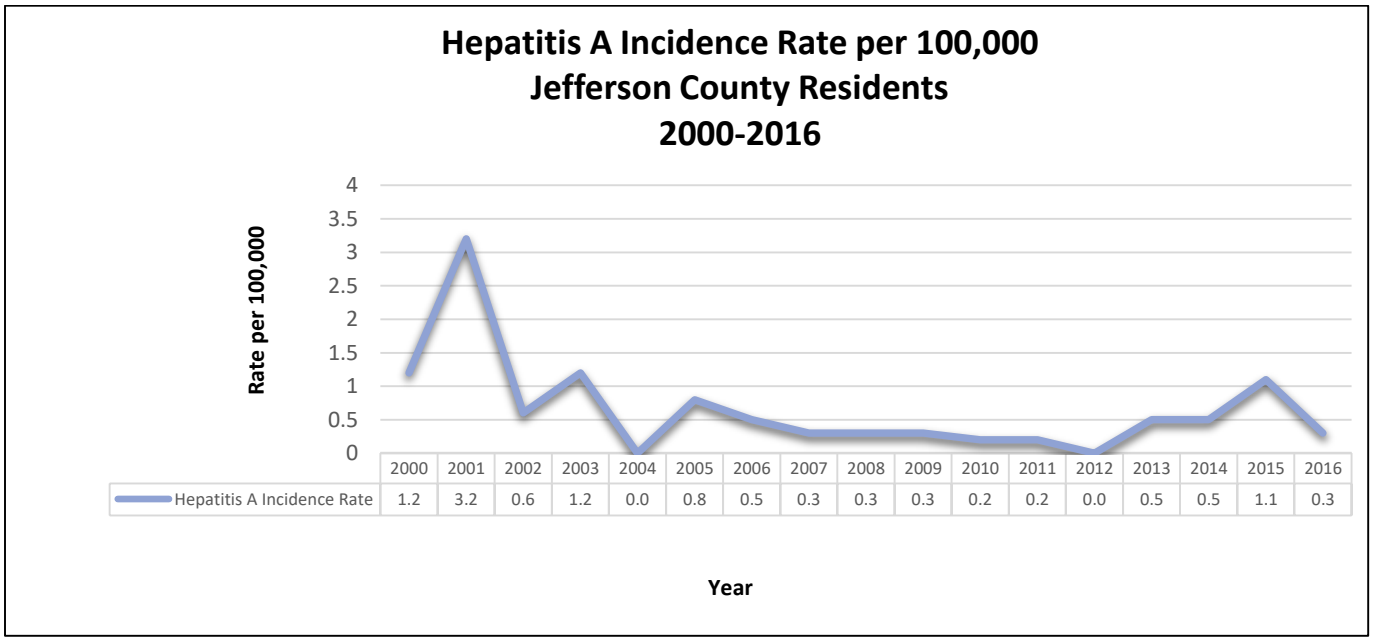


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Tuberculosis Incidence Rate	10.72	9.07	5.45	8.51	8.05	3.96	4.57	5.16	3.64	5.56	4.37	4.37	4.37	2.41	2.88	2.88	1.97	2.73



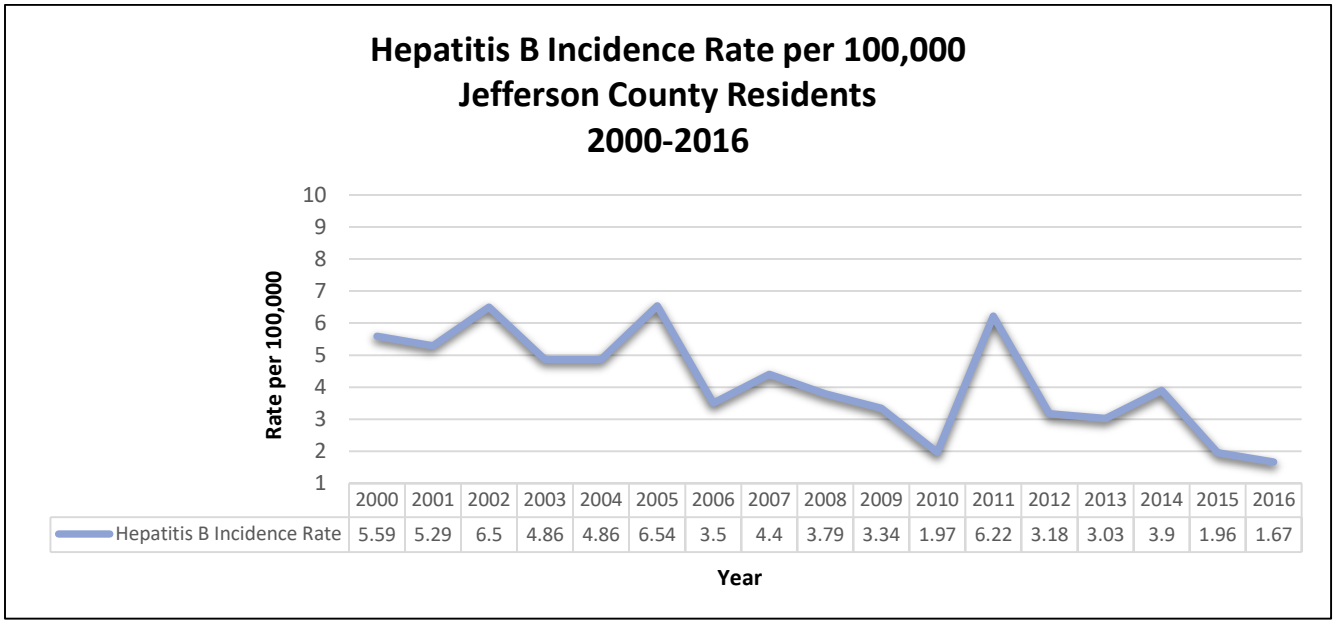
Hepatitis A

Hepatitis A is a viral disease that affects the liver and produces an infection that does not result in chronic infection or chronic liver disease, but can cause acute liver failure. Hepatitis A incidence rates have decreased in Jefferson County from the 2000 rate of 1.2 per 100,000 population. In 2016, the Hepatitis A rate was 0.3 per 100,000 population.



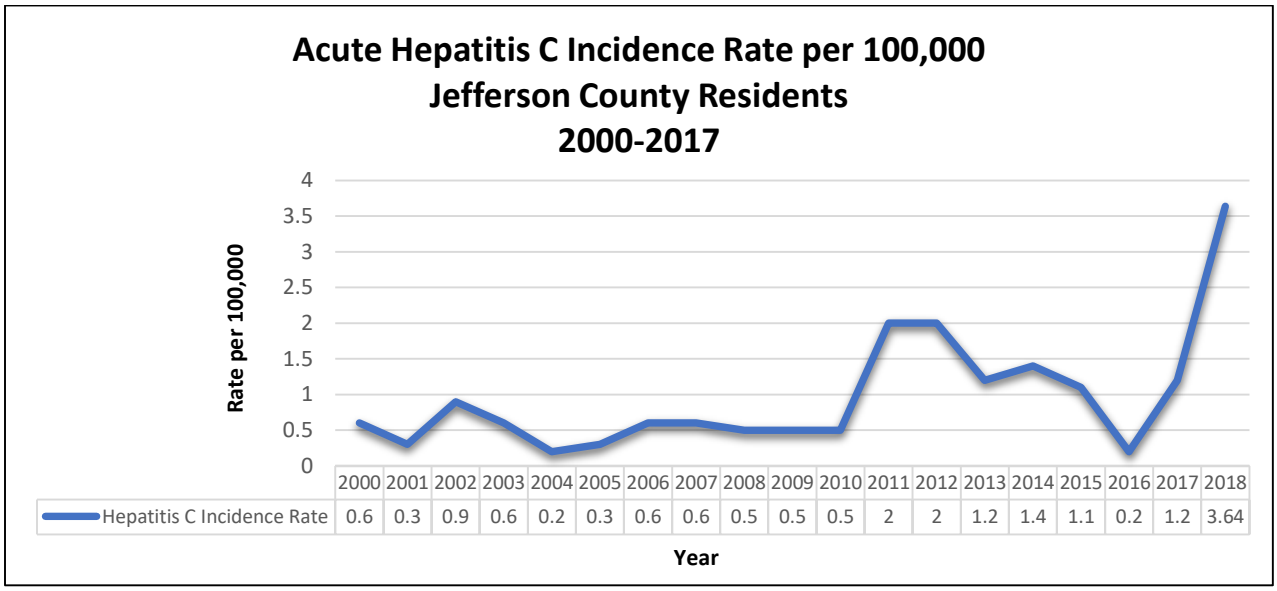
Hepatitis B

Hepatitis B is a viral disease that affects the liver and can result in a chronic or acute liver infection resulting in acute liver failure or death. Hepatitis B incidence rates have decreased by 70.1% from the 2000 rate of 5.6 per 100,000 population to the 2016 rate of 1.7 per 100,000 population.

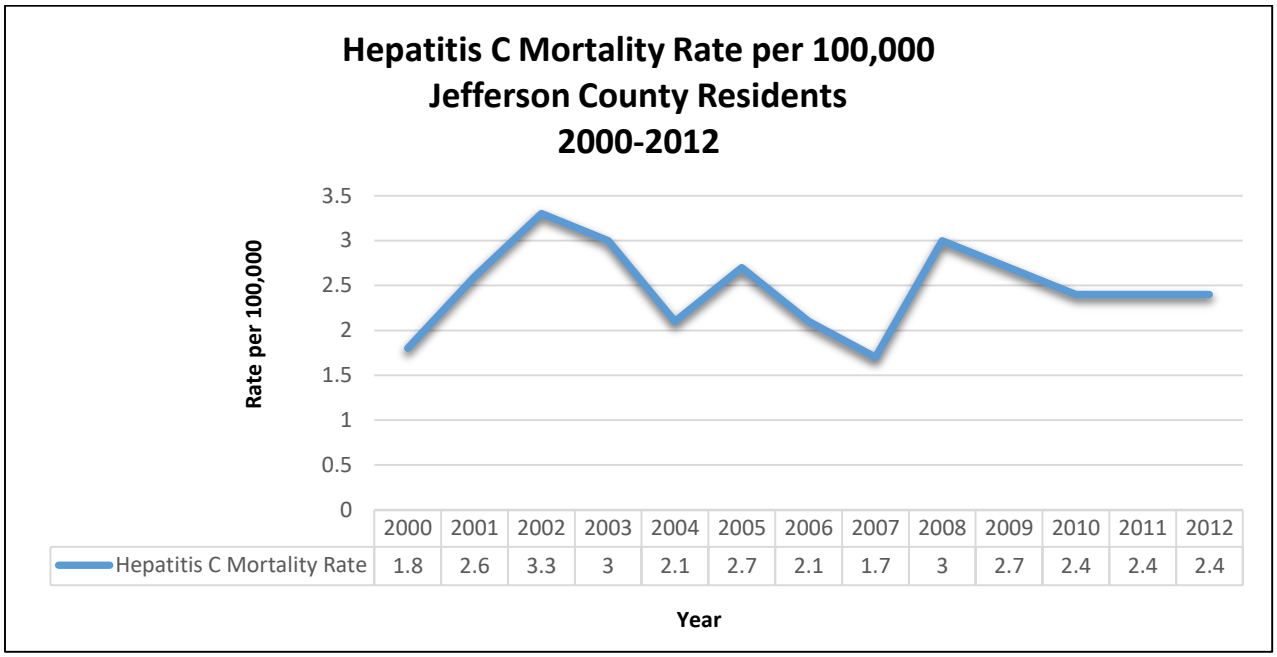


Hepatitis C

Hepatitis C is a blood-borne virus. It is most commonly transmitted by exposure to infected blood through blood transfusions or needle sharing and less commonly through sexual contact. Hepatitis C rates in Jefferson County increased from 0.6 per 100,000 population in 2000 to 3.64 per 100,000 population in 2017. Jefferson County's current Hepatitis C rate is significantly higher than the Healthy People 2020 target of 0.25 per 100,000 population. According to the CDC, recent Hepatitis C increased rates are thought to reflect both true increases in incidence and improved case ascertainment. Hepatitis C mortality rates have fluctuated around 2.4 per 100,000 population from 2010 through 2012, data after 2012 is currently unavailable.

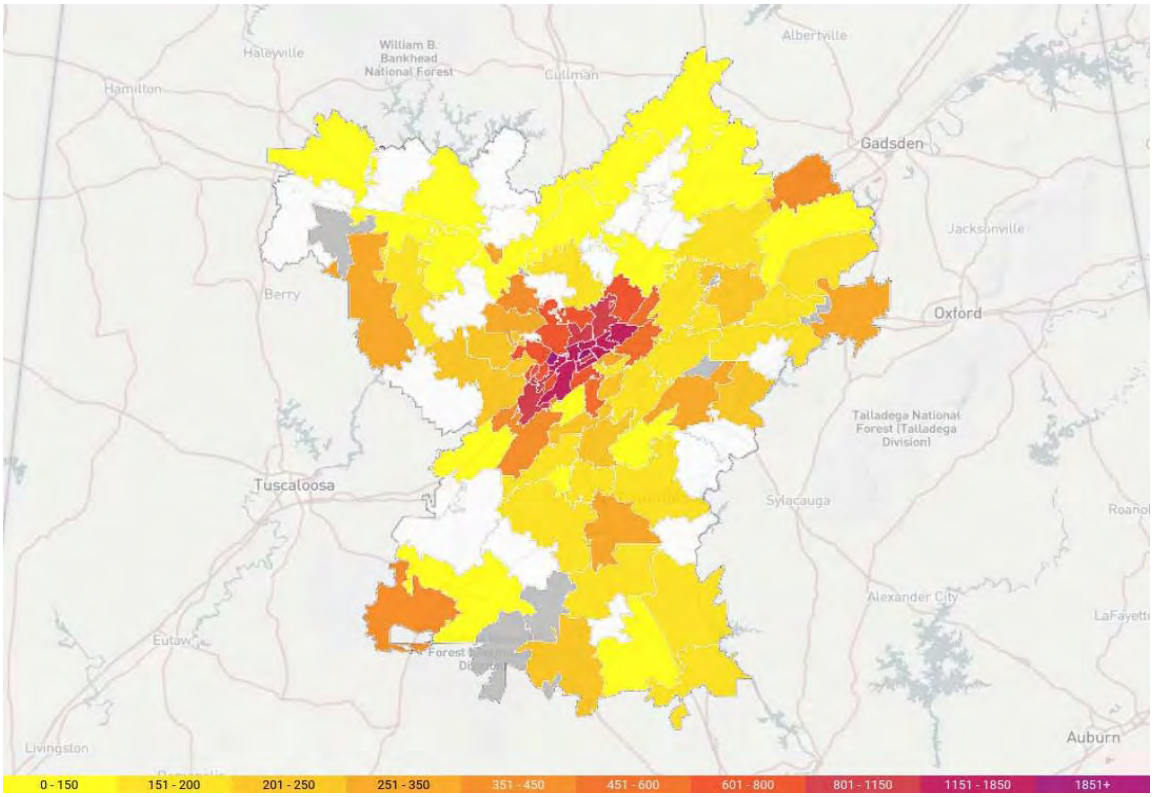


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Hepatitis C Incidence Rate	0.6	0.3	0.9	0.6	0.2	0.3	0.6	0.6	0.5	0.5	0.5	2	2	1.2	1.4	1.1	0.2	1.2	3.64


Hepatitis C Mortality Rate per 100,000
Jefferson County Residents
2000-2012
Rate per 100,000
3.5
3
2.5
2
1.5
1
0.5
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Hepatitis C Mortality Rate 1.8 2.6 3.3 3 2.1 2.7 2.1 1.7 3 2.7 2.4 2.4 2.4
Year

HIV/AIDS[77]

In 2016, 621 per 100,000 population were living with HIV in Jefferson County. In the 2017 HIV Surveillance Annual Report, Alabama Department of Public Health reported 22.4 per 100,000 population newly diagnosed HIV cases in Jefferson County. Jefferson County was also listed as one of the top five counties in Alabama with the Highest Frequency of Newly Diagnosed HIV cases between 2013 - 2017. In 2017, Aidsvu reported that there are 4,318 people living with HIV in the City of Birmingham; 75.1% of these individuals are male and 24.9% female. The following map presents the City of Birmingham's 2017 rate of population per 100,000 population living with HIV; however, it excludes all other municipalities within Jefferson County.



Data Source: Aidsvu presented by Emory University's Rollins School of Public Health in partnership with Gilead Sciences, Inc. and the Center for AIDS Research at Emory University (CFAR).

Communicable Disease Findings

Immunization rates have decreased among children under age two since 2010, and for annual influenza vaccination in the elderly population. The percentage of the population age 65 and older receiving a pneumococcal vaccination remains stable. Decreasing immunization rates are an indicator of concern as these indicate higher risk for unimmunized individuals and for the Jefferson County population as a whole for contracting preventable diseases.

While the sexually transmitted infection rates for Syphilis have decreased since the 2006 high of 36.2 per 100,000 population, Chlamydia and Gonorrhea rates are increasing. As Chlamydia and Syphilis rates among males are higher than the Healthy People 2020 goal, increased need for treatment and prevention of sexually transmitted diseases is indicated. Among other communicable diseases, Tuberculosis, Hepatitis A and Hepatitis B rates are decreasing in Jefferson County. The increasing rates of Hepatitis C infection is an undesirable finding, especially considering the significant link between Hepatitis C and liver cancer. HIV prevalence decreased from 24.1 to 21.2 per 100,000 population between 2014 and 2016, and this change was statistically significant. However, HIV remains a significant public health concern for Jefferson County. Although the HIV rate has decreased, Jefferson County remains one of the top five counties in Alabama for its rate of newly diagnosed HIV Cases.

Sentinel Events[78]

Sentinel events are unanticipated events that may result in death, illness or injury for a particular population. The indicators in this category represent outbreaks of certain communicable diseases and incidence rates for vaccine preventable illnesses.

Hepatitis A

Hepatitis A is a vaccine-preventable, communicable disease of the liver that is caused by the Hepatitis A virus. It is transmitted person-to-person through the fecal-oral route or consumption of contaminated food or water. Between 2018 and 2019, Hepatitis A cases increased in Jefferson County. In 2018, three cases were reported to the Jefferson County Department of Health (JCDH). In 2019, nine cases were reported, representing a 200% increase from the previous year. Persons at highest risk for Hepatitis A include users of recreational drugs, persons experiencing homelessness, recently incarcerated populations, men with same sex partners and close contacts.

In April 2019, JCDH activated the Incident Command Team for Hepatitis A Outreach and Response. After a Hepatitis A outbreak was declared in Jefferson County, the Incident Command Team engaged community outreach to correctional facilities, substance abuse centers and homeless service providers. A public relations campaign was also launched to increase community awareness. A total of 1,262 Hepatitis A vaccines were administered to eligible populations in Jefferson County to prevent spread of the disease.

Pertussis

Pertussis, or whooping cough, is a vaccine preventable and highly contagious disease causing uncontrollable and violent coughing. Pertussis infection rates in Jefferson County have increased from the 2000 rate of 0.5 per 100,000 population to the 2018 rate of 5.61 per 100,000 population. According to the Centers for Disease Control and Prevention, there are many factors that contribute to Pertussis. Increased disease awareness and improved diagnostic testing has also contributed to the number of whooping cough cases being confirmed and reported. Pertussis is preventable with adequate vaccination.

Measles

There have been no cases of measles, a vaccine preventable and highly contagious respiratory disease that causes fever, cough, runny nose and rash over the entire body, in Jefferson County since 2000. Appropriate vaccination coverage with the Measles, Mumps and Rubella vaccine is a likely reason for the lack of Measles cases.

Mumps

Mumps is a vaccine preventable and highly contagious disease that causes swelling of the salivary gland and is accompanied by fever, muscle aches, headache, fatigue and loss of appetite. In 2018, Jefferson County reported one case of mumps, resulting in an incidence rate of 0.15 per 100,000 population.

Rubella

Rubella is a contagious viral disease which is vaccine preventable. Rubella infection in a pregnant woman can cause birth defects such as deafness, cataracts, heart defects, mental retardation and liver and spleen damage. There have been no reported cases of Rubella in Jefferson County since 2000 which is expected with appropriate Measles, Mumps and Rubella vaccination coverage.

Tetanus

There have been no reported cases of Tetanus in Jefferson County from 2000 to date. Tetanus is a vaccine preventable disease spread through contaminated soil and dust entering the body through breaks in the skin.

Listeriosis

Listeriosis is a disease spread by eating food contaminated with the bacteria *Listeria monocytogenes*. The disease predominately affects older adults, pregnant women, infants, children and individuals with a compromised immune system. In 2018, one case of Listeriosis was reported in Jefferson County, resulting in an incidence rate of 0.15 per 100,000 population.

Diphtheria

Diphtheria is a vaccine preventable disease that was a major cause of illness and death among children prior to the implementation of broad-based vaccination practices. From 2000 through the present, there have been no reported cases of Diphtheria in Jefferson County.

Legionella

Legionella is a bacteria that causes a type of pneumonia and is the result of environmental exposure to the bacteria. In 2018, 18 cases of Legionella were reported in Jefferson County, creating an incidence rate of 2.73 per 100,000 population.

Varicella

Varicella, also known as chickenpox, is a highly contagious, vaccine preventable disease that causes a blister like rash, itching, fatigue and fever. In 2018, ten cases of Varicella were reported in Jefferson County resulting in an incidence rate of 1.52 per 100,000 population.

Meningococcus

Meningococcus refers to any disease caused by the bacteria *Neisseria meningitides*. Infections usually involve swelling of the brain and spinal cord, as well as bloodstream infection. In 2018, there were no Meningococcus cases reported in Jefferson County.

Sentinel Events Findings

Due to the infrequent nature of sentinel events, it is difficult to determine if trends exist. The occurrence of a sentinel event could indicate problems with the local public health system or alert health care providers to trends within the community that affect public health. One such trend is declining immunization rates. As immunization rates continue to decline in Jefferson County, death and illness due to vaccine preventable diseases may increase. This increase has been seen in the rates of Pertussis infection; which remains a concern for Jefferson County.