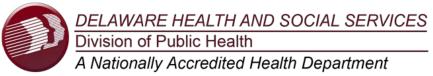
## DELAWARE VITAL STATISTICS EXECUTIVE SUMMARY REPORT 2016





Delaware Department of Health and Social Services

### DELAWARE VITAL STATISTICS EXECUTIVE SUMMARY REPORT

### 2016

# Division of Public Health Delaware Health Statistics Center

417 Federal Street Dover, DE 19901 Telephone 302-744-4541 FAX 302-739-4784

Karyl Thomas Rattay, MD, MS
Director
Division of Public Health
Delaware Department of Health and Social Services



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#### Questions or comments about this report may be directed to:

State of Delaware

Delaware Department of Health and Social Services

Division of Public Health

Delaware Health Statistics Center

417 Federal Street

Dover, Delaware 19901

302-744-4541

FAX 302-739-6631

#### Visit our website at:

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There is an ever-increasing demand for vital records data and an increasing recognition of the importance of these data among policy makers, planners and health professionals, the news media, students and teachers, and private citizens. In an effort to meet the demand for quality vital statistics data, the Delaware Health Statistics Center (DHSC) releases the Delaware Vital Statistics Annual Report.

The primary sources of data used in preparing this report are certificates of marriage, divorce, live birth, death, and fetal death filed either inside or outside Delaware and reports of induced termination of pregnancy (ITOP) filed in Delaware. The compilation and enumeration of vital events are accomplished through the cooperation of the DHSC and the Office of Vital Statistics. This cooperation is the foundation for the development of a comprehensive health data management system designed to facilitate the most effective use of resources.

This report includes a number of statistics based on five-year averages: age-specific fertility rates, percentages of births to single mothers, percentages of low birthweight births, infant mortality rates, and age-adjusted mortality rates for selected causes of deaths. The use of five-year averages for these measures is due to the relatively small number of events in a single year, making annual rates particularly susceptible to the effects of random variations. This report presents trends over time beginning in the 1980's. The DHSC presents rates with stratifications of place of residence, age, marital status, race, ethnicity, gender, educational background, and (for mortality data) causes of death. Also included are highlights of Delaware's life expectancy, leading causes of death, and the most popular birth names.

Sections in this report focus on specific topics of concern to Delawareans such as teen pregnancy, infant mortality, trends in HIV infection/AIDS deaths, and drug and alcohol-related deaths. Throughout the years, the DHSC expanded its sections to include data specific to Wilmington, historical tables on the percent of births to single mothers, and tables on the percent of low and very low birthweight births.

The effective use of vital statistics information is essential to identify and understand the population health challenges facing Delaware. Some of the highlights of the annual report are as follows.

- In 2016, 71 percent of single mothers who gave birth in Delaware had Medicaid as a principal source of payment fordelivery.
- The percentage of live births by cesarean delivery increased from 31.5 percent in 2014 to 31.8
  percent in 2016, making Delaware 31st in the national ranking.
- Delaware residents born in 2016 can expect to live to 79 years of age.
- In Figure F-2, while alcohol-induced death rates remained fairly stable, drug-induced mortality rates continued their steady increase. Since 1990-1994, drug-induced mortality rates have risen 330 percent, with the increase reflected in both male and female death rates. Although female rates increased more than male rates, 383 versus 309 percent, in 2012-2016 the male drug-induced death rate was 88 percent higher than the female rate. Also notable in 2016, 85 percent of all drug-induced deaths were white decedents, and 68 percent of those death were males.

Examining data such as highlighted here can provide a general overview of the health of Delawareans; provide an opportunity to generate and evaluate possible hypotheses about the possible determinants of diseases and health risks; and may be useful for policy development and program planning when used in concert with other relevant data.

Figure 1. Selected Characteristics: Delaware Vital Statistics Annual Report, 2016

Population	Number*	Percent	Fetal Deaths	Number*	Percent
Delaware	952,986		Delaware	48	100.0%
Kent	173,668	18.2%	Kent	12	25.0%
New Castle	558,345	58.6%	New Castle	26	54.2%
Sussex	220,973	23.2%	Sussex	10	20.8%
Gussex	220,373		Race	10	20.070
Marriages	Number*	5-yr Rate <sup>1</sup>	White	17	35.4%
Delaware	5,344	5.8	Black	27	56.3%
Kent	888	5.5	Hispanic Origin <sup>4</sup>	3	100.0%
New Castle	2,777	5.0	I nopaline origin		100.070
Sussex	1,679	8.5	Infant Mortality	Number*	5-yr Rate <sup>5</sup>
Gussex	1,075	0.0	Delaware	87	7.5
Divorces	Number*	5-yr Rate <sup>1</sup>	Kent	14	6.5
Delaware	2,932	3.3	New Castle	62	8.4
Kent	676	4.1	Sussex	11	6.1
New Castle	1,637		Race		0
Sussex	619	3.5	White	36	5.1
		0.0	Black	40	12.5
Live Births	Number*	5-yr Rate <sup>2</sup>	Hispanic Origin ⁴	8	6.5
Delaware	10,967	62.5	,		
Kent	2,247	64.7	Mortality	Number*	Adj. Rate <sup>6</sup>
New Castle	6,430	59.4	Delaware	8,872	717.8
Sussex	2,290	71.0	Kent	1,626	847.0
Births to Teenagers (15-19)			New Castle	4,666	718.7
White	310	20.1	Sussex	2,580	680.7
Black	244	33.8	Race and Gender		
Delaware	580	22.6	White Males	3,695	861.9
Kent	151	23.7	White Females	3,478	587.2
New Castle	290	19.3	Black Males	813	1074.8
Sussex	139	32.6	Black Females	708	671.9
Race	Number*	Percent	Decedent's Age	Number*	Percent
White	7,051	64.3%	<1	87	1.0%
Black	3,014	27.5%	1-14	24	0.3%
Hispanic Origin⁴	1,543	14.1%	15-24	95	1.1%
Marital Status			25-44	430	4.8%
Married	5,942	54.2%	45-64	1,681	18.9%
Single	5,025	45.8%	65-74	1,763	19.9%
Births to Single Mothers <sup>3</sup>			75-84	2,165	24.4%
White	2,759	39.1%	85+	2,627	29.6%
Black	2,084	69.1%	Leading Causes of Death		
Hispanic Origin <sup>4</sup>	922	59.8%	Malignant neoplasms	2,125	24.0%
Low Birth Weight (<2,500 gms)			Diseases of heart	1,955	22.0%
All Races	986	9.0%	Chronic lower respiratory diseases	540	6.1%
White	490	6.9%	Accidents (unintentional injuries)	534	6.0%
Black	408	13.5%	Cerebrovascular diseases	503	5.7%
Hispanic Origin <sup>4</sup>	110	7.1%	Dementia	443	5.0%

#### Notes:

Numbers are for 2016.

1. The 5-year rate is per 1,000 population and refers to the period2012-2016.

2. The 5-year rate refers to total live births per 1,000 women 15-44 years of age during the 2012-2016 period.

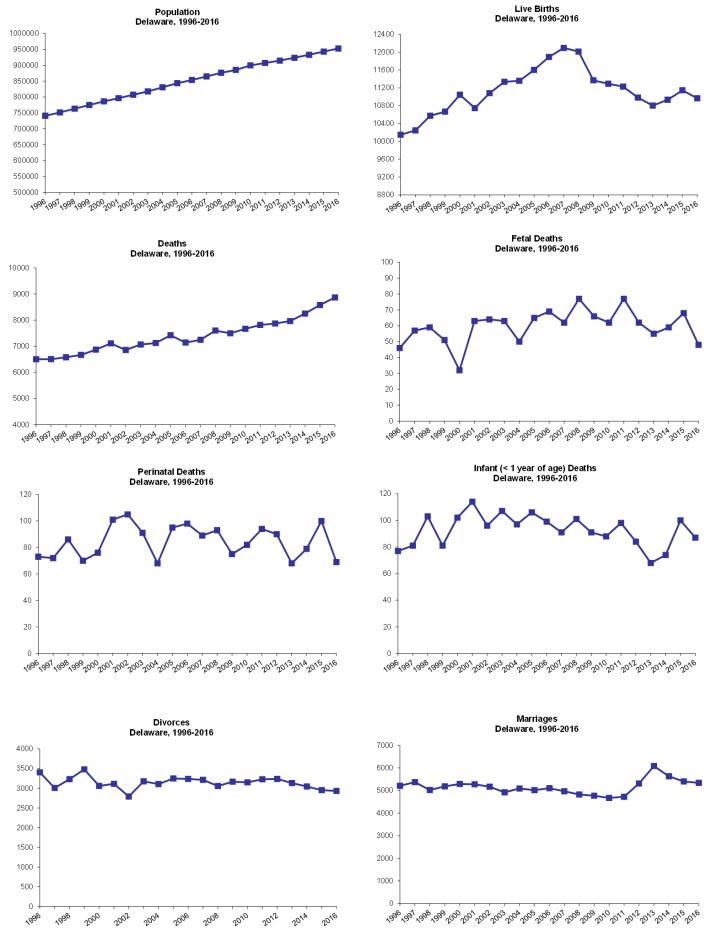
3. Percentages for births to single mothers are based on total births for the race-group.

4. People of Hispanic origin may be of any race. The percentage is based on total resident births for 2016.

5. The 5-year (2012-2016) infant mortality rates represent the number of deaths to children under one year of age per 1,000 live births.

6. The 2016 mortality rates (deaths per 100,000 population) for Delaware and the counties are age-adjusted to the 2000 U.S. population.

Figure 2. 2016 Delaware Vital Statistics



In 2016, just over 51 percent of Delaware's population was female. Females made up a greater proportion of the older age groups, which reflects the longer female life expectancy. Delaware females born in 2016 can expect to live an average of 81.8 years versus males who could expect to live 75.7 years.

**Age Group** 85 & up Males **Females** 80 - 84 75 - 79 70 - 74 65 - 6960 - 64 55 - 59 50 - 54 45 - 49 40 - 44 35 - 3930 - 3425 - 29 20 - 24 15 - 1910 - 14 5 - 9 0 - 4 0% 8% 6% 4% 2% 2% 6% 8% Percentage

Figure 3. Population by Gender and Age, Delaware 2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

When the population was broken down by race, the highest proportion of females in the older age groups appeared in the white population. However, both black males and females had a greater percentage of their population in the 0-39 year age range than white males and females. In the 50 and above age range for both males and females, whites made up a greater proportion of the population.

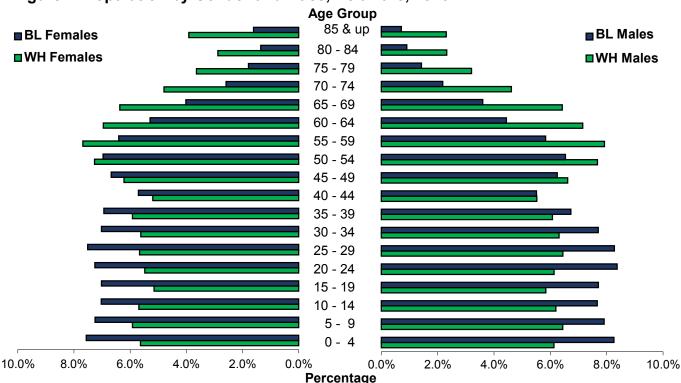


Figure 4. Population by Gender and Race, Delaware, 2016

Delaware's three counties continued their increasing population trend, though they grew at different rates. Between 2000 and 2016, county populations grew annually by 2.3 percent for Kent, 0.7 percent for New Castle, and 2.5 percent for Sussex. Delaware's statewide increase was 1.3 percent.

In 2016, just over half of Delaware's 65 and older population resided in New Castle County. However, residents 65 and older represented a much larger Proportion of the Sussex County population, where one in four residents was 65 or older, versus New Castle and Kent counties, where approximately one in seven residents was 65 or older.

Over half of Delaware's total population resides in New Castle County.

Figure 6. Percent of Population by County Delaware 2016

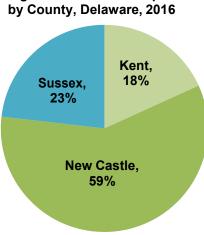
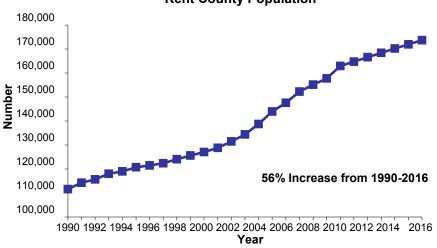
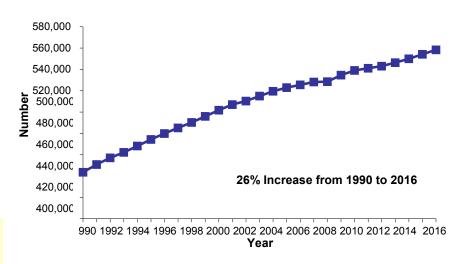
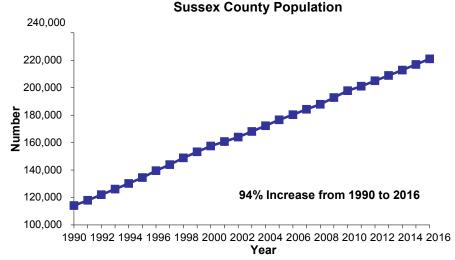


Figure 5. Delaware Resident Population by County, 1990-2016 Kent County Population



#### **New Castle County Population**





Source: Delaware Department of Health and Social Services, Division of Public Health, Health Statistics Center

#### MARRIAGE AND DIVORCE

There were 5,344 marriages and 2,932 divorces in Delaware in 2016. Over half of all divorces in 2016 were of marriages that lasted less than 10 years.

#### **Marriage**

Male Female

Youngest: 18 Youngest: 16 Oldest: 94 Oldest: 85

Marriage with the greatest age difference between bride and groom: 39 years. Most popular month to get married: October.

#### Divorce

Male Female

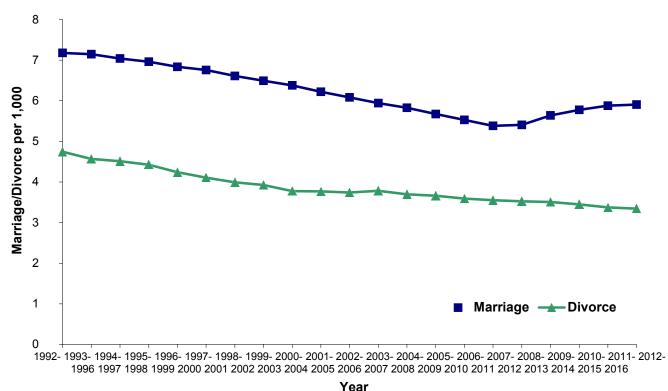
Youngest: 17 Youngest: 18 Oldest: 92 Oldest: 84

Shortest duration of marriage: 86 days Longest duration of marriage: 62 years Median duration of marriage: 9 years Total children under 18 years of age: 2,673

Between 1991-1995 and 2012-2016, the five-year average marriage rate decreased from 7.3 to 5.9 marriages per 1,000 population.

Divorce rates remained fairly stable between 1991-1995 and 1992-1996. From 1992 to 1996, divorce rates declined 30 percent to 3.3 divorces per 1,000 population in 2012-2016.

Figure 7. Five-year Average Marriage and Divorce Rates, per 1,000 Population, Delaware, 1992-2016



In 2016, there were 11,415 births in Delaware; 10,461 were to Delaware residents and 954 were to non-residents. Additionally 506 births to Delaware residents occurred out of state, for a total of 10,967 Delaware resident births, 178 fewer Delaware resident births than in 2015.

The recent national declines in general fertility and live birth rates were also apparent in Delaware statistics. From 2007 to 2016, the general fertility rate (number of births per 1,000 women ages 15-44 years) declined from a high of 68.5 to 62.3 births per 1,000 women aged 15-44. The birth rate of teens (15-19) exhibited the largest decline at 51.7 percent, followed by a 36.7 percent decrease for women ages 20-24. Although birth rates for women ages 30-34 years increased by 14.4 percent between 2012 and 2016, the 2016 birth rate remains lower than the 2007 rate. For women ages 35-39, the birth rate decreased 2.3 percent between 2012 and 2016, while for women ages 40-44, the birth rate increased 7.9 percent.

120 100 Age Live Births per 1,000 population - 15-19 80 20-24 25-29 30-34 35-39 60 40-44 40 20 **Delaware Statewide Fertility Rate** 0 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 Year

Figure 8. Annual Fertility and Age-Specific Live Birth Rates, Delaware, 2002-2016

Note: Age unit is in years.

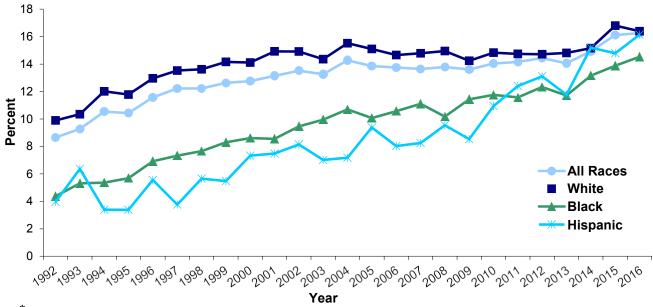
Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

From 2012 to 2016, the decline in the number of births seen in teens ages 15-19 was apparent in both the 15-17 and 18-19 age groups. Birth rates among teens ages 15-17 decreased 28.4 percent while birth rates among teens 18-19 fell 18.6 percent. In the 2012-2016 time period, Sussex County had the highest birth rate for teens in both age groups, followed by Kent County.

To view long-term birth rate trends by more detailed age and race categories, see Tables C-5 through C-8 in the Live Births section of the annual report.

Between 1992 and 2004, the percentage of births to women 35 and older exhibited a clear upward trend. The percentage then remained stable until 2009. In 2016, 16.3 percent of all births were to women 35 and older, a 19.4 percent increase since 2009.

Figure 9. Annual Percent of Live Births to Women 35 or Older by Race and Hispanic Origin,\* Delaware, 1992-2016

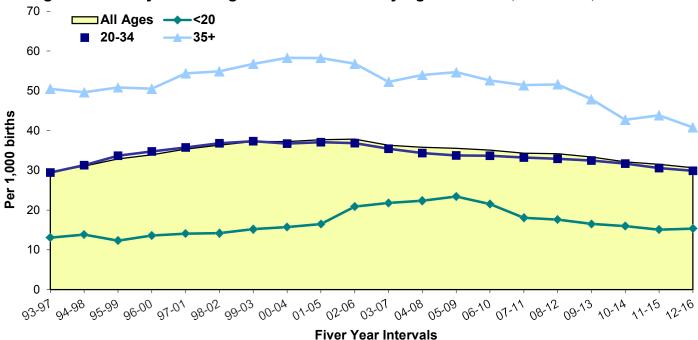


\*Note: Hispanic can be of any race

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

For mothers of all ages, the rate of plural births increased 10 percent between 1993-1997 and 2012-2016. In 2012-2016, older mothers (35+) had the highest plural birth rates, at 41 multiples per 1,000 births, almost three times that of mothers under 20, and 36 percent higher than mothers 20-34.

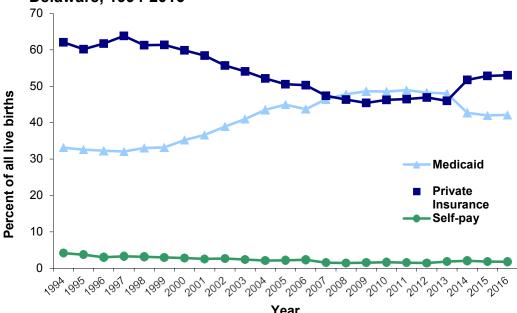
Figure 10. Five-year Average Plural Birth Rate by Age of Mother, Delaware, 1993-2016



In 2016, 95 percent of live births had either private insurance or Medicaid listed as the primary source of payment; the remaining 5 percent were split between other government coverage and self-pay.

- In 2016, private insurance paid for more births than Medicaid.
- •Medicaid was still the primary source of payment for the majority of mothers under 20, covering 79.6 percent of black mothers, and 73.5 percent of white mothers.

Figure 11. Percent of Births by Source of Payment for Delivery, Delaware. 1994-2016

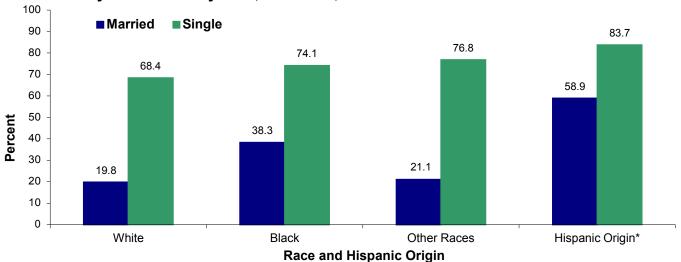


Source: Delaware Department of Social Services, Division of Public Health, Delaware Health Statistics Center

Marital status has a tremendous effect on the use of Medicaid as the primary source of payment for delivery:

- The number of single white women who used Medicaid as their primary source of payment (68.4 percent) was more than triple that of white married women (19.8 percent).
- The number of single black women who used Medicaid as their primary source of payment (74.1 percent) was almost double that of black married women (38.3 percent).
- The number of single women of other races who used Medicaid as their primary source of payment (76.8 percent) was more than three times higher than among married women of other races (21.1 percent).
- The number of single Hispanic women who used Medicaid as their primary source of payment (83.7 percent) was significantly higher than Hispanic married women (58.9 percent).

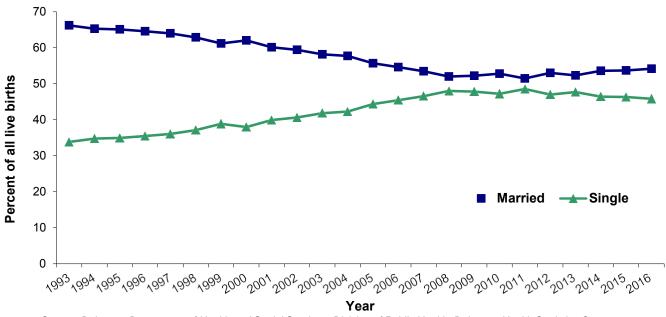
Figure 12. Percent of Births by Race, Hispanic Origin, Marital Status, and Medicaid as Primary Source of Payment, Delaware, 2016



\*Note: Hispanic can be of any race

After increasing steadily from 1993 to 2008, the percent of births to unmarried women stabilized. The number of births to unmarried women fell by 4.5 percent from 2008 to 2016, compared to a 4.2 percent increase in births b married women during that same time period. In 2016, 45.8 percent of all births were to unmarried women.

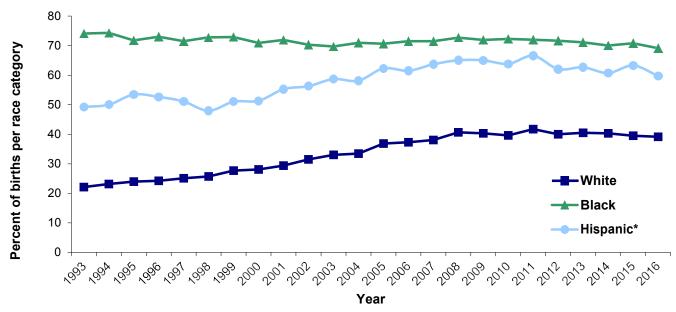
Figure 13. Annual Percent of Births by Mother's Marital Status, Delaware, 1993-2016



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

This shift in the distribution of mother's marital status was only apparent in births to white and Hispanic women. Between 1993 and 2016, the percentage of births to unmarried white women increased from 22 to 39 percent, and the percentage of births to unmarried Hispanic women rose from 49 to 60 percent. During the same time period, the percent of births to unmarried black women remained stable at approximately 70 percent.

Figure 14. Percent of Live Births to Unmarried Women by Race and Ethnicity, Delaware, 1993-2016



\*Note: Hispanic can be of any race

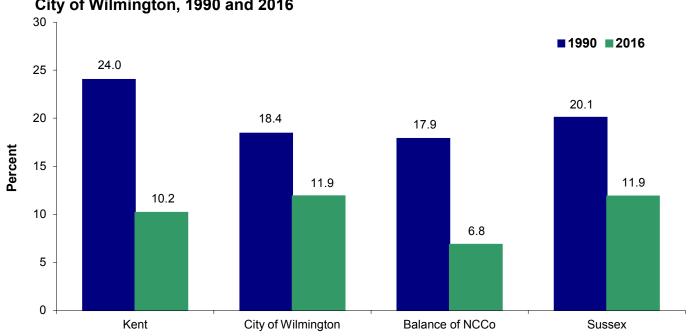
From 1998 to 2016, the rate of cesarean deliveries increased 37.1 percent, to 31.8 per 100 live births, whereas vaginal births decreased only 11.1 percent. Since 1998, both preterm (<37 weeks gestation) and term (37+ weeks gestation) births had increases in cesarean delivery rates. Although term births demonstrated a greater increase in rates between 1998 and 2016, the C-section rate for preterm births remained higher at 43.7 per 100 preterm births, versus 30.1 per 100 term births in 2016.

Figure 15. Annual Rate of Cesarean Deliveries by Gestational Category, Delaware, 1993-2016 50 45 40 35 Rate per 100 births 30 25 20 15 **Full Term Births** 10 **Preterm Births** 5 0 ~99<sup>3</sup>~99<sup>4</sup>~99<sup>5</sup>~99<sup>6</sup>~99<sup>1</sup>~99<sup>8</sup>~99<sup>9</sup>200<sup>0</sup>200<sup>1</sup>200<sup>2</sup>200<sup>2</sup>200<sup>2</sup>200<sup>5</sup>200<sup>6</sup>200<sup>1</sup>200<sup>8</sup>200<sup>9</sup>20<sup>4</sup>20<sup>4</sup>20<sup>4</sup>20<sup>4</sup>20<sup>4</sup>20<sup>4</sup>20<sup>4</sup>

From 1990 to 2016, the percentage of Delaware mothers who used tobacco while pregnant decreased in all three

counties and the city of Wilmington. In 2016, the city of Wilmington and Sussex County had the highest percentage of mothers who smoked while pregnant.

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center



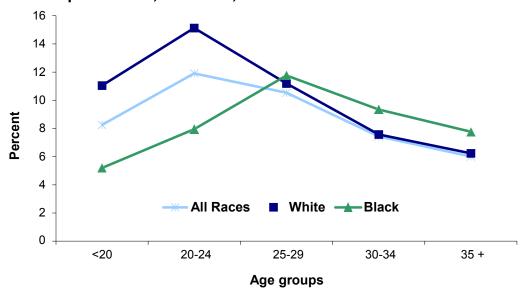
**Counties and City of Wilmington** 

Figure 16. Percent of Mothers who Smoked while Pregnant, Delaware Counties and City of Wilmington, 1990 and 2016

White mothers younger than 25 were more likely to smoke while pregnant than black mothers in the same age group.

Black mothers older than 30 were more likely to smoke while pregnant than white mothers.

Figure 17. Percent of Mothers who Smoked While Pregnant by Age Group and Race, Delaware, 2016

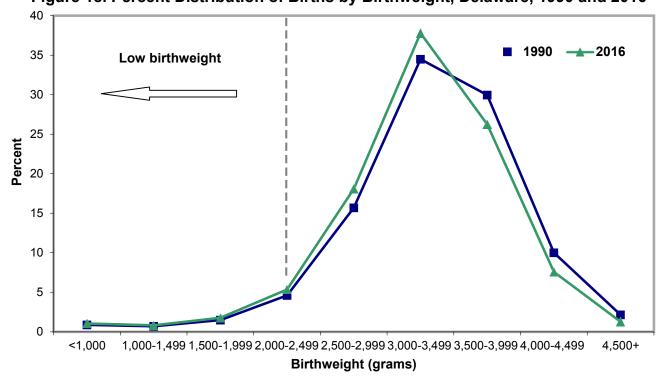


Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

In 2016, 15.0 percent of Delaware women who smoked while pregnant gave birth to low birthweight babies (< 2,500 grams), versus the significantly lower percentage (8.6) of non-smokers who gave birth to low birthweight babies.

The percent distribution of births by birthweight did not differ significantly between 1990 and 2016. The greatest percentage of births fell within the 3,000 to 3,499 gram range.

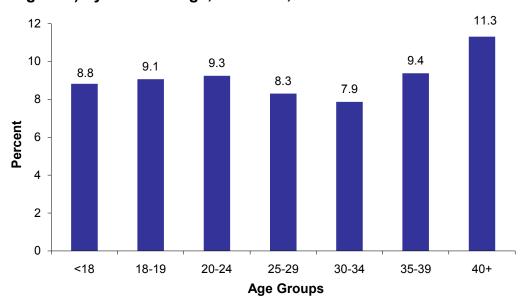
Figure 18. Percent Distribution of Births by Birthweight, Delaware, 1990 and 2016



In 2012-2016 the five-year percent of low birthweight (LBW) births and very low birthweight (VLBW) births remained relatively stable at 8.6 and 1.8, respectively.

The percent of LBW births was greatest for mothers in the 40 and older age group (11.3 percent) and lowest for those in the 30-34 age group. (7.9 percent)

Figure 19. Five-year Percent of Low Birthweight Births (<2,500 grams) by Mother's Age, Delaware, 2012-2016

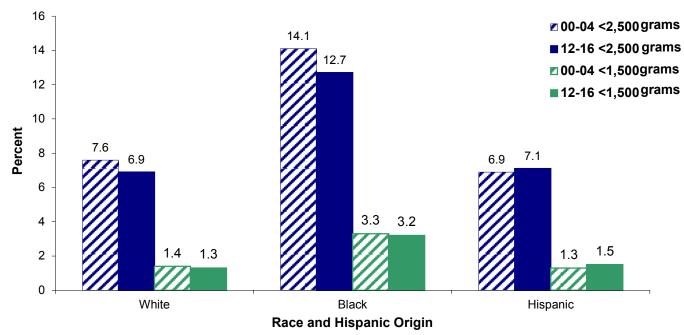


Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistic Center

In 2012-2016 among mothers of all ages, black mothers had the highest percentage of LBW and VLBW births, at 12.7 percent and 3.1 percent, respectively.

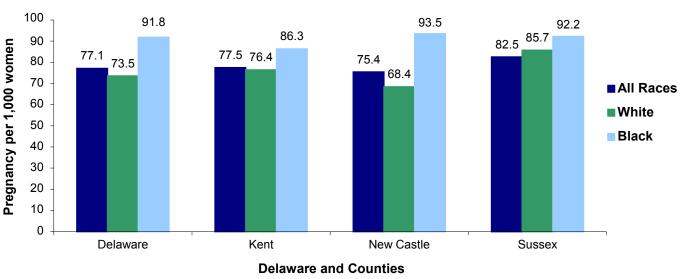
Between 2000-2004 and 2012-2016, the percentages of white and black infants born at low birthweight declined. During this same time period, the percentage of black and white infants born at very low birthweight declined, while the percentage Hispanic infants born at very low birthweight showed a slight increase.

Figure 20. Five-year Average Percent of Low (<2,500 grams) and Very Low Birth Weight Births (<1,500 grams) by Race and Hispanic Origin, Delaware, 2000-2004 and 2012-2016



At 77 reported pregnancies per 1,000 women ages 15-44, the 2012-2016 rate of reported pregnancies decreased by 9.8 percent from the 85.5 rate in 2007-2011. Although pregnancy rates of black mothers were significantly higher than those of white mothers in every county, the largest difference between the pregnancy rate of white (68.4 percent) and black (93.5 percent) mothers occurred in New Castle County.

Figure 21. Five-year Average Rate of Reported Pregnancies by Race, Delaware and Counties, 2012-2016



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

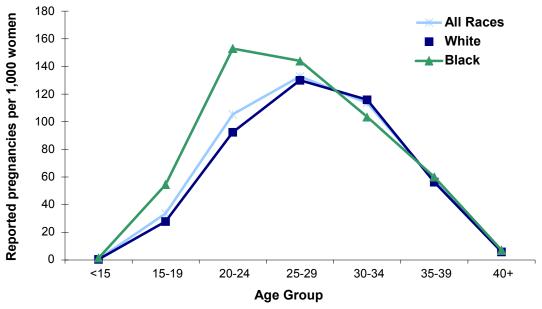
For women of all races, the 25-29 year age group had the highest pregnancy rate, at

Black women had higher pregnancy rates than white women in all age groups except the 30-34 age group.

132.8 pregnancies per 1,000 women

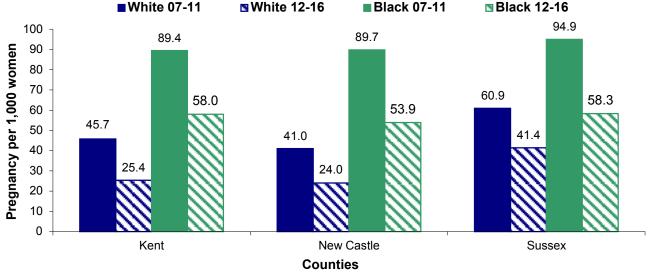
in 2012-2016.

Figure 22. Five-year Average Rate of Reported Pregnancies by Age and Race, Delaware, 2012-2016



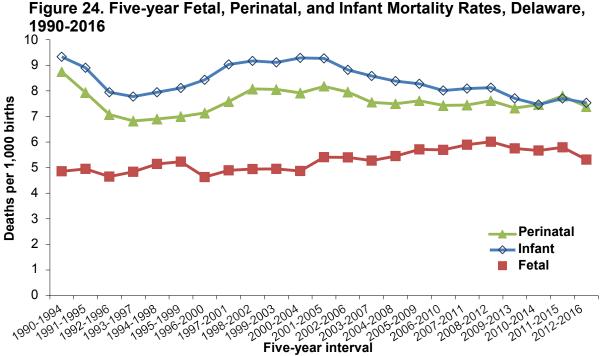
In all three counties the teen (15-19) pregnancy rates for all races declined between 2007-2011 and 2012-2016. Although all three counties had a significant decline in the black teen pregnancy rate, Sussex County's black teen pregnancy rate showed the greatest decline from 94.9 in 2007-2010 to 58.3 in 2012-2016. White teens in New Castle County had the lowest reported pregnancy rate at 24 pregnancies per 1,000 women in 2012-2016. With the exception of Sussex County, where white teen pregnancy rates were the highest, black teen pregnancy rates were more than twice that of white teens.

Figure 23. Five-year Average Teenage (15-19) Pregnancy Rates by County and Race, Delaware, 2007-2011 and 2012-2016



- ▶ The five-year average (2012-2016) pregnancy rate for younger teens ages 15-17 was lowest in Kent County, with 14.6 pregnancies per 1,000 females, followed by New Castle County with a rate of 16 and Sussex County with a rate of 19.4. The rates decreased in all three counties between 2007-2011 and 2012-2016.
- ► The five-year average (2012-2016) pregnancy rate for older teens aged 18-19 was lowest in New Castle County (54.3 pregnancies per 1,000 females), and highest in Sussex County (73.7). See Table D-8.
- ▶ In 2016, there were 2,170 abortions performed in Delaware: 1,893 to Delaware residents and 277 to non-residents.
  - One eighth of all pregnancies to females under 15 ended in termination.
    - ⇒ 22.2 percent of pregnancies to white females under 15 ended in termination. There were no terminations for black females under 15.
  - Married women undergo significantly fewer terminations than their single counterparts.
    - ⇒ 2.4 percent of pregnancies to white married women ended in termination and 7.3 percent of pregnancies to black married women ended in termination.
    - ⇒When the women were unmarried, the number of pregnancies ending in termination increased to 24.9 percent among white women and 28.1 percent among black women.
  - There were 48 fetal deaths of Delaware residents in 2016.
  - There were 10,967 live births to Delaware residents in 2016.

Perinatal mortality refers to deaths occurring in the period around delivery, and includes late fetal deaths (>28 weeks gestation) and early infant deaths (<7 days of age). Perinatal mortality trends paralleled those of infant mortality, decreasing from 1990-1994 to their lowest level in 1993-1997, and then increasing through 2001-2005 (9.3 infant deaths per 1,000 live births and 8.2 perinatal deaths per 1,000 live births), after which they began a gradual decrease and closed the gap between the rates through 2009-2013. The infant and perinatal mortality rates remained nearly equal in the 2012-2016 time period (7.5 infant deaths per 1,000 live births and 7.4 perinatal deaths per 1,000 live births).



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

Like infant mortality rates for 2012-2016, black perinatal mortality rates for 201-2016 were substantially higher than white perinatal mortality rates, regardless of county. In New Castle County, the black perinatal mortality rate of 12.8 perinatal deaths per 1,000 live births was more than double the white perinatal mortality rate of 5.7 perinatal deaths per 1,000 live births.

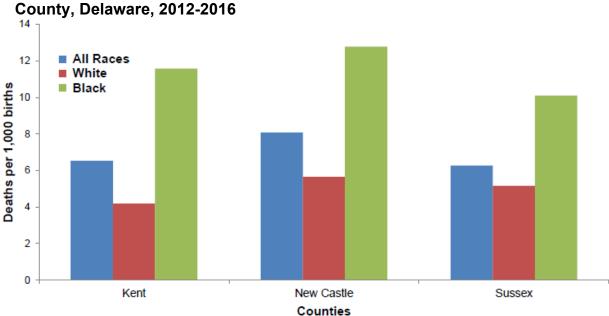
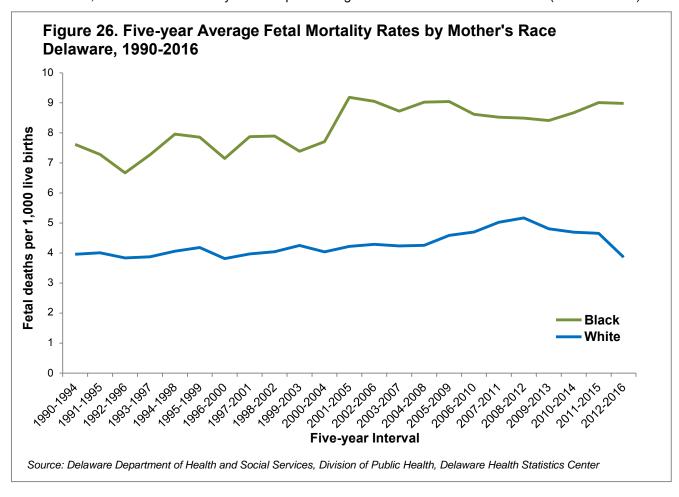


Figure 25. Five-year Average Perinatal Mortality Rates by Race and County. Delaware. 2012-2016

In 2016, there were 48 reported fetal deaths in Delaware. In 2012-2016, the fetal mortality rate was 5.3 fetal deaths per 1,000 live births. Fetal mortality rates for black women have been consistently higher than the rates for white women, and in 2012-2016 they were 58 percent higher than the rate of white women (9.0 versus 3.8).



In 2012-2016, Delaware's infant mortality rate (IMR) was 7.5 infant deaths per 1,000 live births, resulting in a total decline of 19.3 percent from the 2000-2004 rate of 9.3 infant deaths per 1,000 live births.

Delaware, 1988-2016

\*\*The state of the stat

Figure 27. Five-year Average Infant Mortality Rates with Confidence Intervals, Delaware, 1988-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

Wilmington's IMR continued to be the highest in Delaware. The combination of Wilmington's high IMR and a higher IMR in the balance of New Castle County resulted in New Castle County's IMR being higher than the IMRs of both Kent and Sussex counties. Sussex County's IMR remained the lowest at 6.1 infant deaths per 1,000 live births. In 2012-2016, the balance of New Castle County's IMR was 7.1 infant deaths per 1,000 live births; Wilmington's IMR was 15.1 infant deaths per 1,000 live births; and Kent County's IMR was 6.5 infant deaths per 1,000 live births.

**Five-year Intervals** 

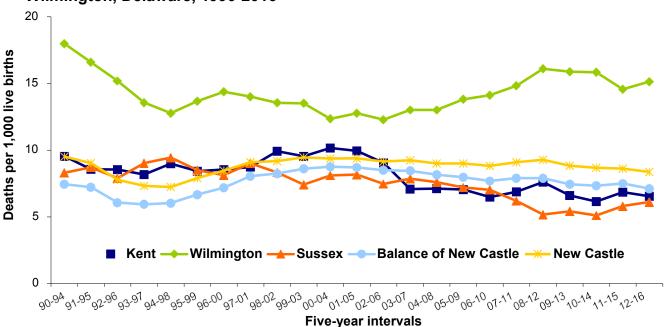


Figure 28. Five-year Average Infant Mortality Rates, Delaware Counties and City of Wilmington, Delaware, 1990-2016

Black infants experienced significantly higher mortality rates than white infants, but the gap is decreasing. In 2012-2016 the black IMR of 12.5 infant deaths per 1,000 live births was more than two times higher than the white IMR of 5.1 infant deaths per 1,000 live births, whereas in 1990-1994 the black IMR was three times higher than the white IMR.

25 White 20 - Black Deaths per 1,000 births 15 10 5 0 95- 96- 97- 98- 99- 00- 01- 02- 03- 04- 05- 06- 07- 08- 09- 10- 11- 12-02 03 04 05 06 07 08 09 10 94 95 96 98 99 00 01 11 **Five-year Interval** 

Figure 29. Five-year Average Black and White Infant Mortality Rates with Confidence Intervals, Delaware, 1990-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

Significant disparities existed between black non-Hispanics and each of the two other groups: white non-Hispanics and Hispanics. Black non-Hispanics had the highest IMRs in all three time periods, and their rate of 12.6 infant deaths per 1,000 live births in 2012-2016 was nearly triple the white non-Hispanic rate of 4.6 and nearly double the Hispanic rate of 6.5 infant deaths per 1,000 live births. Although the rates for each of the race groupings decreased from 2002-2006 to 2012-2016, white non-Hispanics had the largest percentage decrease at 29.2 percent.

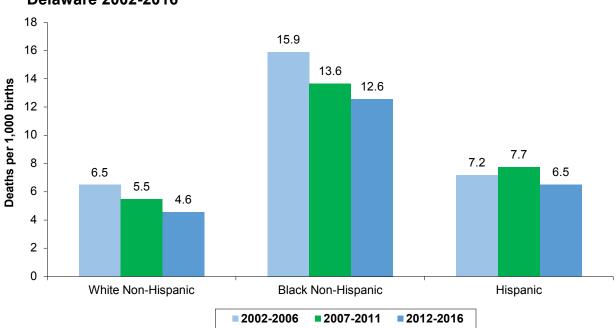


Figure 30. Five-year Average Infant Mortality Rates by Race and Hispanic Origin, Delaware 2002-2016

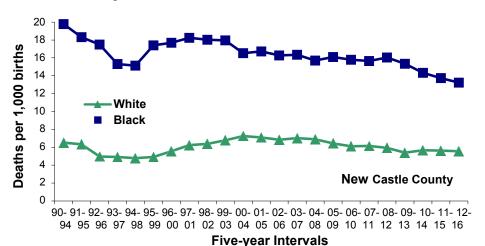
In 2012-2016, New Castle County had the highest IMRs and Sussex County had the lowest.

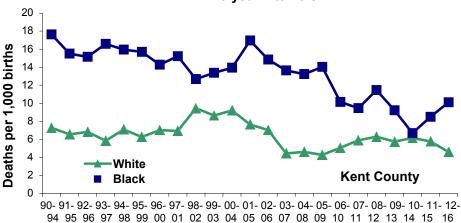
Black IMRs in New Castle County have hovered around 16 infant deaths per 1,000 live births since 2000-2004, and decreased the last three time periods to 13.2 infant deaths per 1,000 live births.

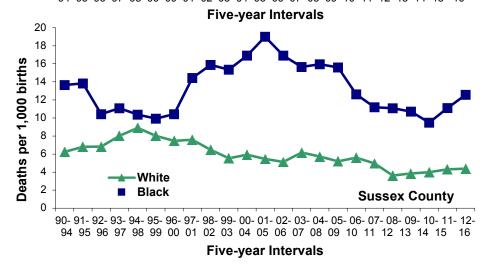
Black IMRs in Kent County peaked at 17 infant deaths per 1,000 live births in 2001-2005. The IMR has since fluctuated while still remaining 41 percent lower in 2012-2016, at 10.1 infant deaths per 1,000 live births. The white IMR had a 52 percent decrease from its peak in 1998-2002 to 2012-2016 (9.5 to 4.6 infant deaths per 1,000 live births).

Sussex County's black IMR rose to 12.6 infant deaths per 1,000 live births in 2012-2016, a 21 percent increase since 1996-2000 and a 34 percent reduction from the 2001-2005 peak of 19. Sussex County's white IMR fluctuated between five and six from 1999-2003 to 2007-2011, and in 2012-2016 the rate dropped to 4.4 infant deaths per 1,000 live births.

Figure 31. Five-year Average Infant Mortality Rates by Race and County, Delaware, 1990-2016







In 2012-2016 the five leading causes of infant death in Delaware were:

- Disorders related to short gestation and fetal malnutrition (prematurity and low birthweight), which accounted for 21.1 percent of infant deaths.
- Newborns affected by maternal complications of pregnancy, which accounted for 13.8 percent of infant deaths. Of the 57 deaths attributed to this cause, 52 were due to the newborn being affected by incompetent cervix and premature rupture of membranes.
- Congenital anomalies (birth defects), which accounted for 12.8 percent of infant deaths.
- Sudden infant death syndrome (SIDS), which accounted for 7 percent of all infant deaths.
- Newborns affected by complications of placenta, cord, and membranes accounted for 5.3 percent of infant deaths.

In sum, the five most common causes of infant death accounted for 60 percent, or 248 of the 413 total infant deaths.

The most frequent causes of death by race are shown in Figures 32-34. Birth defects and disorders related to short gestation and low birthweight were both listed in the top three most frequent causes of death for both black and white infants.

Though the proportions of deaths by race were similar for many of the causes of death, notable exceptions were birth defects and disorders due to prematurity and low birthweight. While birth defects were responsible for 17 percent of all white infant deaths, they accounted for only 11 percent of black infant deaths. Conversely in 2012-2016, infant deaths due to disorders related to prematurity and low birthweight accounted for larger percentages of black infant deaths than white infant deaths (26 versus 14 percent for prematurity and low birthweight).

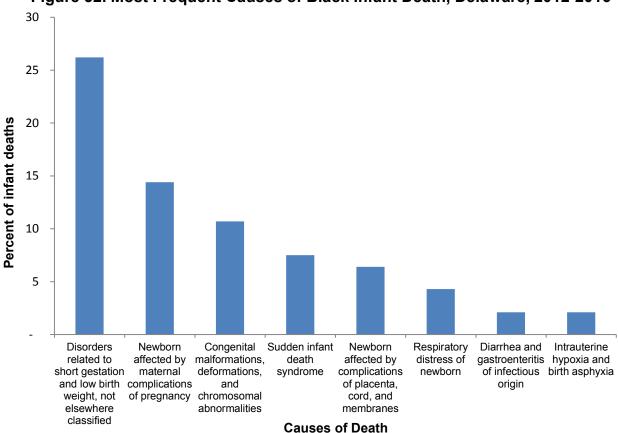


Figure 32. Most Frequent Causes of Black Infant Death, Delaware, 2012-2016

18 16 14 Percent of infant deaths 12 10 8 6 Sudden infant Congenital Disorders Newborn Newborn Respiratory **Bacterial** malformations, related to short distress of affected by death affected by sepsis of deformations, gestation and syndrome complications newborn maternal newborn and complications of placenta, low birth chromosomal weight, not of pregnancy cord, and membranes abnormalities elsewhere classified **Causes of Death** 

Figure 33. Most Frequent Causes of White Infant Death, Delaware, 2012-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

In 1989-1993, Hispanics accounted for 3.6 percent of all live births and 3.4 percent of infant deaths; since that time, the proportion of births to Hispanic mothers has nearly quadrupled. In the most recent five-year period, 2012-2016, 13.5 percent of all live births were to Hispanic mothers, and 16.9 percent of all infant deaths were of Hispanic origin.

Two causes of death accounted for the greatest number of Hispanic infant deaths: birth defects and disorders related to prematurity and low birthweight.

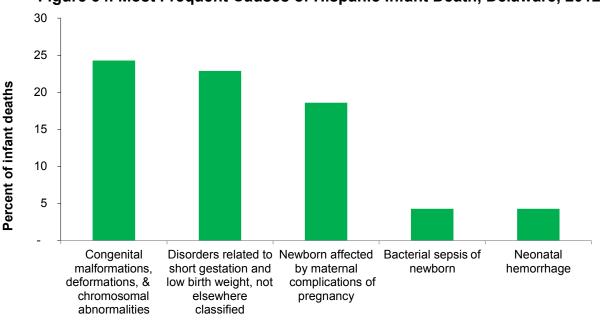


Figure 34. Most Frequent Causes of Hispanic Infant Death, Delaware, 2012-2016

**Causes of Death** 

In Delaware in 2012-2016, approximately 94 percent of all infant deaths occurred within the first six months of life, 74 percent occurred within the first 28 days of life, and 43 percent occurred within 24 hours of birth.

Figure 35 displays deaths by specific cause and the infant's age classification at death: neonatal (<28 days), or postneonatal (28-364 days).

**Number of Deaths** 0 50 100 Disorders related to short gestation and low birth weight, not elsewhere classified Newborn affected by maternal complications of pregnancy Congenital malformations, deformations, and chromosomal abnormalities Sudden infant death syndrome Newborn affected by complications of placenta, cord, and membranes Respiratory distress of newborn Bacterial sepsis of newborn Diseases of the circulatory system Intrauterine hypoxia and birth asphyxia Accidents (unintentional injuries) Necrotizing enterocolitis of newborn Diarrhea and gastroenteritis of infectious origin Assault (homicide) Atelectasis Newborn affected by other complications of labor and delivery ■<28 days
</p> Neonatal hemorrhage ■28-364 days Hydrops fetalis not due to hemolytic disease Septicemia Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism Volume depletion, disorders of fluid, electrolyte and acid-base balance

Figure 35. Most Frequent Causes of Infant Death, Delaware, 2012-2016

- Prematurity and low birthweight accounted for the greatest number of infant deaths in 2012-2016; 97 percent of these deaths occurred in the neonatal period.
- Sudden infant death syndrome (SIDS) was the only one of the top five causes of death that had the majority of deaths occurring in the postneonatal period, with a mean age at death of 106 days. The number of infant deaths in 2012-2016 was 12 percent less than the number of infant deaths in 2007-2011. Although it remained in the top five leading causes of infant death in 2012-2016, SIDS deaths decreased 44 percent to 29 from the 52 SIDS deaths in 2007-2011.
  - ⇒ 55 percent (16 out of 29) of the SIDS deaths were associated with co-sleeping and/or sleeping on soft surfaces, such as couches and adult beds.
- In 2012-2016, there were eight additional infant deaths, coded under a different cause of death that were associated with co-sleeping and/or sleeping on a soft surface. In total, 9 percent of all infant deaths were associated with co-sleeping and/or unsafe sleep practices.

Though only 1 percent of all live births in 2011-2015 were infants weighing less than 1000 grams, they accounted for over half (59 percent) of all infant deaths. In total, 8.5 percent of all live births in 2011-2015 were infants of low birthweight (under 2,500 grams) and 73 percent of infant deaths were low birthweight.

2011-2015 <500 500-999 **Infant Deaths Live Births** 0.3% 0.7% 1,000-1,499 0.8% 1,500-1,999 2,500+ 1.7% 2,000-2,499 26.5% < 500 5.1% 32.5% 2.500 +2,000 -2,499 91.4% 6.0% 500-999 1.000-1,500 -26.3% 1,499 1.999 4.8% 3.6%

Figure 36. Percent Distribution by Birthweight in Grams, Delaware, Live Birth Cohort,

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

Gestation and infant death demonstrated the same relationship as birthweight and infant death. Infants born at the youngest gestational age made up a very small percentage of live births, yet they accounted for the majority of infant deaths.

One percent of live births in 2011-2015 were less than 28 weeks gestation at birth, but they accounted for 59 percent of all infant deaths. In total, 12 percent of all live births in 2011-2015 were born preterm (<37 weeks of gestation) and 71.1 percent of infant deaths were born preterm.

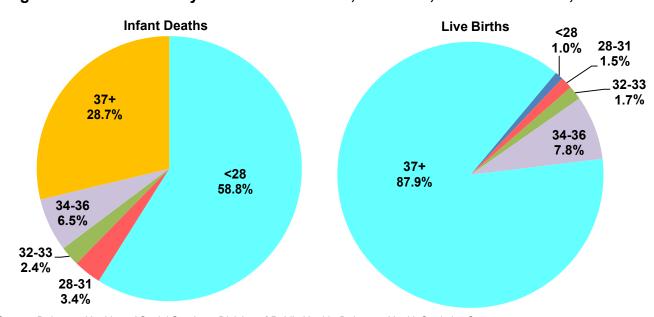


Figure 37. Distribution by Gestation in Weeks, Delaware, Live Birth Cohort, 2011-2015

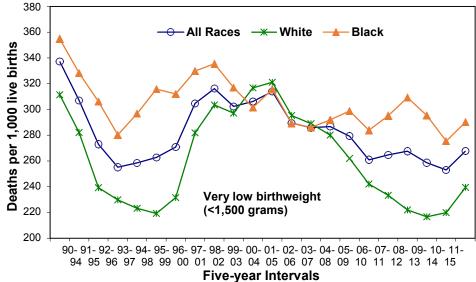
Birthweight and gestation are considered to be the most important predictors of infant health and mortality risk. Infants born too small or too early have a much greater risk of mortality than those who reach a normal birthweight (2,500+ grams) or full-term gestation (37+ weeks).

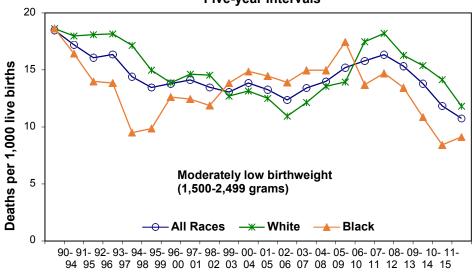
Although the IMRs decreased for both white and black very low birthweight (VLBW) (<1,500 grams) since 2001-2005, the black IMR of 290.2 was significantly higher than the white IMR of 239.6 infant deaths per 1,000 live birth in 2011-2015.

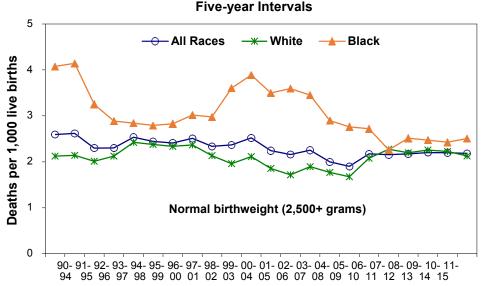
IMRs for moderately low birthweight infants of all races declined 31.6 percent between 2006-2010 and 2011-2015.During that time, white IMRs decreased 33 percent while the black IMR decreased by 34 percent, making their rates lower than the white rates (9.1 vs 11.8).

The IMR for all races and normal birthweight increased 16 percent from 2005-2009 to 2011-2015 (1.9 to 2.2). IMRs for normal birthweight white infants increased 24 percent from 2005-2009 to 2011-2015 (1.7 to 2.1 infant deaths per 1,000 live births), while the IMRs for black infants declined 11 percent. The divergent movement in black and white rates in 2011-2015 narrowed the black/white disparity ratio; the black IMR for normal birthweight infants was 2.5, versus 2.1 infant deaths per 1,000 live births for white infants of normal birthweight.

Figure 38. Five-year Average Infant Mortality Rates by Birthweight and Race, Delaware, 1990-2015 Live Birth Cohort







#### **Five-year Intervals**

From 1992-1996 to 1997-2001, IMRs for plural births increased 77 percent, to 53.1 infant deaths per 1000 live births. During the same time, IMRs for singleton births increased by four percent. Since then, IMRs for plural births have decreased 19.4 percent. IMRs for singleton births experienced a decrease of 12 percent. In 2011-2015, the infant mortality rate for plural births was nearly seven times that of singleton births (42.6 versus 6.4 infant deaths per 1,000 live births).

Figure 39. Five-year Average Infant Mortality Rates by Plurality, Delaware,

Live Birth cohort, 1989-2015 Single **Plural** 50 Deaths per 1,000 Births 40 30 20 10 0 89- 90- 91- 92- 93- 94- 95- 96- 97- 98- 99- 00- 01- 02- 03- 04- 05- 06- 07- 08- 09- 10- 11-95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 **Five-year Intervals** 

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

The disparity between singleton and plural IMRs was evident regardless of race. The black IMR was more than twice the white IMR for singleton births and 1.3 times greater for plural births.

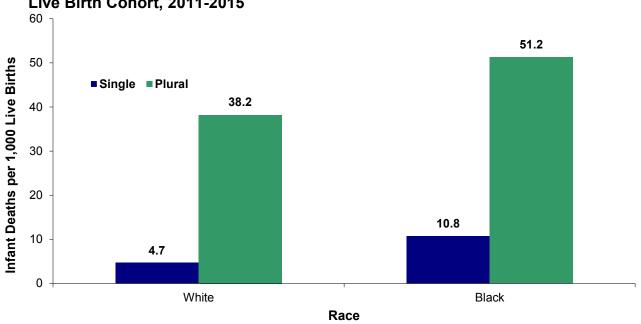


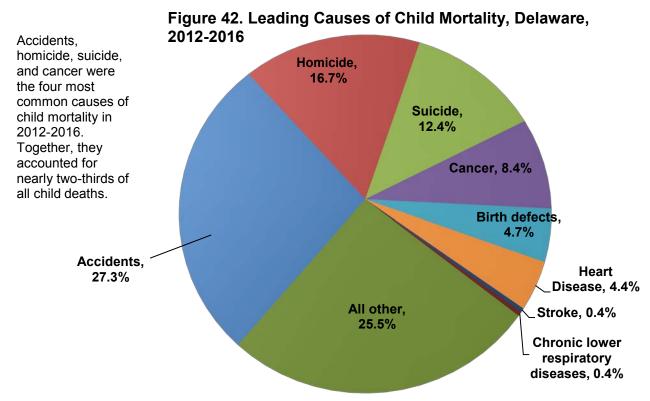
Figure 40. Five-year Average Infant Mortality Rates by Plurality and Race, Delaware, Live Birth Cohort, 2011-2015

For 2012-2016, 275 children and adolescents between the ages of 1 and 19 died in Delaware, representing 0.7 percent of the total deaths that occurred during that time. Males accounted for 67 percent of all child deaths in 2012-2016.

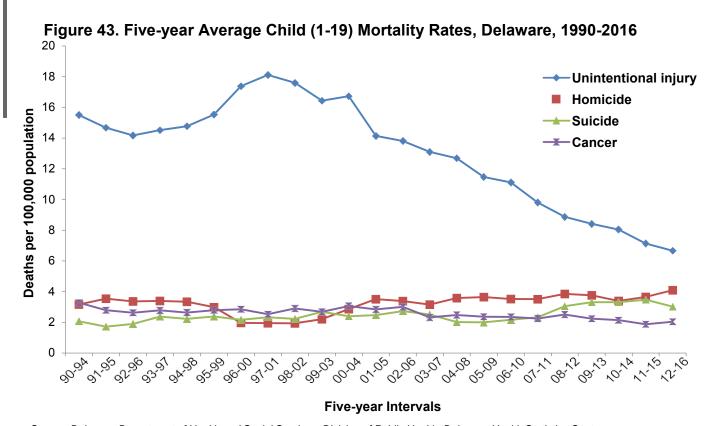
After small fluctuations throughout the 1990s, the mortality rate for children ages 1 to 19 began to decline. Since its peak of 35.9 in 2000-2004, the rate has decreased 32 percent, to 24.5 deaths per 100,000 children in 2012-2016

Figure 41. Five-year Average Child (1-19) Mortality Rates, Delaware, 1990-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center



From 2002-2006 to 2012-2016, rates for two of the four leading causes of mortality in children ages 1-19 declined. Unintentional injury mortality rates declined 51 percent; cancer mortality rates fell 33 percent; and homicide mortality rates increased by 21 percent. Suicide mortality rates increased 11 percent to 3.0 deaths per 100,000 children.



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

The most common causes of child deaths in 2012-2016 are:

- Motor vehicle crashes accounted for 55 percent of all deaths due to unintentional injuries. The second and third most common causes of unintentional injury deaths of children were poisoning and drowning, which accounted for 19 and 11 percent of deaths, respectively.
- Most child homicides were due to firearms (74 percent) and suffocation (4.3 percent).
- The majority of child cancer deaths were due to brain cancer (48 percent) and leukemia (13 percent).
- Suffocation, followed by firearms, were the most common methods of suicide, and accounted for 53 and 27 percent of the total suicide deaths.

More Delaware residents died in 2016 than in 2015. A total of 8,872 residents died, 87 of whom were infants under the age of 1. Deaths where split almost equally between males and females. Cancer and heart disease were the most common causes of death, accounting for 46 percent of all deaths in 2016.

Thirty percent of the Delawareans who died in 2016 were 85 or older. Deaths of those 75 and older accounted for more than half of all deaths.

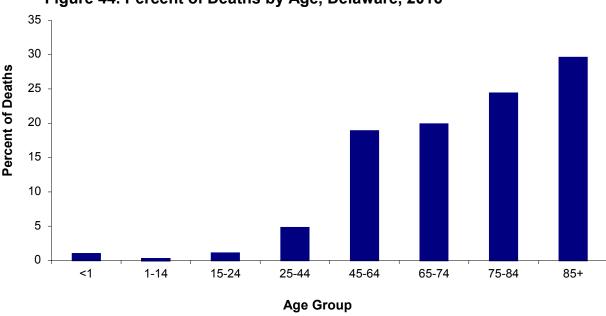


Figure 44. Percent of Deaths by Age, Delaware, 2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

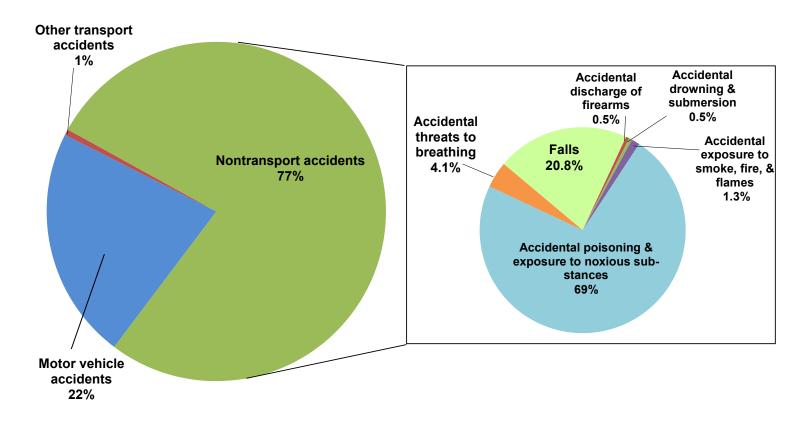
- A Delaware resident born in 2016 could expect to live an average of 78.8 years.
- Life expectancy at birth varied by race and sex; white females had the highest life expectancy (82.1) while black males had the lowest (72.1).
- In 1989, 80 percent of Delaware decedents were buried and 15 percent were cremated. By 2016, the distribution had shifted: 45 percent of decedents were buried and 50 percent were cremated.
- In 2016, cancer was the leading cause of death in Delaware. Heart disease and stroke and accidents are in the top five, while diabetes is the ninth leading cause of death.

Figure 45. Number of Deaths by Leading Cause Delaware, 2016

Rank	Leading Cause of Death	Number
1	Malignant neoplasms	2,125
2	Diseases of heart	1,955
3	Chronic lower respiratory diseases	540
4	Accidents (unintentional injuries)	534
5	Cerebrovascular diseases	503
6	Dementia	443
7	Alzheimer's disease	329
8	Nephritis, nephrotic syndrome & nephrosis	208
9	Diabetes mellitus	203
10	Septicemia	143

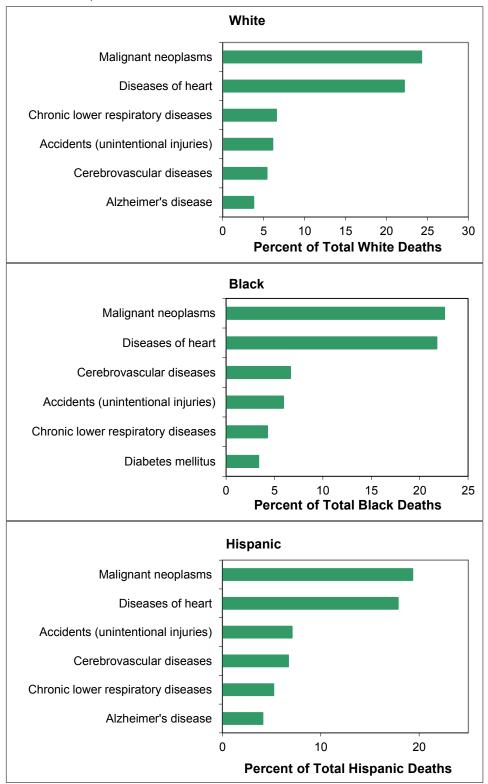
- Of the 534 deaths due to unintentional injury in 2016 (6 percent of all deaths), 22 percent were due to motor vehicle accidents and 77 percent were due to non-transport accidents. More than two thirds (69 percent) of the 411 non-transport accidents were caused by unintentional poisonings; the majority (97 percent) of unintentional poisonings were drug-induced poisonings.
- For the eighth year, unintentional poisonings surpassed motor vehicle injuries and became the leading cause of unintentional injury death in 2016.
  - Poisonings caused the most unintentional injuries for black and white males and females. The second highest unintentional injuries were motor vehicle traffic accidents for both black and white males and black females. Falls were the second highest unintentional injuries for white females.
- In 2012-2016, accidents were the number one cause of deaths for people 1-44 years of age, and they were responsible for 42 percent of all deaths of people 15-24 years of age. For decedents ages 15-24, accidents, homicides, and suicides were the three most frequent causes of death and accounted for more than three-quarters of total deaths.

Figure 46. Accidental Causes of Death by Specific Cause of Injury, Delaware, 2016



Note: Classification of causes of death are specified in the Technical Notes and Appendices section of the report. Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center The leading causes of death varied by race and ethnic group. In 2016, the most common causes of death for white, black, and Hispanic Delawareans were:

Figure 47. Leading Causes of Death by Race and Ethnicity, Delaware, 2016



Cancer mortality rates have decreased in all three counties since the early 1990s. In 2012-2016, the five-year age-adjusted cancer mortality rates were 160.1 in Sussex County, 165.6 in New Castle County, and in Kent County 197.0 deaths per 100,000 population. The cancer mortality rate in Wilmington exceeded all counties at 209.5 deaths per 100,000 population.

Cancer mortality rates for black and white decedents followed the same declining trend, and though the gap between black and white cancer mortality rates has narrowed, black cancer mortality rates in 2012-2016 remained higher than white rates (189.9 and 167.8 deaths per 100,000 population).

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Figure 48. Five-year Age-Adjusted Cancer Mortality Rates by Race, Delaware, 1990-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Health Statistics Center

The same decreases seen in the age-adjusted cancer mortality rates were reflected in the age-specific rates as well. Cancer mortality rates declined for all age groups between 1992-1996 and 2012-2016. The 65-74 and 55-64 age groups experienced the largest decreases.

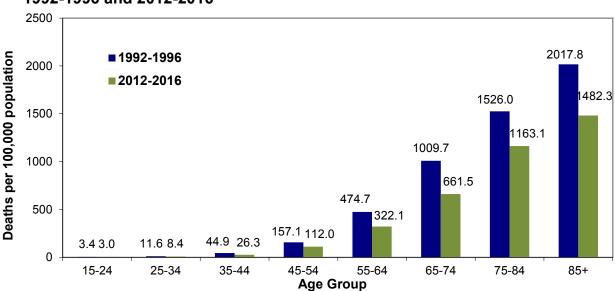
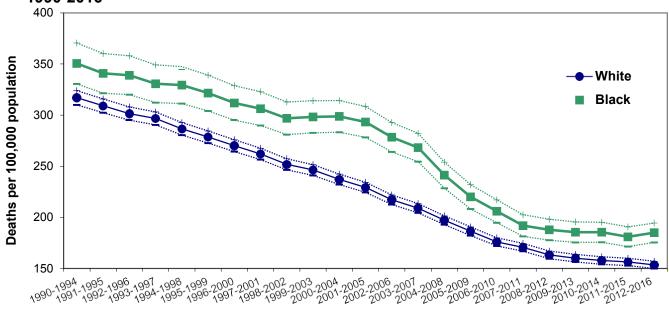


Figure 49. Five-year Average Age-Specific Cancer Mortality Rates, Delaware, 1992-1996 and 2012-2016

Heart disease was the second most common cause of death for both black and white Delawareans in 2012-2016. Both black and white heart disease mortality rates have declined significantly since 1990-1994, with white rates declining 51.6 percent and black rates declining 47.2 percent.

Figure 50. Five-year Age-Adjusted Heart Disease Mortality Rates by Race, Delaware, 1990-2016

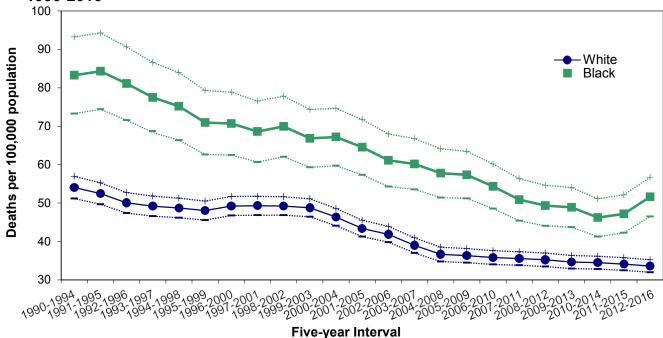


Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

Stroke mortality rates for both races continued their declining trends between 1990-1994 and 2012-2016, with white rates decreasing 38 and black rates declining 38 percent. In 2012-2016, the black stroke mortality rate of 51.6 deaths per 100,000 population remained approximately 35 percent higher than the white rate of 33.6 deaths per 100,000 population.

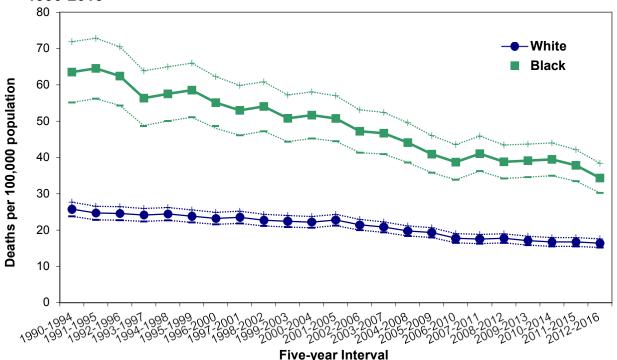
**Five-year Interval** 

Figure 51. Five-year Age-Adjusted Stroke Mortality Rates by Race, Delaware, 1990-2016



Though black mortality rates for diabetes have declined 46 percent since 1990-1994, their rates were double that of whites in 2012-2016.

Figure 52. Five-year Age-Adjusted Diabetes Mortality Rates by Race, Delaware, 1990-2016

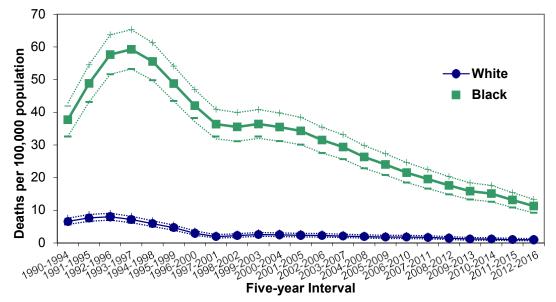


Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

HIV/AIDS mortality has disproportionately affected Delaware's black population. Despite black HIV/AIDS mortality rates decreasing significantly since the 1993-1997 peak, their 2012-2016 mortality rate of 11.3 deaths per 100,000 population was more than 11 times that of whites. Though they made up only 22 percent of the total Delaware population in 2012-2016, black decedents accounted for 76 percent of all deaths due to HIV/AIDS.

Figure 53. Five-year Age-Adjusted HIV/AIDS Mortality Rates by Race, Delaware, 1990-2016

In 2012-2016, HIV was the twelfth leading cause of death for male Delawareans; it ranked ninth for black males and twelfth for black females.



Suicide mortality trends for white populations increased 15 percent between 1990-1994 and 2012-2016, with the white rate (15.4 deaths per 100,000 population) nearly triple the black rate (5.7 deaths per 100,000 population).

Figure 54. Five-year Age-Adjusted Suicide Mortality Rates by Race, Delaware, 1990-2016

Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

After declining throughout most of the 1990s and reaching their lowest point in 1999-2003, homicide mortality rates have risen 97 percent to 6.9 deaths per 100,000 population in 2012-2016. During the same time period, the black homicide rate increased 116 percent to 19.3 and the white homicide mortality rate increased 30 percent to 2.6 deaths per 100,000 population.

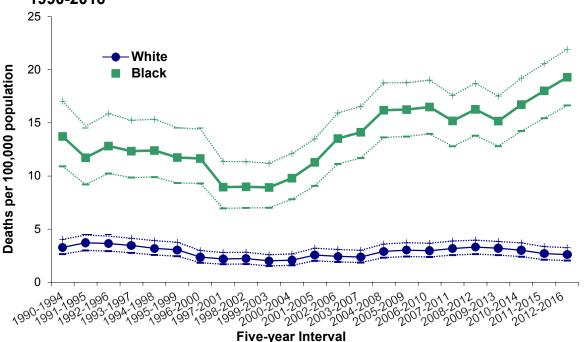
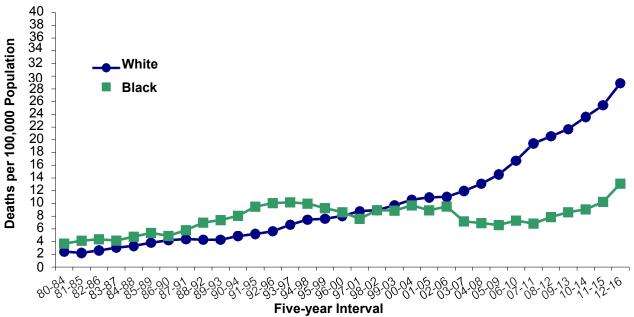


Figure 55. Five-year Age-Adjusted Homicide Mortality Rates by Race, Delaware, 1990-2016

Though black mortality rates for drug-induced deaths were historically higher than white rates, in 1994-1998 they began a four-year decline that moved them just below white rates by 1997-2001. Since then, white mortality rates have remained higher and continued to rise. By 2012-2016, the white drug-induced mortality rate (28.9 deaths per 100,000 population) was more than twice the black rate (13.1).

Figure 56. Five-year Age-adjusted Mortality Rates for Drug-induced Deaths by Race, Delaware, 1980-2016



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center

The white population has a significantly higher percentage of drug-induced deaths than the black population. In 2012-2016, 55 percent of all druginduced deaths were white males. Of those deaths, 56 percent were white males ages 25-34 and 45-54. White females ages 45-54 accounted for 9 percent of druginduced deaths. In contrast, black males ages 25-34 and 45-54, and black females ages 45-54 were only 5 percent of the drug-induced deaths.

Figure 57. Distribution of Drug-induced Deaths by Race, Sex, And Age Group, Delaware, 2012-2016

