Cancer Incidence and Mortality in Delaware

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DELAWARE HEALTH AND SOCIAL SERVICES
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1. INTRODUCTION

1.1. DELAWARE CANCER REGISTRY

The Delaware Cancer Registry (DCR) is the state's central cancer information center. It is part of the Health Information and Science section in Delaware's Division of Public Health. Delaware is one of 45 states supported by the National Program of Cancer Registries of the Centers for Disease Control and Prevention.

The DCR was founded in 1972 and was legally established in 1980 under the Delaware Cancer Control Act. The registry was established to ensure accurate, timely, and routine surveillance of cancer and certain benign tumors. The Act stipulated that all hospitals, clinical laboratories, and cancer treatment centers within the state should report all new cancer cases to the DCR. In 1996, the Cancer Control Act was amended to oblige "any physician, surgeon, dentist, podiatrist, or other health care practitioner who diagnoses or provides treatment" to report cancer cases to the DCR. Further enhancements of the Cancer Control Act took effect in 2002 when Senate Bill 372 was passed. The new law required physicians to provide additional information on their cancer patients, including their place and duration of residence in Delaware, and occupational history. The bill also extended the reporting deadline to 180 days from initial diagnosis or treatment.

1.1.1. Reporting Facilities

There are 29 facilities that submit reports to the DCR. Data were collected from eight hospitals, eight in-state and out-of-state diagnostic laboratories, nine state central registries and hundreds of physician offices. Demographic and medical information is collected on all newly diagnosed patients. Incidence data are reported by facilities to the DCR electronically or using the Delaware Cancer Registry's reporting form. The DCR has established reciprocal agreements for data exchange with state central registries in Pennsylvania, Maryland, New Jersey, South Carolina, Washington, Florida, Texas, Alaska, and Wyoming to identify new cases of cancer in Delaware residents that were diagnosed or treated in other states.

1.1.2. Data Confidentiality

The DCR maintains the confidentiality of incidence data using a combination of techniques. Data are submitted from reporting facilities using computerized data encryption techniques. Published reports or data requests are limited to the presentation of aggregated data. The release of data sets is only permitted after the removal of all personal identifiers. Researchers using data from the registry, or conducting research that involves patient contact, must comply with the regulations stated in the formal data use agreement or obtain clearance from Delaware's Human Subjects Review Board.

1.1.3. Data Quality

Quality control procedures have been implemented internally at the DCR to check for consistency of coded demographic and medical information according to standards set by the North American Association of Central Cancer Registries (NAACCR). Visual reviews of coded data items and electronic text submissions are also checked for consistency. Record

consolidation using a computerized matching program is conducted to identify multiple reports on the same individual received from facilities which are required to submit cases. An example of this is when a patient is diagnosed and treated in separate hospitals, and each hospital submits a cancer case abstract to the DCR. Plans are being implemented to conduct routine offsite audits at reporting facilities in Delaware. Criteria are being established to identify and select reporting facilities at which onsite quality assessments or audits will be conducted. Auditors will assess completeness and timeliness of reporting at those facilities, and data quality will be evaluated through re-abstracting.

1.1.4. NAACCR Certification and NPCR Standard Status

The North American Association of Central Cancer Registries (NAACCR) certifies registry data on an annual basis. Gold or silver certifications are awarded after evaluating the quality and completeness of data and the timeliness of reporting. The DCR's incidence data was certified by NAACCR as meeting standards for high quality data in 1997, 1998, 1999, 2002, and 2003.

Additionally, the National Program of Cancer Registries (NPCR) provides an annual Standard Status Report to central registries supported by this program. Delaware's 2006 submission of data from diagnosis years 1999-2004 met the standard levels for all indices measuring quality, completeness and timeliness.

1.1.5. Data Uses

DCR data are used to support various programs and initiatives in Delaware's Division of Public Health, including the Breast and Cervical Cancer Control Program, the Delaware Cancer Consortium and other advisory committees involved in the state's cancer control program. Other uses of DCR data include responding to citizen inquiries, routine reporting of cancer statistics, and research programs at universities, federal agencies and research institutes within the state.

1.2. ORGANIZATION OF THIS REPORT

This report describes cancer incidence and mortality in Delaware by sex, race, and county. Race-specific data were limited to Caucasians and African Americans due to the small sample size and the need to protect the confidentiality of individuals. Incidence and mortality rates were age-adjusted to the year 2000 standard population. The body of this report discusses the results for all cancers and site-specific cancers. The methodological challenges in analyzing Hispanic cancer rates in Delaware and the results of such analyses are presented in appendix A. In appendix B, the methodological approach and data sources used to produce incidence and mortality statistics are discussed. Incidence and mortality counts and rates for 1) all cancer sites combined and 2) site-specific cancers are presented in the results section (chapters 3–14). Site-specific cancer statistics were limited to the following cancers and are presented in this order: breast (female), cervical, colorectal, esophagus, leukemia, lung and bronchus, malignant melanoma, ovarian, pancreatic, prostate, and urinary bladder. The data for all cancer sites excluding the site-specific cancers are presented in appendix C. Behavioral risk factor data and stage at diagnosis are also presented in the relevant chapters.

2. GUIDELINES FOR THE INTERPRETATION OF INCIDENCE AND MORTALITY RATES

2.1. INCIDENCE AND MORTALITY RATES

Rates are expressed per 100,000 of the population in Delaware or the United States. Ninety-five percent confidence intervals were computed to facilitate comparison of rates in the different sub-populations in Delaware. The results of these comparisons were deemed significant only if the confidence intervals for the rates compared did not overlap. Differences in rates are also expressed using percentages. For example, to compare the rate of cancer for males with that for females, the rate is expressed as a ratio, and the extent of the difference is expressed as a percentage.

3. All Cancer Sites

Data Highlights

New Cancer Cases and Deaths (Tables 3.1 and 3.4)

- A total of 20,793 cancer cases were diagnosed among Delaware residents during 1999–2003, 10,850 cases (52.2 percent) in males and 9,943 cases (47.8 percent) in females.
- The 12,538 cases diagnosed among New Castle County residents made up the majority (60.3 percent) of Delaware's total 1999–2003 incident cancer case count; 5,223 cancer cases (25.1 percent) were Sussex County residents, and 2,995 (14.4 percent) were Kent County residents.
- Eighty-two percent (17,095) of cancer cases in 1999–2003 were diagnosed among Caucasians and 14.8 percent (3,072) among African Americans. Cancer cases among Hispanics accounted for 1.0 percent (211) of the total incident cases in Delaware in 1999–2003.
- The proportion of cancer cases diagnosed among other race groups was 1.1 percent (219). Less than 1 percent (196 cases) of people of unknown racial origin were diagnosed with cancer in 1999–2003.
- During 1999–2003, 8,466 Delaware residents died from cancer; 51.8 percent (4,388) were male, and 48.2 percent (4,078) were female.
- Of the 8,466 cancer deaths, 82.8 percent (7,010) of decedents were Caucasian, and 15.5 percent (1,312) were African-American. Sixty-three decedents belonged to other race groups, and 1.0 percent (81) of the decedents were of Hispanic ethnicity.
- A total of 4,929 (58.2 percent) deaths occurred among residents of New Castle County, followed by 2,223 (26.3 percent) among Sussex County residents and 1,314 (15.5 percent) among Kent County residents.

Incidence and Mortality Rates (Tables 3.2 and 3.5)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Delaware's 1999–2003 overall cancer incidence rate was 5.3 percent higher than the U.S. estimate.
- Overall, Delaware's African-American residents had a higher all cancer incidence rate (539.8 per 100,000 in 1999–2003) than Caucasian residents (493.4 per 100,000).
- Incidence rates among African-American males and females were 20.3 percent higher and 1.0 percent lower, respectively, than their Caucasian counterparts.
- The five-year average age-adjusted all cancer incidence rate among males (594.4 per 100,000) was higher than that among females (439.7 per 100,000) in 1999–2003.
- Similarly, the overall incidence rates among Caucasian (574.4 per 100,000) and African-American (691.1 per 100,000) males in Delaware were higher than overall rates among Caucasian (437.8 per 100,000) and African-American (434.0 per 100,000) females in 1999–2003.
- African-American males in New Castle County had a higher incidence rate (752.2 per 100,000) than Caucasian males in Sussex County (544.7 per 100,000) in 1999–2003.
- Caucasian males in New Castle and Sussex Counties had higher rates of cancer diagnoses than Caucasian females diagnosed with cancer in the same counties in 1999–2003.
- By comparison, only African-American males in New Castle County had a higher incidence rate (752.2 per 100,000) than African-American females in New Castle County (461.8 per 100,000) in 1999–2003.

- African-American females (434.0 per 100,000) in Delaware had higher cancer incidence rates, compared with African-American females in the United States (403.6 per 100,000) in 1999–2003.
- The all cancer gender-specific incidence rates were higher in Delaware in 1999–2003, compared with the United States.
- In Delaware in 1999-2003, the overall cancer mortality rate was 5.7 percent higher than the U.S. estimate.
- Caucasians in Delaware had higher all cancer mortality rates (200.3 per 100,000) compared to Caucasians in the U. S. (193.5 per 100,000).
- Overall cancer mortality in 1999–2003 was about 46 percent higher among Delaware males (256.1 per 100,000) than among females (174.9 per 100,000).
- The overall cancer mortality rate in Delaware was 25 percent higher among African-American residents (250.6 per 100,000) than among Caucasian residents (200.3 per 100,000) during 1999–2003. Similarly, African-American males and females in Delaware died from cancer at rates higher than their Caucasian counterparts.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- African-American males in New Castle County had the highest incidence rate (752.2 per 100,000) of any sex-race-county category in Delaware during 1999–2003.
- The overall cancer mortality rate was highest in Kent County during 1999–2003 (211.5 per 100,000), and African-American males in Sussex County had the highest age-adjusted all cancer mortality rate (353.81 per 100,000).

Trends in Cancer Incidence and Mortality Rates (Figures 3.1–3.5)

- The all cancer incidence rate declined within the population of Delaware. The rate among males declined 10.1 percent since 1990–94, whereas the rate among females remained relatively stable during the same time period.
- The rate of decline in cancer among Caucasians (3.5 percent) since 1990–94 was less than half of that for African Americans (11.7 percent) over the same time period.
- All cancer mortality in Delaware declined by 15 percent between intervals 1990–94 and 1999–2003.

Age-Specific Incidence and Mortality (Tables 3.3 and 3.6, Figures 3.3 and 3.6)

- Cancer risk generally increased with age. Exceptions were among females overall and Caucasian females, where people ages 75–84 and older had the highest age-specific incidence rates.
- Mortality rates rose with increasing age and peaked at ages 85 and older in both men and women.

All Cancer Incidence

Table 3.1. Number of All Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

REGION	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	20,793	10,850	9,943	17,095	8,883	8,212	3,072	1,637	1,435
Kent	2,995	1,561	1,434	2,400	1,232	1,168	483	266	217
New Castle	12,538	6,478	6,060	10,031	5,163	4,868	2,108	1,105	1,003
Sussex	5,223	2,788	2,435	4,633	2,470	2,163	480	265	215

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

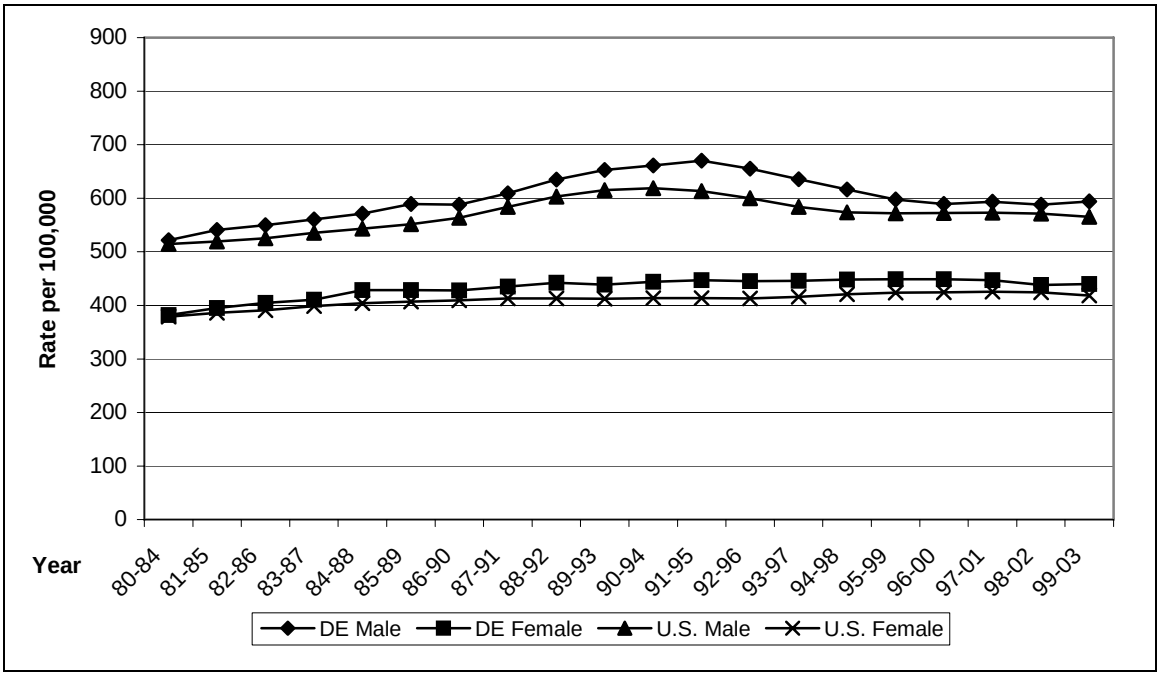
Table 3.2. Five-Year Average Age-Adjusted All Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	478.1 (476.9–479.3)	565.2 (563.2–567.2)	418.4 (416.9–420.0)
Delaware	503.5 (496.7–510.3)	594.4 (583.2–605.7)	439.7 (431.1–448.3)
Kent	474.3 (434.5–514.1)	556.3 (481.5–631.2)	415.8 (369.4–462.2)
New Castle	518.8 (497.2–540.4)	622.1 (580.7–663.4)	449.1 (424.3–474.0)
Sussex	483.1 (452.0–514.2)	553.5 (497.9–609.1)	429.6 (392.3–467.0)
CAUCASIAN			
United States	487.1 (485.8–488.5)	568.1 (566.0–570.3)	432.4 (430.7–434.2)
Delaware	493.4 (486.0–500.8)	574.4 (562.4–586.4)	437.8 (428.3–447.3)
Kent	469.2 (426.1–512.2)	542.0 (459.7–624.4)	421.7 (371.3–472.0)
New Castle	505.3 (482.3–528.3)	597.2 (553.8–640.6)	444.3 (417.5–471.0)
Sussex	479.6 (447.0–512.2)	544.7 (486.6–602.9)	430.2 (390.8–469.6)
AFRICAN-AMERICAN			
United States	516.4 (512.1–520.8)	684.4 (676.3–692.5)	403.6 (398.7–408.6)
Delaware	539.8 (520.4–559.3)	691.1 (655.7–726.4)	434.0 (411.3–456.7)
Kent	466.7 (360.0–573.4)	548.2 (381.7–714.6)	387.7 (253.5–521.9)
New Castle	573.8 (507.4–640.3)	752.2 (605.4–899.0)	461.8 (389.8–533.8)
Sussex	489.7 (381.1–598.3)	652.4 (439.7–865.1)	378.7 (260.2–497.2)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

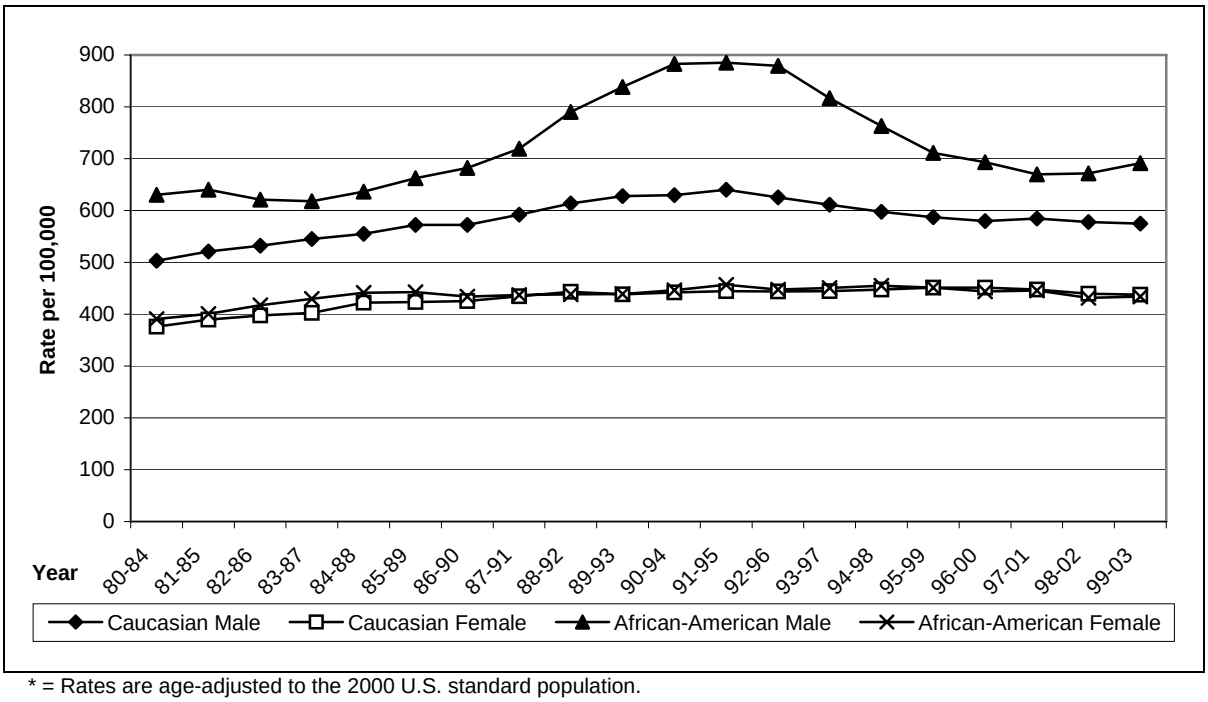
Figure 3.1. Five-Year Average Age-Adjusted All Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 3.2. Five-Year Average Age-Adjusted All Cancer Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

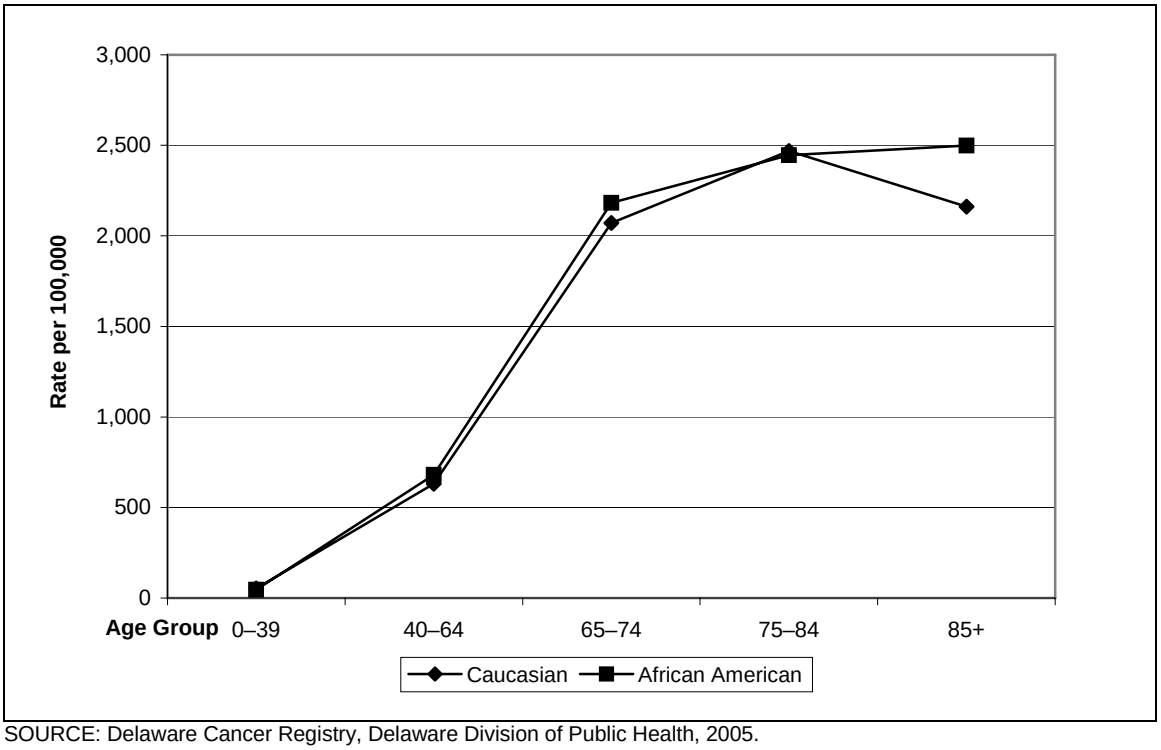
Table 3.3. Age-Specific All Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	51.8	41.4	62.3	53.1	43.5	62.8	46.0	33.2	58.4
40–64	639.4	665.6	614.8	630.9	639.6	622.6	679.3	803.8	574.0
65–74	2,101.1	2,709.7	1,579.1	2,070.4	2,624.2	1,587.7	2,182.3	3,084.9	1,487.7
75–84	2,487.1	3,203.0	2,005.3	2,468.8	3,157.0	2,001.5	2,445.4	3,316.9	1,913.1
85+	2,221.8	3,230.4	1,821.8	2,161.3	3,164.4	1,760.5	2,498.7	3,583.5	2,119.3

* = Rates are per 100,000 population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 3.3. Age-Specific All Cancer Incidence Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 3.4. Number of All Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

REGION	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	8,466	4,388	4,078	7,010	3,642	3,368	1,312	673	639
Kent	1,314	717	597	1,051	572	479	231	127	104
New Castle	4,929	2,498	2,431	4,016	2,042	1,974	823	410	413
Sussex	2,223	1,173	1,050	1,943	1,028	915	258	136	122

SOURCE: Delaware Health Statistics Center, 2005.

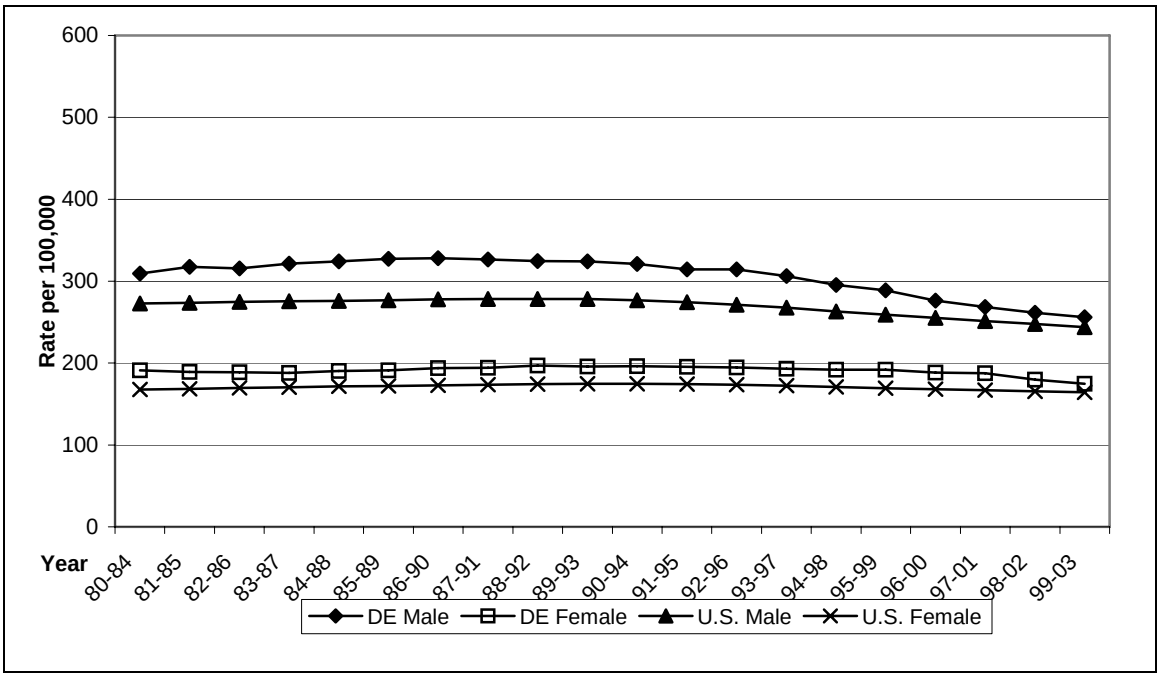
Table 3.5. Five-Year Average Age-Adjusted All Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	195.7 (195.5-196.0)	243.7 (243.3-244.1)	164.3 (164.0-164.5)
Delaware	206.9 (202.5–211.3)	256.1 (248.3–263.8)	174.9 (169.5–180.3)
Kent	211.5 (180.0–243.0)	273.2 (209.8–336.6)	169.7 (134.7–204.6)
New Castle	207.7 (191.5–223.9)	257.9 (225.4–290.3)	176.9 (158.5–195.2)
Sussex	203.8 (179.8–227.7)	244.1 (199.1–289.0)	174.7 (146.7–202.7)
CAUCASIAN			
United States	193.5 (193.2-193.7)	239.2 (238.7-239.6)	163.4 (163.1-163.7)
Delaware	200.3 (195.7–205.0)	246.9 (238.8–255.1)	169.6 (163.8–175.3)
Kent	205.0 (171.5–238.6)	264.8 (196.7–332.8)	165.2 (127.9–202.5)
New Castle	201.1 (183.9–218.3)	248.8 (214.8–282.8)	171.1 (151.5–190.8)
Sussex	197.6 (172.8–222.5)	236.0 (189.3–282.7)	170.0 (140.9–199.1)
AFRICAN-AMERICAN			
United States	244.0 (243.1-244.9)	331.0 (329.4-332.7)	192.4 (191.4-193.3)
Delaware	250.6 (236.7–264.4)	326.8 (300.4–353.1)	204.8 (188.8–220.9)
Kent	241.2 (148.4–334.1)	294.4 (130.0–458.9)	197.4 (87.8–307.0)
New Castle	246.0 (195.7–296.3)	330.5 (210.9–450.1)	202.8 (150.1–255.6)
Sussex	259.8 (190.2–329.5)	353.8 (176.6–531.0)	217.7 (112.3–323.1)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

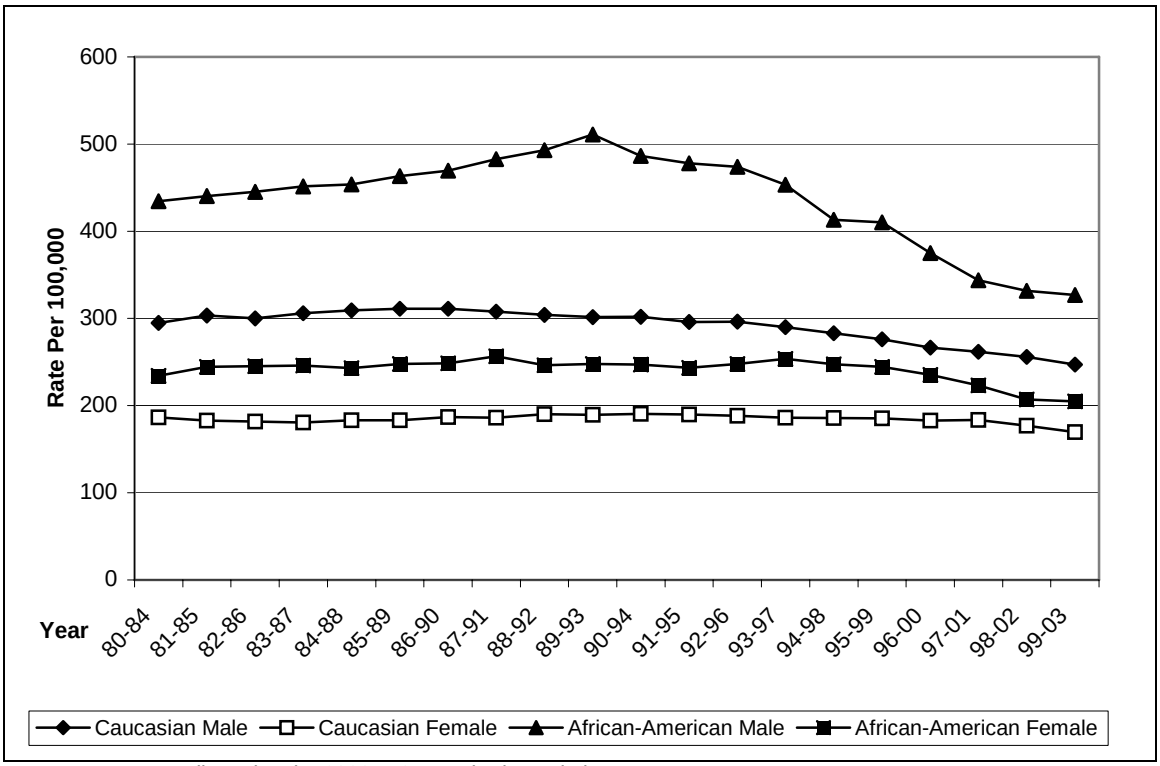
Figure 3.4. Five-Year Average Age-Adjusted All Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 3.5. Five-Year Average Age-Adjusted All Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Health Statistics Center, 2005.

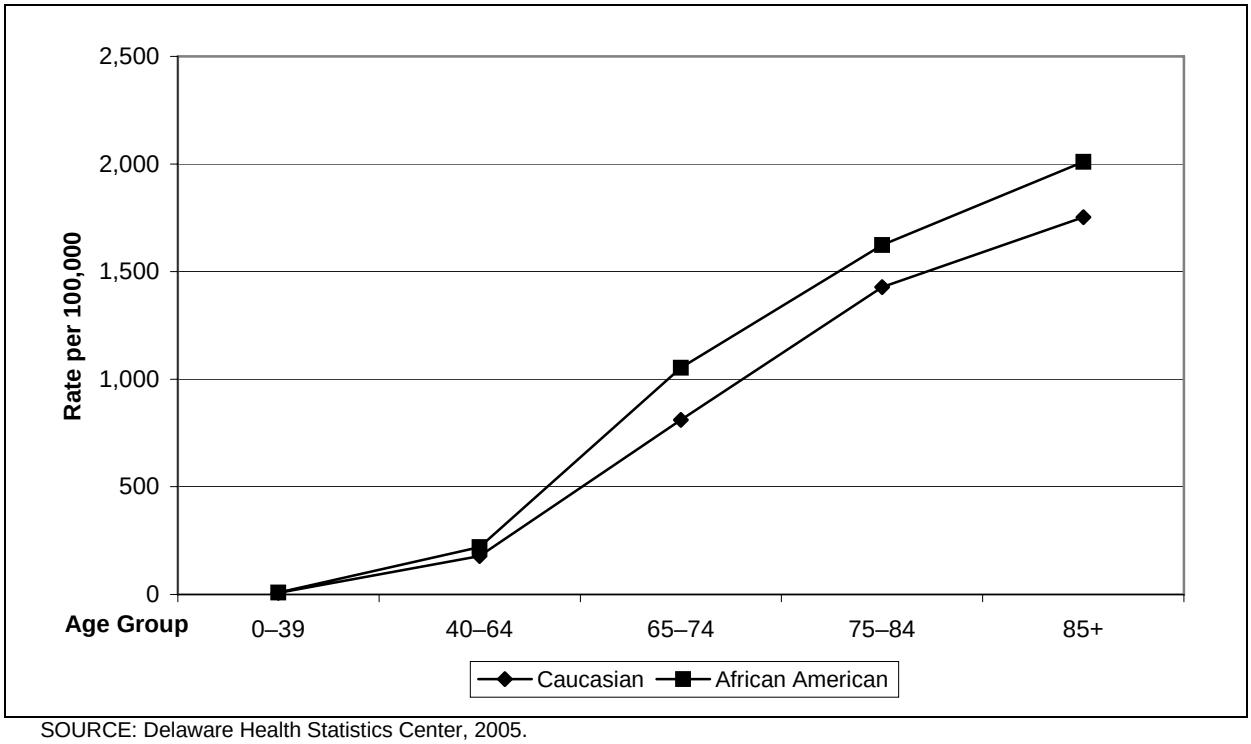
Table 3.6. Age-Specific All Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	8.4	7.1	9.7	8.1	6.5	9.7	9.5	9.7	9.3
40–64	183.8	195.5	172.9	178.2	190.8	166.2	219.8	230.2	211.0
65–74	837.1	1,024.1	676.7	810.8	994.4	650.8	1,053.7	1,317.4	850.8
75–84	1,447.3	1,880.9	1,155.5	1,427.6	1,818.1	1,162.4	1,623.1	2,452.3	1,116.7
85+	1,790.0	2,668.8	1,441.4	1,752.1	2,596.8	1,414.7	2,009.1	3,127.4	1,618.0

* = Rates are per 100,000 population.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 3.6. Age-Specific All Cancer Mortality Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Health Statistics Center, 2005.

4. Female Breast Cancer

Risk Factors and Early Detection

Risk Factors for Female Breast Cancer

- Female sex
- Increasing age
- Mother, daughter, and/or sister with breast cancer
- Inherited mutation in BRCA1 or BRCA2 genes
- Personal history of breast cancer
- Previous abnormal breast biopsy
- Race; Caucasian women are slightly more likely to develop breast cancer than African-American women.
- High-dose radiation therapy to chest
- Early age at menarche and/or late age at menopause
- Obesity
- First childbirth after age 30
- Never giving birth
- Estrogen replacement therapy
- More than three alcoholic drinks per day

Possible Risk Factors for Female Breast Cancer

- Having taken diethylstilbestrol (DES) during pregnancy
- High-fat diet

Under Consideration as Risk Factors for Female Breast Cancer

- Use of oral contraceptives
- Pesticide and other exposures

Early Detection of Female Breast Cancer

Women at increased risk should talk with their doctors about the benefits and limitations of starting mammograms when they are younger, having additional tests, or having more frequent exams.

Regular clinical breast exams and mammography can detect female breast cancer at an earlier stage, resulting in improved chances for survival. The American Cancer Society recommendations for appropriate breast cancer screening are age-specific as follows:

Type of Exam	Ages 20–39	Ages 40 and Older
Breast self-exam	Monthly	Monthly
Clinical breast exam	Every three years	Annual
Mammogram	Baseline by age 40	Annual

The Behavioral Risk Factor Surveillance System (BRFSS) survey included several questions related to breast cancer screening practices:

- Have you ever had a mammogram?
- How long has it been since your last mammogram?
- Was your last mammogram done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer?

Delaware Women Ages 40 and Older With Mammogram Within the Past Two Years

- In 2004, 82.4 percent of Delaware women age 40 and older reported having a mammography exam within the previous two years, compared with 74.7 percent in the United States.
- Delaware women age 50 and older were most likely to have received a mammogram within the past two years, with about 84 percent reporting they had done so; 78.8 percent of Delaware women in their 40s said they had received a mammogram within the past two years. Of U.S. females, 77 percent of those in their 40s reported having a mammogram in the past two years.
- African-American women in Delaware were more likely to have had a mammogram in the previous two years than were their Caucasian counterparts - 86 percent among African Americans, compared to 82.4 percent among Caucasians. The difference, however, is not statistically significant.
- Females with higher education levels were more likely to have received a mammogram in the past two years – 86.6 percent among college graduates compared to 77.3 percent among high school graduates.

Data Highlights

New Cancer Cases and Deaths (Tables 4.1 and 4.6)

- Breast cancer was the most frequently diagnosed cancer among females. There were 2,884 new cases in Delaware during 1999–2003, accounting for 29.0 percent of all cancer cases diagnosed during that time period among females.
- Eighty-three percent (2,396) of female breast cancer cases in Delaware diagnosed from 1999–2003 were Caucasian residents, and 14.3 percent (412) were African-American residents; 44 cases were other race groups, and 23 were residents of Hispanic ethnicity.
- The majority of female breast cancer cases during 1999–2003 were New Castle County residents (1,798 or 62.3 percent), followed by Sussex County (668 or 23.2 percent) and Kent County (416 or 14.4 percent) residents.
- Breast cancer was the second leading cause of cancer death among women in Delaware, surpassed only by lung cancer. Breast cancer accounted for 7.2 percent of all cancer deaths among females in 1999–2003.
- During 1999–2003, 612 female Delaware residents died from breast cancer; 481 (78.6 percent) decedents were Caucasian, and 119 (19.4 percent) were African-American; six decedents were of other race groups.
- A total of 377 (61.6 percent) decedents were from New Castle County, 149 (24.4 percent) were from Sussex County, and 86 (14.1 percent) were from Kent County.

Incidence and Mortality Rates (Tables 4.2 and 4.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- In 1999–2003, the breast cancer mortality rate was 41.9 percent higher among African-American females (35.2 per 100,000) than among Caucasian females (24.8 per 100,000) in Delaware.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Caucasian women (130.2 per 100,000) in Delaware had a higher overall breast cancer incidence, compared with African-American women (117.8 per 100,000).
- In 1999–2003, the breast cancer incidence rate was highest in New Castle County among both Caucasian females (134.4 per 100,000) and African-American females (131.5 per 100,000).

- African-American females in Sussex County had the highest breast cancer mortality rate (50.1 per 100,000) in any race/county category.

Trends in Cancer Incidence and Mortality Rates (Figures 4.1–4.2 and 4.6–4.7)

- Delaware's female breast cancer incidence rate decreased 6.5 percent from 1990–94 to 1999–2003.
- From 1980–84 to 1984–88, Delaware's female breast cancer incidence rates were similar to U.S. estimates. In 1987–91, Delaware's rate surpassed the U.S. rate; the rate leveled off but remained above the U.S. rate. Since 1996–2000, Delaware's rate has fallen below that of the United States.
- The breast cancer mortality rate decreased from 1988–92 to 1999–2003 among Delaware's Caucasian women. The mortality rate among African-American women, which declined in 1987–91, increased in 1992–96 and has remained stable since that time.

Age-Specific Incidence and Mortality Rates (Tables 4.3 and 4.8, Figures 4.3 and 4.8)

- The incidence of female breast cancer increased with age and peaked at ages 75–84.
- Mortality from female breast cancer increased with age and reached 185.2 per 100,000 among women ages 85 and older.

Stage at Diagnosis of Female Breast Cancer (Tables 4.4–4.5, Figures 4.4–4.5)

- A total of 904 cases (31.4 percent of all female breast cancers) were late stage at the time of diagnosis (i.e., either regional or distant). The proportion of late stage breast cancers was higher among African-American women (36.9 percent) than among Caucasian women (30.1 percent).
- There was an increase in the proportion of female breast cancer cases diagnosed in the local stage from 46.2 percent in 1983–87 to 63.2 percent in 1992–96. The increase in the proportion of breast cancer cases diagnosed at local stage among females in Delaware increased until 1999–2003, but at a lower rate. This trend in local stage disease was complemented by a decrease in the proportion of cases diagnosed in the regional stage (from 40.4 percent in 1983–87 to 27.7 percent in 1992–96). Both proportions in local and regional stage of disease, however, remained constant from 1991–95 to 1999–2003.
- The proportion of breast cancer cases diagnosed in the distant stage decreased from 1980–84 to 1999–2003. Over this time period, the proportion of breast cancer cases diagnosed in the distant stage decreased by approximately 50 percent.
- In the United States during 1999–2003, 63.1 percent, 30.2 percent, and 4.4 percent of female breast cancers were diagnosed in the local, regional, and distant stage, respectively.

Female Breast Cancer Incidence

Table 4.1. Number of Female Breast Cancer Cases in Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
Delaware	2,884	2,396	412
Kent	416	350	57
New Castle	1,798	1,449	301
Sussex	668	595	54

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

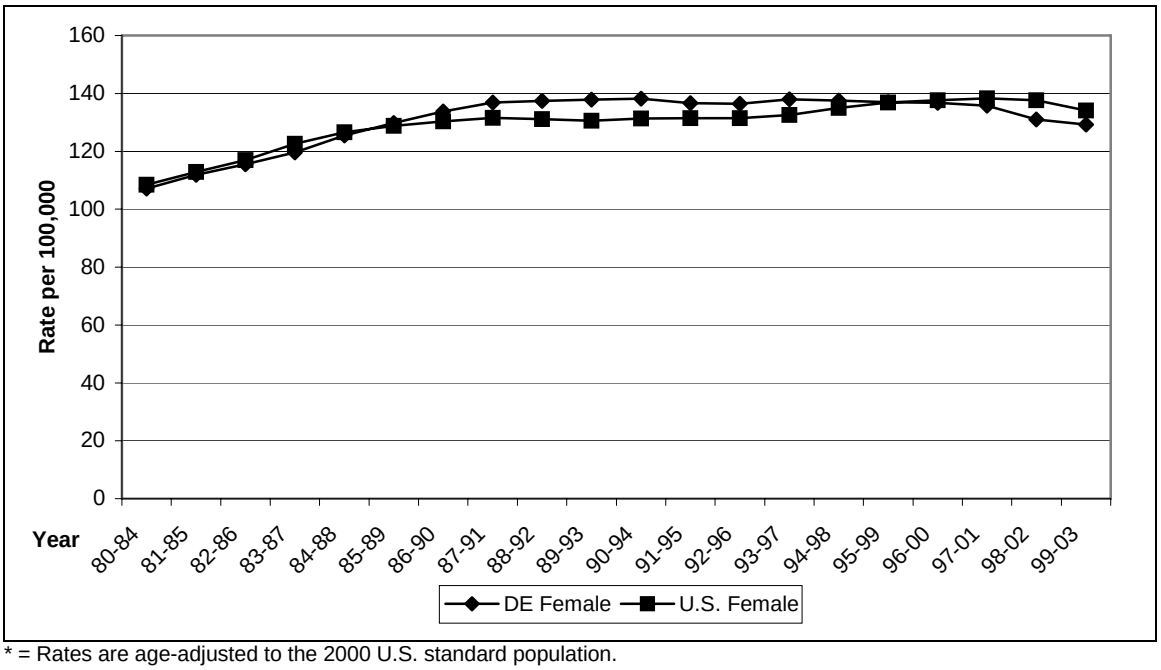
Table 4.2. Five-Year Average Age-Adjusted Female Breast Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
U.S. Estimates	134.1 (133.3–135.0)	139.9 (138.9–140.9)	118.8 (116.2–121.5)
Delaware	129.2 (124.5–133.9)	130.2 (125.0–135.5)	117.8 (106.3–129.3)
Kent	121.9 (99.0–144.7)	127.8 (102.0–153.7)	94.6 (47.9–141.3)
New Castle	134.0 (121.4–146.5)	134.4 (120.7–148.1)	131.5 (96.4–166.5)
Sussex	120.3 (102.4–138.2)	119.4 (100.5–138.3)	92.9 (47.7–138.1)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

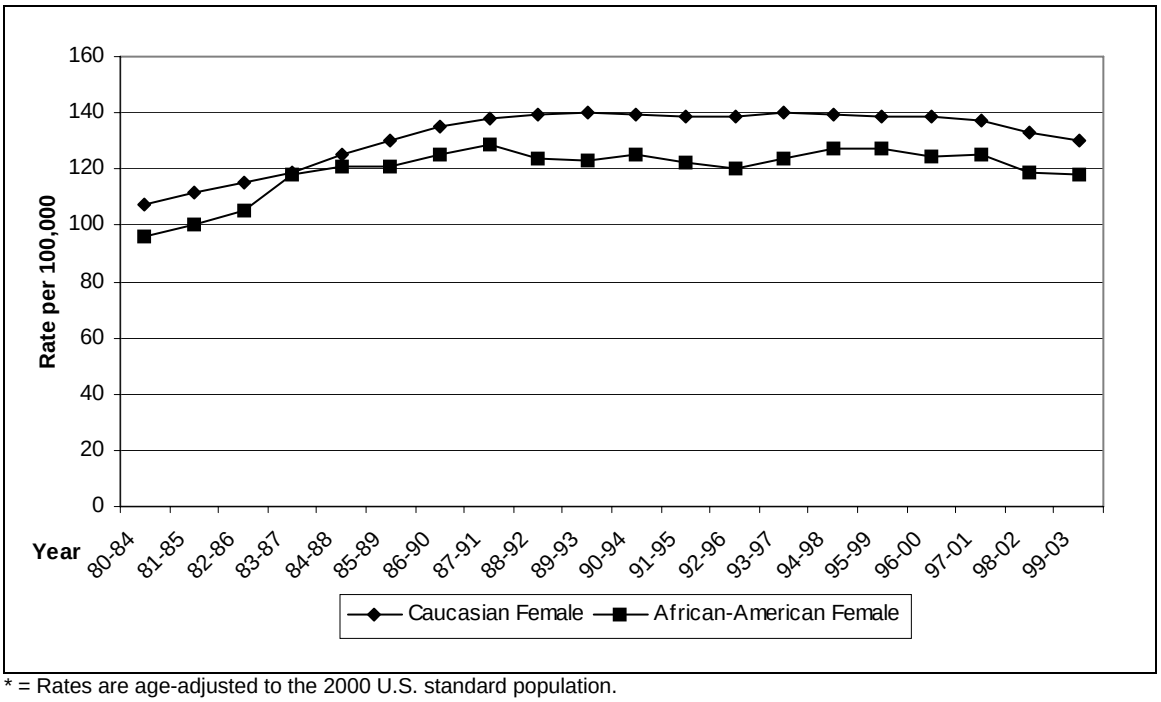
Figure 4.1. Five-Year Average Age-Adjusted Female Breast Cancer Incidence Rates* in the United States (Estimates) and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 4.2. Five-Year Average Age-Adjusted Female Breast Cancer Incidence Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

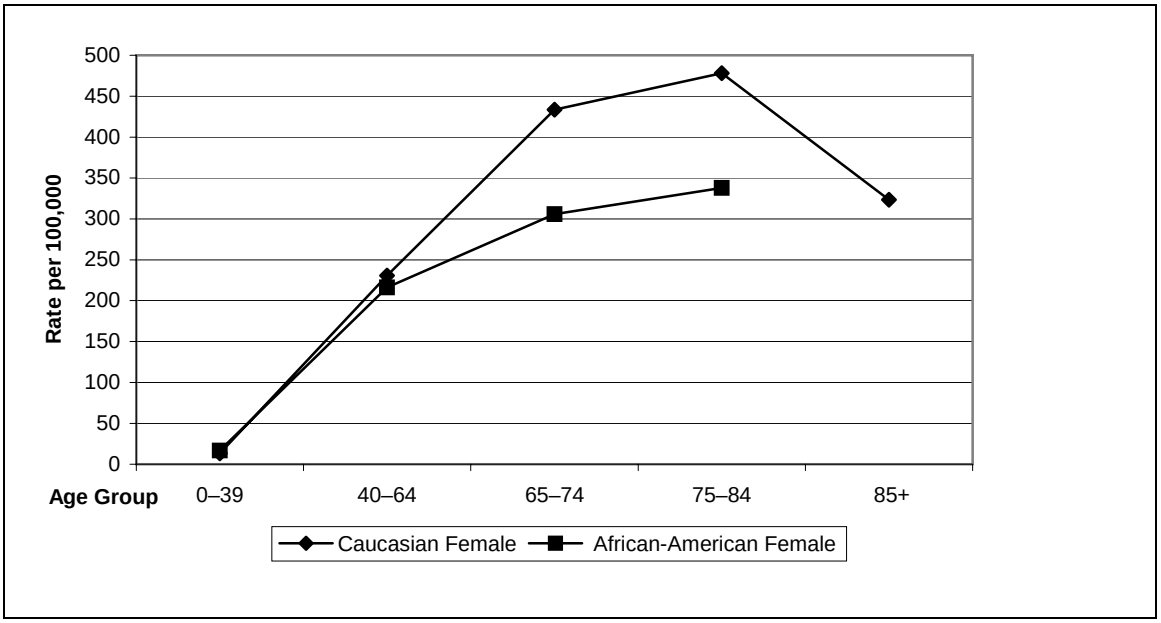
Table 4.3. Age-Specific Female Breast Cancer Incidence Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	14.2	13.4	16.7
40–64	227.1	230.8	216.1
65–74	415.1	433.4	305.7
75–84	467.4	478.1	337.6
85+	332.8	323.2	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 4.3. Age-Specific Female Breast Cancer Incidence Rates in Delaware, by Race: 1999–2003



NOTE: Rate for African American females ages 85+ is not displayed because of patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Female Breast Cancer by Stage at Diagnosis

Table 4.4. Number of Female Breast Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	1,892	1,607	244
Regional	804	639	136
Distant	100	82	16
Unknown	88	68	16
Total	2,884	2,396	412

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 4.5. Percentage of Female Breast Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	65.6	67.1	59.2
Regional	27.9	26.7	33.0
Distant	3.5	3.4	3.9
Unknown	3.1	2.8	3.9
Total	100.0	100.0	100.0

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 4.4. Percentage of Female Breast Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 4.4a. Delaware: 1999–2003

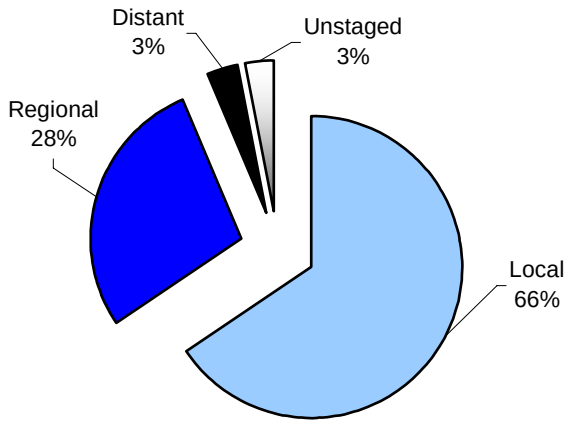
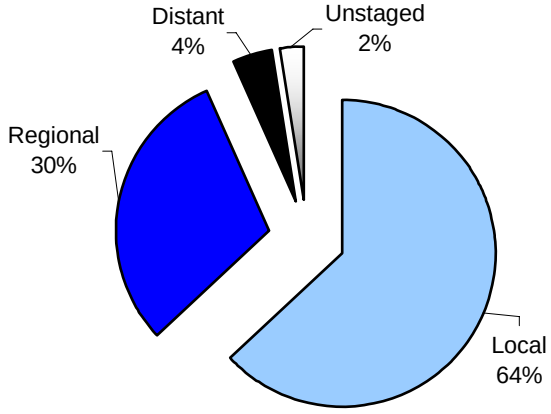
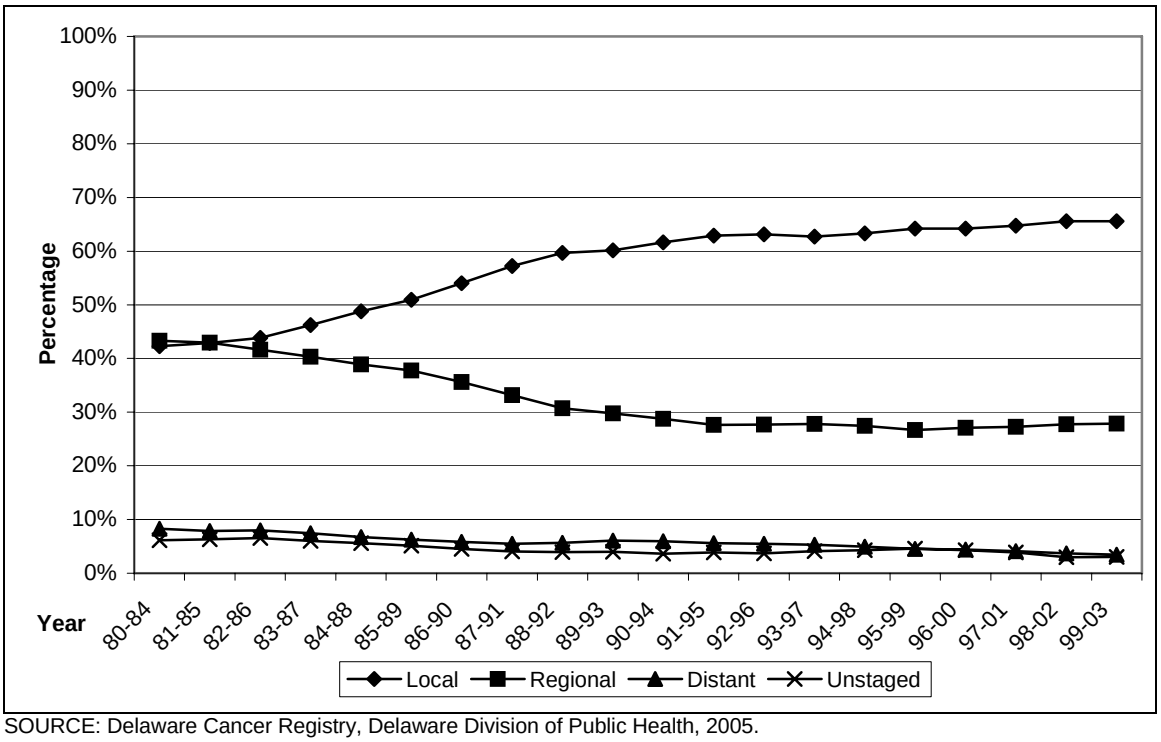


Figure 4.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 4.5. Percentage of Female Breast Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Female Breast Cancer Mortality

Table 4.6. Number of Female Breast Cancer Deaths in Delaware and Counties, by Race: 1999–2003

Region	All Female	Caucasian Female	African-American Female
Delaware	612	481	119
Kent	86	67	17
New Castle	377	294	75
Sussex	149	120	27

SOURCE: Delaware Health Statistics Center, 2005.

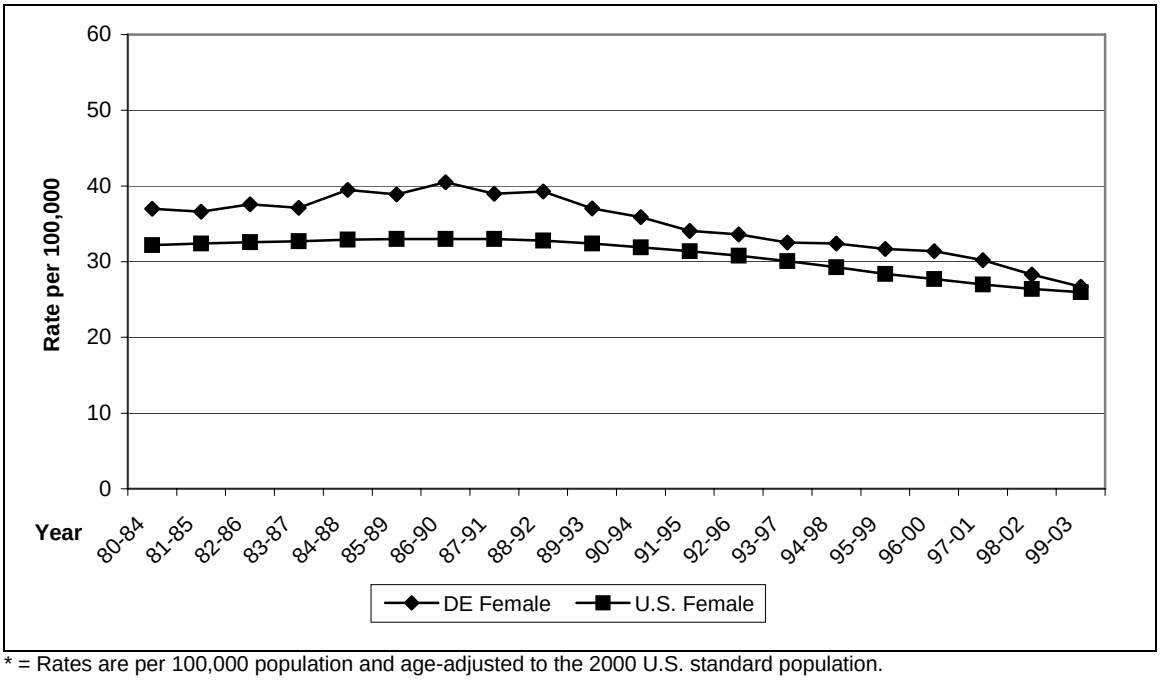
Table 4.7. Five-Year Average Age-Adjusted Female Breast Cancer Mortality Rates* in the United States, Delaware and Counties, by Race: 1999–2003

Region	All Female	Caucasian Female	African-American Female
United States	26.0 (25.9–26.1)	25.4 (25.3–25.5)	34.4 (34.0–34.9)
Delaware	26.7 (24.6–28.8)	24.8 (22.5–27.0)	35.2 (28.7–41.6)
Kent	24.8 (12.7–36.9)	23.6 (10.7–36.6)	---
New Castle	27.5 (20.6–34.4)	25.7 (18.3–33.2)	33.7 (15.1–52.2)
Sussex	26.5 (16.6–36.3)	23.4 (13.2–33.5)	50.1 (14.9–85.3)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

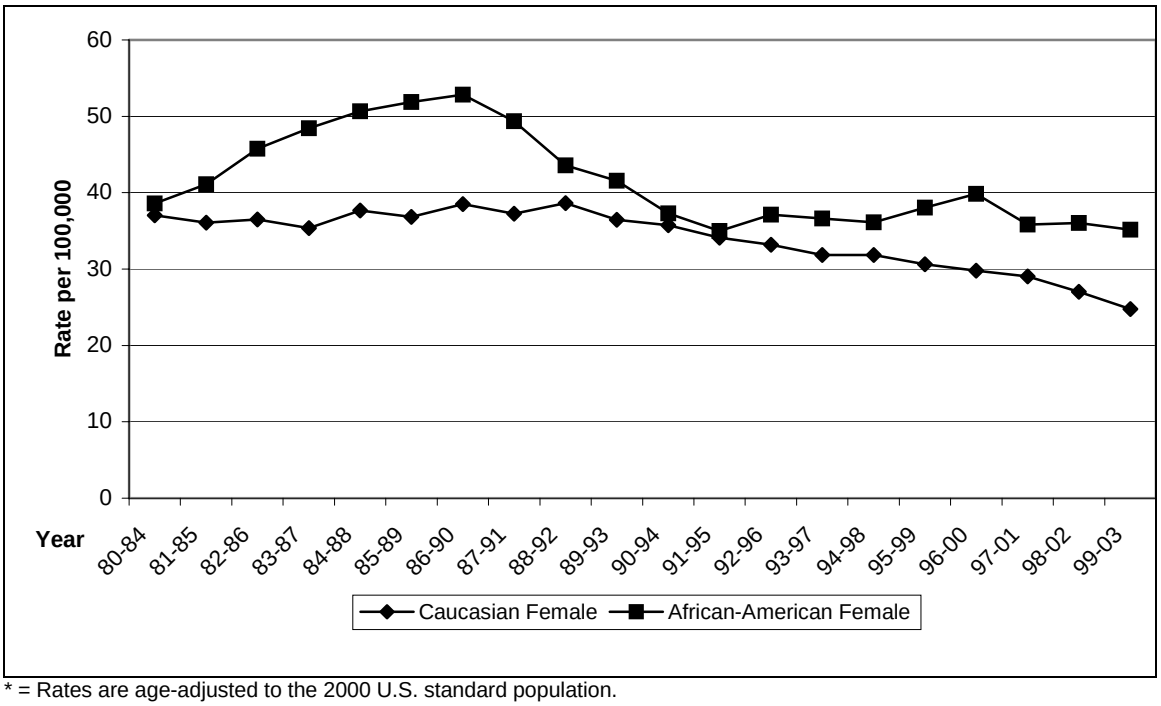
Figure 4.6. Five-Year Average Age-Adjusted Female Breast Cancer Mortality Rates* in the United States and Delaware: 1980–2003



* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 4.7. Five-Year Average Age-Adjusted Female Breast Cancer Mortality Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Health Statistics Center, 2005.

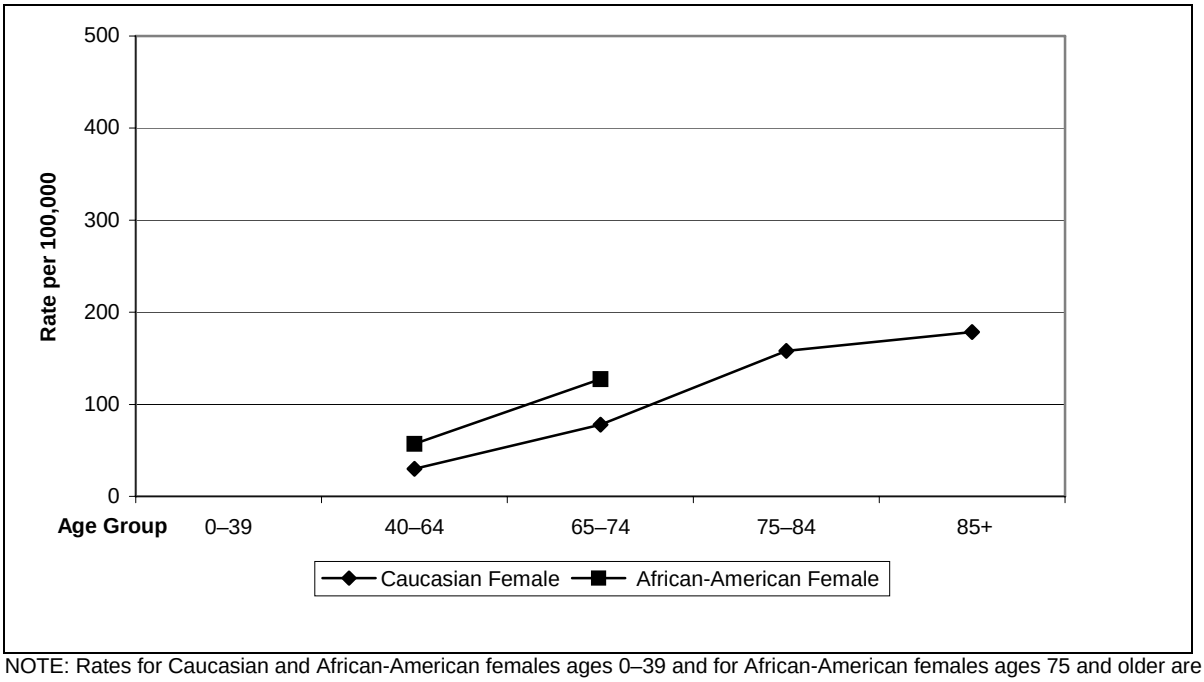
Table 4.8. Age-Specific Female Breast Cancer Mortality Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	2.3	---	---
40–64	34.8	30.0	57.2
65–74	84.6	77.8	127.4
75–84	148.7	158.0	---
85+	185.2	178.6	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 4.8. Age-Specific Female Breast Cancer Mortality Rates in Delaware, by Race: 1999–2003



NOTE: Rates for Caucasian and African-American females ages 0–39 and for African-American females ages 75 and older are not displayed because of patient confidentiality rules.

SOURCE: Delaware Health Statistics Center, 2005.

5. Cervical Cancer

Risk Factors and Early Detection

Risk Factors for Cervical Cancer

- Infection by the human papillomavirus (HPV)
- Sexual intercourse at a young age
- Multiple sexual partners
- Long-term use of oral contraceptives
- Mother who took diethylstilbestrol (DES) during pregnancy (associated with vaginal clear cell adenocarcinoma, a form of cervical and vaginal cancer)
- Cigarette smoking
- Low socioeconomic status
- Multiple pregnancies
- Family history of cervical cancer

Possible Risk Factors for Cervical Cancer

- Having a weakened immune system (e.g., through HIV, AIDS, or receiving drugs to suppress the immune system)
- History of sexually transmitted disease(s), such as chlamydia
- Diet low in fruits and vegetables

Early Detection of Cervical Cancer

Routine Pap smear tests can detect cervical cancer at an earlier stage, generally the in situ stage, resulting in greatly improved chances for survival.

The American Cancer Society recommends that all females who are or have been sexually active and all females ages 18 and older have an annual Pap test. After three or more consecutive normal tests, the Pap test can be performed less frequently.

Current recommendations for cervical cancer screening are:

- All females should begin having the Pap test about three years after they start having sex, but no later than age 21.
- Beginning at age 30, women who have had three normal test results in a row may get the test every two to three years.
- Women should follow the same guidelines in regard to having pelvic exams.

The BRFSS survey asked several questions related to cervical cancer screening:

- Have you ever had a Pap smear?
- How long has it been since your last Pap smear?
- Was your last Pap smear done as part of a routine exam, or to check a current or previous problem?
- Have you ever had a hysterectomy?

In Delaware

- In 2004, 87.7 percent of Delaware women ages 18 and older reported that they had a Pap smear within the previous three years, compared with 86.0 percent in the United States.
- More African-American females (94.8 percent) than Caucasian females (87.4 percent) reported that they had had a Pap smear within the last three years.
- The percentage of females who had not had a Pap smear in the last three years was highest in the 18–24 and 65 and older age groups (23.1 and 23.2 percent, respectively).
- Women in the 35–44 age group had the highest prevalence of having had a Pap smear within the past three years (94.9 percent).
- College graduates were the most likely to have had a Pap smear within the past three years. In 2004, 89.7 percent of college graduates reported having had a Pap smear, compared with 77.1 percent of women with less than a high school education.
- Among income strata, women with incomes between $15,000 and $24,999 were the least likely to have had a Pap smear within the past three years (81.8 percent).

Data Highlights

New Cancer Cases and Deaths (Tables 5.1 and 5.6)

- Cervical cancer accounted for 1.9 percent of all cancer cases among females. There were 184 newly diagnosed cases during 1999–2003 in Delaware.
- Caucasian females made up 70.7 percent (130) of cervical cancer cases in 1999–2003, and African-American females made up 23.4 percent (43); 8 cases diagnosed were Hispanic females.
- The majority of cervical cancer cases diagnosed in 1999–2003 were among New Castle County residents (95 or 51.6 percent), followed by Sussex County (52 or 28.3 percent) and Kent County (37 or 20.1 percent) residents.
- Deaths from cervical cancer accounted for 0.9 percent of all cancer deaths among Delaware women during 1999–2003.
- During 1999–2003, 76 Delaware women died from cervical cancer; 54 (71.1 percent) decedents were Caucasian, and 18 (23.7 percent) were African-American.
- A total of 39 (51.3 percent) cervical cancer deaths were New Castle County residents, 26 (34.2 percent) were Sussex County residents, and 11 (14.5 percent) were Kent County residents.

Incidence and Mortality Rates (Tables 5.2 and 5.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- There are no significant findings to report for cervical cancer in Delaware in 1999–2003.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Cervical cancer incidence in African-American females in Delaware (11.4 per 100,000) was 44 percent higher than in Caucasian females (7.9 per 100,000).
- During 1999–2003, cervical cancer mortality was twice as high among African-American women (5.1 per 100,000) than among Caucasian women (2.4 per 100,000) in the United States.

Trends in Cancer Incidence and Mortality (Figures 5.1–5.2 and 5.6–5.7)

- Although Delaware's cervical cancer incidence rate was 13.2 percent higher than the U.S. estimate in 1999–2003, the difference between the two rates has decreased since the 1990s.

- Delaware's cervical cancer incidence rate decreased from 1988–92 through 1999–2003.
- Delaware's cervical cancer mortality rate was higher than the U.S. rate, but recently the disparity has decreased. In 1999–2003, Delaware's mortality rate was 29.6 percent higher than the U.S. rate.
- The cervical cancer mortality rate for Delaware's African-American women decreased 34.3 percent from 1994–98 through 1999–2003.

Age-Specific Incidence and Mortality Rates (Tables 5.3 and 5.8, Figures 5.3 and 5.8)

- The overall age-specific incidence rate of cervical cancer was higher among women ages 40–64, compared with those younger than age 40.

Stage at Diagnosis of Cervical Cancer (Tables 5.4–5.5, Figures 5.4–5.5)

- A total of 69 cases (37.5 percent of all cervical cancers) were diagnosed in the late stages (i.e., regional or distant) during 1999–2003. The proportion of late stage diagnoses was higher among Caucasian females (40.0 percent) than African-American females (32.6 percent). This was due to a higher percentage of regional stage diagnoses among Caucasian females (35.4 percent) than among African- American females (18.6 percent) in 1999–2003.
- The proportion of local stage cervical cancer cases was higher among African-American females (62.8 percent) than among Caucasian females (50.0 percent).
- In Delaware during 1999–2003, a higher proportion of cases was diagnosed in the local stage (53.8 percent), compared with the U.S. estimates for 1999–2003 (51.9 percent).
- A smaller proportion of cervical cancer cases were diagnosed in the regional and distant stages in Delaware (31.0 percent and 6.5 percent, respectively), compared with U.S. estimates of 32.4 percent and 10.7 percent, respectively.
- In Delaware, the percentage of cervical cancer cases diagnosed in the local stage increased from 32.4 percent in 1980–84 to 53.8 percent in 1999–2003.
- There was a decline in the percentage of regional stage cases from 48.9 percent in 1980–84 to 31.0 percent in 1999–2003.
- The overall percentage of distant stage cervical cancer cases did not change appreciably during 1980–2003.

Table 5.1. Number of Cervical Cancer Cases in Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
Delaware	184	130	43
Kent	37	29	8
New Castle	95	57	28
Sussex	52	44	7

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

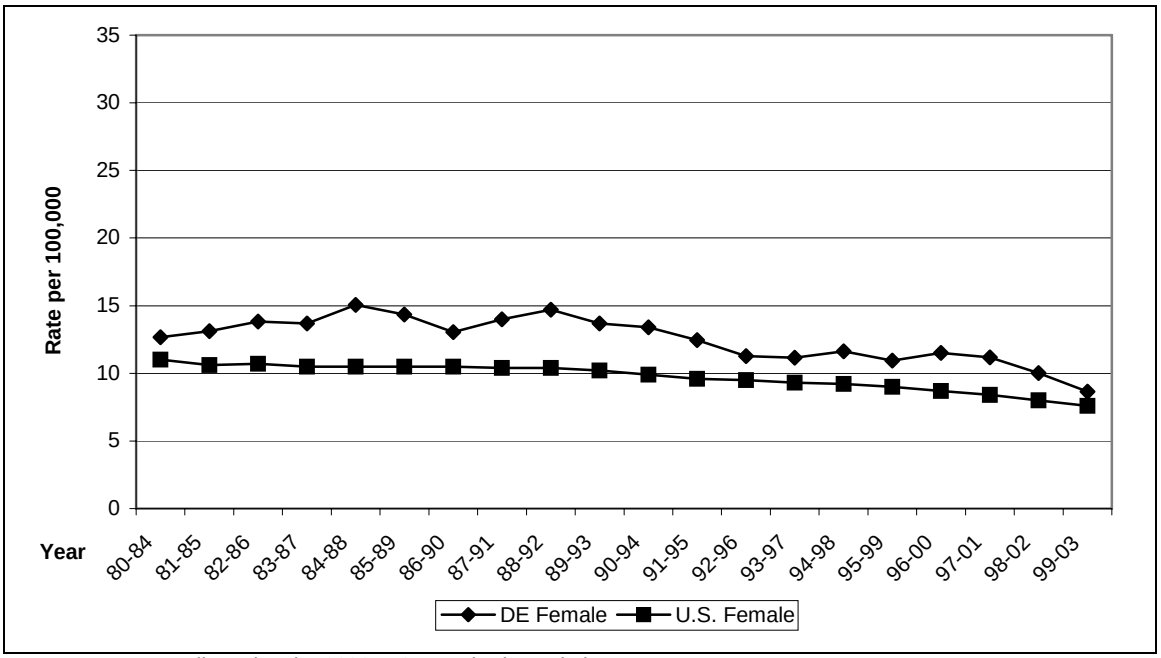
Table 5.2. Five-Year Average Age-Adjusted Cervical Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
U.S. Estimates	7.6 (7.4–7.8)	7.2 (7.0–7.4)	11.1 (10.3–11.9)
Delaware	8.6 (7.4–9.9)	7.9 (6.5–9.2)	11.4 (8.0–14.9)
Kent	11.0 (5.4–16.7)	11.3 (5.3–17.4)	---
New Castle	7.1 (4.8–9.4)	5.6 (3.5–7.8)	11.1 (1.4–20.8)
Sussex	11.3 (7.2–15.4)	11.5 (7.3–15.8)	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

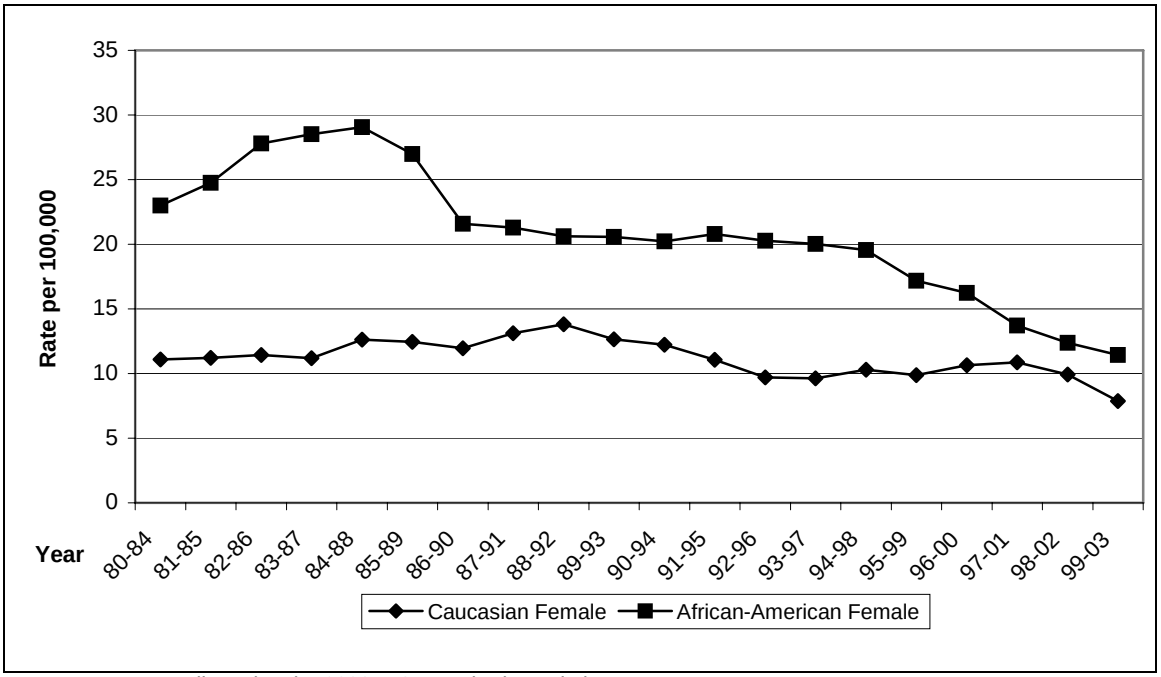
Figure 5.1. Five-Year Average Age-Adjusted Cervical Cancer Incidence Rates* in the United States (Estimates) and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 5.2. Five-Year Average Age-Adjusted Cervical Cancer Incidence Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 5.3. Age-Specific Cervical Cancer Incidence Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	4.5	4.1	---
40–64	15.0	13.8	---
65–74	14.3	---	---
75–84	---	---	---
85+	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 5.3. Age-Specific Cervical Cancer Incidence Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Cervical Cancer by Stage at Diagnosis

Table 5.4. Number of Cervical Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	99	65	27
Regional	57	46	8
Distant	12	6	6
Unknown	16	13	< 6
Total	184	130	43

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 5.5. Percentage of Cervical Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	53.8	50.0	62.8
Regional	31.0	35.4	18.6
Distant	6.5	4.6	14.0
Unknown	8.7	10.0	---
Total	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 5.4. Percentage of Cervical Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 5.4a. Delaware: 1999–2003

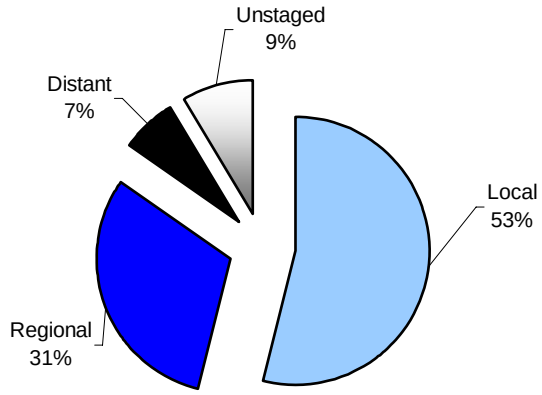
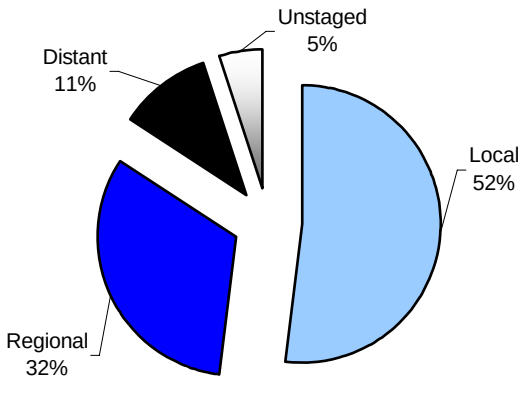
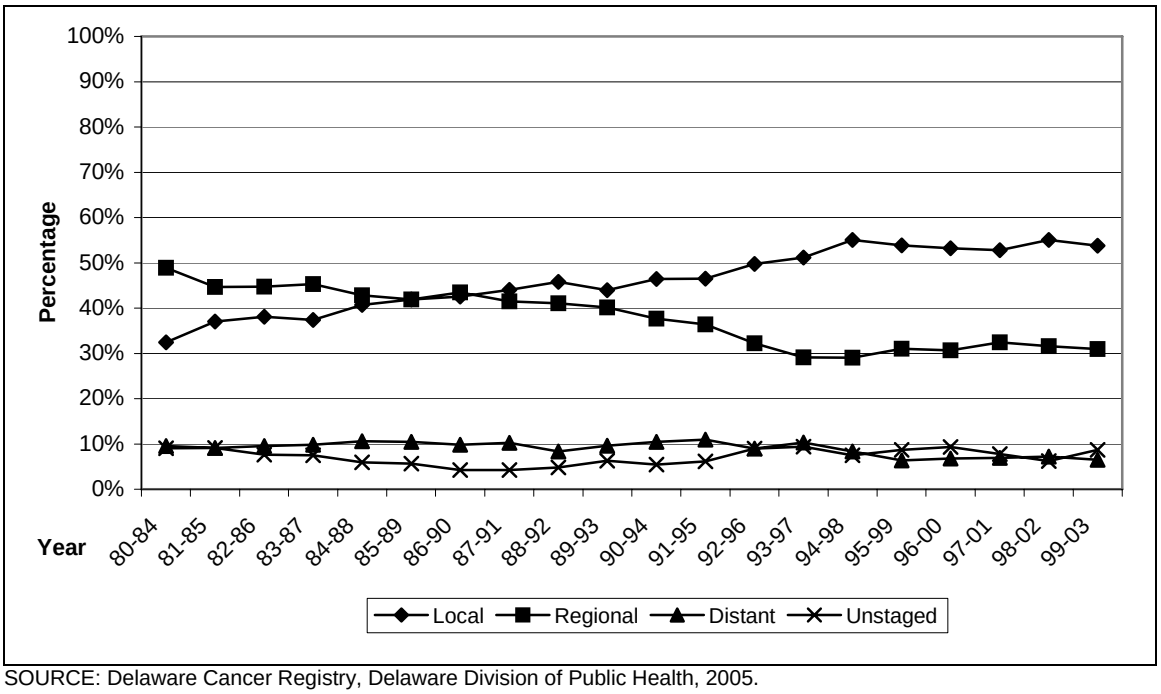


Figure 5.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 5.5. Percentage of Cervical Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Cervical Cancer Mortality

Table 5.6. Number of Cervical Cancer Deaths in Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
Delaware	76	54	18
Kent	11	8	< 6
New Castle	39	24	13
Sussex	26	22	< 6

SOURCE: Delaware Health Statistics Center, 2005.

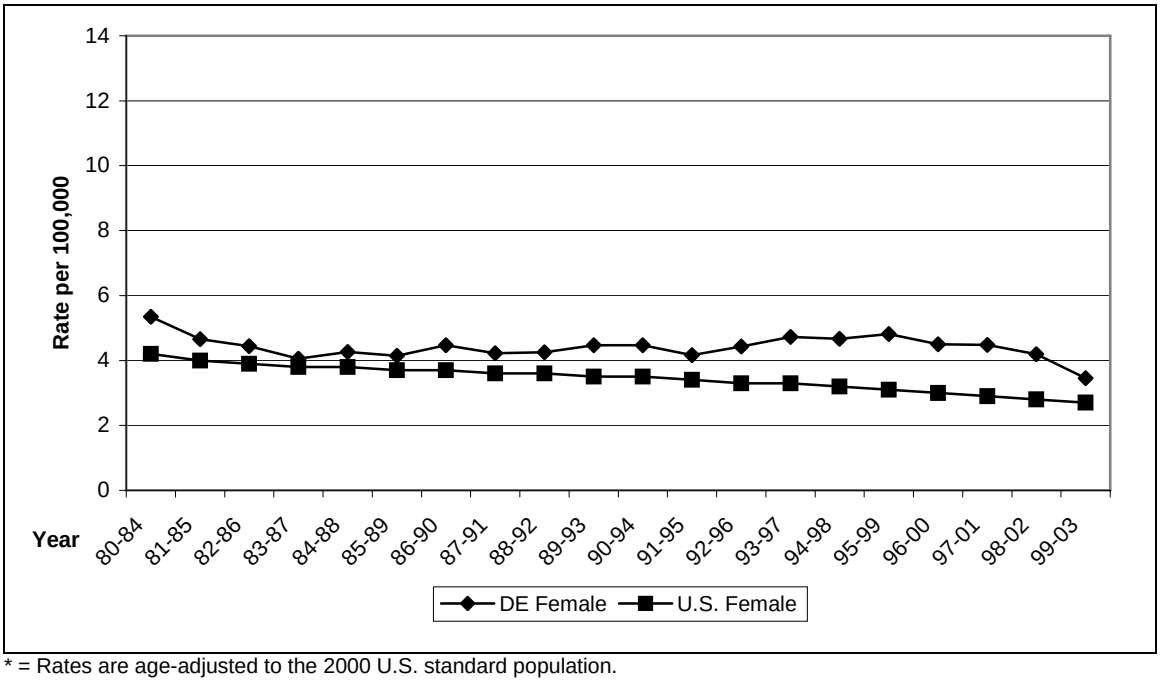
Table 5.7. Five-Year Average Age-Adjusted Cervical Cancer Mortality Rates* in the United States, Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
U.S. Estimates	2.7 (2.6–2.7)	2.4 (2.4–2.4)	5.1 (4.9–5.2)
Delaware	3.5 (2.7–4.2)	3.0 (2.2–3.8)	---
Kent	---	---	---
New Castle	2.9 (1.1–4.7)	---	---
Sussex	4.9 (1.7–8.0)	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

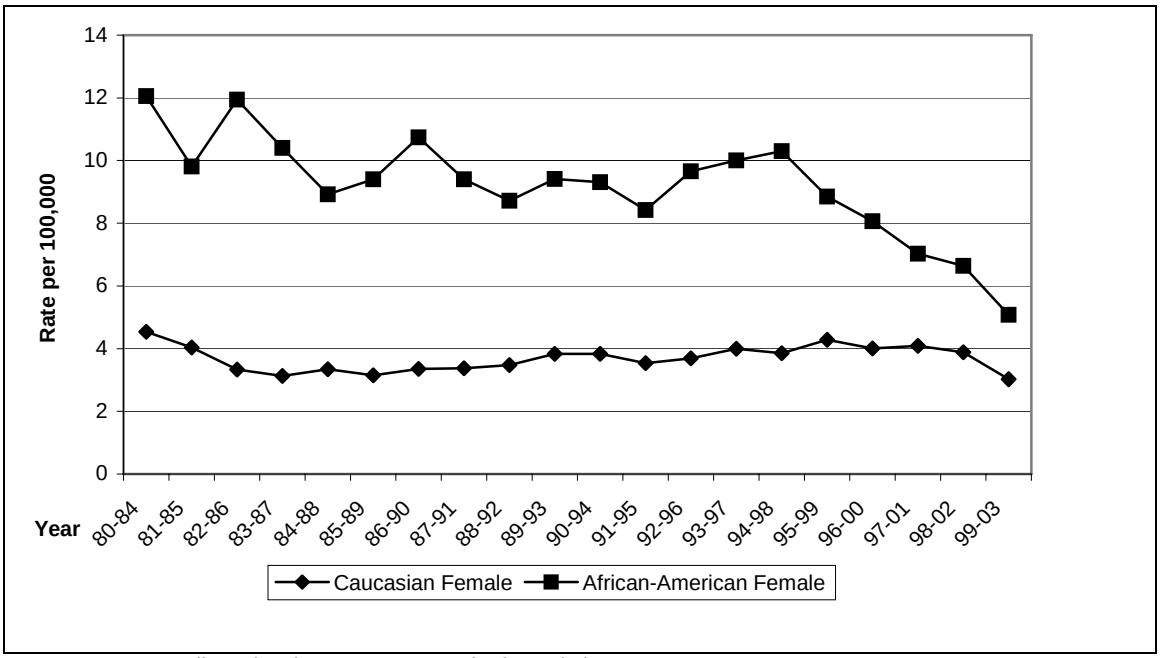
Figure 5.6. Five-Year Average Age-Adjusted Cervical Cancer Mortality Rates* in the United States and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 5.7. Five-Year Average Age-Adjusted Cervical Cancer Mortality Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Health Statistics Center, 2005.

Table 5.8. Age-Specific Cervical Cancer Mortality Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	---	---	---
40–64	6.4	5.2	---
65–74	---	---	---
75–84	---	---	---
85+	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 5.8. Age-Specific Cervical Cancer Mortality Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Health Statistics Center, 2005.

6. Colorectal Cancer

Risk Factors and Early Detection

Risk Factors for Colorectal Cancer

- Increasing age
- Personal history of colorectal polyps or colorectal cancer
- Family history of colorectal cancer or polyps, including familial adenomatous polyposis
- Personal history of inflammatory bowel disease such as ulcerative colitis or Crohn's disease
- Personal history of ovarian, breast, or endometrial cancer
- Diet high in red meat and other high-fat foods
- Low dietary intake of fruits, vegetables, and folic acid
- Physical inactivity

Possible Risk Factors for Colorectal Cancer

- Consumption of alcohol, especially beer
- Cigarette smoking

Early Detection of Colorectal Cancer

The American Cancer Society's (ACS) Colorectal Cancer Screening Guidelines are:

- Beginning at age 50, both men and women should follow one of the five screening options below:
  - Yearly fecal occult blood test. The take-home multiple sample method should be used, and all positive tests should be followed up with colonoscopy.
  - Flexible sigmoidoscopy every five years
  - Yearly fecal occult blood test, plus flexible sigmoidoscopy every five years*
  - Double contrast barium enema every five years
  - Colonoscopy every 10 years

Results are shown below for the following questions in the BRFSS survey:

- A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood. Have you ever had this test using a home kit?
- A sigmoidoscopy or colonoscopy is when a tube is inserted in the rectum to view the bowel for signs of cancer and other health problems. Have you ever had this exam?

In Delaware in 2005

- A home blood stool test had been used by 40.1 percent of Delaware respondents. Comparable percentages of males (38.4 percent) and females (41.4 percent) in Delaware reported that they had used a home blood stool test.
- Nearly 69 percent of Delawareans reported that they had had a sigmoidoscopy or a colonoscopy; males were more likely than females to have had the exam (73.9 percent versus 64.5 percent).

* "The ACS recommends more intensive surveillance for individuals at higher risk for colorectal cancer, including those with a history of adenomatous polyps; those with a personal history of curative-intent resection of colorectal cancer; those with a family history of either colorectal cancer or colorectal adenomas diagnosed in a first-degree relative before age 60; those with a history of inflammatory bowel disease of significant duration; or those with a family history or genetic testing indicating the presence of 1 of 2 hereditary syndromes, such as hereditary nonpolyposis colorectal cancer and familial adenomatous polyposis."

- Approximately two-thirds of African Americans and Caucasians in Delaware reported having had a sigmoidoscopy or colonoscopy (64.0 percent and 69.3 percent, respectively).
- The percentage of Delaware residents who had had a sigmoidoscopy or a colonoscopy increased as age increased. Among those ages 65 and older, 76.0 percent had a sigmoidoscopy or a colonoscopy, compared with 64.1 percent in the 50–64 age group.
- Residents of each county were equally likely to have had a sigmoidoscopy or colonoscopy: 68.6 percent of Kent County residents, 68.4 percent of New Castle County residents, and 69.7 percent of Sussex County residents reported having had this exam.

Data Highlights

New Colorectal Cancer Cases and Deaths (Tables 6.1 and 6.6)

- Colorectal cancer was the fourth most frequently diagnosed cancer among all Delaware residents. It was the third most common cancer among males and females.
- Colorectal cancer accounted for 11.2 percent of all cases diagnosed during 1999–2003 in Delaware.
- A total of 2,327 colorectal cancer cases were diagnosed among Delaware residents during 1999–2003, 1,190 in males and 1,137 in females.
- The majority of colorectal cancer cases during 1999–2003 were New Castle County residents (1,341 or 57.6 percent), followed by Sussex County (589 or 25.3 percent) and Kent County (392 or 16.9 percent) residents.
- A total of 1,916 (82.3 percent) cases were diagnosed among Caucasian residents in 1999–2003 in Delaware, and 14.8 percent (345) of cases were diagnosed among African Americans. Less than 1 percent of colorectal cancer cases occurred among Hispanics, and 26 cases were diagnosed in other races.
- Colorectal cancer was the second most common cancer-related cause of death among all Delaware residents. It was the third most common cancer-related cause of death in males and females.
- Deaths from colorectal cancer accounted for about 10 percent of all cancer deaths during 1999–2003 in Delaware.
- During 1999–2003, 851 Delaware residents died from colorectal cancer, and the majority of deaths (51.5 percent) were among males.
- Most of the colorectal cancer deaths occurred among Caucasian residents (81.6 percent or 694), and 17.4 percent (148) of decedents were African-American.
- A total of 505 (59.3 percent) decedents were from New Castle County, 234 (27.5 percent) were from Sussex County, and 112 (13.2 percent) were from Kent County.

Incidence and Mortality Rates (Tables 6.2 and 6.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Colorectal cancer incidence in Delaware was higher among males (67.2 per 100,000) than females (48.8 per 100,000) in 1999–2003.
- In 1999–2003, African Americans in Delaware had a higher age-adjusted colorectal cancer incidence rate (65.0 per 100,000) than Caucasians (54.8 per 100,000).
- Incidence rates among African-American females were higher than among their Caucasian counterparts.

- Delaware's 1999–2003 colorectal cancer mortality rate was higher among males (26.1 per 100,000) than among females (17.4 per 100,000).
- The colorectal cancer mortality rate was higher among African-American residents (29.3 per 100,000) than among Caucasian residents (19.9 per 100,000) during 1999–2003.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals did overlap. This means that observed differences in rates may simply be due to chance variation.)*

- Incidence rates among African-American males (74.7 per 100,000) were higher than among Caucasian males (65.7 per 100,000).
- Colorectal cancer incidence was highest in New Castle County among African-American males (81.9 per 100,000) and in Kent County among African-American females (65.7 per 100,000).
- The colorectal cancer mortality rate was lowest in Kent County (18.2 per 100,000) during 1999–2003; New Castle and Sussex Counties had comparable rates of colorectal cancer mortality.

Trends in Incidence and Mortality Rates (Figures 6.1–6.2 and 6.6–6.7)

- Although Delaware's colorectal cancer incidence during 1980–84 to 1999–2003 was higher than the U.S. estimates, recently the gap has narrowed. In 1999–2003, Delaware's colorectal cancer incidence was 7.4 percent higher than the U.S. estimate (8.6 percent higher in males and 6.8 percent higher in females).
- Colorectal cancer incidence has decreased overall since the mid-1980s among Caucasian Delaware residents. Since 1997–2001, the rates among African-American females and Caucasian males have remained steady.
- Although Delaware's colorectal cancer mortality rate was higher than the U.S. rate since 1980–84, the gap between the two rates has narrowed since the early 1990s.
- Colorectal cancer mortality declined among Caucasian and African-American females. Mortality, however, has increased among African-American males since 1994–98 and stabilized among Caucasian males since 1997–2001.

Age-Specific Incidence and Mortality Rates (Tables 6.3 and 6.8, Figures 6.3 and 6.8)

- The incidence of colorectal cancer increased with age.
- Mortality from colorectal cancer peaked at ages 85 and older in both men and women.

Stage at Diagnosis of Colorectal Cancer (Tables 6.4–6.5, Figures 6.4–6.5)

- A total of 1,467 cases (63.0 percent of all colorectal cancers) were diagnosed in the late stages (i.e., regional or distant), compared with the U.S. estimate of 55.1 percent in 1999–2003.
- In Delaware, fewer colorectal cancers were diagnosed in the local stage in 1999–2003 (30.0 percent), compared with the U.S. estimate for 1999–2003 (39.8 percent). Delaware, however, had a greater proportion of cases diagnosed in the regional stage (46.2 percent) than the U.S. estimate (37.4 percent).
- In 1985–89, the proportions of local and regional stage diagnoses of colorectal cancer were almost the same. Since that time, the proportion of local stage cancers has decreased (from 37.9 percent to 30.0 percent in 1999–2003), while the proportion of regional stage cancers has increased (38.8 percent to 46.2 percent).
- The percentage of distant stage colorectal cancer cases has decreased approximately 2–3 percent since 1988–92.
- Fewer African-American Delaware residents, on average, were diagnosed in the local stage (28.7 percent), compared with Caucasian residents (30.4 percent), and more African Americans were diagnosed in the distant stage (21.2 percent) than Caucasians (16.1 percent).

Colorectal Cancer Incidence

Table 6.1. Number of Colorectal Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	2,327	1,190	1,137	1,916	992	924	345	165	180
Kent	392	216	176	315	177	138	66	32	34
New Castle	1,341	671	670	1,066	541	525	231	108	123
Sussex	589	299	290	531	271	260	47	24	23

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

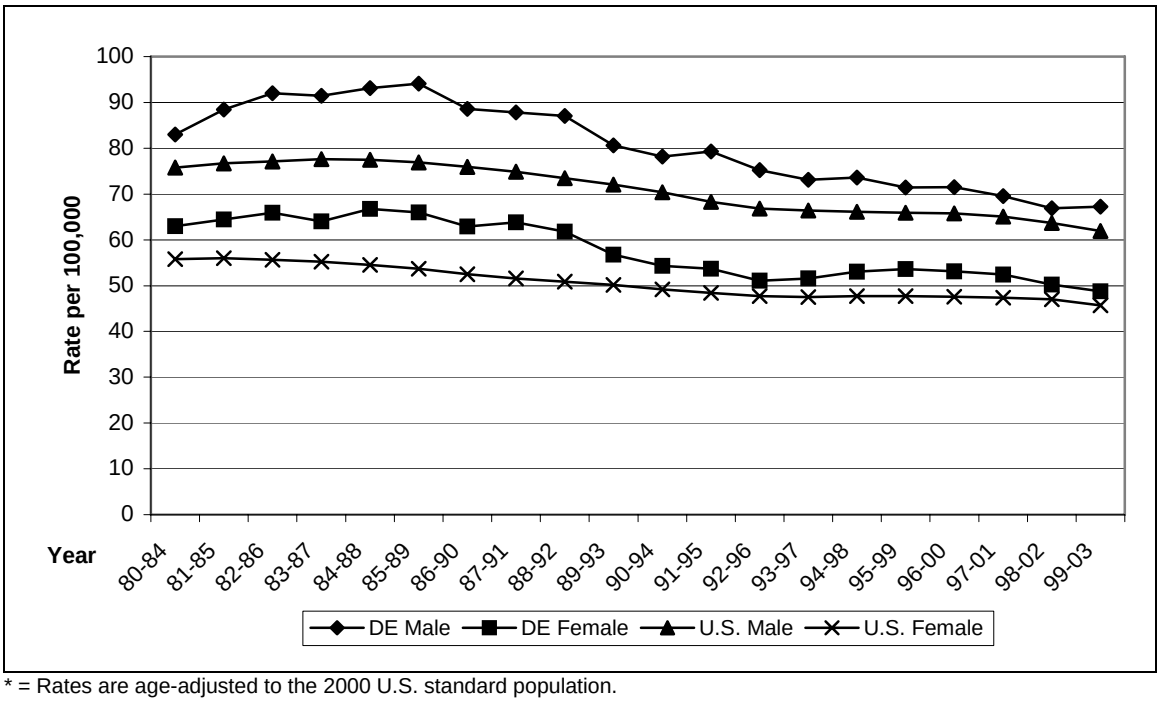
Table 6.2. Five-Year Average Age-Adjusted Colorectal Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	52.8 (52.4–53.2)	61.9 (61.2–62.6)	45.7 (45.3–46.2)
Delaware	56.7 (54.4–59.0)	67.2 (63.3–71.1)	48.8 (45.9–51.6)
Kent	63.0 (46.3–79.7)	80.2 (48.5–111.9)	50.1 (31.0–69.3)
New Castle	56.2 (48.1–64.2)	66.1 (51.2–80.9)	48.7 (39.1–58.4)
Sussex	54.5 (42.4–66.6)	62.2 (40.1–84.2)	48.7 (34.0–63.5)
CAUCASIAN			
United States	52.3 (51.9–52.8)	61.3 (60.5–62.0)	45.2 (44.7–45.8)
Delaware	54.8 (52.4–57.3)	65.7 (61.5–69.8)	46.5 (43.4–49.5)
Kent	61.7 (43.7–79.8)	81.1 (45.3–116.9)	47.8 (27.5–68.1)
New Castle	53.4 (44.9–61.8)	63.5 (48.1–78.8)	45.4 (35.3–55.5)
Sussex	54.4 (41.6–67.2)	62.1 (38.9–85.3)	48.4 (32.9–64.0)
AFRICAN-AMERICAN			
United States	62.4 (60.8–63.9)	72.8 (70.1–75.7)	55.7 (53.8–57.6)
Delaware	65.0 (57.9–72.0)	74.7 (62.4–87.1)	58.4 (49.8–67.0)
Kent	68.5 (21.3–115.8)	69.6 (3.3–136.0)	65.7 (2.4–129.0)
New Castle	69.2 (42.0–96.5)	81.9 (23.7–140.2)	62.4 (30.9–94.0)
Sussex	48.8 (10.0–87.5)	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

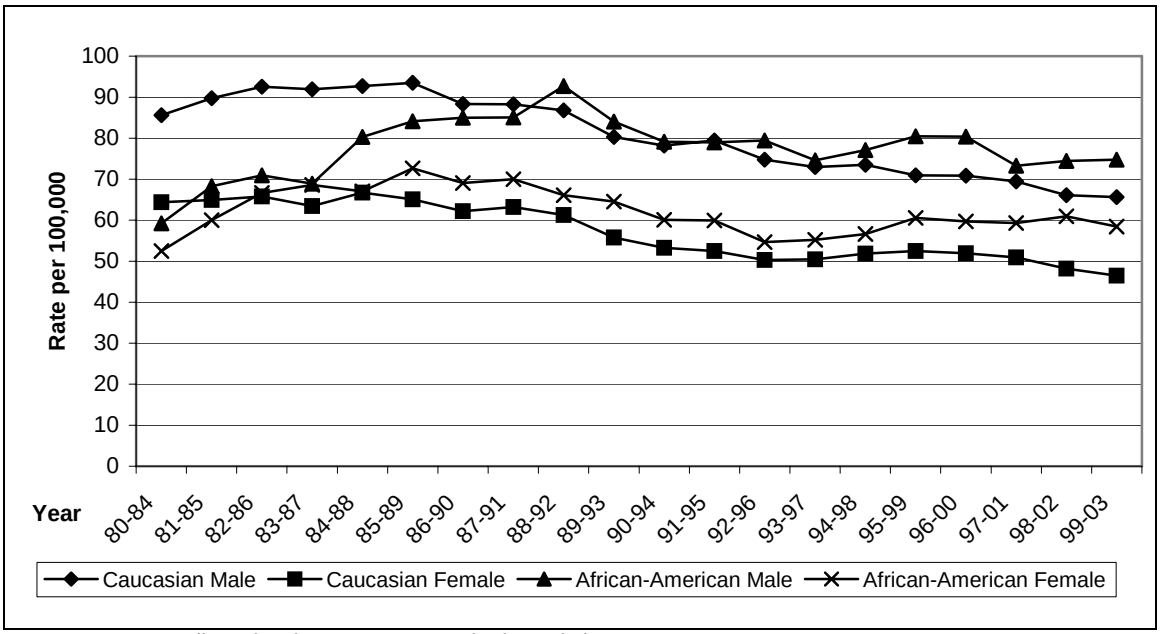
Figure 6.1. Five-Year Average Age-Adjusted Colorectal Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute.

Figure 6.2. Five-Year Average Age-Adjusted Colorectal Cancer Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

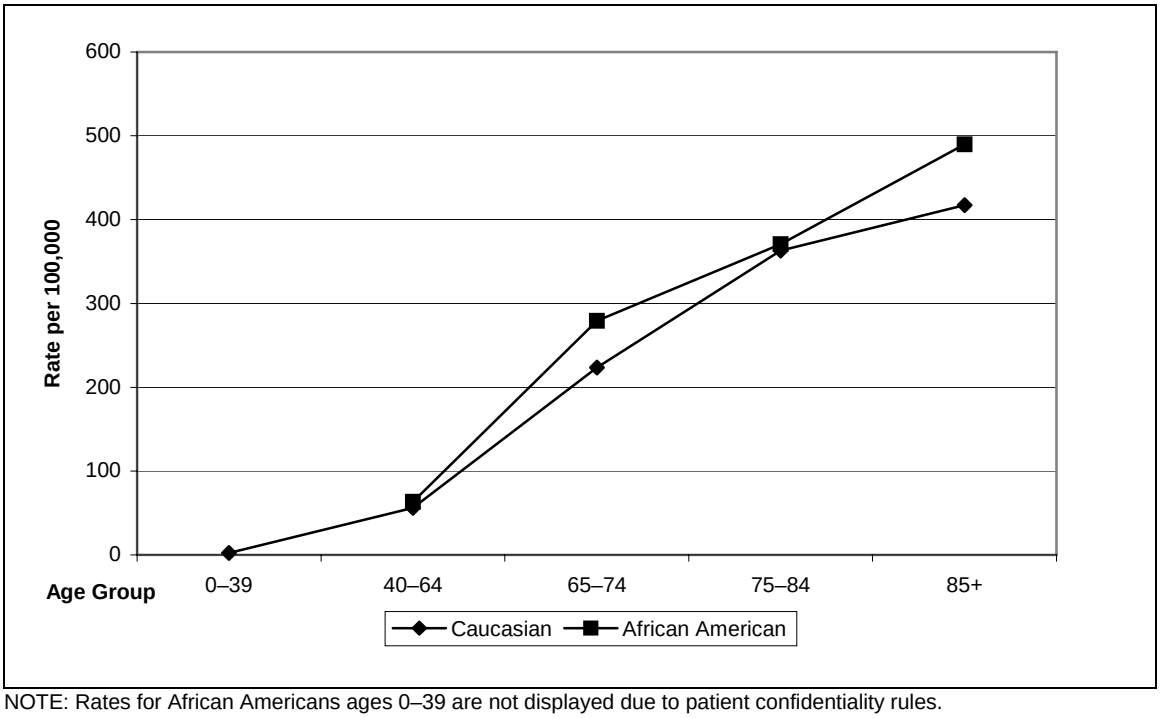
Table 6.3. Age-Specific Colorectal Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	2.2	2.4	---	2.1	---	---	---	---	---
40–64	57.4	68.7	46.8	55.9	67.8	44.6	63.4	74.7	53.8
65–74	234.0	279.2	195.2	223.4	271.4	181.6	279.3	317.8	249.7
75–84	366.1	409.1	337.2	363.3	406.8	333.8	370.8	382.7	363.6
85+	426.4	548.9	377.9	417.3	539.2	368.6	489.6	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 6.3. Age-Specific Colorectal Cancer Incidence Rates in Delaware, by Race: 1999–2003



NOTE: Rates for African Americans ages 0–39 are not displayed due to patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 6.4. Number of Colorectal Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	697	378	319	582	316	266	99	56	43
Regional	1,076	522	554	893	442	451	159	68	91
Distant	391	210	181	309	167	142	73	36	37
Unknown	163	80	83	132	67	65	14	< 6	9
Total	2,327	1,190	1,137	1,916	992	924	345	165	180

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 6.5. Percentage of Colorectal Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	30.0	31.8	28.1	30.4	31.9	28.8	28.7	33.9	23.9
Regional	46.2	43.9	48.7	46.6	44.6	48.8	46.1	41.2	50.6
Distant	16.8	17.7	15.9	16.1	16.8	15.4	21.2	21.8	20.6
Unknown	7.0	6.7	7.3	6.9	6.8	7.0	4.1	---	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 6.4. Percentage of Colorectal Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 6.4a. Delaware: 1999–2003

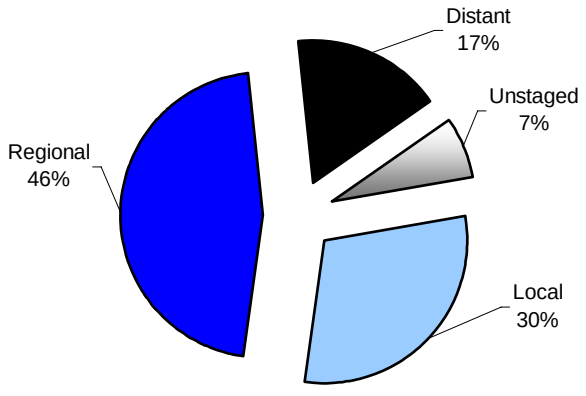
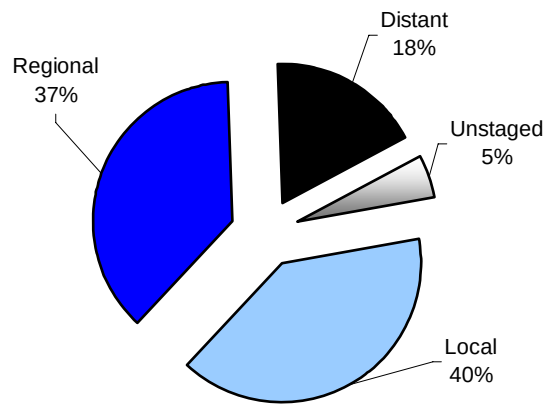
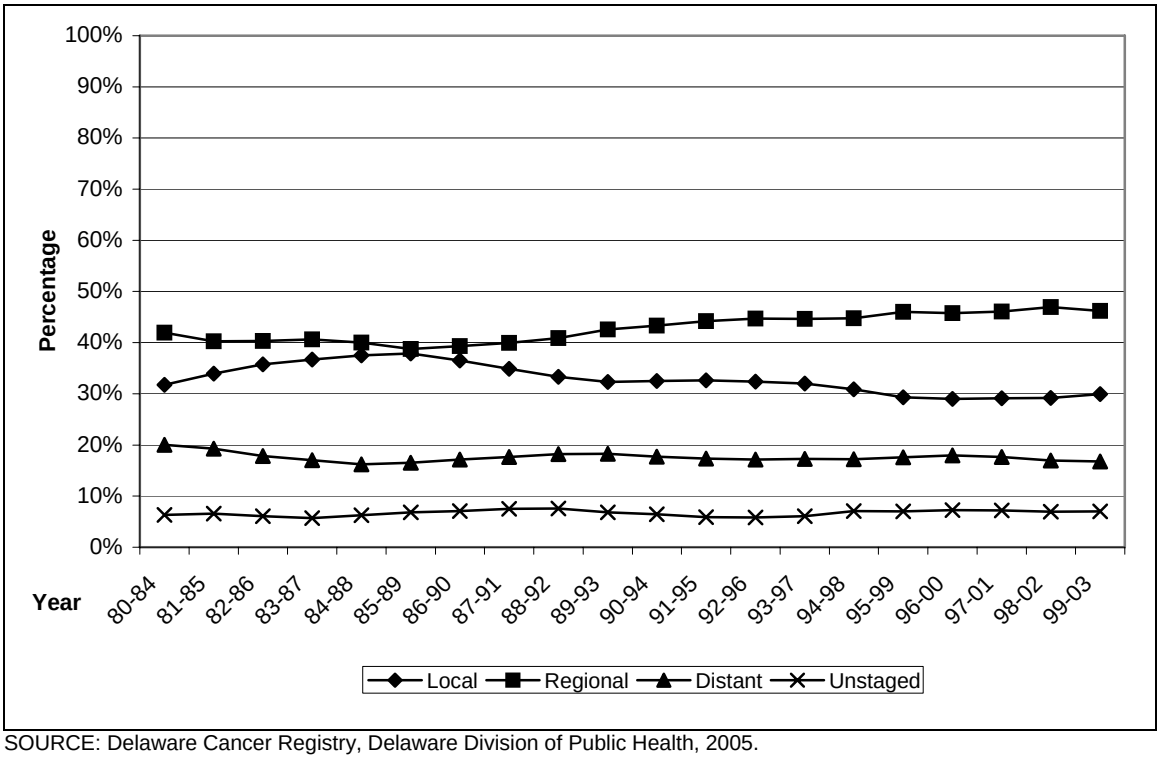


Figure 6.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 6.5. Percentage of Colorectal Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 6.6. Number of Colorectal Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	851	439	412	694	365	329	148	69	79
Kent	112	57	55	84	46	38	26	9	17
New Castle	505	248	257	409	203	206	89	42	47
Sussex	234	134	100	201	116	85	33	18	15

SOURCE: Delaware Health Statistics Center, 2005.

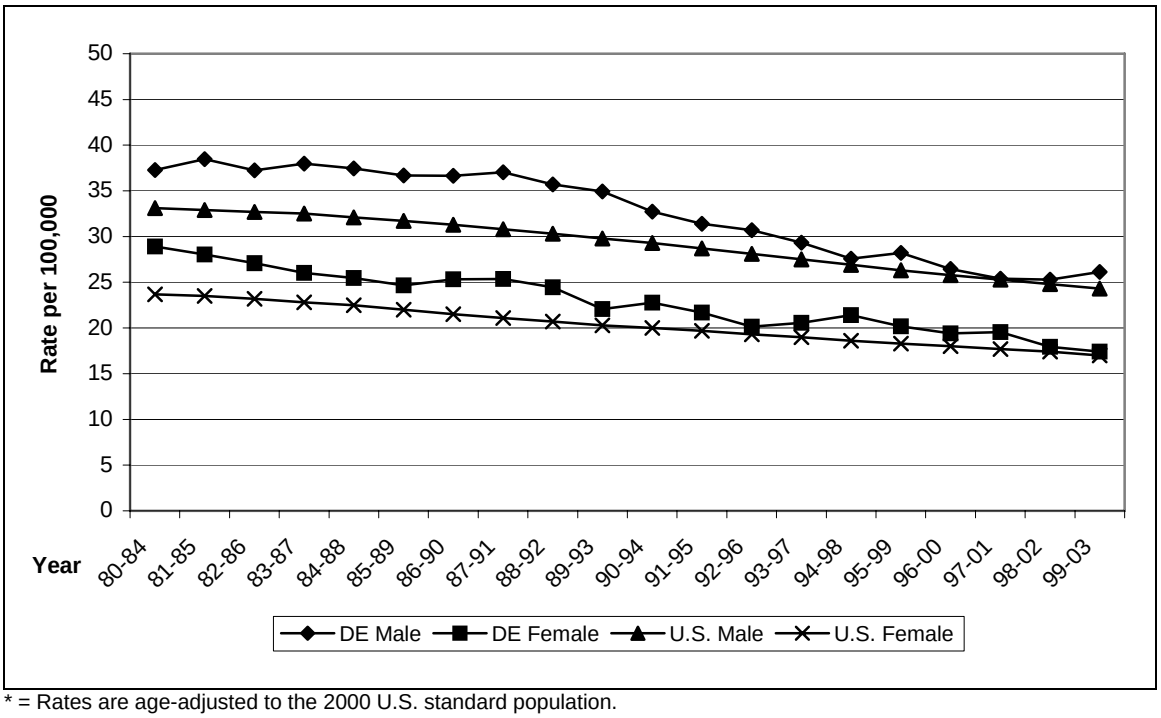
Table 6.7. Five-Year Average Age-Adjusted Colorectal Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	20.0 (20.0–20.1)	24.3 (24.2–24.2)	17.0 (16.9–17.1)
Delaware	21.0 (19.6–22.4)	26.1 (23.6–28.7)	17.4 (15.7–19.1)
Kent	18.2 (8.4–28.0)	22.2 (3.5–40.8)	15.5 (4.4–26.6)
New Castle	21.5 (15.8–27.1)	26.1 (15.2–37.0)	18.3 (11.8–24.9)
Sussex	21.6 (13.4–29.8)	28.4 (12.0–44.8)	16.6 (7.5–25.8)
CAUCASIAN			
United States	19.5 (19.4–19.6)	23.7 (23.6–23.9)	16.4 (16.3–16.5)
Delaware	19.9 (18.4–21.4)	25.3 (22.7–28.0)	16.1 (14.4–17.9)
Kent	16.5 (6.5–26.5)	21.5 (1.7–41.3)	13.1 (2.2–24.1)
New Castle	20.5 (14.5–26.5)	25.4 (13.6–37.1)	17.2 (10.3–24.1)
Sussex	20.5 (12.0–29.0)	27.2 (10.0–44.3)	15.6 (6.2–25.0)
AFRICAN-AMERICAN			
United States	27.5 (27.2–27.8)	33.6 (33.1–34.1)	23.7 (23.3–24.0)
Delaware	29.3 (24.5–34.2)	33.9 (25.4–42.4)	26.0 (20.2–31.8)
Kent	28.2 (-5.3–61.8)	---	---
New Castle	28.0 (9.8–46.2)	33.7 (0.4–67.0)	23.9 (3.4–44.4)
Sussex	34.8 (0.9–68.8)	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

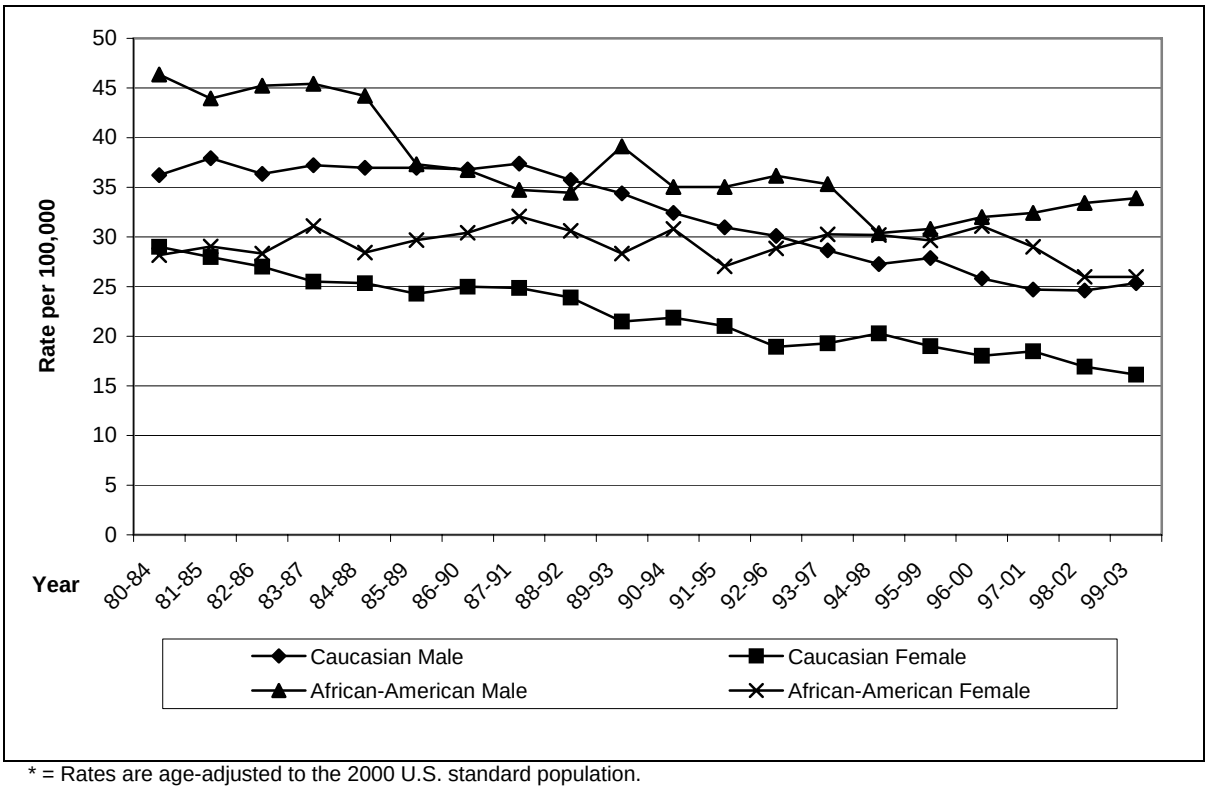
Figure 6.6. Five-Year Average Age-Adjusted Colorectal Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 6.7. Five-Year Average Age-Adjusted Colorectal Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Health Statistics Center, 2005.

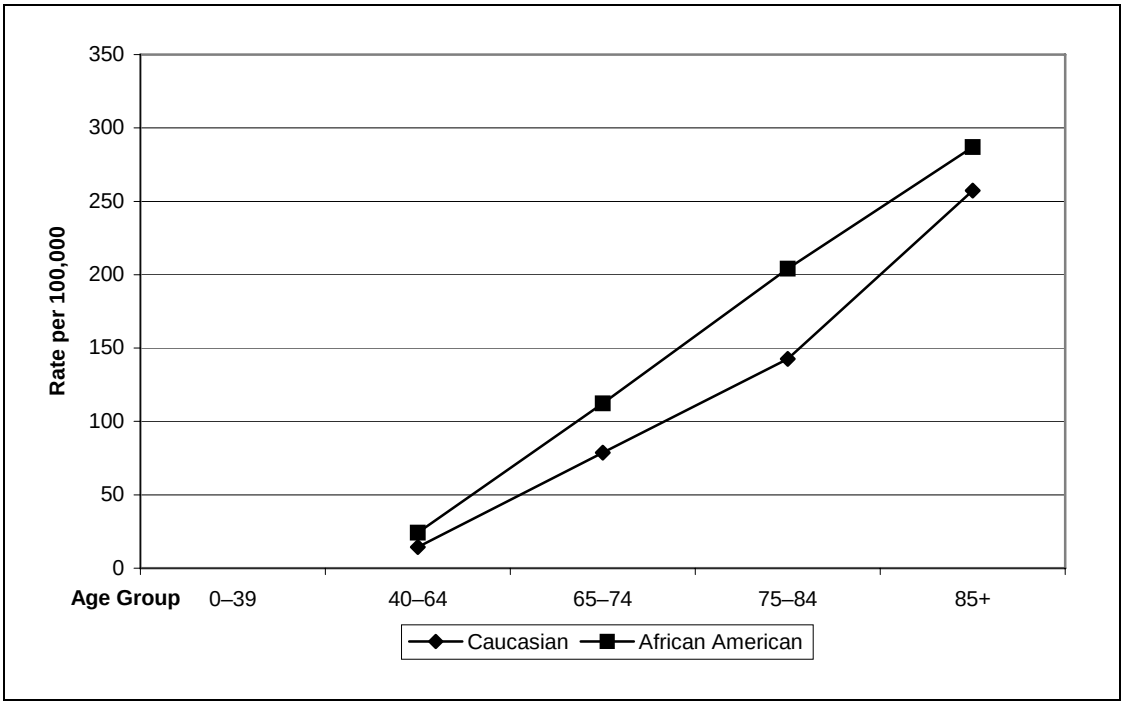
Table 6.8. Age-Specific Colorectal Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	---	---	---
40–64	15.9	18.3	13.8	14.5	17.2	12.0	24.1	---	23.9
65–74	82.0	104.7	62.5	78.7	104.2	56.5	112.3	---	---
75–84	149.6	186.7	124.7	142.7	172.6	122.4	204.2	---	---
85+	258.0	340.7	225.2	257.3	361.8	215.5	287.0	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 6.8. Age-Specific Colorectal Cancer Mortality Rates* in Delaware, by Race: 1999–2003



NOTE: Rates for African Americans and Caucasians ages 0–39 years are not shown due to patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

7. Esophagus Cancer

Risk Factors and Early Detection

Risk Factors for Esophagus Cancer

- Alcohol abuse
- Cigarette smoking
- Smokeless tobacco use
- African-American race
- Increasing age
- Male sex
- Obesity
- Chronic gastroesophageal reflux disease and/or Barrett's esophagus

Possible Risk Factors for Esophagus Cancer

- Diet low in fruits and/or vegetables
- Occupational exposure to dry cleaning and other chemicals

Early Detection of Esophagus Cancer

No early detection tests are used to screen for esophagus cancer, but those with high risk factors should talk to their doctors about regular endoscopies and biopsies.

Chronic Alcohol Use

Chronic alcohol use is associated with increased risk of developing cancers of the breast, esophagus, larynx, oral cavity, and pharynx and suspected in the development of colorectal and prostate cancers. In addition, chronic alcohol use is strongly associated with deaths from cirrhosis of the liver and deaths from motor vehicle accidents.

In the BRFSS survey, "chronic alcohol use" was defined as an average of two or more drinks per day (i.e., 60 or more alcoholic drinks a month) based on combined responses to the following questions:

- During the past month, have you had at least one drink of any alcoholic beverage such as beer, wine, wine coolers, or liquor?
- During the past month, how many days per week or per month did you drink any alcoholic beverages, on the average?
- On the days when you drank, about how many drinks did you drink on average?

In Delaware in 2004

- In 2004, 6.8 percent of Delaware residents were chronic users of alcohol, compared with 4.8 percent in the United States.
- More males (8.5 percent) than females (5.2 percent) in Delaware were chronic users of alcohol.
- People ages 18–24 (17.3 percent) had the highest proportion of chronic drinkers, compared with less than 10 percent for all other age groups.
- African Americans in Delaware (3.0 percent) were less likely to be chronic drinkers, compared with Caucasians (7.5 percent).

- The highest proportion of individuals who were chronic drinkers were those with less than a high school education (12.2 percent), compared with 5.1 percent of college graduates.

Data Highlights

New Cancer Cases and Deaths (Tables 7.1 and 7.6)

- Esophagus cancer accounted for 1.2 percent of all cancer cases diagnosed among Delaware residents during 1999–2003.
- A total of 242 esophagus cancer cases were diagnosed among Delaware residents during 1999–2003 (187 cases (77.3 percent) in males and 55 cases in females).
- The majority of esophagus cancer cases in 1999–2003 were diagnosed among New Castle County residents (141 or 58.3 percent), followed by Sussex County (66 or 27.3 percent) and Kent County (35 or 14.5 percent) residents.
- Caucasian residents made up 83.1 percent (201) of esophagus cancer cases in 1999–2003; African Americans made up 14.9 percent (36).
- Deaths from esophagus cancer accounted for 2.2 percent of all cancer deaths in Delaware during 1999–2003.
- During 1999–2003, 188 Delaware residents died from esophagus cancer, and the majority of deaths (78.7 percent) occurred among males.
- Caucasians made up 84.0 percent (158) of decedents, and African Americans made up 15.4 percent (29).
- A total of 110 (58.5 percent) decedents resided in New Castle County, 48 (25.5 percent) resided in Sussex County, and 30 (16.0 percent) resided in Kent County.

Incidence and Mortality Rates (Tables 7.2 and 7.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Delaware's 1999–2003 esophagus cancer incidence rate was higher than the U.S. estimate in males and overall.
- Delaware's esophagus cancer incidence rate was nearly five times higher in males (10.3 per 100,000) than females (2.3 per 100,000) in 1999–2003.
- Delaware's 1999–2003 esophagus cancer mortality rate was more than four times higher among males (8.3 per 100,000) than females (1.7 per 100,000).

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- African Americans in Delaware had a higher esophagus cancer incidence rate (6.6 per 100,000) in 1999–2003 than Caucasians (5.7 per 100,000).
- Incidence rates among African-American males were 12 percent higher than their Caucasian counterparts.

Trends in Cancer Incidence and Mortality (Figures 7.1–7.2 and 7.6–7.7)

- The gap between Delaware and U.S. rates has decreased since 1996–2002.
- In Delaware, the incidence rate of esophagus cancer was steady among Caucasian males and females and declined among African-American males and females.
- Although Delaware's esophagus cancer mortality rates were higher than those for the United States in both males and females, the gap has narrowed in recent years.

Age-Specific Incidence and Mortality Rates (Tables 7.3 and 7.8, Figures 7.3 and 7.8)

- The incidence of esophagus cancer in Delaware increased with age.
- Mortality from esophagus cancer increased with age.

Stage at Diagnosis of Esophagus Cancer (Tables 7.4–7.5, Figures 7.4–7.5)

- A total of 132 cases (54.5 percent of all esophagus cancers) were diagnosed in the late stages (regional or distant).
- In Delaware, the proportion of esophagus cancer cases diagnosed in the local stage in 1999–2003 (27.7 percent) was higher than the U.S. estimate for 1999–2003 (25.3 percent).
- Delaware had a smaller proportion of cases diagnosed in the distant stage (26.0 percent), compared with the U.S. estimate (29.6 percent), and a smaller proportion of cases diagnosed in the regional stage (28.5 percent) than in the United States (30.6 percent).
- The proportion of esophagus cancers diagnosed in the local stage was approximately the same in 1999–2003 as it was in 1980–84, although the proportion had declined in the interim.
- The percentage of esophagus cancer cases diagnosed in the regional stage increased from 26.0 percent in 1980–84 to 37.1 percent in 1992–96, whereas the percentage of distant stage cases decreased from 41.8 percent in 1980–84 to 19.4 percent in 1995–99. The proportion of regional and distant stage cancers increased after these time periods.
- A smaller proportion of Caucasians than African Americans were diagnosed with esophagus cancer in the regional stage (27.9 percent for Caucasians versus 33.3 percent for African Americans), while a greater proportion of Caucasians than African Americans were diagnosed in the distant stage (27.4 percent for Caucasians versus 22.2 percent for African Americans).

Esophagus Cancer Incidence

Table 7.1. Number of Esophagus Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	242	187	55	201	156	45	36	27	9
Kent	35	26	9	29	23	6	6	< 6	< 6
New Castle	141	113	28	116	93	23	22	17	< 6
Sussex	66	48	18	56	40	16	9	7	< 6

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

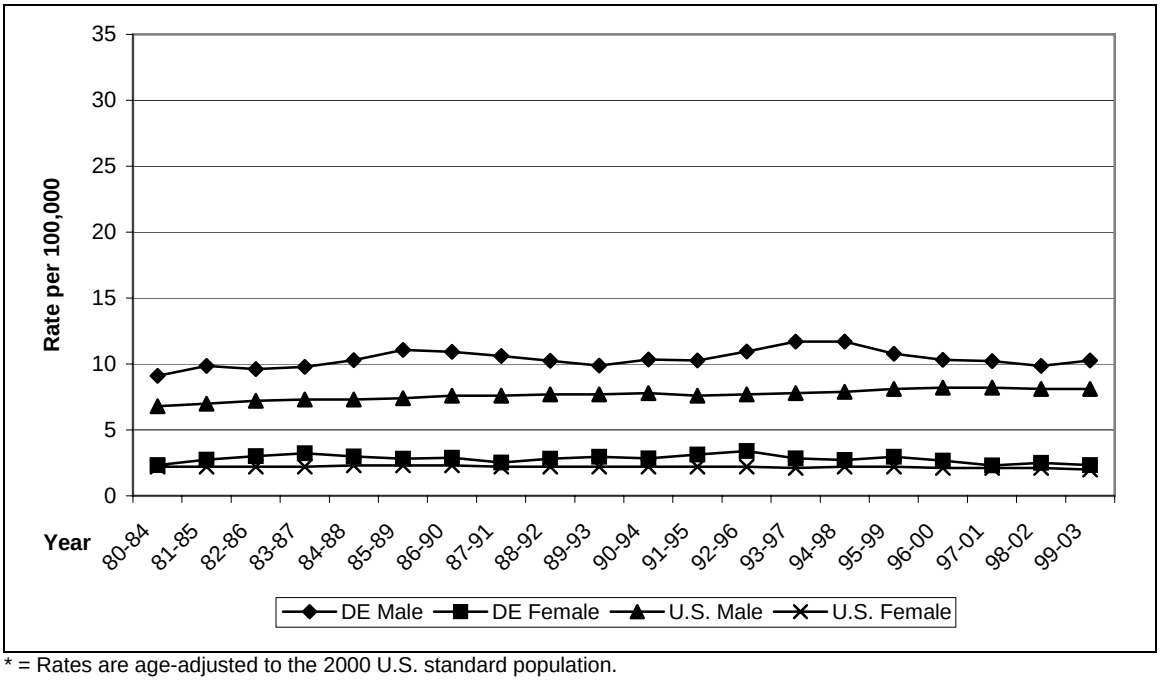
Table 7.2. Five-Year Average Age-Adjusted Esophagus Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	4.7 (4.6–4.8)	8.1 (7.9–8.4)	2.0 (1.9–2.1)
Delaware	5.8 (5.1–6.6)	10.3 (8.8–11.8)	2.3 (1.7–3.0)
Kent	5.5 (1.4–9.6)	9.0 (1.4–16.6)	---
New Castle	5.9 (3.4–8.4)	11.0 (5.3–16.7)	2.1 (0.1–4.1)
Sussex	6.1 (2.3–10.0)	9.9 (2.0–17.9)	---
CAUCASIAN			
United States	4.7 (4.6–4.9)	8.2 (7.9–8.4)	1.9 (1.8–2.1)
Delaware	5.7 (4.9–6.5)	10.0 (8.4–11.6)	2.2 (1.6–2.9)
Kent	5.6 (1.1–10.2)	---	---
New Castle	5.8 (3.2–8.4)	10.7 (4.9–16.5)	2.0 (-0.1–4.1)
Sussex	5.7 (1.7–9.8)	9.2 (0.7–17.7)	---
AFRICAN-AMERICAN			
United States	6.6 (10.7–3.7)	10.7 (9.8–11.8)	3.7 (3.2–4.2)
Delaware	6.6 (4.4–8.8)	11.2 (6.7–15.7)	---
Kent	---	---	---
New Castle	---	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

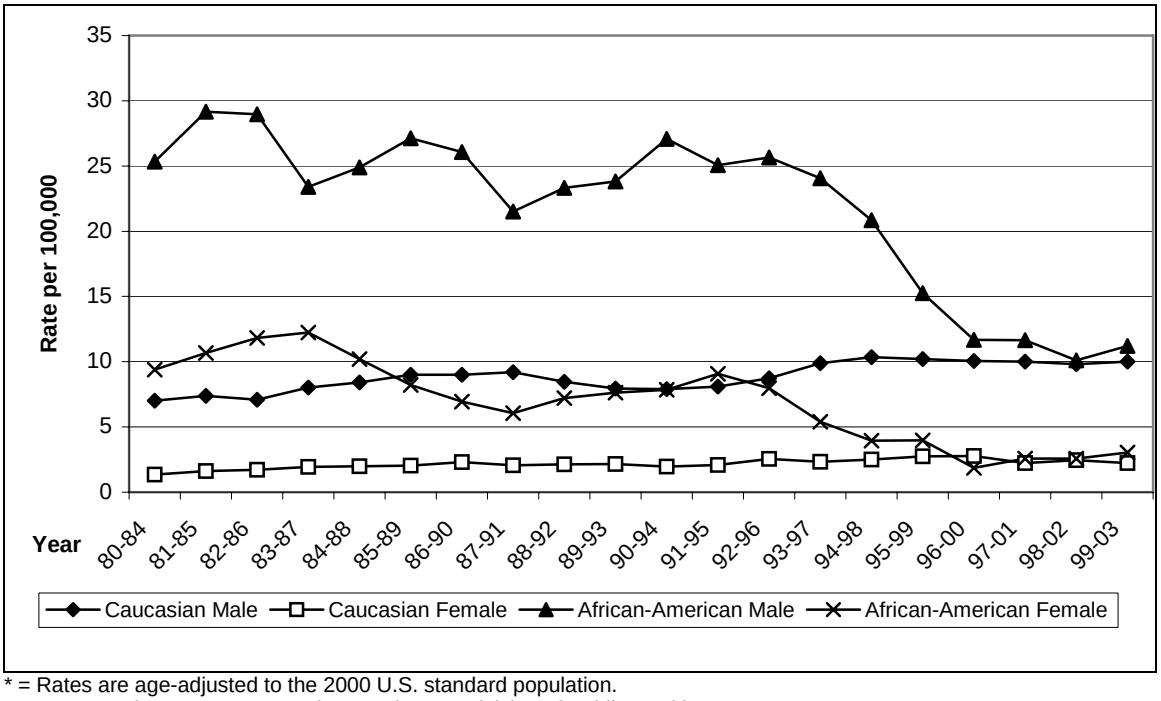
Figure 7.1. Five-Year Average Age-Adjusted Esophagus Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute.

Figure 7.2. Five-Year Average Age-Adjusted Esophagus Cancer Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 7.3. Age-Specific Esophagus Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	0.0	---	---	0.0	0.0	0.0	0.0
40–64	6.3	10.1	---	6.4	9.9	---	---	---	---
65–74	28.4	52.3	---	27.3	49.9	---	---	---	---
75–84	35.9	64.5	---	35.5	66.3	---	---	---	---
85+	---	---	---	---	---	---	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 7.3. Age-Specific Esophagus Cancer Incidence Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Esophagus Cancer by Stage at Diagnosis

Table 7.4. Number of Esophagus Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	67	53	14	60	48	12	7	< 6	< 6
Regional	69	56	13	56	45	11	12	10	< 6
Distant	63	53	10	55	46	9	8	7	< 6
Unknown	43	25	18	30	17	13	9	< 6	< 6
Total	242	187	55	201	156	45	36	27	9

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 7.5. Percentage of Esophagus Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	27.7	28.3	25.5	29.9	30.8	26.7	19.4	---	---
Regional	28.5	30.0	23.6	27.9	28.9	24.4	33.3	37.0	---
Distant	26.0	28.3	18.2	27.4	29.5	20.0	22.2	25.9	---
Unknown	17.8	13.4	32.7	14.9	10.9	28.9	25.0	---	---
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 7.4. Percentage of Esophagus Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 7.4a. Delaware: 1999–2003

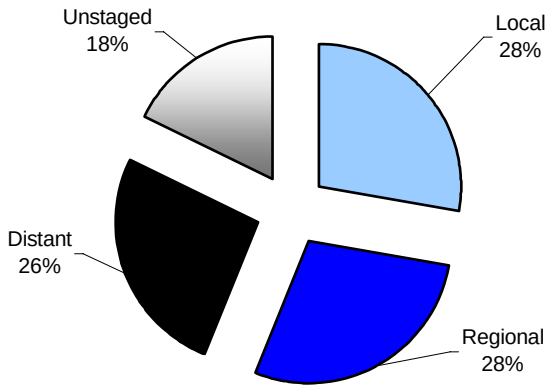
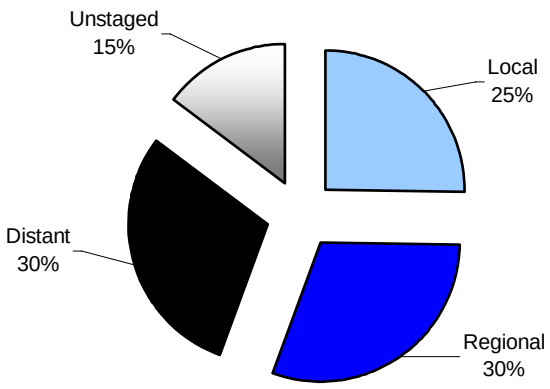
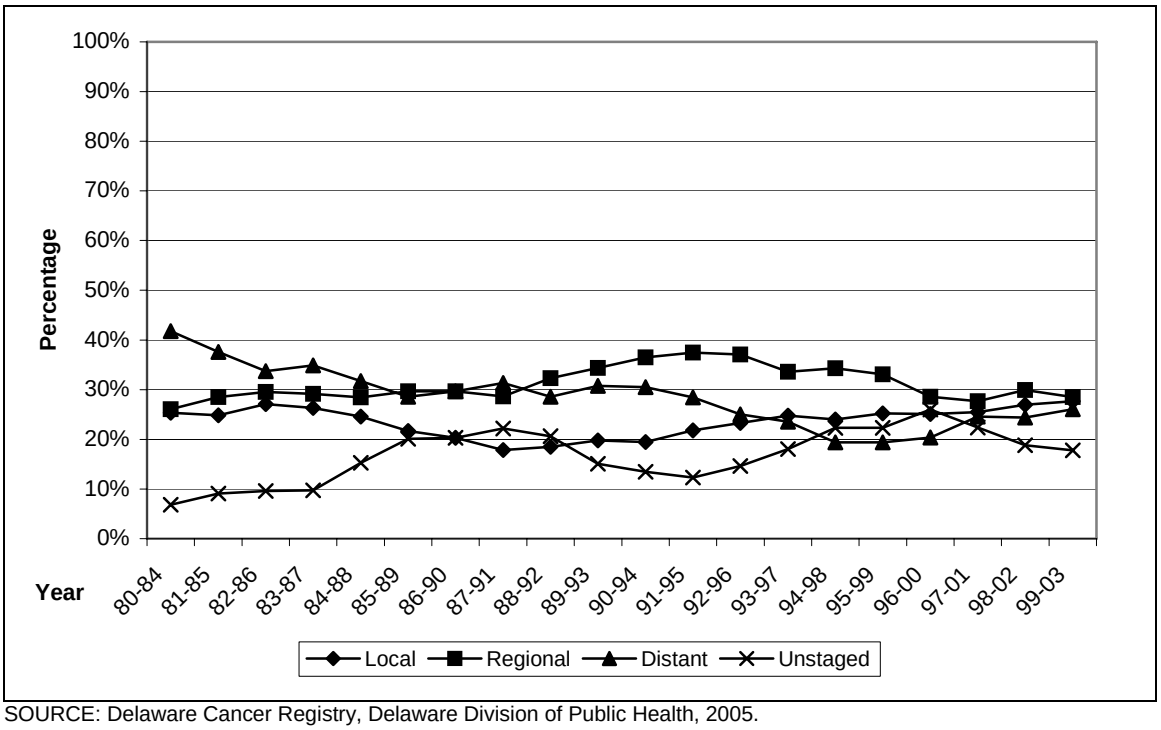


Figure 7.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 7.5. Percentage of Esophagus Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 7.6. Number of Esophagus Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	188	148	40	158	127	31	29	20	9
Kent	30	23	7	24	20	< 6	6	< 6	< 6
New Castle	110	89	21	94	77	17	15	11	< 6
Sussex	48	36	12	40	30	10	8	6	< 6

SOURCE: Delaware Health Statistics Center, 2005.

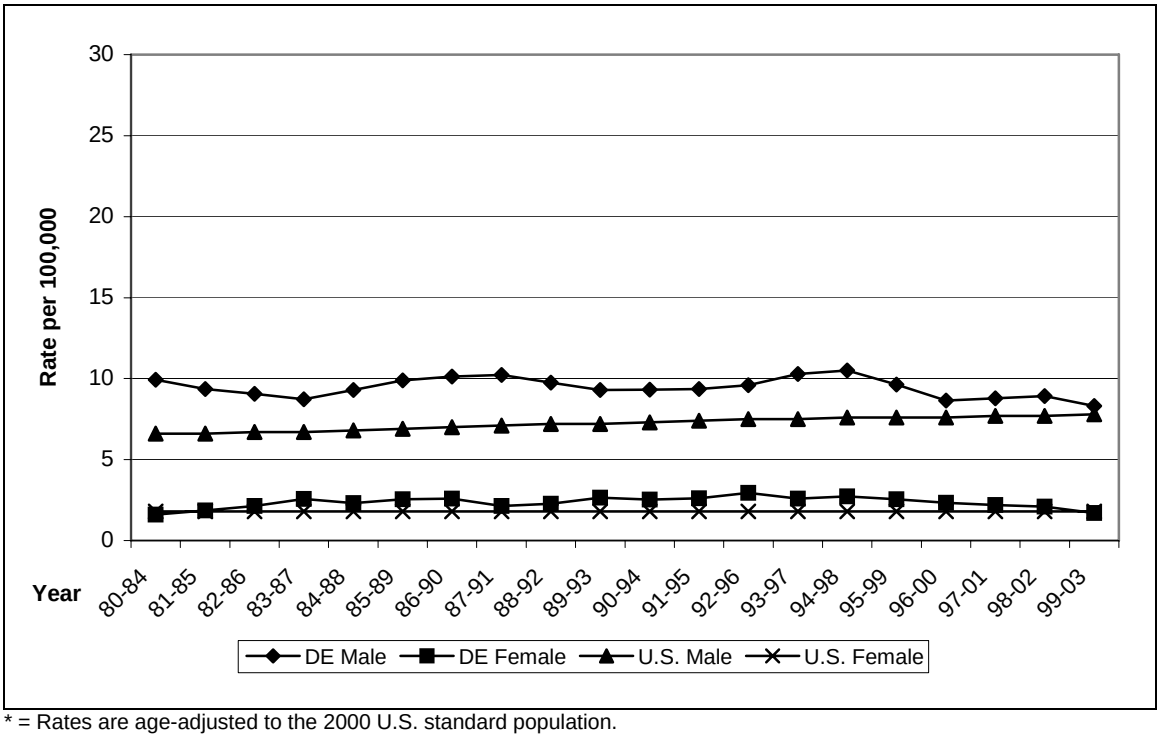
Table 7.7. Five-Year Average Age-Adjusted Esophagus Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	4.4 (4.4–4.4)	7.8 (7.7–7.8)	1.8 (1.7–7.8)
Delaware	4.5 (3.9–5.2)	8.3 (6.9–9.7)	1.7 (1.2–2.2)
Kent	4.8 (0.5–9.0)	---	---
New Castle	4.6 (2.3–6.9)	8.9 (3.3–14.4)	---
Sussex	4.5 (0.9–8.1)	7.6 (-0.3–15.6)	---
CAUCASIAN			
United States	4.3 (4.3–4.3)	7.6 (7.6–7.7)	1.7 (1.6–1.7)
Delaware	4.5 (3.8–5.2)	8.3 (6.8–9.7)	1.5 (1.0–2.1)
Kent	---	---	---
New Castle	4.6 (2.3–6.9)	9.0 (3.3–14.6)	---
Sussex	4.5 (0.9–8.1)	7.1 (-1.4–15.7)	---
AFRICAN-AMERICAN			
United States	6.2 (6.1–6.3)	10.7 (10.4–11.0)	3.0 (2.9–3.2)
Delaware	5.4 (3.4–7.4)	---	---
Kent	---	---	---
New Castle	---	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

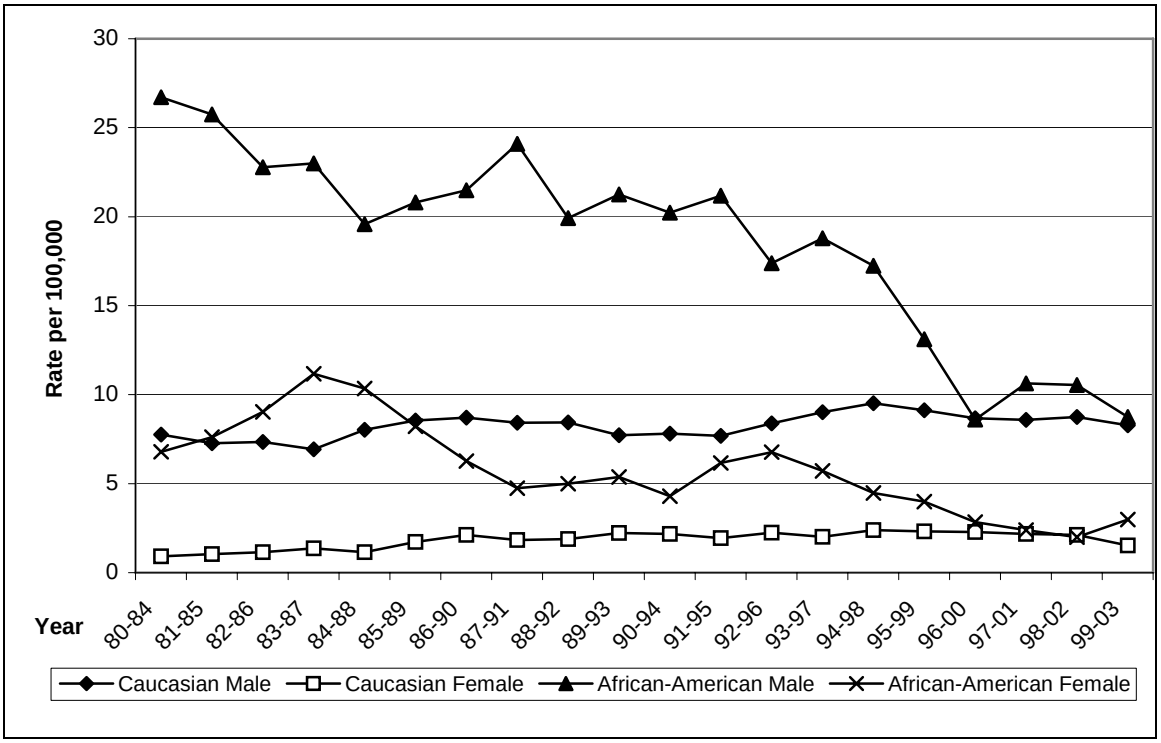
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 7.6. Five-Year Average Age-Adjusted Esophagus Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 7.7. Five-Year Average Age-Adjusted Esophagus Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population. SOURCE: Delaware Health Statistics Center, 2005

Table 7.8. Age-Specific Esophagus Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	0.0	---	0.0	---	0.0	0.0	0.0
40–64	4.7	7.7	---	4.7	7.8	---	---	---	---
65–74	21.7	41.0	---	21.2	40.3	---	---	---	---
75–84	27.6	50.8	---	28.7	50.9	---	---	---	---
85+	---	---	---	---	---	---	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 7.8. Age-Specific Esophagus Cancer Mortality Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Health Statistics Center, 2005.

8. Leukemia

Risk Factors and Early Detection

Risk Factors for Leukemia

- Exposure to ionizing radiation
- Exposure to benzene
- Chemotherapy
- Certain genetic conditions, such as Down syndrome

Possible Risk Factors for Leukemia

- Cigarette smoking

Under Investigation as Risk Factors for Leukemia

- Exposure to electromagnetic fields (e.g., from power lines)

Early Detection of Leukemia

There is currently no recommended screening test for leukemia. The best method of early detection is for individuals to report any symptoms to their doctors.

Data Highlights

New Cancer Cases and Deaths (Tables 8.1 and 8.4)

- Leukemia accounted for 1.9 percent of all cancer cases diagnosed during 1999–2003 in Delaware.
- A total of 398 leukemia cases were diagnosed among Delaware residents during 1999–2003, 223 cases (56.0 percent) in males and 175 cases in females.
- The majority of leukemia cases (1999–2003) were diagnosed among New Castle County residents (230 or 57.8 percent), followed by Sussex County (110 or 27.6 percent) and Kent County (58 or 14.6 percent) residents.
- Caucasian residents made up 83.4 percent (332) of all leukemia cases during 1999–2003, and African Americans made up 13.8 percent (55).
- Deaths from leukemia accounted for 4 percent of all cancer deaths in Delaware during 1999–2003.
- During 1999–2003, 336 Delaware residents died from leukemia, and 55.7 percent (187) of deaths occurred among males.
- Caucasians made up 86.9 percent (292) of decedents, and African Americans made up 11.3 percent.
- A total of 194 (57.7 percent) decedents were from New Castle County, 86 (25.6 percent) were from Sussex County, and 56 (16.7 percent) were from Kent County.

Incidence and Mortality Rates (Tables 8.2 and 8.5)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- The leukemia incidence rate in the United States was 60 percent higher among males (12.5 per 100,000) than females (7.8 per 100,000) in 1999–2003.

- Delaware's 1999–2003 leukemia mortality rate was 73 percent higher among males (11.1 per 100,000) than among females (6.4 per 100,000).

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- The 1999–2003 leukemia incidence rate among Delaware males was 23.8 percent lower than the U.S. rate; among females, Delaware's rate was 18.8 percent lower than the U.S. rate.
- The overall leukemia incidence rate was highest in Sussex County, compared with other counties in Delaware.
- Delaware's 1999–2003 leukemia mortality rate (8.3 per 100,000) was comparable with that of the United States (7.6 per 100,000).
- The leukemia mortality rate was 18.3 percent higher among Caucasian residents (8.4 per 100,000), compared with African-American residents (7.1 per 100,000) during 1999–2003.
- The overall, county-specific leukemia mortality rate was highest in Kent County during 1999–2003 (9.1 per 100,000).

Trends in Cancer Incidence and Mortality (Figures 8.1–8.2 and 8.4–8.5)

- The incidence rate of leukemia was stable from 1980–84 to 1999–2003 in Delaware and the United States.
- Mortality rates from leukemia were stable among males and females in Delaware and the United States.

Age-Specific Incidence and Mortality Rates (Tables 8.3 and 8.6, Figures 8.3 and 8.6)

- The age-specific rates for Delaware showed that the incidence of leukemia increased as age increased.
- Mortality from leukemia peaked at ages 85 and older in both men and women.

Stage at Diagnosis of Leukemia

- Leukemia was not staged as local, regional, or distant.

Leukemia Incidence

Table 8.1. Number of Leukemia Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	398	223	175	332	190	142	55	26	29
Kent	58	32	26	46	27	19	11	4	7
New Castle	230	130	100	193	111	82	31	15	16
Sussex	110	61	49	93	52	41	13	7	6

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

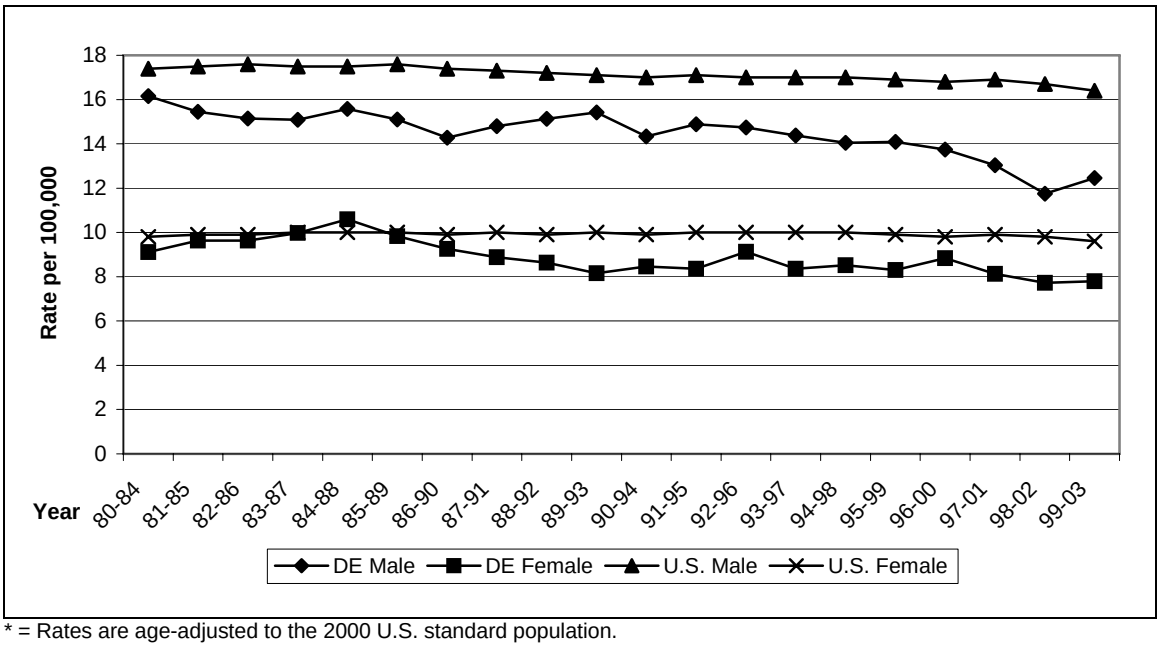
Table 8.2. Five-Year Average Age-Adjusted Leukemia Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	12.5 (12.4–12.7)	16.4 (16.1–16.8)	9.6 (9.4–9.8)
Delaware	9.8 (8.8–10.7)	12.5 (10.8–14.1)	7.8 (6.6–8.9)
Kent	9.3 (3.2–15.4)	11.9 (-1.1–24.9)	7.6 (1.1–14.1)
New Castle	9.5 (3.4–15.6)	12.4 (-0.6–25.5)	7.4 (0.9–13.9)
Sussex	10.6 (4.5–16.8)	12.7 (-0.3–25.8)	8.8 (2.3–15.3)
CAUCASIAN			
United States	13.2 (13.0–13.4)	17.3 (16.9–17.7)	10.1 (9.9–10.4)
Delaware	9.9 (8.8–11.0)	12.7 (10.9–14.5)	7.7 (6.4–9.0)
Kent	9.2 (2.8–15.6)	---	7.1 (0.6–13.7)
New Castle	9.9 (3.5–16.3)	13.0 (-0.9–26.8)	7.5 (1.0–14.1)
Sussex	10.4 (4.0–16.7)	12.5 (-1.3–26.4)	8.4 (1.8–14.9)
AFRICAN-AMERICAN			
United States	9.8 (9.2–10.5)	12.4 (11.4–13.6)	8.0 (7.3–8.7)
Delaware	9.5 (6.9–12.1)	11.9 (6.7–17.0)	8.6 (5.4–11.8)
Kent	---	---	---
New Castle	7.8 (-13.1–28.6)	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

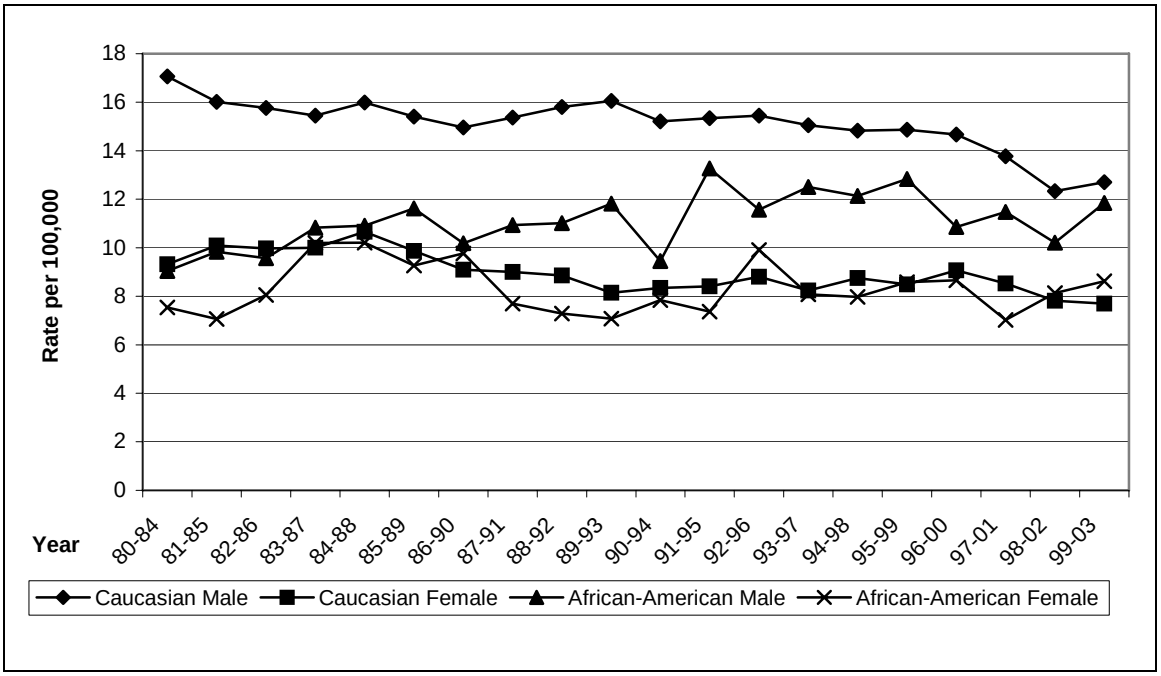
Figure 8.1. Five-Year Average Age-Adjusted Leukemia Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 8.2. Five-Year Average Age-Adjusted Leukemia Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

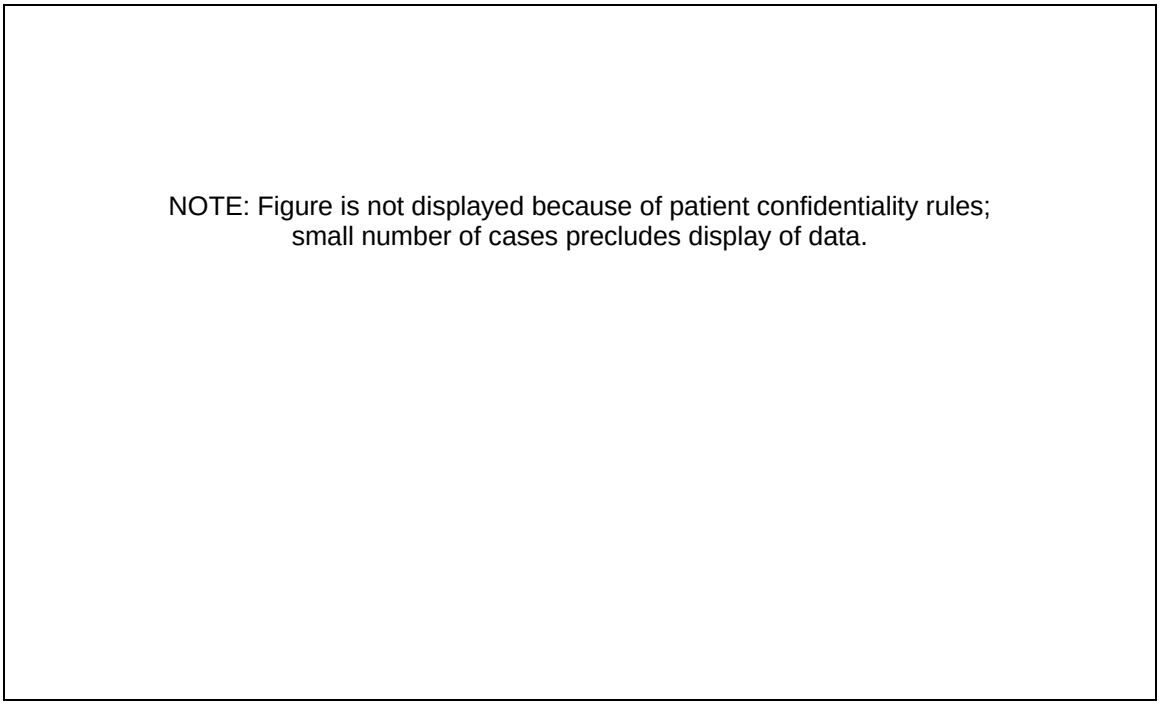
Table 8.3. Age-Specific Leukemia Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	3.0	3.4	2.6	3.3	3.9	---	---	---	---
40–64	9.6	11.4	8.0	9.6	11.3	8.0	---	---	---
65–74	31.9	42.5	22.8	32.6	44.6	22.1	---	---	---
75–84	46.4	63.2	35.1	46.1	64.7	33.5	---	---	---
85+	66.3	---	---	66.8	---	---	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 8.3. Age-Specific Leukemia Incidence Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 8.4. Number of Leukemia Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	336	187	149	292	160	132	38	21	17
Kent	56	32	24	44	24	20	11	7	< 6
New Castle	194	111	83	171	96	75	19	11	8
Sussex	86	44	42	77	40	37	8	< 6	< 6

SOURCE: Delaware Health Statistics Center, 2005.

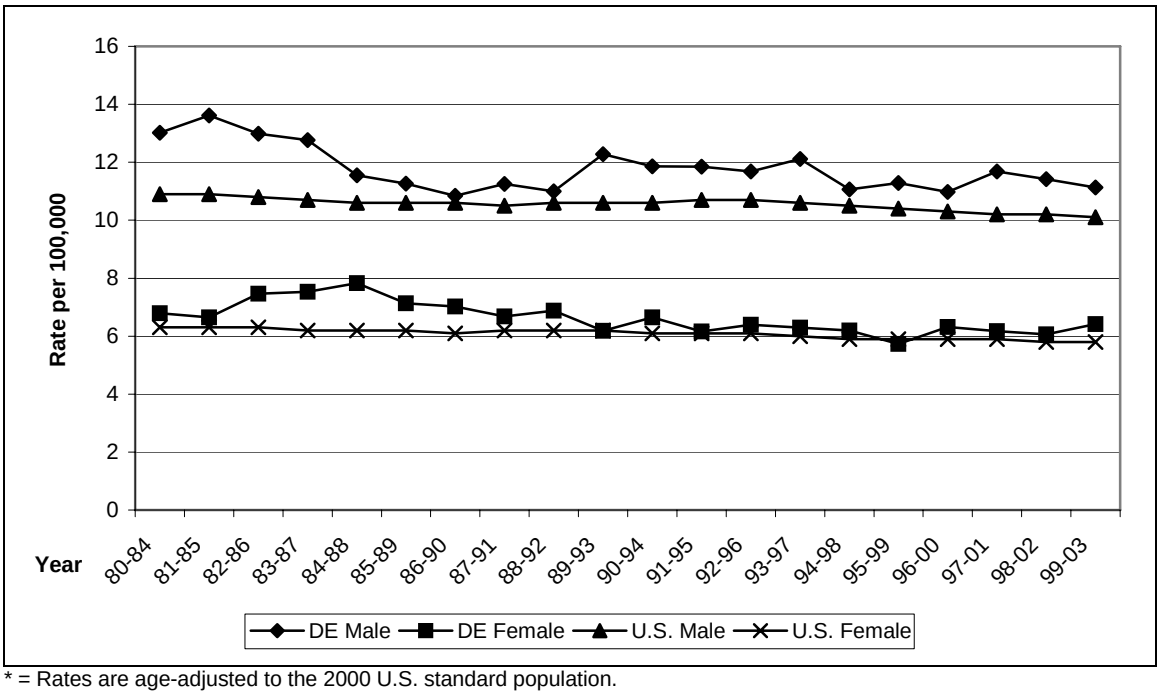
Table 8.5. Five-Year Average Age-Adjusted Leukemia Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	7.6 (7.5–7.6)	10.1 (10.0–10.2)	5.8 (5.7–5.9)
Delaware	8.3 (7.4–9.1)	11.1 (9.5–12.8)	6.4 (5.4–7.4)
Kent	9.1 (2.2–15.9)	12.2 (-1.6–26.1)	7.1 (-0.5–14.7)
New Castle	8.2 (4.9–11.5)	12.0 (4.3–19.7)	6.1 (2.9–9.3)
Sussex	7.8 (2.8–12.9)	8.5 (1.2–15.9)	6.7 (0.4–13.0)
CAUCASIAN			
United States	7.8 (7.7–7.8)	10.4 (10.3–10.5)	5.9 (5.9–6.0)
Delaware	8.4 (7.4–9.4)	10.9 (9.2–12.7)	6.8 (5.6–7.9)
Kent	8.6 (1.6–15.6)	11.0 (-2.9–24.9)	6.8 (-1.2–14.9)
New Castle	8.6 (5.0–12.2)	12.1 (3.9–20.2)	6.7 (3.1–10.4)
Sussex	7.7 (2.3–13.1)	8.4 (0.5–16.3)	6.6 (0.0–13.3)
AFRICAN-AMERICAN			
United States	6.7 (6.5–6.8)	8.8 (8.5–9.0)	5.3 (5.2–5.5)
Delaware	7.1 (4.8–9.5)	---	---
Kent	---	---	---
New Castle	---	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

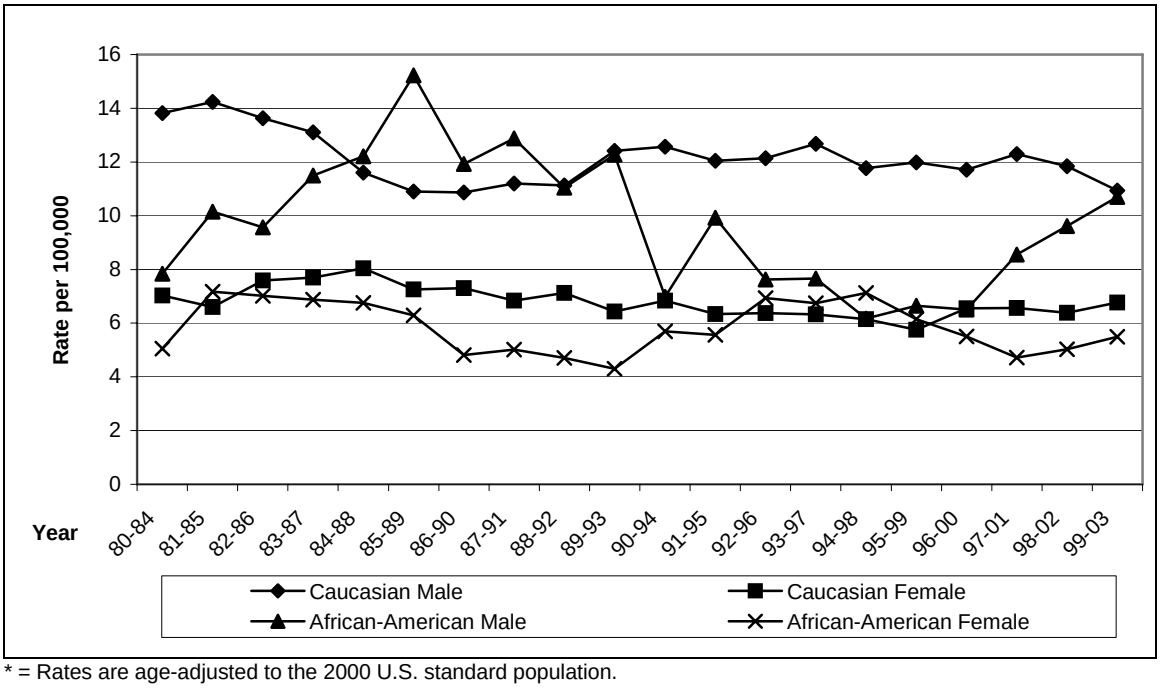
Figure 8.4. Five-Year Average Age-Adjusted Leukemia Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 8.5.Five-Year Average Age-Adjusted Leukemia Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Health Statistics Center, 2005.

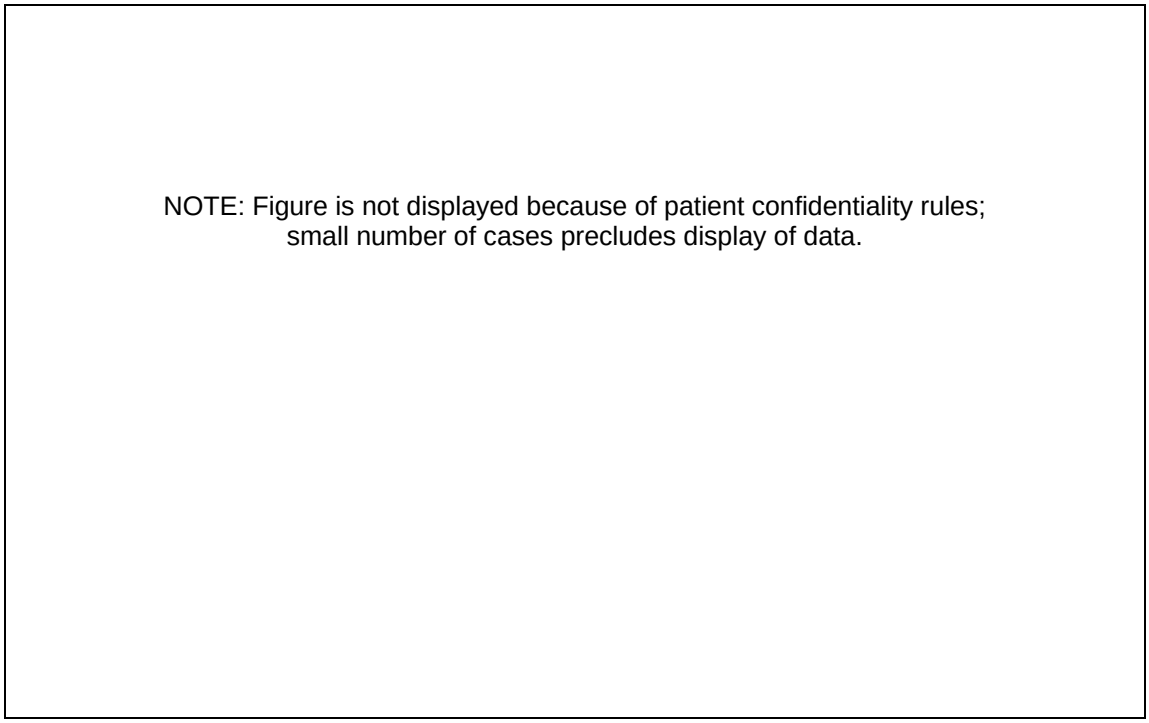
Table 8.6. Age-Specific Leukemia Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	---	---	---
40–64	5.4	5.7	5.2	5.5	6.0	5.2	---	---	---
65–74	33.6	43.2	25.4	35.5	45.5	26.7	---	---	---
75–84	56.9	87.9	36.0	59.2	92.4	36.6	---	---	---
85+	86.0	---	67.6	87.1	---	73.7	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 8.6. Age-Specific Leukemia Mortality Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Health Statistics Center, 2005.

9. Lung and Bronchus Cancer

Risk Factors

Risk Factors for Lung Cancer

- Tobacco use: cigarette, cigar, and pipe smoking (87 percent of lung cancers are estimated to be caused by smoking cigarettes, cigars, or pipes)
- Occupational or environmental exposures to asbestos, chromium, mustard gas, nickel, or other metals
- Exposure to secondhand smoke
- Exposure to radon gas
- Marijuana use
- Radiation therapy to the lungs
- Personal history of lung cancer

Possible Risk Factors for Lung Cancer

- Low intake of fruits and vegetables

Early Detection of Lung Cancer

There is currently no effective screening test for lung cancer. The American Cancer Society recommends that people at higher risk for lung cancer be aware of their risk.

Cigarette smoking is recognized as a risk factor in the development of numerous other cancers, including cervical, esophagus, kidney, larynx, oral cavity and pharynx, pancreas and urinary bladder. Although this document is about cancer in Delaware, it is important to note that cigarette smoking is the single most preventable cause of both morbidity and mortality from chronic diseases in the United States.

In the BRFSS survey, a “current cigarette smoker” was defined as a respondent who answered “every day” or “some days” to the question: “Do you now smoke cigarettes every day, some days, or not at all?”

Current Trends in Smoking in Delaware and the United States

Note: Current trends in smoking may be predictive of cancer rates in the 2030s. In the 1980s (i.e., the time period relevant to current lung and bronchus cancer rates), Delaware had smoking prevalence rates among the highest in the country; about one-third of Delaware adults smoked in the period 1979-1982. This rate declined to about 25 to 26 percent in the 1990s, and is now approaching 20 percent.

Smoking Trends in Delaware in 2005

- The prevalence of cigarette smoking in Delaware (20.7 percent) was comparable to prevalence in the U.S. (20.5 percent).
- More males in Delaware (22.5 percent) than females (19.0 percent) were cigarette smokers, and the same was true for the United States (22.1 percent and 19.2 percent, respectively).
- In Delaware, the prevalence of smoking is comparable between African Americans and Caucasians: 20.7 and 20.9 percent, respectively. For the United States, 20.7 percent of African Americans and 20.4 percent of Caucasians were current smokers.
- The prevalence of cigarette smoking was similar across all age groups between the ages of 18 and 54 in Delaware, with rates ranging from 23.6 to 26.1 percent. Prevalence was somewhat lower in the 55-64 age group (17.3 percent) and lowest in the 65 and older age group (7.9 percent).

- Smoking was highest in prevalence among those Delawareans with less than a high school education (35.8 percent), followed by those with a high school education (27.0 percent), and was lowest among college graduates (11.6 percent). U.S. data similarly showed that the prevalence of cigarette smoking decreased as level of education increased.
- In Delaware, smoking prevalence was comparable across all income groups under $50,000, ranging from 24.1 to 26.7 percent. Prevalence declined somewhat in the $50,000-$74,999 and equal to or greater than $75,000 income groups, which had rates of 18.2 and 16.6 percent, respectively.

Data Highlights

New Cancer Cases and Deaths (Tables 9.1 and 9.6)

- Lung cancer was the most commonly diagnosed cancer overall in Delaware and the second most commonly diagnosed cancer in males and in females.
- The 3,238 lung cancer cases during 1999–2003 in Delaware accounted for 15.6 percent of all cancer cases.
- The majority of lung cancer cases diagnosed during 1999–2003 were New Castle County residents (1,796 or 55.5 percent), followed by Sussex County (919 or 28.4 percent) and Kent County (519 or 16.0 percent) residents.
- Fifty-five percent (1,780) of lung cancer cases were males, and 45.0 percent (1,458) were females during 1999–2003.
- Caucasian residents made up 84.1 percent (2,723) of lung cancer cases in 1999–2003, and African Americans made up 14.3 percent (466); 21 cases were Hispanic residents, and 26 were from other race groups.
- Lung cancer was the primary cause of cancer deaths among Delaware males and females and accounted for about 30 percent of all cancer deaths during 1999–2003.
- During 1999–2003, 2,545 Delaware residents died from lung cancer, 1,447 males (56.9 percent) and 1,098 females (43.1 percent).
- Caucasian residents made up 2,143 (84.2 percent) of decedents, and African Americans made up 369 (14.5 percent); Hispanic residents made up 18 decedents, and 15 were from other race groups.
- Most decedents (1,387 or 54.5 percent) were residents of New Castle County, followed by Sussex County (716 or 28.1 percent) and Kent County (442 or 17.4 percent).

Incidence and Mortality Rates (Tables 9.2 and 9.5)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Lung cancer incidence in Delaware was 55 percent higher among males (97.9 per 100,000) than females (63.2 per 100,000) in 1999–2003.
- Delaware's overall lung cancer incidence rate was 21.7 percent higher than the U.S. estimate in 1999–2003.
- There was a greater racial disparity in Delaware among males than among females. African-American males (119.3 per 100,000) had a 25 percent higher rate, compared with Caucasian males (95.3 per 100,000).
- The 1999–2003 lung cancer mortality rate was 73 percent higher among males (81.1 per 100,000) than females (47.0 per 100,000) in Delaware.

- Lung cancer mortality was 16 percent higher among African Americans (70.4 per 100,000) than among Caucasians (60.5 per 100,000) in Delaware during 1999–2003.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Kent and Sussex Counties had similar overall lung cancer incidence rates (82.1 and 81.0 per 100,000, respectively), compared with New Castle County (75.0 per 100,000).
- Among males overall, incidence was highest in Kent County (107.0 per 100,000), while incidence among females was highest in Sussex County (65.2 per 100,000).
- African Americans in Delaware had a higher lung cancer incidence rate (86.0 per 100,000 in 1999–2003) than Caucasian residents (76.9 per 100,000).
- African-American and Caucasian females had comparable lung cancer incidence rates (63.4 and 63.6 per 100,000, respectively).
- Overall lung cancer mortality was highest in Kent County during 1999–2003 (70.5 per 100,000). African-American males living in Sussex County, however, had a higher lung cancer mortality rate (136.0 per 100,000) than any other race/sex group in any county.

Trends in Cancer Incidence and Mortality (Figures 9.1–9.2 and 9.6–9.7)

- Lung cancer incidence has decreased in Delaware in recent years in males, particularly among African Americans.
- Lung cancer incidence rates in Delaware among females, however, increased or remained the same.
- Lung cancer mortality rates have decreased among Caucasian and African-American males in Delaware and the United States since 1990–94.
- Delaware's mortality rates were higher than those for the United States for both males and females. In 1999–2003, the rates were 11.6 percent higher than the overall U.S. rates.

Age-Specific Incidence and Mortality Rates (Tables 9.3 and 9.8, Figures 9.3 and 9.8)

- The incidence of lung cancer increased as age increased, with a peak incidence at ages 75–84.
- The age-specific mortality rates from lung cancer peaked at ages 75–84 in men and women in Delaware.

Stage at Diagnosis of Lung Cancer (Tables 9.4–9.5, Figures 9.4–9.5)

- A total of 2,309 cases (71.3 percent of all lung cancers) were diagnosed in the late stages (i.e., regional or distant).
- In Delaware, a greater proportion of lung cancers were diagnosed in the local stage (18.9 percent), compared with the U.S. estimate (16.9 percent). Also, fewer lung cancers were diagnosed in the distant stage in Delaware (43.8 percent) than in the U.S. estimate (52.5 percent).
- Caucasian females were the most likely (21.7 percent) and African-American males the least likely (14.9 percent) to be diagnosed with lung cancer in the local stage.
- Caucasians were less likely than African Americans to be diagnosed with lung cancer in the late stages (70.3 percent and 76.6 percent, respectively).

Table 9.1. Number of Lung Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	3,238	1,780	1,458	2,723	1,483	1,240	466	268	198
Kent	519	299	220	435	249	186	75	44	31
New Castle	1,796	957	839	1,461	772	689	308	166	142
Sussex	919	522	397	824	462	364	83	58	25

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

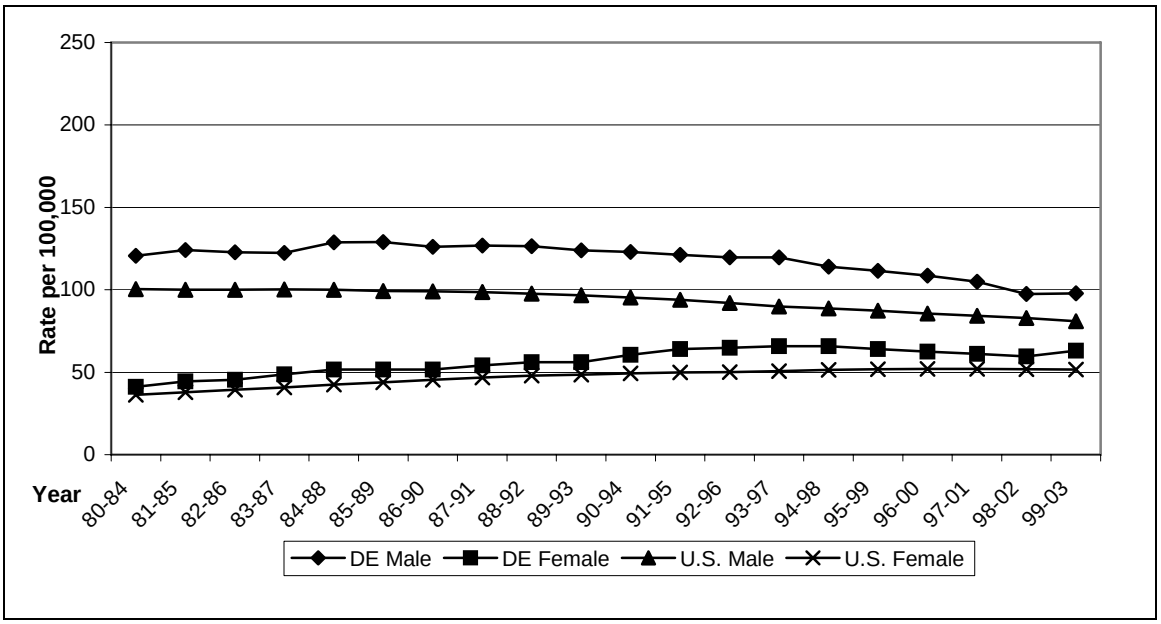
Table 9.2. Five-Year Average Age-Adjusted Lung Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	63.9 (63.4–64.3)	81.0 (80.3–81.8)	51.6 (51.1–52.1)
Delaware	77.8 (75.1–80.5)	97.9 (93.3–102.5)	63.2 (60.0–66.5)
Kent	82.1 (65.2–98.9)	107.0 (73.9–140.1)	63.2 (44.6–81.8)
New Castle	75.0 (66.5–83.6)	93.3 (76.7–110.0)	62.3 (52.4–72.1)
Sussex	81.0 (68.2–93.9)	101.6 (76.9–126.2)	65.2 (50.7–79.7)
CAUCASIAN			
United States	64.6 (64.1–65.1)	80.0 (79.2–80.9)	53.6 (53.0–54.2)
Delaware	76.9 (74.0–79.8)	95.3 (90.4–100.2)	63.6 (60.0–67.1)
Kent	83.9 (65.6–102.3)	108.6 (72.0–145.2)	65.4 (44.9–85.9)
New Castle	73.3 (64.1–82.4)	90.0 (72.5–107.5)	61.6 (50.9–72.2)
Sussex	80.6 (67.2–94.0)	98.5 (72.9–124.1)	67.0 (51.5–82.5)
AFRICAN-AMERICAN			
United States	80.5 (78.8–82.3)	115.0 (111.7–118.5)	57.2 (55.3–59.2)
Delaware	86.0 (78.0–94.0)	119.3 (104.1–134.5)	63.4 (54.5–72.3)
Kent	78.2 (31.6–124.8)	102.1 (17.7–186.5)	58.3 (8.1–108.4)
New Castle	87.5 (61.2–113.8)	116.0 (55.4–176.6)	69.9 (41.3–98.4)
Sussex	86.7 (39.1–134.2)	145.7 (41.7–249.7)	45.2 (3.0–87.4)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

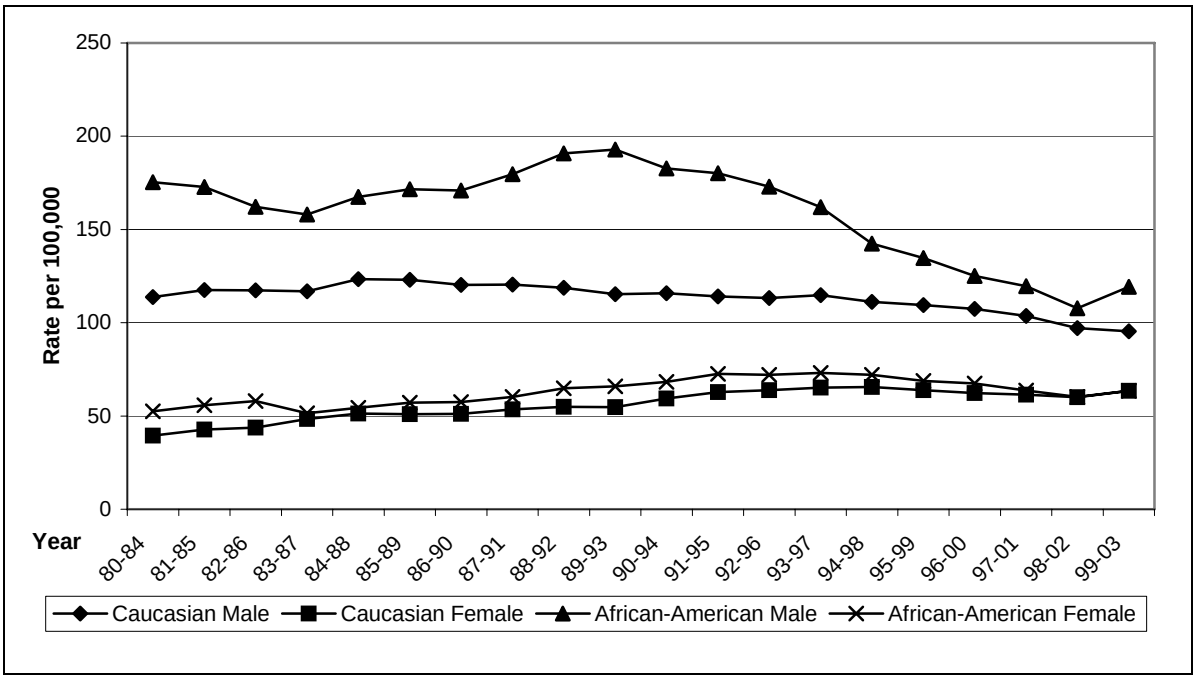
Figure 9.1. Five-Year Average Age-Adjusted Lung Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 9.2.Five-Year Average Age-Adjusted Lung Cancer Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

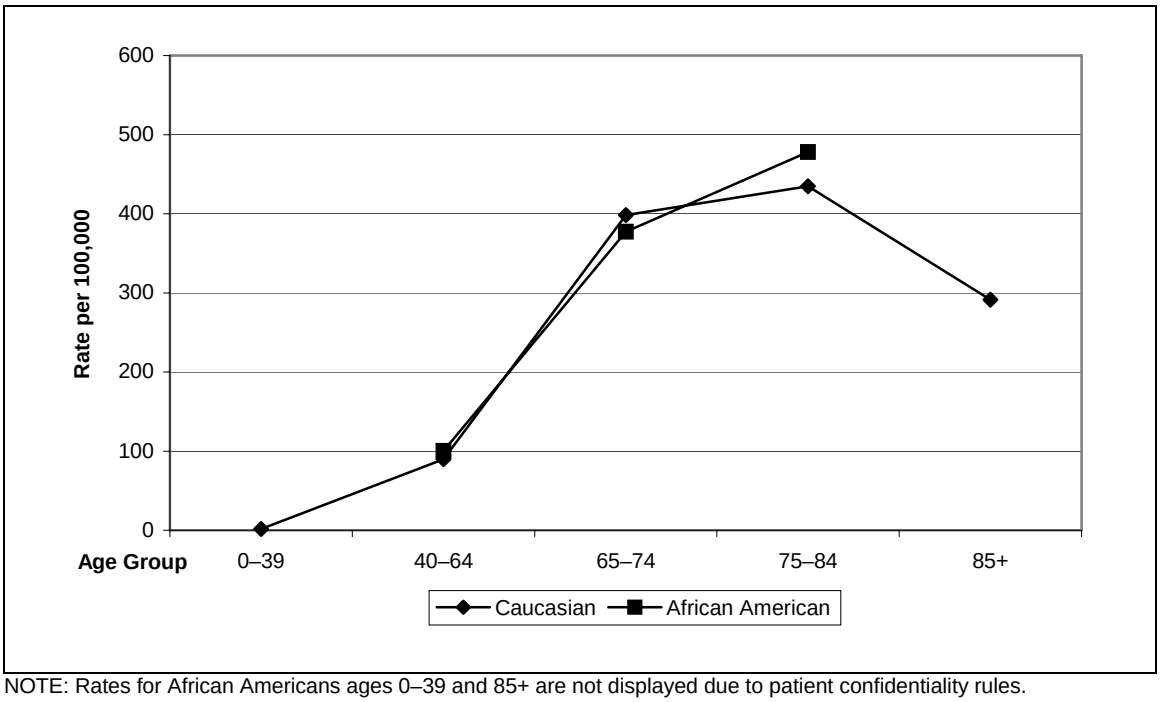
Table 9.3. Age-Specific Lung Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	1.7	---	---	1.80	---	---	---	---	---
40–64	90.1	103.6	77.5	89.7	100.1	79.9	100.4	132.3	73.5
65–74	393.3	484.7	314.9	398.3	486.0	322.0	377.2	476.6	300.6
75–84	439.5	571.1	351.0	434.9	551.6	355.7	478.3	765.5	303.0
85+	302.8	548.9	205.2	291.7	539.2	192.8	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 9.3.Age-Specific Lung Cancer Incidence Rates in Delaware, by Race: 1999–2003



NOTE: Rates for African Americans ages 0–39 and 85+ are not displayed due to patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 9.4. Number of Lung Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	613	302	311	529	260	269	79	40	39
Regional	892	478	414	739	388	351	142	83	59
Distant	1,417	836	581	1,175	691	484	215	129	86
Unknown	316	164	152	280	144	136	30	16	14
Total	3,238	1,780	1,458	2,723	1,483	1,240	466	268	198

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 9.5. Percentage of Lung Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	18.9	17.0	21.3	19.4	17.5	21.7	17.0	14.9	19.7
Regional	27.6	26.9	28.4	27.1	26.2	28.3	30.5	31.0	29.8
Distant	43.8	47.0	39.9	43.2	46.6	39.0	46.1	48.1	43.4
Unknown	9.8	9.2	10.4	10.2	9.7	11.0	6.4	6.0	7.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 9.4. Percentage of Lung Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 9.4a. Delaware: 1999–2003

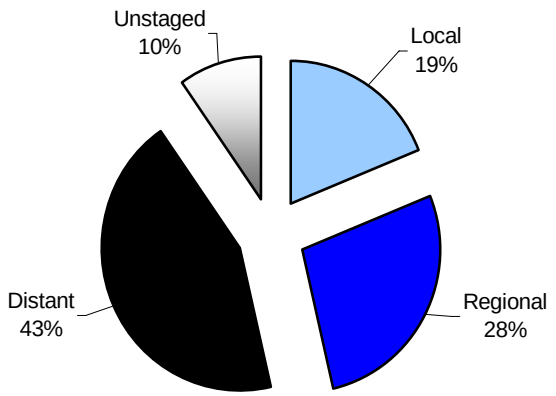
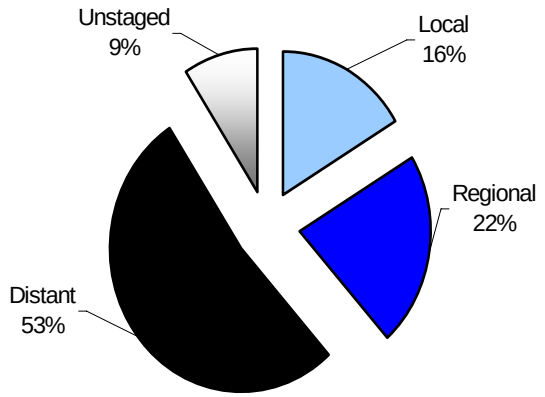
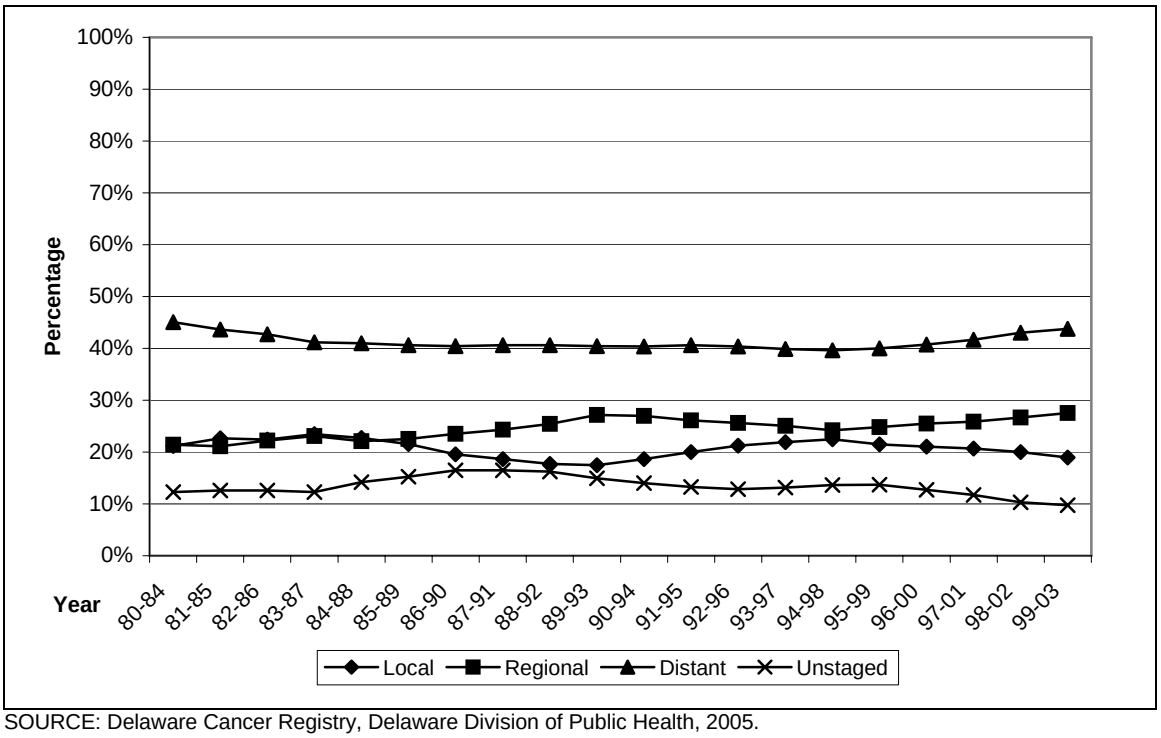


Figure 9.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 9.5. Percentage of Lung Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 9.6. Number of Lung Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	2,545	1,447	1,098	2,143	1,204	939	369	224	145
Kent	442	272	170	376	226	150	59	41	18
New Castle	1,387	774	613	1,139	632	507	232	130	102
Sussex	716	401	315	628	346	282	78	53	25

SOURCE: Delaware Health Statistics Center, 2005.

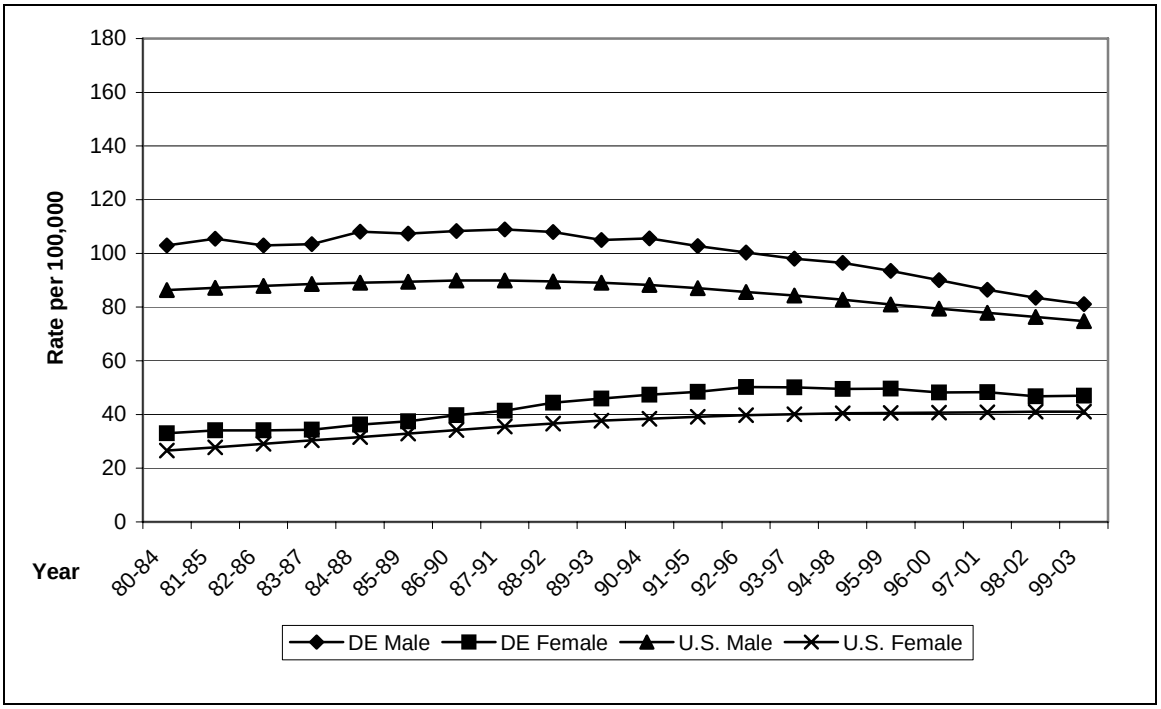
Table 9.7. Five-Year Average Age-Adjusted Lung Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	55.1 (55.0–55.2)	74.8 (74.5–75.0)	41.0 (40.9–41.2)
Delaware	61.5 (59.1–63.8)	81.1 (76.8–85.3)	47.0 (44.2–49.8)
Kent	70.5 (53.4–87.6)	100.3 (65.0–135.5)	48.5 (30.5–66.4)
New Castle	58.3 (50.3–66.3)	76.8 (60.9–92.6)	45.0 (36.0–54.0)
Sussex	63.5 (51.1–75.8)	79.5 (56.0–102.9)	51.0 (36.7–65.3)
CAUCASIAN			
United States	55.3 (55.2–55.4)	73.8 (73.6–74.0)	42.0 (41.8–42.1)
Delaware	60.5 (57.9–63.0)	78.4 (73.9–83.0)	47.1 (44.1–50.1)
Kent	72.7 (54.0–91.5)	101.6 (62.5–140.7)	52.0 (32.2–71.9)
New Castle	56.9 (48.4–65.5)	74.3 (57.7–90.8)	44.2 (34.6–53.9)
Sussex	61.5 (48.7–74.2)	75.2 (51.1–99.3)	50.9 (36.0–65.8)
AFRICAN-AMERICAN			
United States	63.0 (62.5–63.4)	98.4 (97.6–99.3)	39.8 (39.4–40.3)
Delaware	70.4 (63.0–77.7)	103.3 (88.9–117.7)	47.7 (39.9–55.6)
Kent	61.3 (17.7–104.9)	90.5 (12.1–169.0)	---
New Castle	69.1 (44.2–94.0)	97.5 (39.6–155.5)	51.6 (25.2–78.0)
Sussex	82.4 (31.6–133.1)	136.0 (28.6–243.4)	45.0 (-4.8–94.7)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

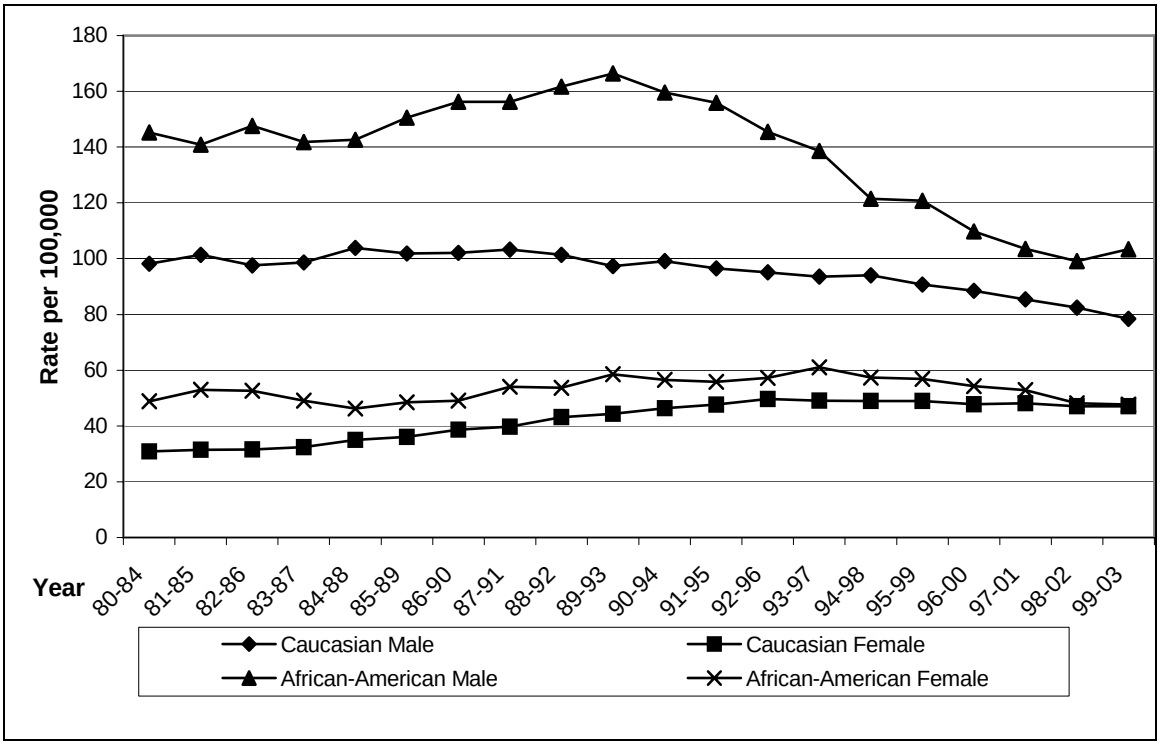
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 9.6. Five-Year Average Age-Adjusted Lung Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 9.7.Five-Year Average Age-Adjusted Lung Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population. SOURCE: Delaware Health Statistics Center, 2005

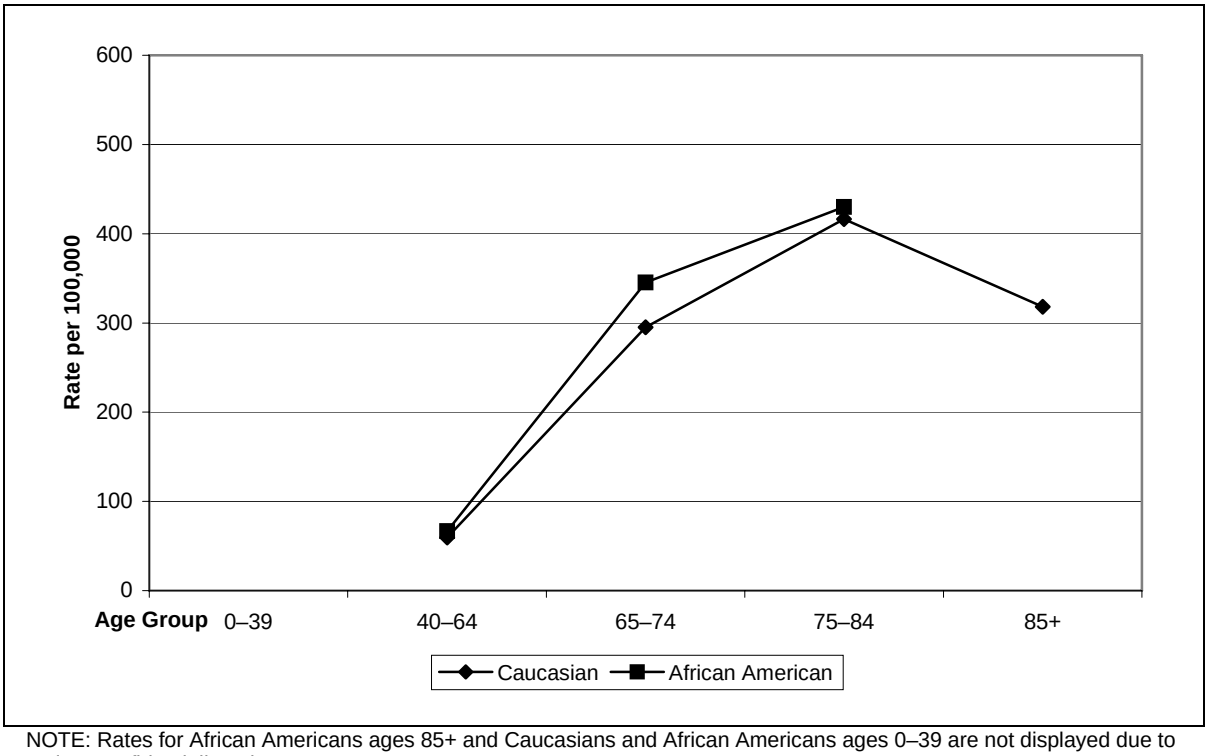
Table 9.8. Age-Specific Lung Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	---	0.0	---
40–64	60.0	73.3	47.6	59.6	71.0	49.3	66.6	92.9	44.4
65–74	297.4	390.7	217.3	295.1	384.3	217.4	345.5	483.3	239.5
75–84	417.5	550.5	327.9	416.2	534.6	335.8	430.0	694.6	268.4
85+	331.5	536.3	250.2	318.0	517.9	238.1	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 9.8. Age-Specific Lung Cancer Mortality Rates in Delaware, by Race: 1999–2003



NOTE: Rates for African Americans ages 85+ and Caucasians and African Americans ages 0–39 are not displayed due to patient confidentiality rules.

SOURCE: Delaware Health Statistics Center, 2005.

10. Malignant Melanoma

Risk Factors and Early Detection

Risk Factors for Malignant Melanoma

- Exposure to sunlight or artificial ultra-violet light
- One or more large or uneven moles
- Fair skin, light hair, blue eyes and freckling
- Previous malignant melanoma
- Family history of malignant melanoma
- Increasing age
- Immune suppression

Early Detection of Malignant Melanoma

- Self-examination of skin
- Physician examination of skin in high-risk individuals

Data Highlights

New Cancer Cases and Deaths (Tables 10.1 and 10.6)

- There were 674 cases of malignant melanoma among Delaware residents during 1999–2003, 394 cases (58.5 percent) in males and 280 (41.5 percent) in females.
- The majority of malignant melanoma cases during 1999–2003 were diagnosed among New Castle County residents (433 or 64.2 percent), followed by Sussex County (173 or 25.7 percent) and Kent County (65 or 9.6 percent) residents.
- Almost all malignant melanoma cases in 1999–2003 occurred among Caucasian residents (624 or 92.6 percent).
- During 1999–2003, 130 Delaware residents died from malignant melanoma, and the majority of deaths (66.2 percent) occurred among males.
- Almost all decedents were Caucasian (127 or 97.7 percent).
- A total of 83 (63.9 percent) decedents were from New Castle County, 32 (24.6 percent) were from Sussex County, and 15 (11.5 percent) were from Kent County.

Incidence and Mortality Rates (Tables 10.2 and 10.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Delaware had a lower incidence rate of melanoma in 1999–2003, compared with the United States.
- During 1999–2003, the malignant melanoma incidence rate was 69 percent higher among males (21.6 per 100,000) than females (12.8 per 100,000).
- Delaware's 1999–2003 malignant melanoma mortality rate was higher among males (5.0 per 100,000) than females (2.0 per 100,000).

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Malignant melanoma incidence was highest in Caucasian males in New Castle County (26.9 per 100,000).

Trends in Cancer Incidence and Mortality (Figures 10.1–10.2 and 10.6–10.7)

- Since 1990–94, Delaware's malignant melanoma incidence rate was lower than the U.S. estimate in both men and women.
- Malignant melanoma increased at a greater rate among Caucasian males than females in Delaware.
- Although Delaware's incidence was lower than that of the United States, Delaware's mortality rate from malignant melanoma was higher than the U.S. rate for both males and females. The gap between Delaware and U.S. rates narrowed among females and widened among males.

Age-Specific Incidence and Mortality Rates (Tables 10.3 and 10.8, Figures 10.3 and 10.8)

- The age-specific incidence rates showed that the incidence of malignant melanoma increased with age.

Stage at Diagnosis of Malignant Melanoma (Tables 10.4–10.5, Figures 10.4–10.5)

- In Delaware, proportionally fewer malignant melanoma cases were diagnosed in the local stage in 1999–2003 (79.4 percent), compared with the U.S. estimate for 1999–2003 (86.0 percent).
- Delaware had larger proportions of cases diagnosed in the regional (8.5 percent) and distant stages (3.9 percent) than the United States (7.6 percent and 3.3 percent, respectively). In Delaware, there were more unstaged malignant melanoma cases, compared with the United States (8.3 and 3.2 percent, respectively).
- From 1980–84 to 1999–2003, the proportions of local, regional, and distant stages of malignant melanoma did not change appreciably.

Table 10.1. Number of Malignant Melanoma Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	674	394	280	624	374	250	< 6	< 6	< 6
Kent	65	38	27	59	36	23	0	0	0
New Castle	433	248	185	400	235	165	< 6	< 6	< 6
Sussex	173	106	67	163	102	61	0	0	0

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

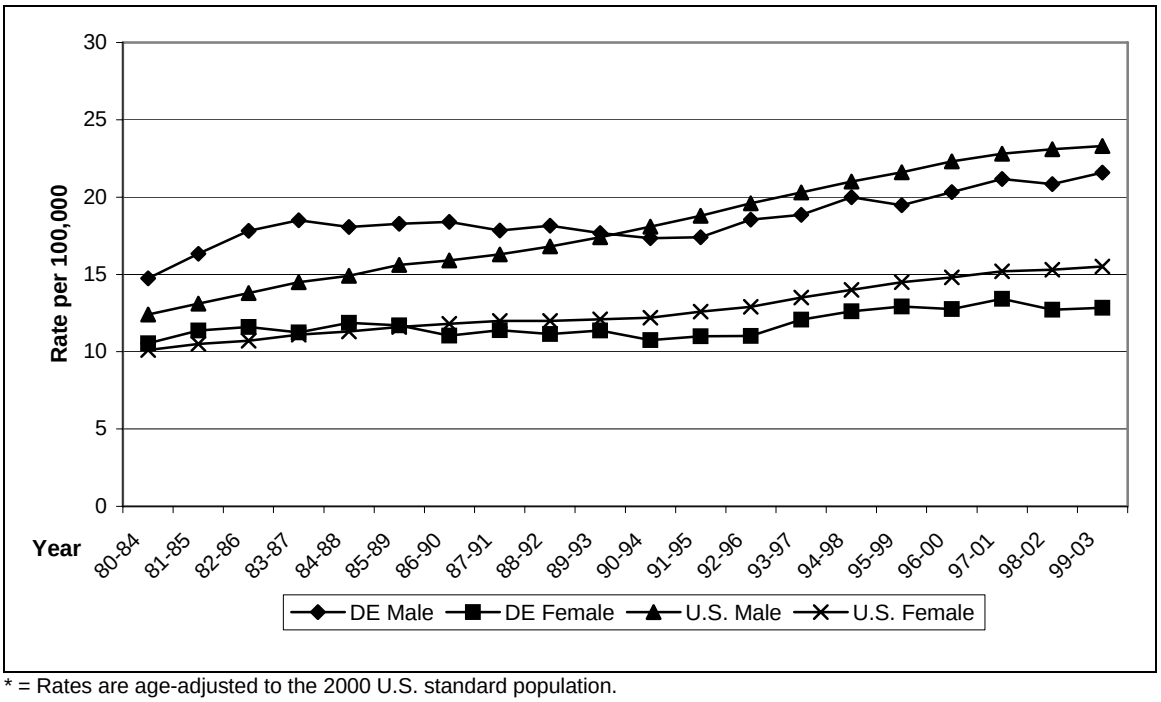
Table 10.2. Five-Year Average Age-Adjusted Malignant Melanoma Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	18.7 (18.5–18.9)	23.3 (22.9–23.7)	15.5 (15.2–15.8)
Delaware	16.4 (15.2–17.7)	21.6 (19.4–23.7)	12.8 (11.3–14.4)
Kent	10.3 (4.4–16.3)	14.1 (-0.0–28.2)	8.1 (3.4–12.7)
New Castle	17.7 (14.0–21.3)	23.4 (15.4–31.4)	13.9 (10.1–17.6)
Sussex	17.2 (11.9–22.4)	20.6 (11.4–29.8)	14.4 (8.5–20.4)
CAUCASIAN			
United States	22.4 (22.1–22.7)	27.4 (27.0–27.9)	19.0 (18.6–19.3)
Delaware	18.6 (17.1–20.0)	24.4 (21.9–26.9)	14.4 (12.6–16.2)
Kent	11.6 (4.7–18.6)	16.5 (-0.5–33.4)	---
New Castle	20.4 (16.2–24.5)	26.9 (17.9–35.9)	15.9 (11.6–20.2)
Sussex	18.6 (12.9–24.4)	23.1 (13.0–33.2)	15.6 (9.0–22.2)
AFRICAN-AMERICAN			
United States	0.9 (0.7–1.1)	1.3 (0.9–1.7)	0.7 (0.5–0.9)
Delaware	---	---	---
Kent	---	---	---
New Castle	---	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

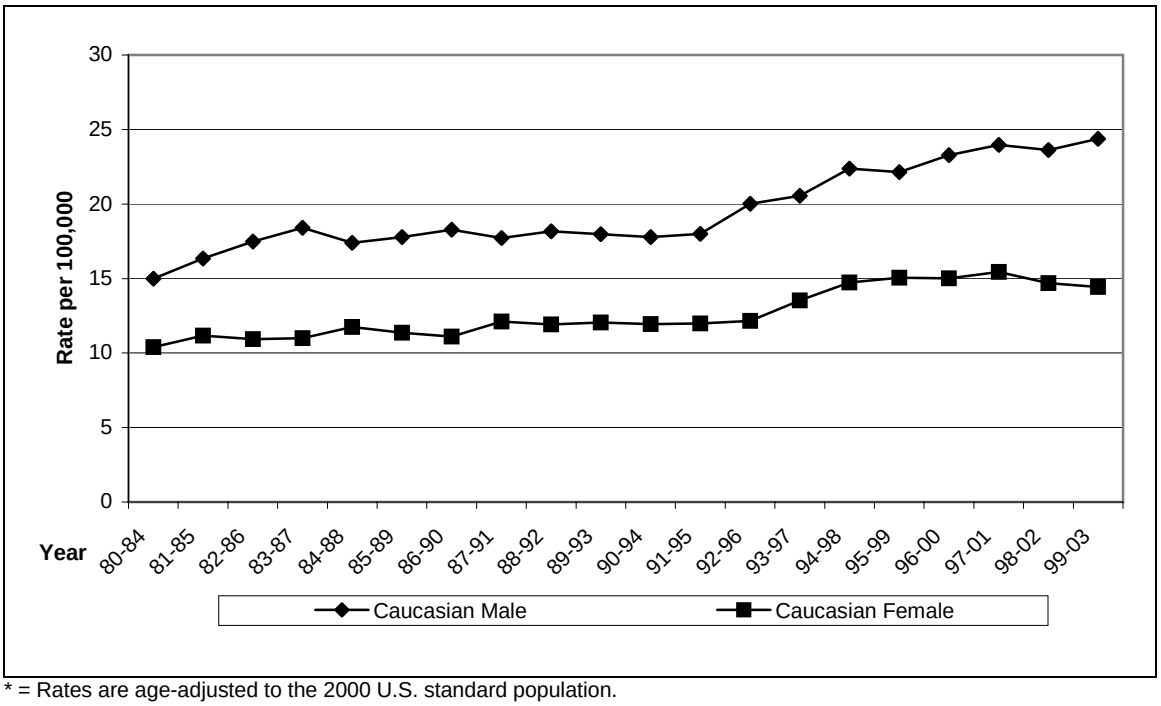
Figure 10.1. Five-Year Average Age-Adjusted Malignant Melanoma Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 10.2.Five-Year Average Age-Adjusted Malignant Melanoma Incidence Rates* in Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 10.3. Age-Specific Malignant Melanoma Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	3.8	2.5	5.1	4.8	3.2	6.4	0.00	0.00	0.00
40–64	24.1	28.3	20.0	27.8	33.8	22.0	---	0.00	---
65–74	53.6	82.7	28.6	58.3	90.2	30.5	---	---	0.00
75–84	56.9	92.0	33.3	62.9	100.2	37.7	0.00	0.00	0.00
85+	64.5	---	---	68.9	141.9	39.7	0.00	0.0	0.0

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 10.3. Age-Specific Malignant Melanoma Incidence Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Malignant Melanoma by Stage at Diagnosis

Table 10.4. Number of Malignant Melanoma Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	535	307	228	495	290	205	< 6	< 6	< 6
Regional	57	39	18	57	39	18	0	0	0
Distant	26	16	10	26	16	10	0	0	0
Unknown	56	32	24	46	29	17	0	0	0
Total	674	394	280	624	374	250	< 6	< 6	< 6

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 10.5. Percentage of Malignant Melanoma Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	79.4	77.9	81.4	79.3	77.5	82.0	---	---	---
Regional	8.5	9.9	6.4	9.11	10.4	7.2	0	0	0
Distant	3.9	4.1	3.6	4.2	4.3	4.0	0	0	0
Unknown	8.3	8.1	8.6	7.4	7.8	6.8	0	0	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	---	---	---

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 10.4. Percentage of Malignant Melanoma Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 10.4a. Delaware: 1999–2003

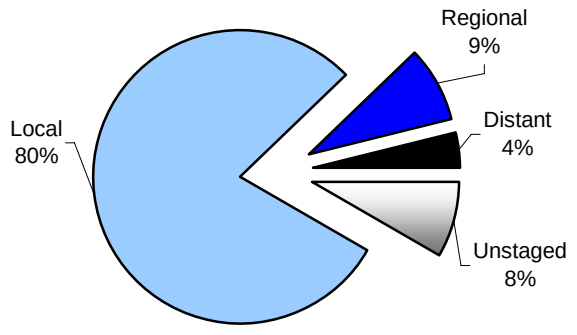
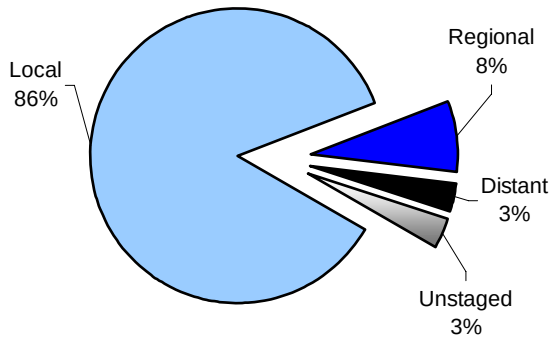
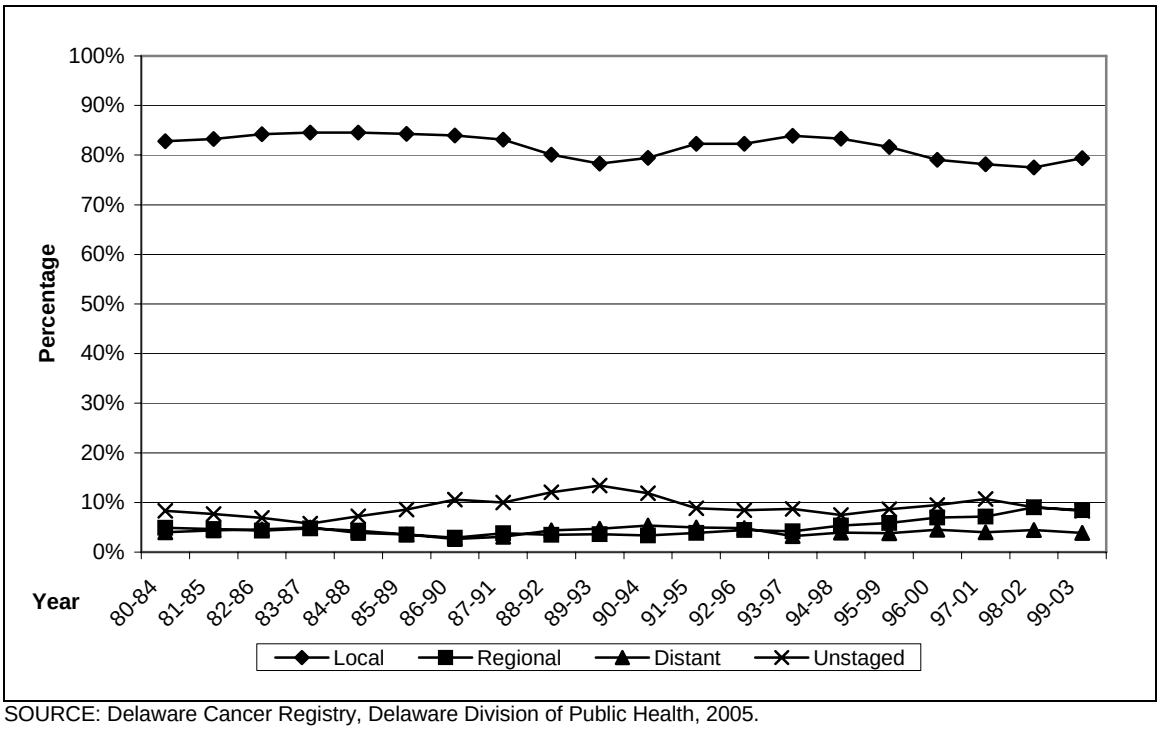


Figure 10.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 10.5. Percentage of Malignant Melanoma Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 10.6. Number of Malignant Melanoma Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	130	86	44	127	84	43	< 6	< 6	< 6
Kent	15	10	< 6	15	10	< 6	0	0	0
New Castle	83	54	29	81	53	28	< 6	< 6	< 6
Sussex	32	22	10	31	21	10	< 6	< 6	0

SOURCE: Delaware Health Statistics Center, 2005.

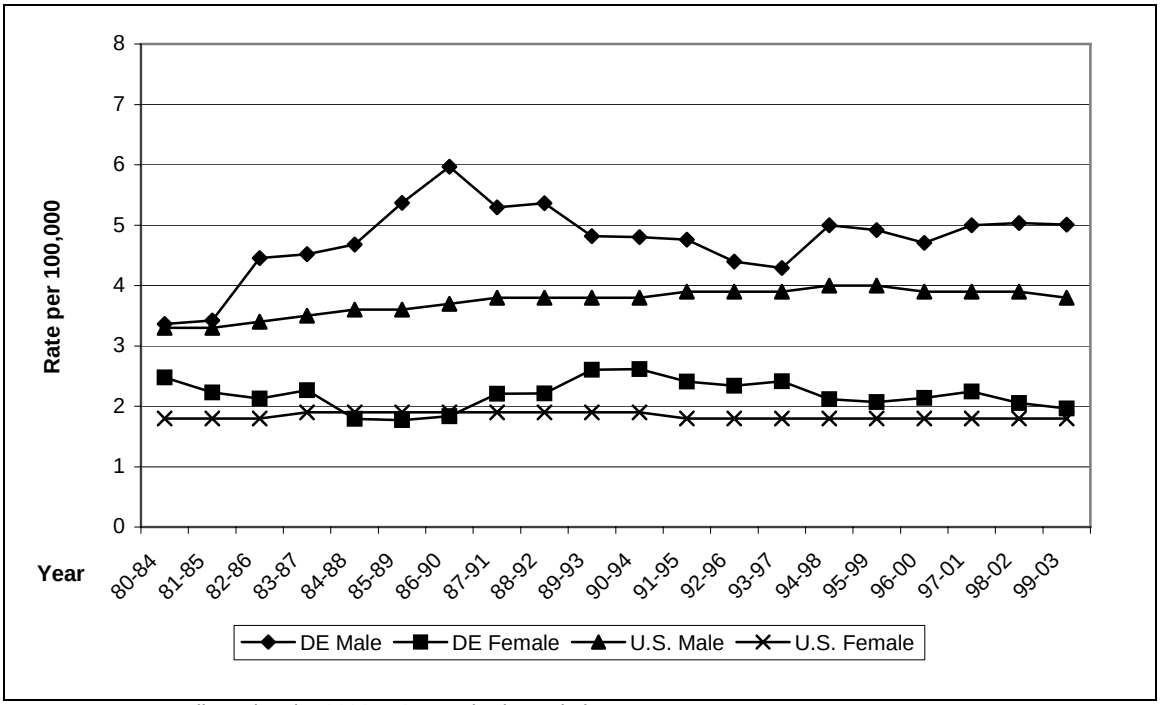
Table 10.7. Five-Year Average Age-Adjusted Malignant Melanoma Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	2.6 (2.6–2.7)	3.8 (3.8–3.9)	1.8 (1.7–1.8)
Delaware	3.2 (2.6–3.7)	5.0 (3.9–6.1)	2.0 (1.4–2.5)
Kent	---	---	---
New Castle	3.5 (1.6–5.4)	5.4 (1.0–9.9)	2.2 (0.5–3.8)
Sussex	3.0 (0.5–5.4)	4.6 (-0.9–10.2)	1.8 (-0.3–4.0)
CAUCASIAN			
United States	3.0 (3.0–3.0)	4.3 (4.3–4.4)	2.0 (2.0–2.0)
Delaware	3.7 (3.0–4.3)	5.7 (4.4–6.9)	2.4 (1.6–3.1)
Kent	---	---	---
New Castle	4.1 (1.9–6.2)	6.3 (1.2–11.3)	2.6 (0.6–4.5)
Sussex	3.4 (0.7–6.0)	---	---
AFRICAN-AMERICAN			
United States	0.4 (0.4–0.5)	0.5 (0.4–0.5)	0.4 (0.4–0.5)
Delaware	---	---	---
Kent	0	0	0
New Castle	---	---	---
Sussex	---	---	0

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

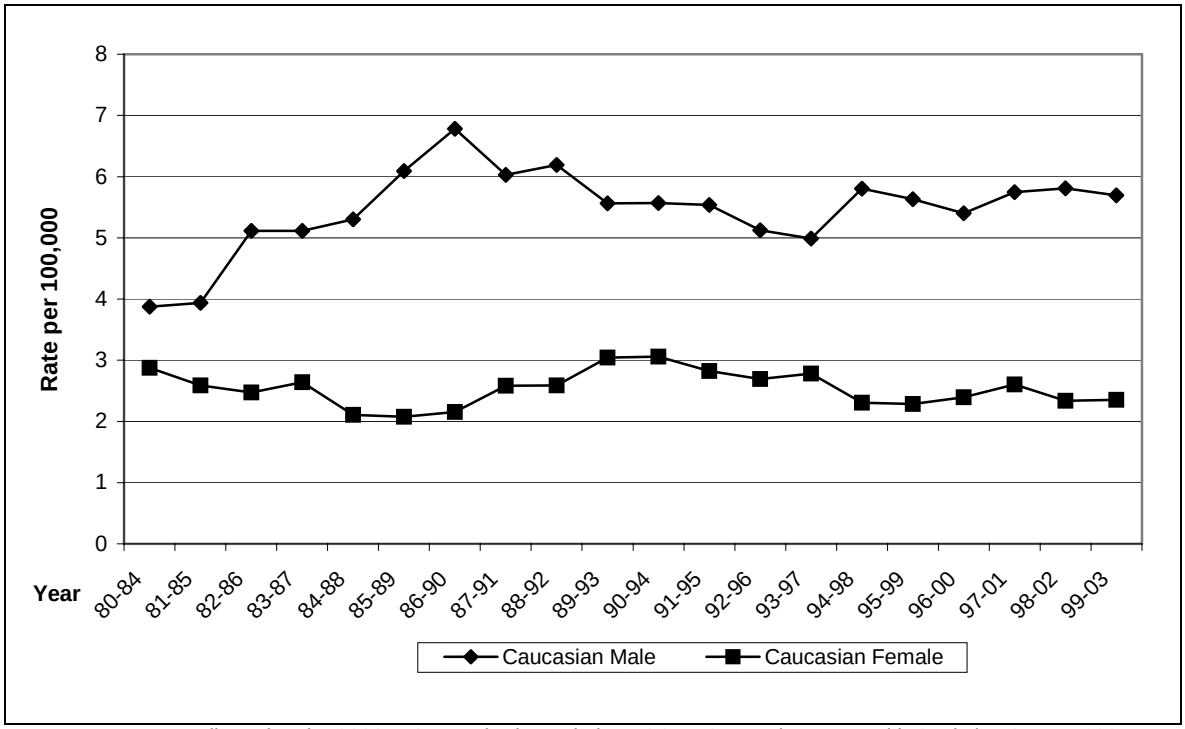
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 10.6. Five-Year Average Age-Adjusted Malignant Melanoma Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 10.7.Five-Year Average Age-Adjusted Malignant Melanoma Mortality Rates* in Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population. SOURCE: Delaware Health Statistics Center, 2005.

Table 10.8. Age-Specific Malignant Melanoma Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	0.0	0.0	0.0
40–64	3.9	4.4	---	4.8	5.5	---	---	0.0	---
65–74	12.3	22.0	---	13.9	24.5	---	---	---	0.0
75–84	17.7	---	---	19.3	---	---	---	---	0.0
85+	---	---	---	---	---	---	0.0	0.0	0.0

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 10.8. Age-Specific Malignant Melanoma Mortality Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Health Statistics Center, 2005.

11. Ovarian Cancer

Risk Factors

Risk Factors for Ovarian Cancer

- Increasing age
- Family history of cancer of the uterus, colon, or breast
- Mother, sister, or daughter with ovarian cancer
- Personal history of breast cancer
- Inherited mutation in BRCA1 or BRCA2 genes
- Obesity
- No history of oral contraceptive use or use for fewer than five years
- Never giving birth

Possible Risk Factors for Ovarian Cancer

- Fertility drugs
- Talc exposure
- Smoking and alcohol use
- Hormone replacement therapy in postmenopausal females

Early Detection of Ovarian Cancer

There is currently no reliable way to identify ovarian cancer early. Females are encouraged to have regular health examinations.

Data Highlights

New Cancer Cases and Deaths (Tables 11.1 and 11.6)

- Ovarian cancer accounted for 3.2 percent of all cancers among females in Delaware during 1999–2003.
- Caucasian residents made up 86.0 percent (277) of the 322 ovarian cancer cases in 1999–2003, and African-American residents made up 11.0 percent (35); six cases were diagnosed among other race groups in Delaware.
- The majority of ovarian cancer cases during 1999–2003 were diagnosed among New Castle County residents (199 or 61.8 percent), followed by Sussex County (74 or 23.0 percent) and Kent County (46 or 14.3 percent) residents.
- During 1999–2003, 211 Delaware residents died from ovarian cancer; 188 (89.1 percent) decedents were Caucasian, and 16 (7.6 percent) were African-American.
- A total of 125 (59.2 percent) decedents were from New Castle County, 54 (25.6 percent) were from Sussex County, and 32 (15.2 percent) were from Kent County.
- Differences in ovarian cancer mortality patterns by race were difficult to identify due to the small number of deaths among African-American females in Delaware.

Incidence and Mortality Rates (Tables 11.2 and 11.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Caucasian female Delaware residents in 1999–2003 had a 57 percent higher ovarian cancer incidence rate (15.1 per 100,000) than African-American females (9.6 per 100,000).
- Ovarian cancer mortality rates in Delaware are difficult to compare by race due to the small number of deaths among African-American females.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- In 1999–2003, the overall ovarian cancer incidence was highest in Caucasian females in New Castle County (15.7 per 100,000).
- Delaware's 1999–2003 age-adjusted ovarian cancer mortality rate was similar to the U.S. rate (9.1 per 100,000 and 8.9 per 100,000, respectively).

Trends in Cancer Incidence and Mortality (Figures 11.1–11.2 and 11.6–11.7)

- Delaware's overall ovarian cancer incidence rate has been higher than the U.S. estimate since 1984–88 and was 3.4 percent higher than the U.S. estimate in 1999–2003.
- Delaware's ovarian cancer incidence rate increased from 1980–84 to 1992–96, but since then the rates in both Delaware and the United States have declined.

Age-Specific Incidence and Mortality Rates (Tables 11.3 and 11.8, Figures 11.3 and 11.8)

- In Delaware, age-specific mortality from ovarian cancer increased with age.

Stage at Diagnosis of Ovarian Cancer (Tables 11.4–11.5, Figures 11.4–11.5)

- Most ovarian cancer cases in Delaware were diagnosed either in the local (21.7 percent) or distant (55.6 percent) stages.
- The proportion of distant stage ovarian cancers was higher among African-American (60 percent) than Caucasian (54.2 percent) females.
- A higher proportion of Caucasian (22.4 percent) than African-American (20.0 percent) females had local stage ovarian cancer at the time of diagnosis.
- The proportion of ovarian cancer cases diagnosed in the distant stage was stable from 1980–84 to 1999–2003.
- In Delaware during 1999–2003, more ovarian cancers were diagnosed in the local stage (21.7 percent), compared with the U.S. estimate of 14.3 percent for 1999–2003.
- The proportions of cases diagnosed in the regional (15.2 percent) and distant stages (55.6 percent) in Delaware were lower than the U.S. estimates (17.4 percent and 61.5 percent, respectively).

Ovarian Cancer Incidence

Table 11.1. Number of Ovarian Cancer Cases in Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
Delaware	322	277	35
Kent	46	36	8
New Castle	199	168	24
Sussex	74	70	< 6

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

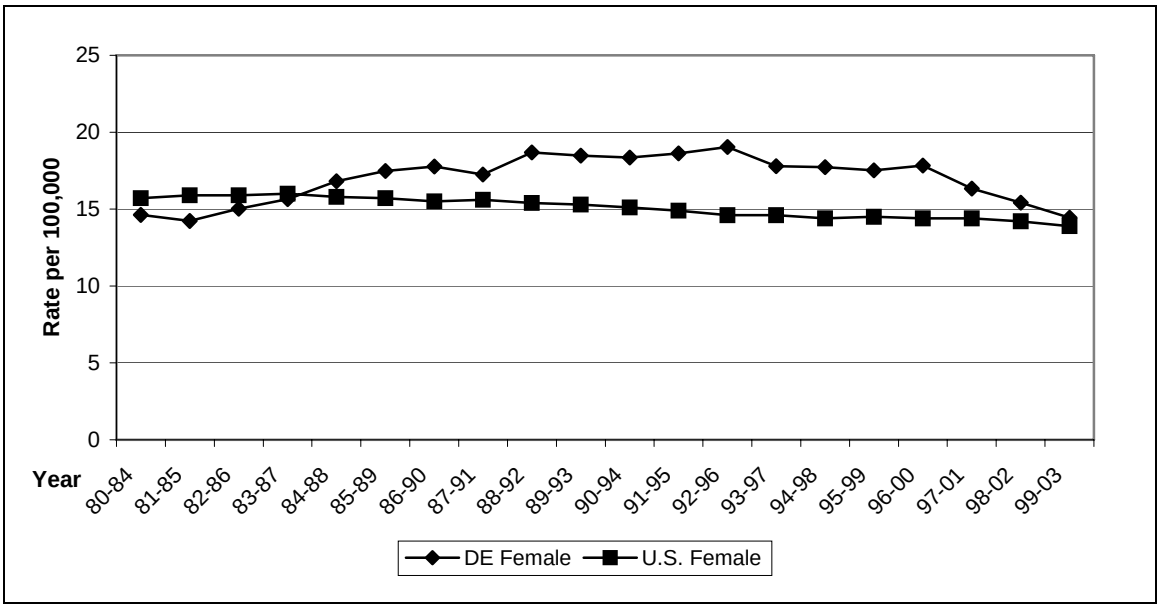
Table 11.2. Five-Year Average Age-Adjusted Ovarian Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
United States	13.9 (13.7–14.2)	14.7 (14.4–15.0)	10.5 (9.7–11.3)
Delaware	14.4 (12.8–16.0)	15.1 (13.3–16.8)	9.6 (6.4–12.9)
Kent	13.4 (5.4–21.4)	14.7 (5.6–23.8)	---
New Castle	14.9 (10.7–19.0)	15.7 (10.9–20.4)	---
Sussex	12.7 (6.6–18.8)	14.5 (7.7–21.3)	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005;
U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

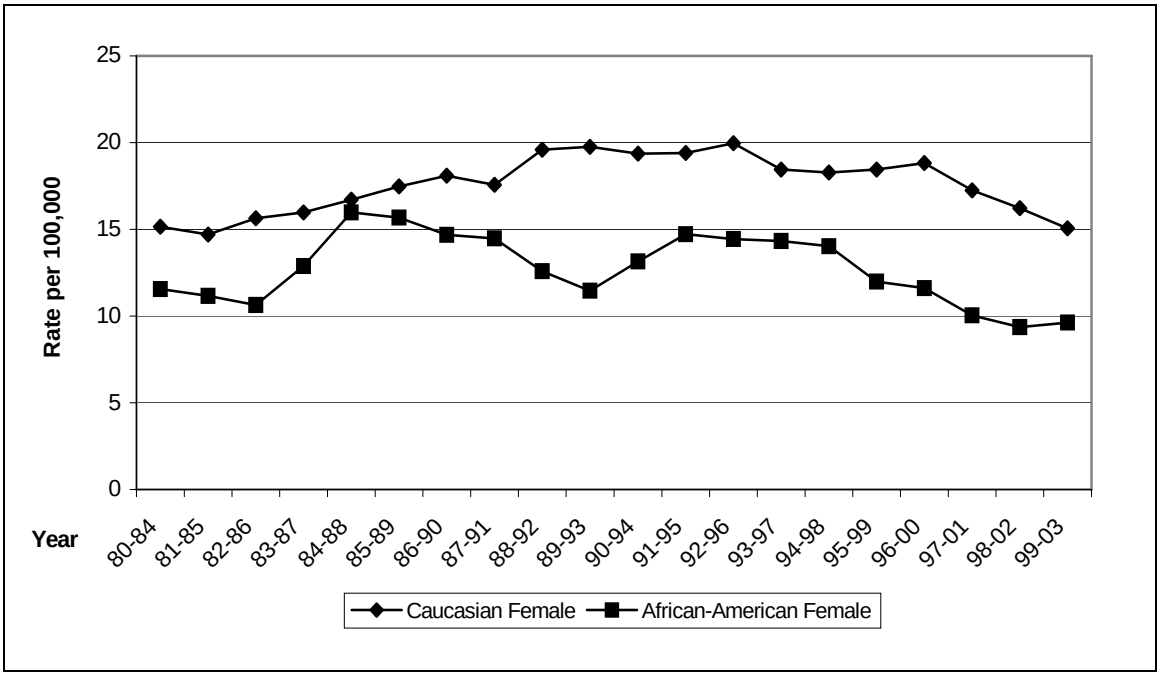
Figure 11.1. Five-Year Average Age-Adjusted Ovarian Cancer Incidence Rates* in the United States (Estimates) and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 11.2. Five-Year Average Age-Adjusted Ovarian Cancer Incidence Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 11.3. Age-Specific Ovarian Cancer Incidence Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	---	---	---
40–64	25.1	26.0	---
65–74	47.5	50.4	---
75–84	48.0	51.3	---
85+	---	---	0.00

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 11.3. Age-Specific Ovarian Cancer Incidence Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Ovarian Cancer by Stage at Diagnosis

Table 11.4. Number of Ovarian Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	70	62	7
Regional	49	43	< 6
Distant	179	150	21
Unknown	24	22	< 6
Total	322	277	35

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 11.5. Percentage of Ovarian Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Female	Caucasian Female	African-American Female
Local	21.7	22.4	20.0
Regional	15.2	15.5	---
Distant	55.6	54.2	60.0
Unknown	7.5	7.9	---
Total	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 11.4. Percentage of Ovarian Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 11.4a. Delaware: 1999–2003

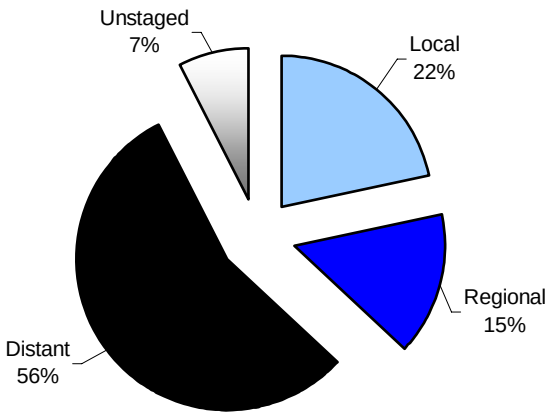
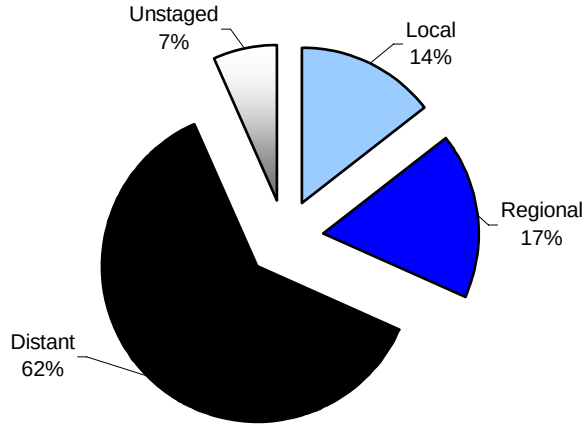
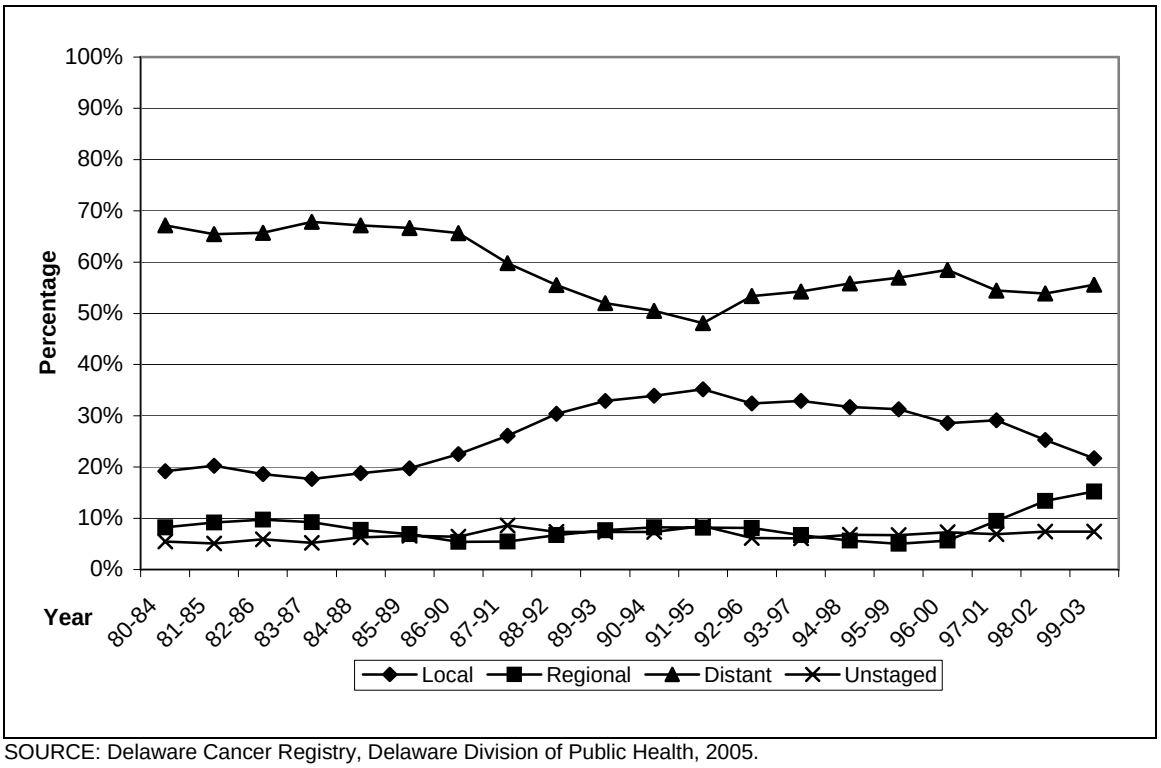


Figure 11.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 11.5. Percentage of Ovarian Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Ovarian Cancer Mortality

Table 11.6. Number of Ovarian Cancer Deaths in Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
Delaware	211	188	16
Kent	32	25	6
New Castle	125	12	8
Sussex	54	52	< 6

SOURCE: Delaware Health Statistics Center, 2005.

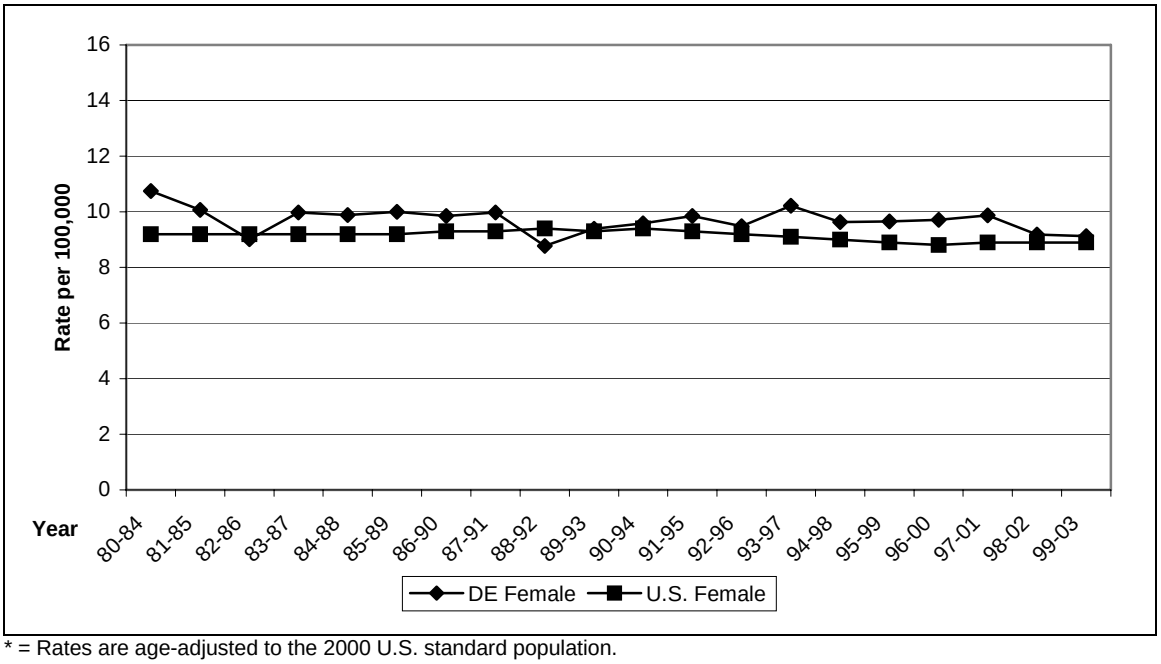
Table 11.7. Five-Year Average Age-Adjusted Ovarian Cancer Mortality Rates* in the United States, Delaware and Counties, by Race: 1999–2003

	All Female	Caucasian Female	African-American Female
United States	8.9 (8.8–9.0)	9.2 (9.2–9.3)	7.4 (7.2–7.6)
Delaware	9.1 (7.9–10.4)	9.7 (8.3–11.0)	---
Kent	9.2 (2.0–16.3)	8.7 (0.9–16.4)	---
New Castle	9.2 (5.3–13.1)	---	---
Sussex	9.2 (3.0–15.3)	10.1 (3.3–16.9)	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

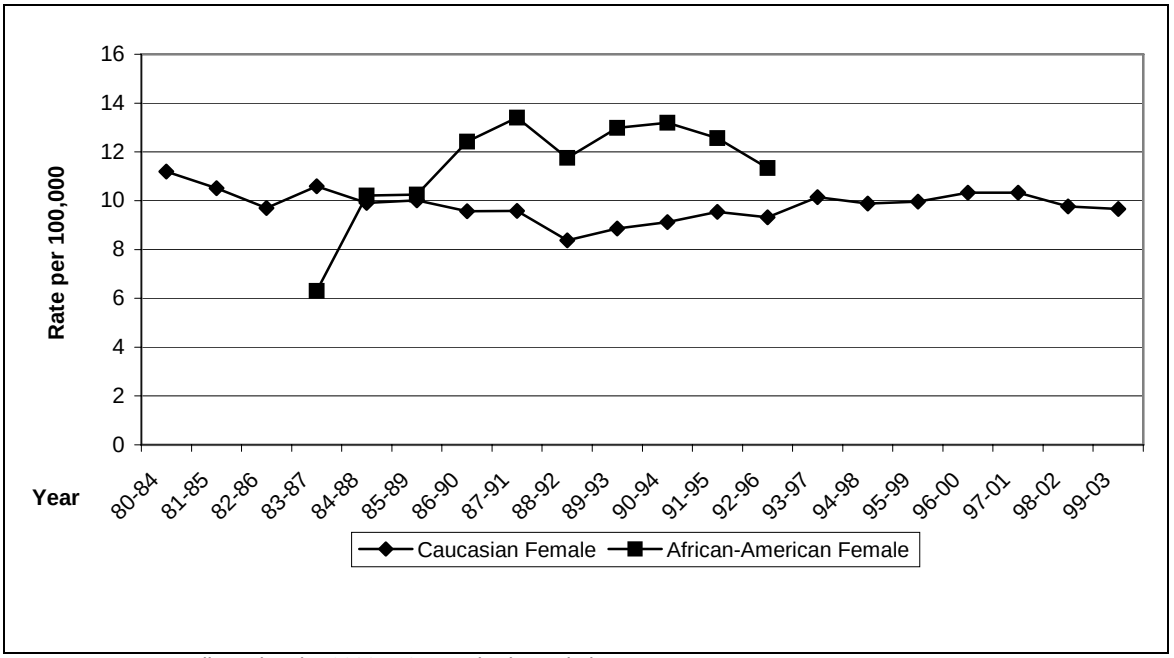
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 11.6. Five-Year Average Age-Adjusted Ovarian Cancer Mortality Rates* in the United States and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 11.7. Five-Year Average Age-Adjusted Ovarian Cancer Mortality Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

NOTE: Rates for 1980–84 to 1982–86 and 1993–97 to 1999–2003 among African-American females have been omitted due to patient confidentiality rules.

SOURCE: Delaware Health Statistics Center, 2005.

Table 11.8. Age-Specific Ovarian Cancer Mortality Rates* in Delaware, by Race: 1999–2003

Age Group	All Female	Caucasian Female	African-American Female
0–39	---	---	0.0
40–64	11.3	12.6	---
65–74	39.7	39.7	---
75–84	49.9	52.3	---
85+	---	---	---

* = Rates are per 100,000 population.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 11.8. Age-Specific Ovarian Cancer Mortality Rates in Delaware, by Race: 1999–2003

NOTE: Figure is not displayed because of patient confidentiality rules; small number of cases precludes display of data.

SOURCE: Delaware Health Statistics Center, 2005.

12. Pancreatic Cancer

Risk Factors

Risk Factors for Pancreatic Cancer

- Increasing age
- Being male
- African-American race
- Family history
- Cigarette smoking
- Diabetes
- Occupational exposure to petroleum and certain chemicals

Possible Risk Factors for Pancreatic Cancer

- Diet high in fat and/or low in fruits and vegetables
- Chronic pancreatitis
- Stomach problems
- Certain hereditary conditions, such as hereditary pancreatitis
- Obesity

Early Detection of Pancreatic Cancer

There is currently no simple screening test for pancreatic cancer. People with a strong family history of pancreatic cancer may want to consider genetic screening or one of the more complicated and expensive forms of screening, such as a combined PET and CT scan.

Data Highlights

New Cancer Cases and Deaths (Tables 12.1 and 12.6)

- Pancreatic cancer accounted for 2.2 percent of all cancer cases diagnosed during 1999–2003 in Delaware.
- A total of 457 pancreatic cancer cases were diagnosed among Delaware residents during 1999–2003, 215 (47.1 percent) in males and 242 (52.9 percent) in females.
- The majority of pancreatic cancer cases (1999–2003) were New Castle County residents (262 or 57.3 percent), followed by Sussex County (117 or 25.6 percent) and Kent County (78 or 17.1 percent) residents.
- Caucasian residents made up 81.0 percent (370) of all pancreatic cancer cases in 1999–2003, and African-American residents made up 16.9 percent (77); six cases were from other race groups.
- Deaths from pancreatic cancer accounted for 5.3 percent of all cancer deaths during 1999–2003 in Delaware.
- During 1999–2003, 445 Delaware residents died from pancreatic cancer; the majority of decedents (232 or 52.1 percent) were male, and 213 were female.
- Caucasian residents made up 81.8 percent (364) of decedents, and African-American residents made up 16.6 percent (74).
- A total of 260 (58.4 percent) decedents were from New Castle County, followed by 107 (24.0 percent) from Sussex County and 78 (17.5 percent) from Kent County.

Incidence and Mortality Rates (Tables 12.2 and 12.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- None to report

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Delaware's pancreatic cancer incidence was similar to the U.S. estimate (11.1 and 11.3 per 100,000, respectively).
- Pancreatic cancer incidence was 16 percent higher among males (11.9 per 100,000) than females (10.3 per 100,000) in 1999–2003.
- Pancreatic cancer incidence was highest among males (13.1 per 100,000) and females (11.3 per 100,000) in Kent County.
- African Americans in Delaware had a 42 percent higher overall pancreatic cancer incidence rate (14.9 per 100,000 in 1999–2003) than Caucasians (10.5 per 100,000).
- Delaware's overall pancreatic cancer mortality rate was similar to the U.S. rate (10.9 and 10.5 per 100,000, respectively).
- Delaware's 1999–2003 pancreatic cancer mortality rate was 47 percent higher among males (13.2 per 100,000) than females (9.0 per 100,000).
- The pancreatic cancer mortality rate was 39 percent higher among African-American residents (14.5 per 100,000) than among Caucasian residents (10.4 per 100,000) during 1999–2003.
- Overall, pancreatic cancer mortality was highest in Kent County during 1999–2003 (12.5 per 100,000).

Trends in Cancer Incidence and Mortality (Figures 12.1–12.2 and 12.6–12.7)

- Incidence and mortality rates for pancreatic cancer remained steady from 1980–84 to 1999–2003.

Age-Specific Incidence and Mortality Rates (Tables 12.3 and 12.8, Figures 12.3 and 12.8)

- The incidence of pancreatic cancer increased with age.
- Mortality from pancreatic cancer peaked at ages 85 and older in both males and females.

Stage at Diagnosis of Pancreatic Cancer (Tables 12.4–12.5, Figures 12.4–12.5)

- A total of 332 cases or 72.7 percent of all pancreatic cancers were diagnosed in the late (i.e., regional or distant) stages, compared with 77.2 percent in U.S. estimates for 1999–2003.
- In Delaware, the percentage of pancreatic cancer cases diagnosed in the regional stage (26.5 percent) in 1999–2003 was similar to the U.S. estimate of 26.2 percent for 1999–2003.
- The proportion of pancreatic cancer cases diagnosed in the local stage was greater among African-American residents (13.0 percent) than Caucasian residents (6.5 percent) in 1999–2003.
- From 1980–84 to 1999–2003, the percentages of local and regional stages of pancreatic cancer cases decreased. During that same time period, the proportions of distant cancers increased.

Pancreatic Cancer Incidence

Table 12.1. Number of Pancreatic Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	457	215	242	370	175	195	77	35	42
Kent	78	38	40	63	30	33	13	7	6
New Castle	262	116	146	206	92	114	48	20	28
Sussex	117	61	56	101	53	48	16	8	8

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

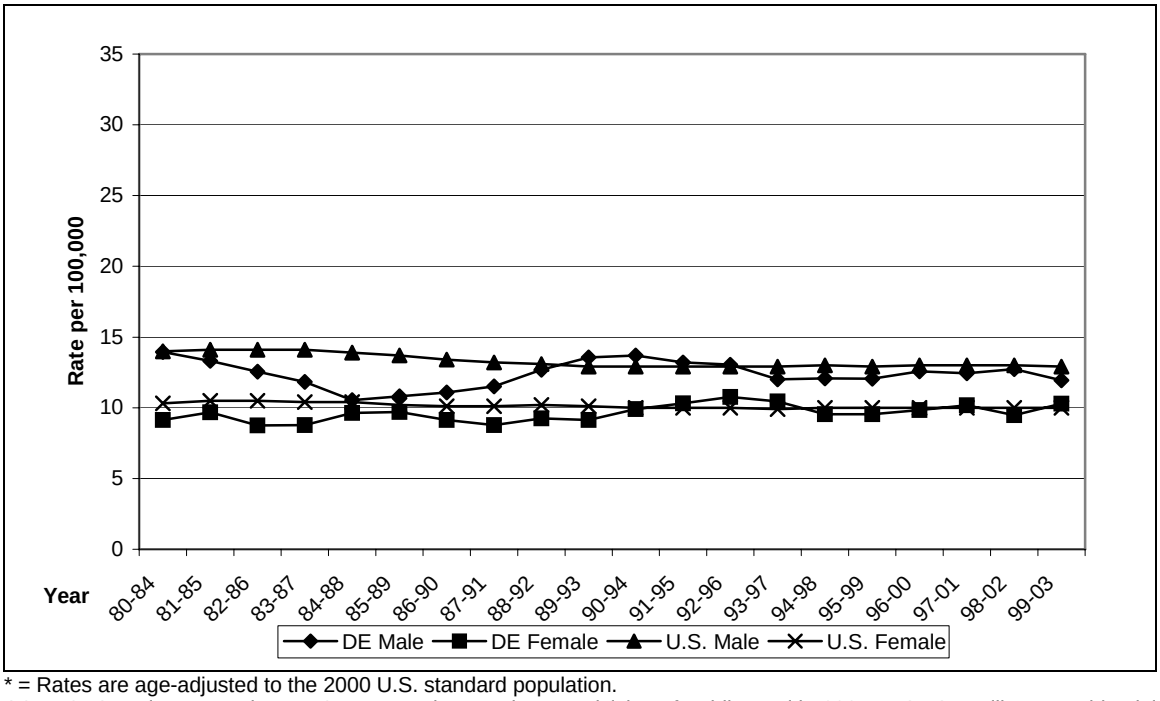
Table 12.2. Five-Year Average Age-Adjusted Pancreatic Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	11.3 (11.1–11.5)	12.9 (12.6–13.2)	10.0 (9.8–10.3)
Delaware	11.1 (10.1–12.1)	11.9 (10.3–13.6)	10.3 (9.0–11.6)
Kent	12.4 (4.9–20.0)	13.1 (2.1–24.1)	11.2 (1.5–20.9)
New Castle	11.0 (7.3–14.7)	11.4 (5.1–17.7)	10.5 (5.9–15.2)
Sussex	10.5 (5.1–15.8)	12.4 (3.5–21.4)	8.7 (2.1–15.3)
CAUCASIAN			
United States	11.0 (10.8–11.2)	12.7 (12.4–13.0)	9.6 (9.4–9.9)
Delaware	10.5 (9.5–11.6)	11.5 (9.7–13.1)	9.7 (8.3–11.1)
Kent	12.3 (4.2–20.3)	12.7 (0.3–25.1)	11.3 (1.2–21.5)
New Castle	10.3 (6.4–14.2)	10.9 (4.2–17.6)	9.8 (4.9–14.6)
Sussex	10.1 (4.5–15.7)	12.0 (2.7–21.4)	8.3 (1.4–15.2)
AFRICAN-AMERICAN			
United States	15.5 (14.8–16.3)	16.7 (15.5–18.1)	14.4 (13.4–15.4)
Delaware	14.9 (11.5–18.3)	15.3 (10.0–20.6)	14.1(9.8–18.4)
Kent	---	---	---
New Castle	14.5 (1.4–27.6)	---	14.3 (-2.1–30.7)
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

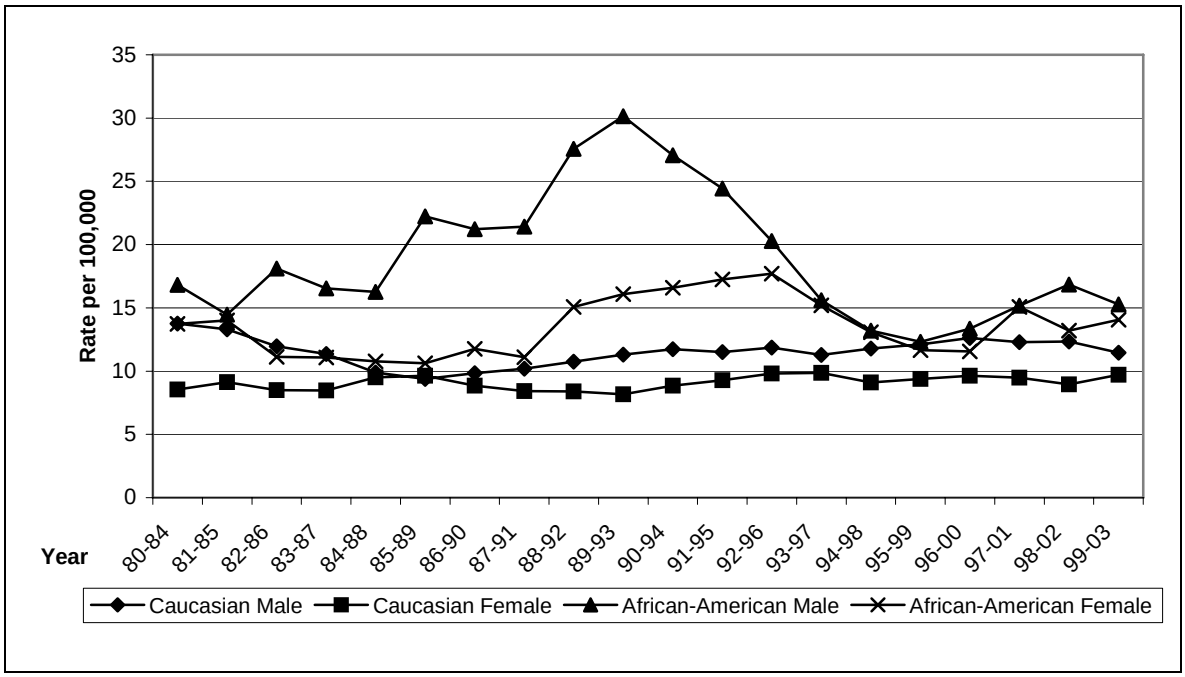
SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 12.1. Five-Year Average Age-Adjusted Pancreatic Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 12.2. Five-Year Average Age-Adjusted Pancreatic Cancer Incidence Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

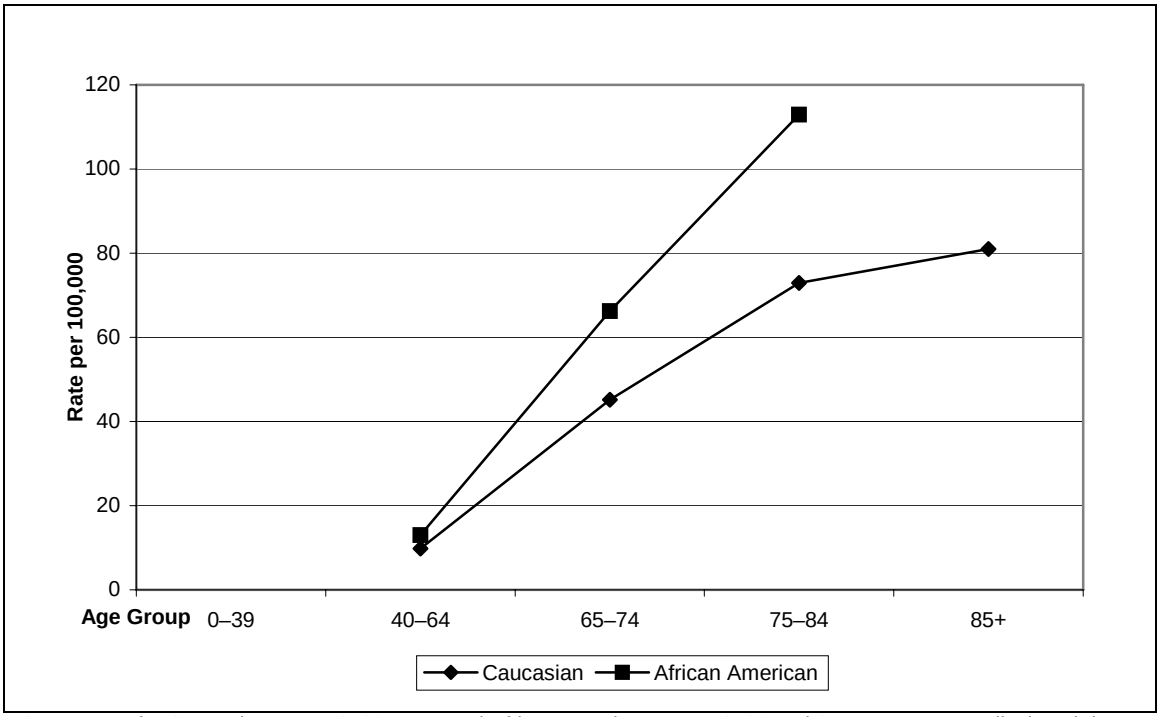
Table 12.3. Age-Specific Pancreatic Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	---	---	0.0
40–64	10.5	11.7	9.4	9.8	11.1	8.6	13.0	---	---
65–74	48.0	54.6	42.3	45.2	51.6	39.7	66.2	---	---
75–84	76.8	79.6	74.8	72.9	75.5	71.1	112.9	---	---
85+	78.8	---	85.1	81.0	---	85.0	---	0.0	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 12.3. Age-Specific Pancreatic Cancer Incidence Rates in Delaware, by Race: 1999–2003



NOTE: Rates for Caucasians ages 0–39 years and African Americans ages 0–39 and 85+ years are not displayed due to patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Pancreatic Cancer by Stage at Diagnosis

Table 12.4. Number of Pancreatic Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	34	17	17	24	10	14	10	7	< 6
Regional	121	53	68	93	39	54	24	12	12
Distant	211	105	106	170	88	82	35	14	21
Unknown	91	40	51	83	38	45	8	< 6	6
Total	457	215	242	370	175	195	77	35	42

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 12.5. Percentage of Pancreatic Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Local	7.4	7.9	7.0	6.5	5.7	7.2	13.0	20.0	---
Regional	26.5	24.7	28.1	25.1	22.3	27.7	31.2	34.3	28.6
Distant	46.2	48.8	43.8	46.0	50.3	42.1	45.5	40.0	50.0
Unknown	19.9	18.6	21.1	22.4	21.7	23.1	10.4	---	14.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 12.4. Percentage of Pancreatic Cancer Cases in Delaware and the United States, by Stage at Diagnosis: 1999–2003

Figure 12.4a. Delaware: 1999–2003

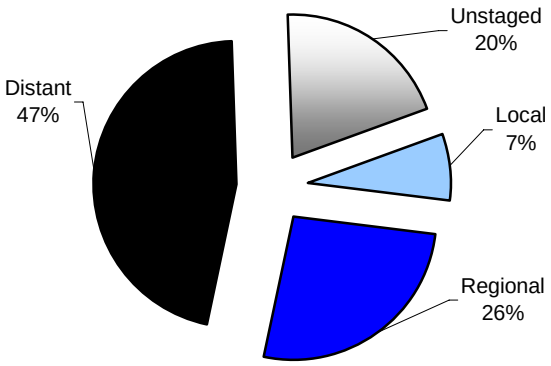
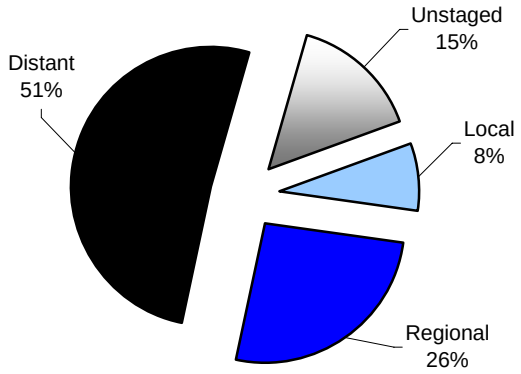
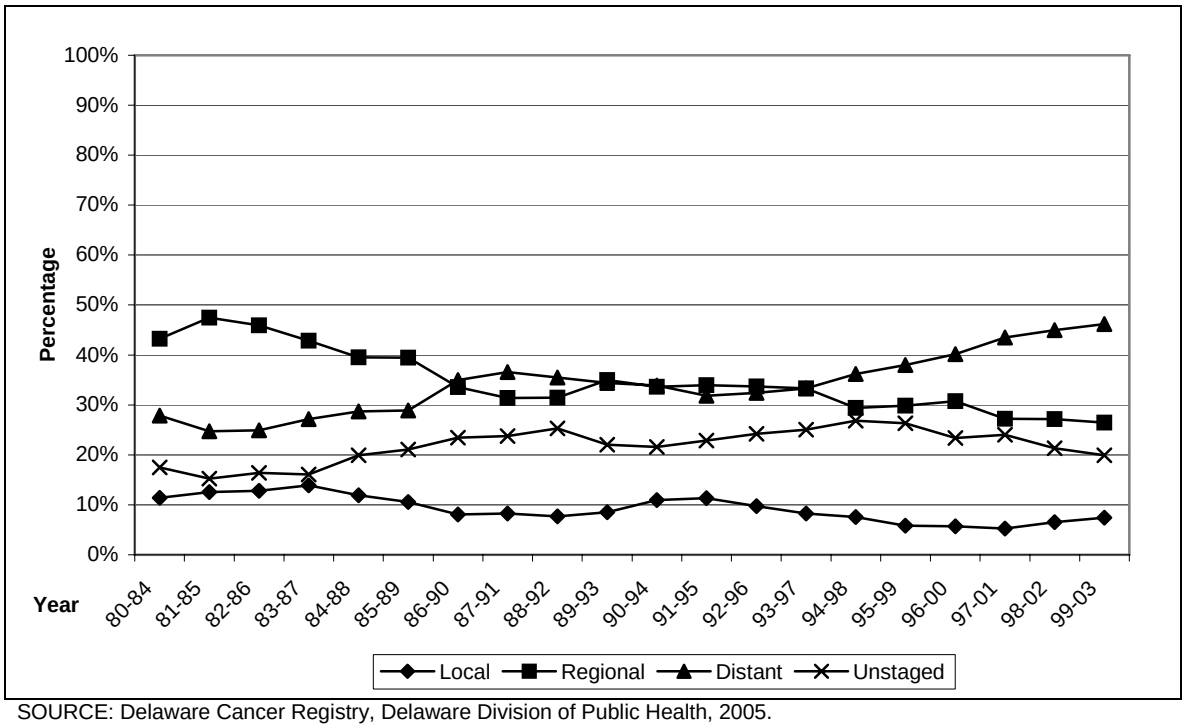


Figure 12.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 12.5. Percentage of Pancreatic Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 12.6. Number of Pancreatic Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	445	232	213	364	192	172	74	36	38
Kent	78	48	30	64	39	25	13	8	< 6
New Castle	260	129	131	207	105	102	47	21	26
Sussex	107	55	52	93	48	45	14	7	7

SOURCE: Delaware Health Statistics Center, 2005.

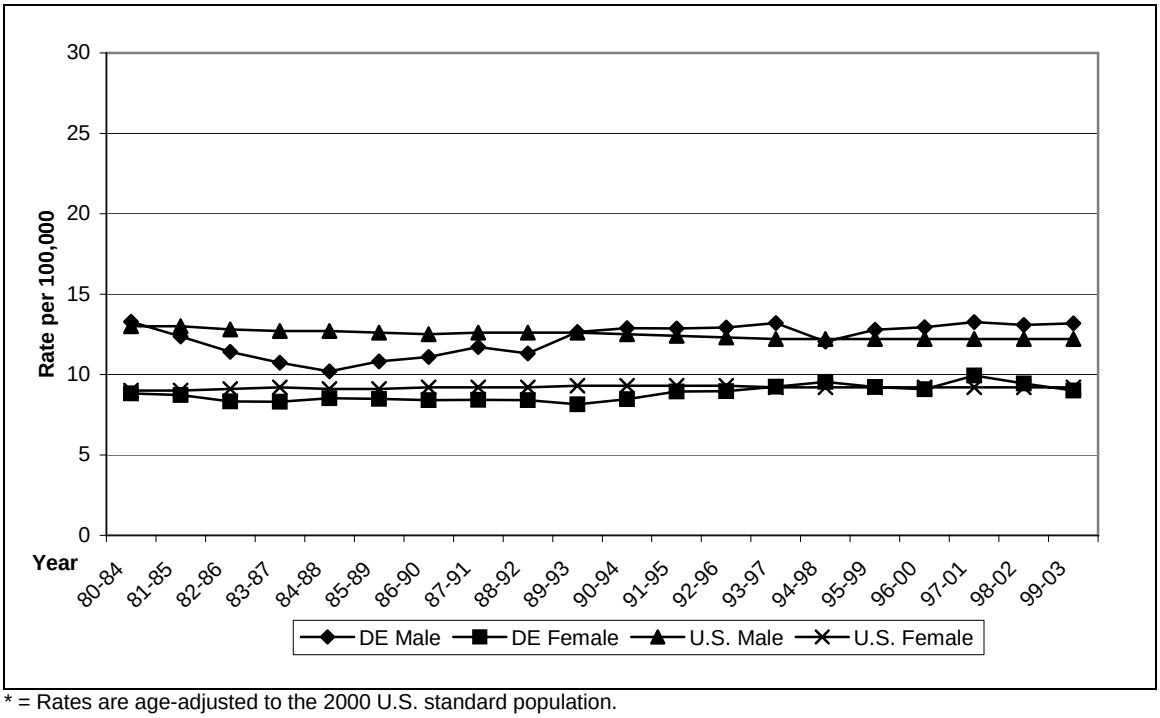
Table 12.7. Five-Year Average Age-Adjusted Pancreatic Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	10.5 (10.5–10.6)	12.2 (12.1–12.2)	9.2 (9.2–9.3)
Delaware	10.9 (9.8–11.9)	13.2 (11.4–14.9)	9.0 (7.8–10.2)
Kent	12.5 (4.8–20.2)	16.9 (3.8–30.0)	8.4 (-0.7–17.5)
New Castle	11.0 (7.1–14.8)	13.1 (5.8–20.4)	9.5 (5.0–13.9)
Sussex	9.6 (4.3–15.0)	10.7 (2.6–18.8)	8.2 (1.6–14.8)
CAUCASIAN			
United States	10.3 (10.3–10.4)	12.0 (11.9–12.1)	9.0 (8.9–9.1)
Delaware	10.4 (9.3–11.4)	12.7 (10.8–14.5)	8.4 (7.1–9.7)
Kent	12.4 (4.2–20.6)	16.6 (3.2–30.1)	8.4 (-1.1–18.0)
New Castle	10.3 (6.3–14.4)	12.6 (5.1–20.2)	8.6 (3.9–13.4)
Sussex	9.3 (3.7–14.9)	10.4 (2.2–18.7)	8.0 (1.0–14.9)
AFRICAN-AMERICAN			
United States	13.9 (13.7–14.1)	15.7 (15.3–16.0)	12.5 (12.2–12.7)
Delaware	14.5 (11.1–17.9)	18.3 (11.9–24.7)	12.6 (8.5–16.6)
Kent	---	---	---
New Castle	14.2 (2.4–26.0)		12.9 (0.5–25.3)
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

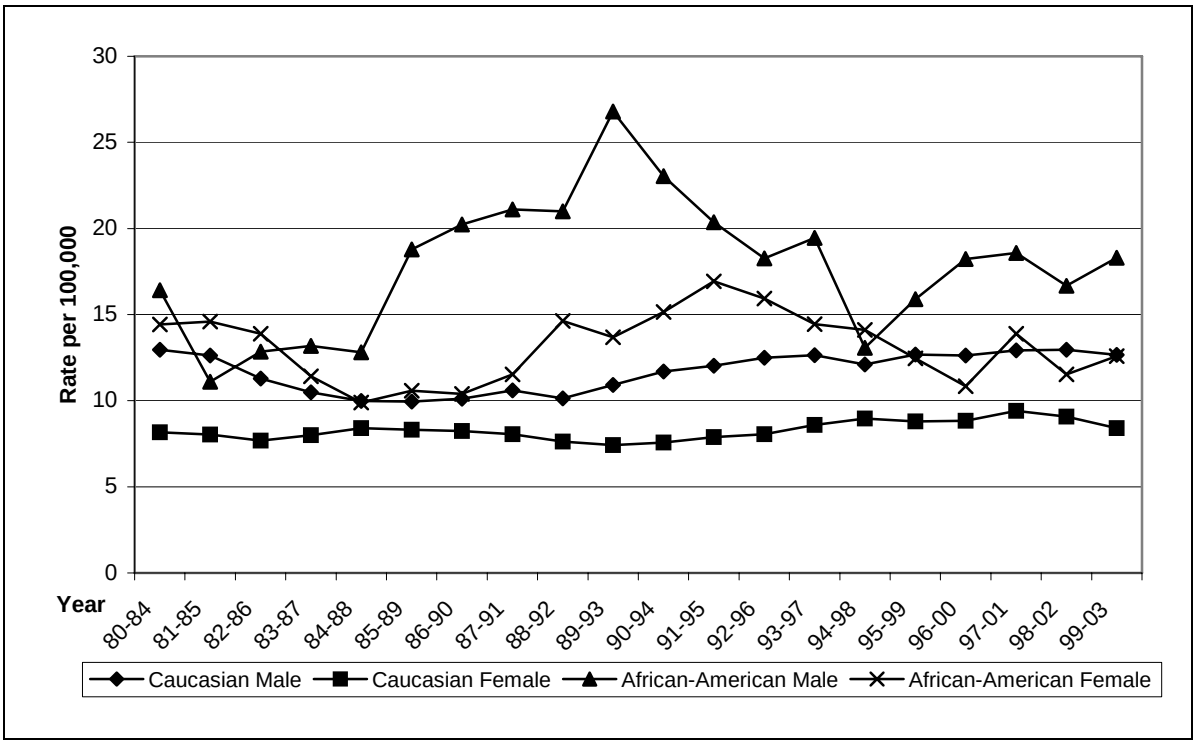
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 12.6. Five-Year Average Age-Adjusted Pancreatic Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 12.7. Five-Year Average Age-Adjusted Pancreatic Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population. SOURCE: Delaware Health Statistics Center, 2005.

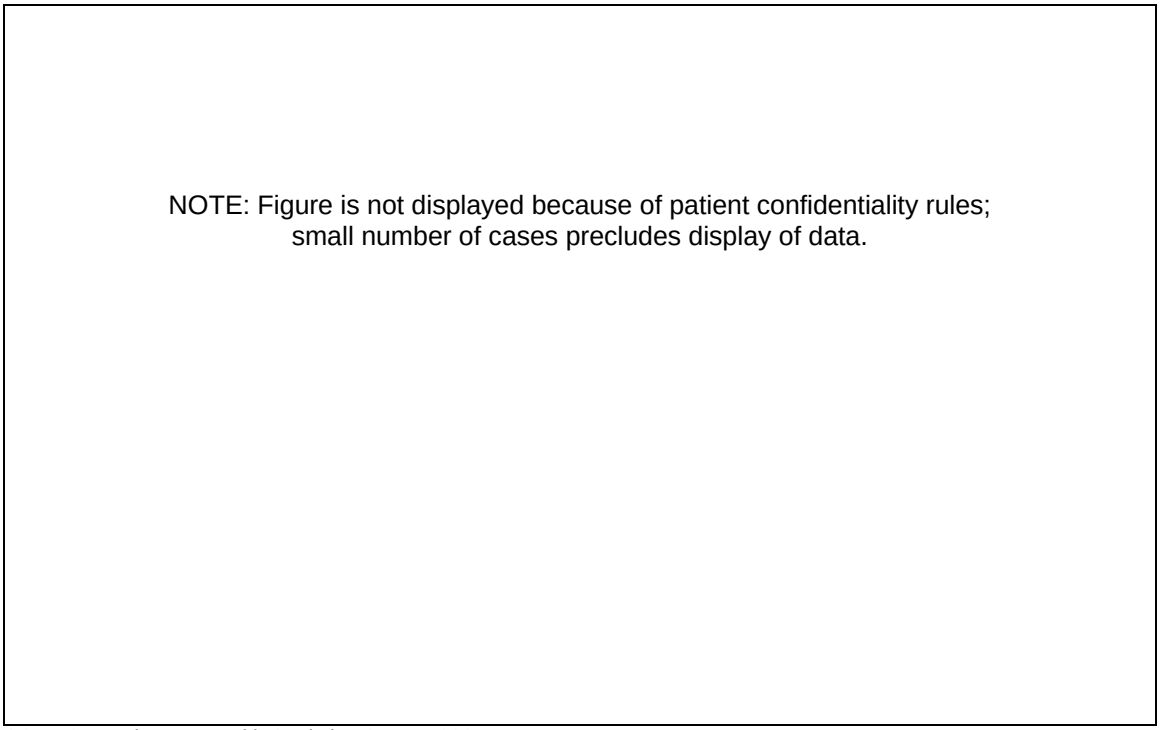
Table 12.8. Age-Specific Pancreatic Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	0.0	---	---	0.0	---	---	0.0
40–64	9.3	11.9	6.9	8.8	12.2	5.6	---	---	---
65–74	45.9	51.6	41.0	43.6	50.0	38.2	---	---	---
75–84	80.1	101.6	65.6	77.3	95.5	64.9	---	---	---
85+	87.8	---	87.6	87.1	---	90.7	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 12.8. Age-Specific Pancreatic Cancer Mortality Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Health Statistics Center, 2005.

13. Prostate Cancer

Risk Factors and Early Detection

Risk Factors for Prostate Cancer

- Increasing age
- Family history of prostate cancer
- African-American race
- Nationality: It is most common in North America and northwestern Europe.

Possible Risk Factors for Prostate Cancer

- High-fat diet low in fruits and vegetables
- Physical inactivity

Under Investigation as Risk Factors for Prostate Cancer

- Vasectomies. Some earlier studies suggested that males who had a vasectomy may have a slightly increased risk for prostate cancer, but this link is not consistent.

Early Detection of Prostate Cancer

- Digital rectal exam (DRE)
- Prostate-specific antigen (PSA) blood test
- Transrectal ultrasonography

DRE and the PSA blood test are two methods recommended for prostate cancer screening.

Results are shown below for the following questions in the BRFSS survey:

- A prostate-specific antigen test, also called a PSA test, is a blood test used to check men for prostate cancer. Have you ever had a PSA test?
- A digital rectal exam is an exam in which a doctor, nurse or other health professional places a gloved finger into the rectum to feel the size, shape and hardness of the prostate gland. Have you ever had a digital rectal exam?

Delaware Men Ages 40 and Older With PSA Within the Past Two Years

In 2004, 54.4 percent of men in Delaware ages 40 and older had had a PSA blood test within the past two years, compared with 51.8 percent of men in the United States.

The number of men in Delaware who had had a PSA blood test increased as age increased. Among those ages 40–49, 24.7 percent had had a PSA blood test within the past two years, compared with 60.8 percent of men ages 50–59 and 81.2 percent of men ages 65 and older.

College graduates (59.5 percent) were most likely to have had a PSA blood test within the past two years, compared with men with a high school education (48.7 percent) or with some post-high school education (57.1 percent).

Data Highlights

New Cancer Cases and Deaths (Tables 13.1 and 13.6)

- Prostate cancer was the most frequently diagnosed cancer among men, and during 1999–2003 it accounted for 3,275 (30.2 percent) of newly diagnosed cancer cases.
- Caucasian Delaware residents made up 77.4 percent (2,534) of prostate cancer cases in 1999–2003, and African-American residents made up 19.0 percent (621); Hispanic residents and those of other races made up less than 1 percent of prostate cancer cases.
- The majority of prostate cancer cases (1999–2003) were New Castle County residents (2,068 or 63.2 percent), followed by Sussex (750 or 22.9 percent) and Kent (451 or 13.8 percent) County residents.
- During 1999–2003, 429 Delaware residents died from prostate cancer; 325 (75.8 percent) decedents were Caucasian, and 96 (22.4 percent) were African American.
- A total of 256 (59.7 percent) decedents were from New Castle County, followed by 114 (26.6 percent) from Sussex County and 59 (13.8 percent) from Kent County.

Incidence and Mortality Rates (Tables 13.2 and 13.7)

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- Prostate cancer incidence was 65 percent higher among African-American men (263.1 per 100,000) than Caucasian males (159.5 per 100,000) in 1999–2003.
- Prostate cancer mortality was more than twice as high among African-American men (57.0 per 100,000) than among Caucasian men (25.0 per 100,000) during 1999–2003.

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- Overall prostate cancer incidence was highest in New Castle County (199.3 per 100,000). African-American and Caucasian males in New Castle County also had higher incidence rates than their counterparts in Kent and Sussex Counties.

Trends in Cancer Incidence and Mortality (Figures 13.1–13.2 and 13.6–13.7)

- Delaware's overall prostate cancer incidence rate has been less than the U.S. estimate since 1995–99.
- Mortality from prostate cancer declined among men in Delaware and the United States. The difference in the mortality rates between men in Delaware and United States also declined from 1992–96 to 1999–2003.

Age-Specific Incidence and Mortality Rates (Tables 13.3 and 13.8, Figures 13.3 and 13.8)

- The incidence of prostate cancer increased with age and peaked at ages 85 and older.
- Mortality from prostate cancer increased from ages 60–74 to ages 85 and older.

Stage at Diagnosis of Prostate Cancer (Tables 13.4–13.5, Figures 13.4–13.5)

- A total of 331 cases (10.1 percent of all prostate cancers) were diagnosed in the late (i.e., regional or distant) stages.
- In Delaware during 1999–2003, a similar proportion of prostate cancers were diagnosed in the local and regional stages (92.2 percent), compared with the U.S. estimate (92.9 percent) for 1999–2003. Delaware had a lower proportion of cases diagnosed in the distant stage (3.4 percent) than in U.S. estimates (4.3 percent).

- The increase in the proportion of prostate cancers diagnosed in the local stage since 1986–90 (from 52.4 percent to 85.5 percent in 1999–2003) was mirrored by a decrease in the proportion of distant stage (from 21.6 percent in 1986–90 to 3.4 percent in 1999–2003) and regional stage cancers (from 16.6 percent in 1986–90 to 6.7 percent in 1999–2003).

Prostate Cancer Incidence

Table 13.1. Number of Prostate Cancer Cases in Delaware and Counties, by Race: 1999–2003

	All Male	Caucasian Male	African-American Male
Delaware	3,275	2,534	621
Kent	451	318	101
New Castle	2,068	1,567	436
Sussex	750	644	84

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

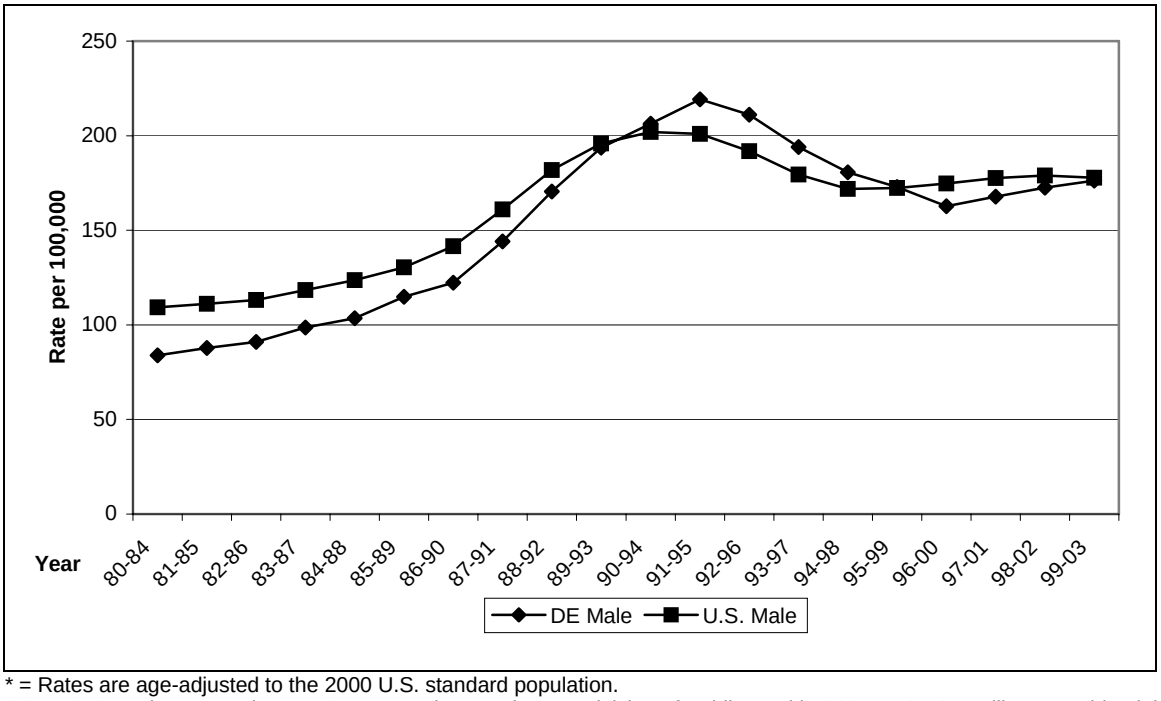
Table 13.2. Five-Year Average Age-Adjusted Prostate Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race: 1999–2003

	All Male	Caucasian Male	African-American Male
United States	177.8 (176.6–178.9)	173.8 (172.6–175.0)	272.6 (267.5–277.8)
Delaware	176.2 (170.1–182.3)	159.5 (153.2–165.8)	263.1 (241.4–284.8)
Kent	155.2 (120.0–190.4)	132.8 (98.7–166.8)	207.6 (109.0–306.3)
New Castle	199.3 (176.1–222.5)	180.9 (157.0–204.8)	300.6 (212.7–388.4)
Sussex	140.3 (113.2–167.4)	132.3 (104.3–160.2)	206.2 (93.8–318.6)

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.

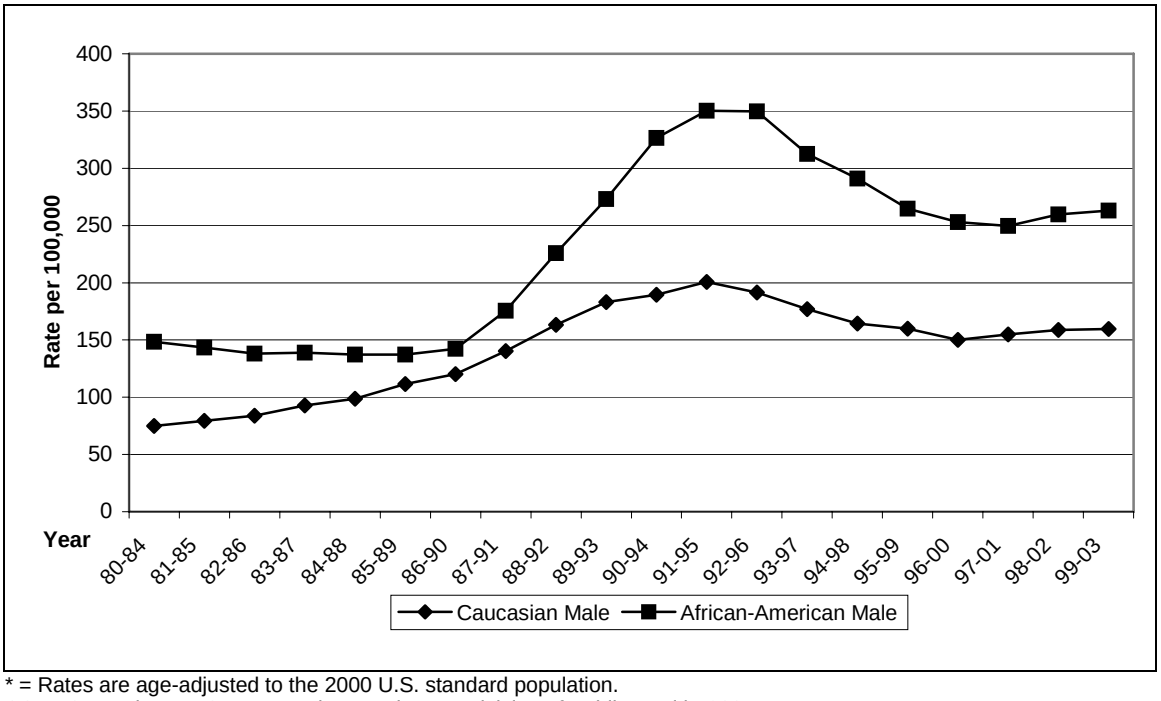
SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 13.1. Five-Year Average Age-Adjusted Prostate Cancer Incidence Rates* in the United States (Estimates) and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 13.2. Five-Year Average Age-Adjusted Prostate Cancer Incidence Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

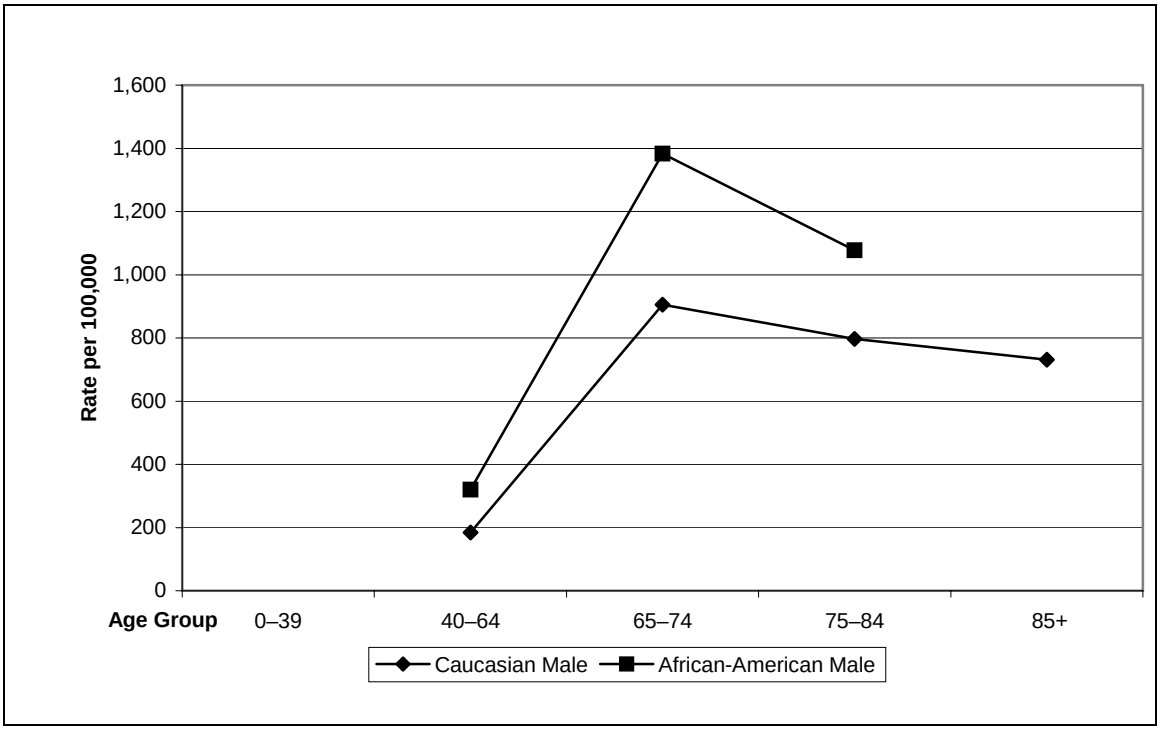
Table 13.3. Age-Specific Prostate Cancer Incidence Rates* in Delaware, by Race: 1999–2003

Age Group	All Male	Caucasian Male	African-American Male
0–39	---	---	---
40–64	206.7	184.5	320.1
65–74	981.6	905.1	1,383.6
75–84	848.5	796.6	1077.3
85+	788.7	730.8	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 13.3. Age-Specific Prostate Cancer Incidence Rates in Delaware, by Race: 1999–2003



NOTE: Rates for Caucasians ages 0–39 years and African Americans ages 0–39 and 85+ years are not displayed due to patient confidentiality rules.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Prostate Cancer by Stage at Diagnosis

Table 13.4. Number of Prostate Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Male	Caucasian Male	African-American Male
Local	2,800	2,175	533
Regional	220	176	39
Distant	111	80	25
Unknown	144	103	24
Total	3,275	2,534	621

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 13.5. Percentage of Prostate Cancer Cases in Delaware, by Stage at Diagnosis and Race: 1999–2003

Stage at Diagnosis	All Male	Caucasian Male	African-American Male
Local	85.5	85.8	85.8
Regional	6.7	7.0	6.3
Distant	3.4	3.2	4.0
Unknown	4.4	4.1	4.0
Total	100.0	100.0	100.0

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 13.4. Percentage of Prostate Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 13.4a. Delaware: 1999–2003

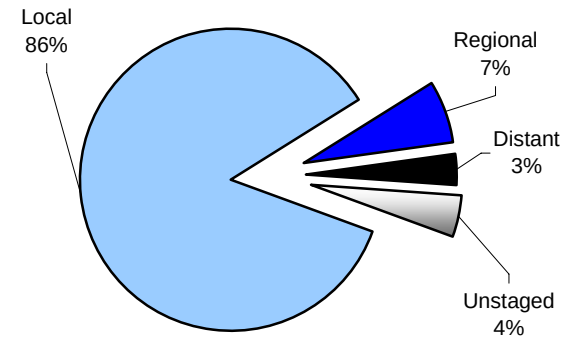
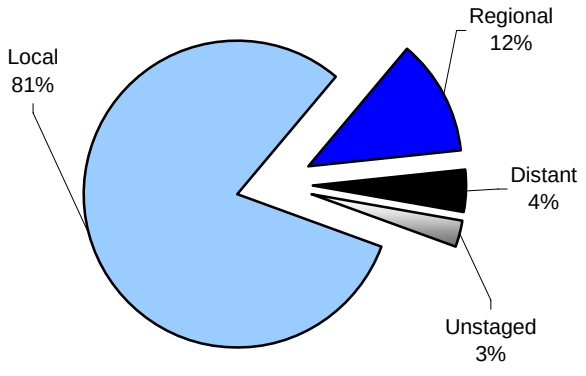
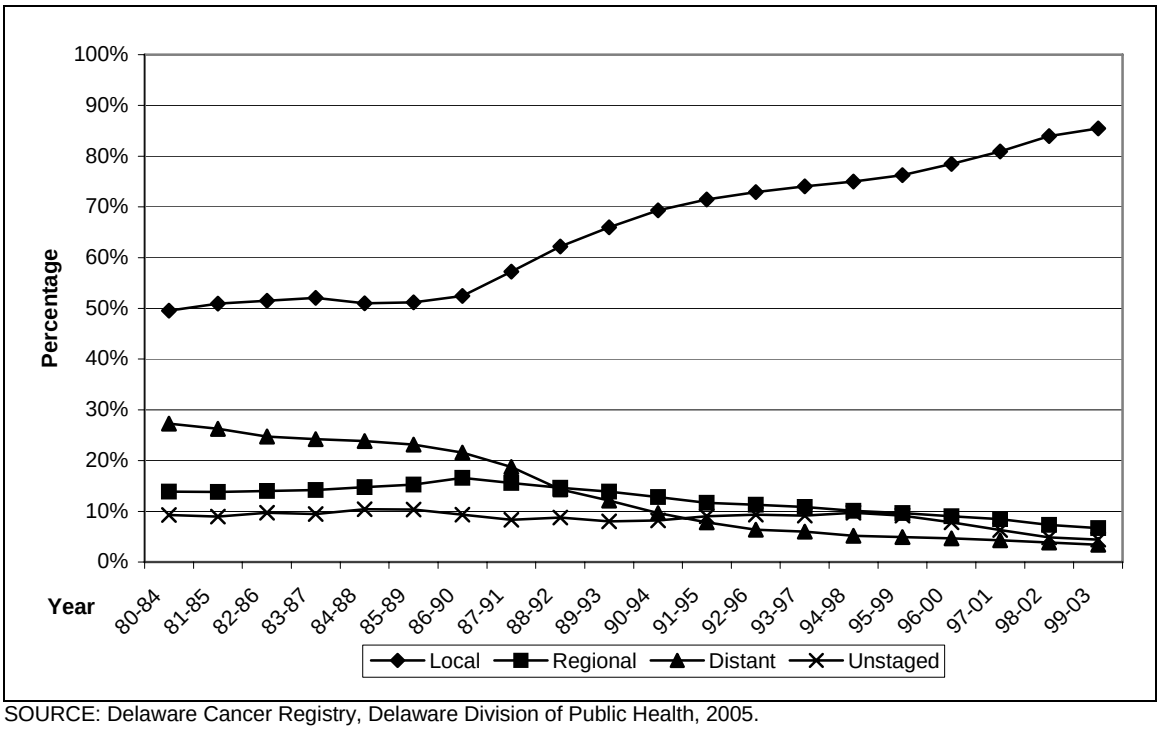


Figure 13.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 13.5. Percentage of Prostate Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 13.6. Number of Prostate Cancer Deaths in Delaware and Counties, by Race: 1999–2003

	All Male	Caucasian Male	African-American Male
Delaware	429	325	96
Kent	59	35	23
New Castle	256	196	56
Sussex	114	94	17

SOURCE: Delaware Health Statistics Center, 2005.

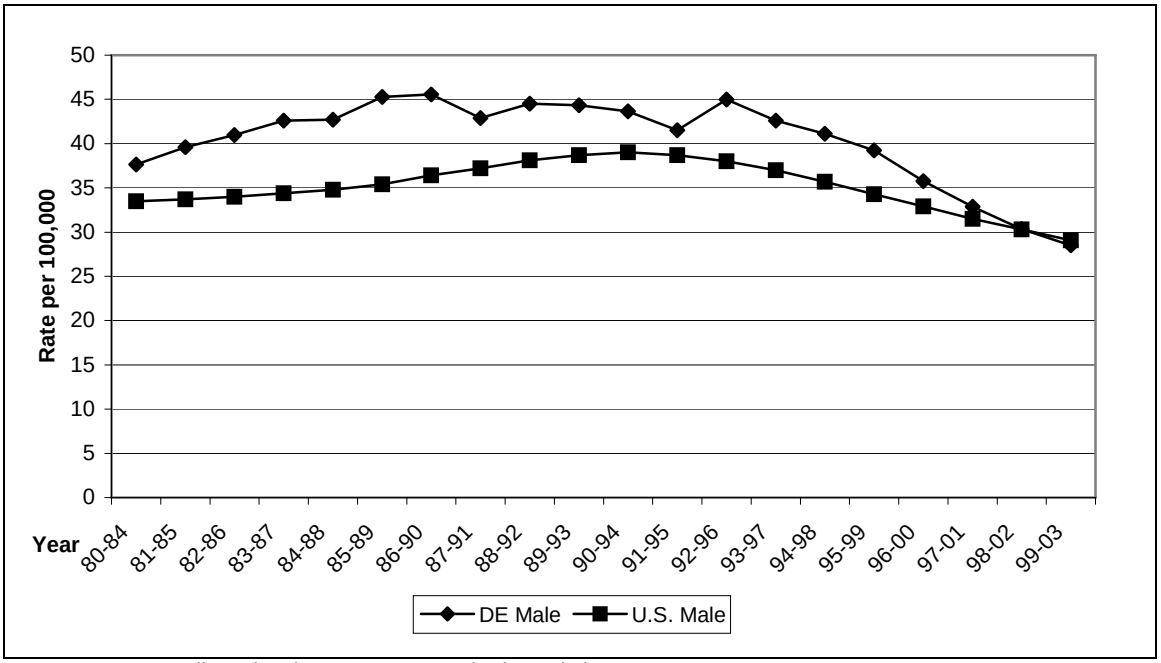
Table 13.7. Five-Year Average Age-Adjusted Prostate Cancer Mortality Rates* in the United States, Delaware, and Counties, by Race: 1999–2003

	All Male	Caucasian Male	African-American Male
United States	29.1 (28.9–29.2)	26.7 (26.5–26.8)	65.1 (64.3–66.0)
Delaware	28.5 (25.7–31.3)	25.0 (22.2–27.8)	57.0 (45.0–69.0)
Kent	24.6 (2.0–47.3)	18.0 (-3.8–39.9)	---
New Castle	30.1 (16.1–44.2)	26.7 (12.4–41.0)	58.4 (-3.1–119.9)
Sussex	27.5 (4.2–46.5)	25.3 (4.2–46.5)	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

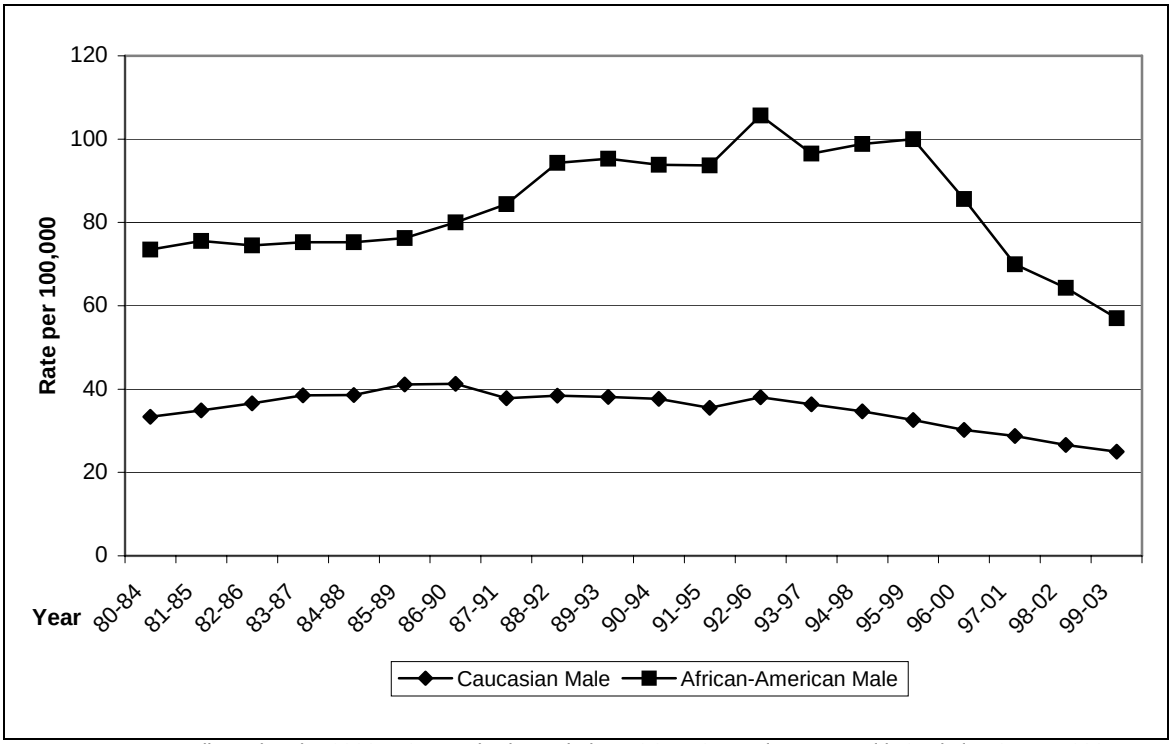
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 13.6. Five-Year Average Age-Adjusted Prostate Cancer Mortality Rates* in the United States and Delaware: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 13.7. Five-Year Average Age-Adjusted Prostate Cancer Mortality Rates* in Delaware, by Race: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population. SOURCE: Delaware Health Statistics Center, 2005.

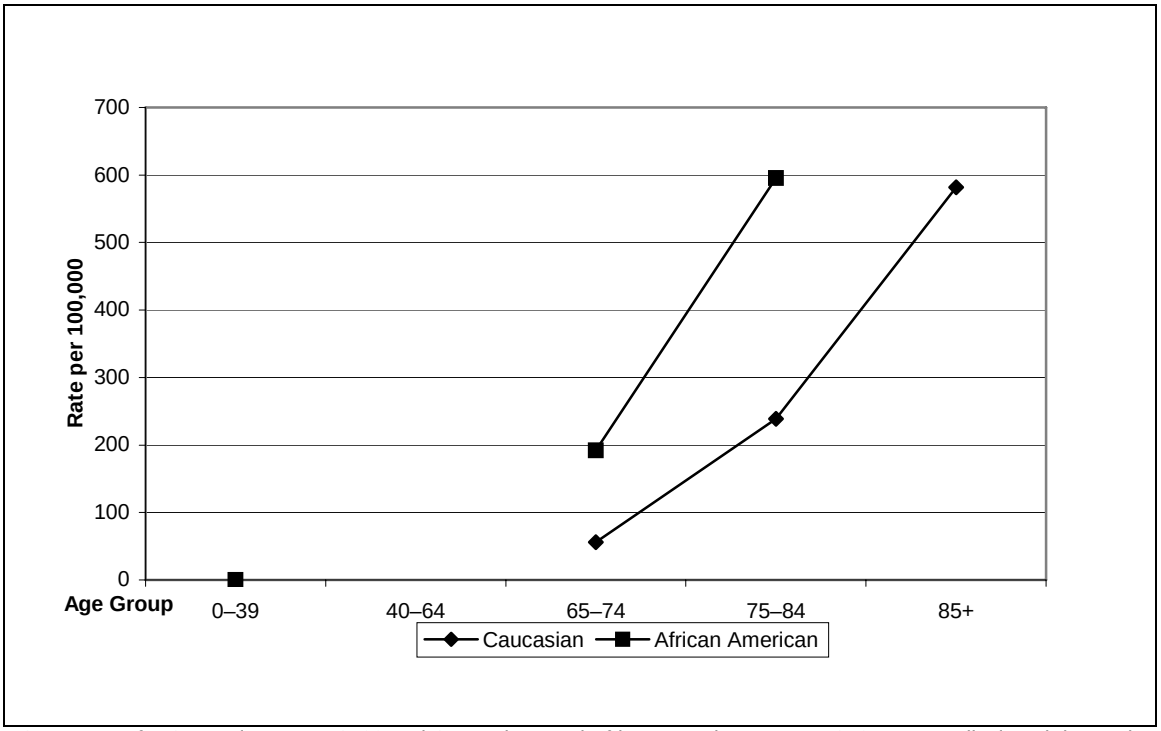
Table 13.8. Age-Specific Prostate Cancer Mortality Rates* in Delaware, by Race: 1999–2003

Age Group	All Male	Caucasian Male	African-American Male
0–39	---	---	0.0
40–64	6.0	---	---
65–74	71.3	56.0	192.0
75–84	277.3	238.8	595.4
85+	605.7	581.8	---

* = Rates are per 100,000 population.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 13.8.Age-Specific Prostate Cancer Mortality Rates in Delaware, by Race: 1999–2003



NOTE: Rates for Caucasians ages 0–39 and Caucasians and African Americans ages 40–64 are not displayed due to data suppression rules.

SOURCE: Delaware Health Statistics Center, 2005.

14. Urinary Bladder Cancer

Risk Factors and Early Detection

Risk Factors for Urinary Bladder Cancer

- Cigarette smoking
- Increasing age
- Race: Caucasians get bladder cancer twice as often as African Americans and Hispanics.
- Sex: Males are two to three times more likely to get bladder cancer.
- Family history of bladder cancer
- Treatment with alkylating agent chemotherapy drugs such as Cytoxan (cyclophosphamide)
- Radiation therapy to the bladder

Possible Risk Factors for Urinary Bladder Cancer

- Employment in certain occupations (e.g., rubber and/or leather industries, dye manufacturing, painters, professional drivers of trucks and other motor vehicles)
- Exposure to arsenic, either in drinking water or in medical treatments
- Urologic conditions such as urinary tract infections and urinary stasis or being infected with certain parasites not common in the United States but found in tropical areas
- Low fluid consumption

Early Detection of Urinary Bladder Cancer

- Urine tests for presence of blood
- Cystoscopy for people with history of bladder cancer
- Imaging tests (such as CT scans or MRIs) can be used in further diagnosis.

Data Highlights

New Cancer Cases and Deaths (Tables 14.1 and 14.6)

NOTE: In situ cancers of the urinary bladder were included in the overall urinary bladder cancer incidence rates.

- A total of 919 urinary bladder cancer cases were diagnosed among Delaware residents during 1999–2003, 682 (74.2 percent) males and 237 (25.8 percent) females.
- The majority of urinary bladder cancer cases during 1999–2003 were New Castle County residents (527 or 57.3 percent), followed by Sussex County (272 or 29.6 percent) and Kent County (120 or 13.1 percent) residents.
- Caucasian residents made up 90.1 percent (828) of urinary bladder cancer cases in 1999–2003, and African-American residents made up 7.6 percent (70). Six cases were Hispanic residents, and 11 were from other race groups.
- During 1999–2003, 206 Delaware residents died from urinary bladder cancer, and approximately two-thirds were males (140 or 68.0 percent).
- Most decedents were Caucasian (178 or 86.4 percent), and approximately 13.6 percent (28) were African-American.
- A total of 107 (51.9 percent) decedents were from New Castle County, followed by 67 (32.5 percent) from Sussex County and 32 (15.5 percent) from Kent County.

Incidence and Mortality Rates (Tables 14.2 and 14.7)

NOTE: In situ cancers of the urinary bladder were included in the overall urinary bladder cancer incidence rates.

Significant Findings *(The results reported in this section reflect rates in which the confidence intervals did not overlap. This means that differences in observed rates were unlikely to be due to chance variation.)*

- The 1999–2003 bladder cancer incidence rate was four times higher among males (38.5 per 100,000) than females (10.2 per 100,000).
- Caucasian Delaware residents had a 71 percent higher urinary bladder cancer incidence rate (23.4 per 100,000 in 1999–2003) than African-American residents (13.7 per 100,000).
- In Delaware, urinary bladder cancer incidence for 1999–2003 was 80 percent higher among Caucasian males than among African-American males (40.6 per 100,000 versus 22.6 per 100,000, respectively). The number of cases among African-American females, however, was too small to compare with Caucasian females.
- The 1999–2003 urinary bladder cancer mortality rate was at least three times higher among males (8.4 per 100,000) than females (2.7 per 100,000).

Suggestive Findings *(The results reported in this section reflect rates in which the confidence intervals overlap. This means that observed differences may be due simply to chance variation.)*

- The overall county-specific urinary bladder cancer incidence rate was highest in Sussex County (24.2 per 100,000).
- Although the urinary bladder cancer mortality rate was higher among African-American residents (5.8 per 100,000) than Caucasian residents (5.0 per 100,000) during 1999–2003, it was difficult to compare mortality rates by race due to the small number of deaths among African Americans.
- The overall urinary bladder cancer mortality rate was highest in Sussex County during 1999–2003 (6.1 per 100,000).

Trends in Cancer Incidence and Mortality (Figures 14.1–14.2 and 14.6–14.7)

- From 1980–84 to 1999–2003, Delaware's urinary bladder cancer incidence rates increased among males, while U.S. estimates among males remained stable. In comparison, rates among females in Delaware and the United States were stable.
- Urinary bladder cancer mortality has decreased among Caucasian males in Delaware since 1995–99 and among African-American males since 1997–2001. In comparison, the rate among U.S. males remained steady.

Age-Specific Incidence and Mortality Rates (Tables 14.3 and 14.8, Figures 14.3 and 14.8)

- Age-specific incidence and mortality rates increased as age increased. However, incidence rates peaked at ages 75 to 84, compared with ages 85 and older for mortality rates.

Stage at Diagnosis of Urinary Bladder Cancer (Tables 14.4–14.5, Figures 14.4–14.5)

NOTE: In situ cancers of the urinary bladder were included in the overall urinary bladder cancer incidence rates.

- A total of 85 cases (9.3 percent of all urinary bladder cancers) were diagnosed in the late (i.e., regional or distant) stages in 1999–2003.
- In Delaware, the proportion (85.7 percent) of urinary bladder cancer cases diagnosed in the in situ and local stages was similar to the U.S. estimate (85.4 percent) for 1999–2003.
- The proportion of urinary bladder cancers diagnosed in the local stage has decreased in Delaware since the mid-1980s, but there was an increase in the proportion of in situ cases.

Urinary Bladder Cancer Incidence

Table 14.1. Number of Urinary Bladder Cancer Cases in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	919	682	237	828	620	208	70	49	21
Kent	120	89	31	106	81	25	9	7	< 6
New Castle	527	393	134	469	354	115	44	29	15
Sussex	272	200	72	253	185	68	17	13	< 6

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

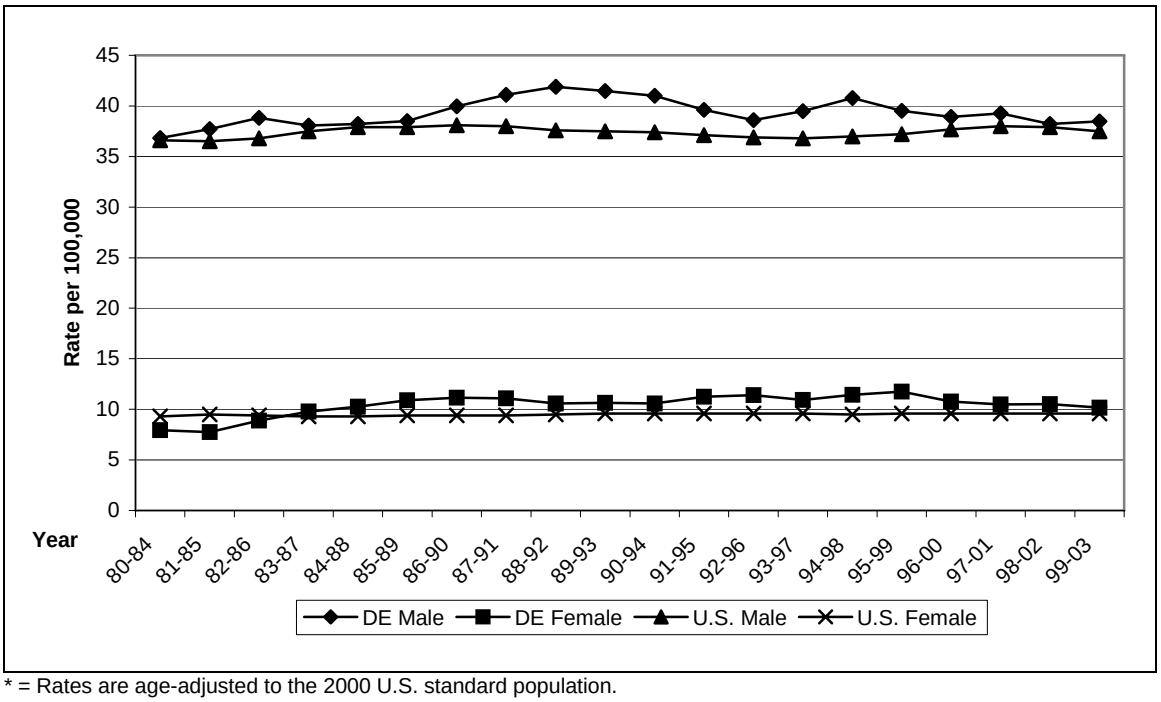
Table 14.2. Five-Year Average Age-Adjusted Urinary Bladder Cancer Incidence Rates* in the United States (Estimates), Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	21.3 (21.1–21.6)	37.5 (36.9–38.0)	9.6 (9.4–9.8)
Delaware	22.3 (20.8–23.7)	38.5 (35.5–41.4)	10.2 (8.9–11.5)
Kent	19.0 (10.3–27.6)	32.7 (11.6–53.9)	9.0 (2.6–15.5)
New Castle	22.2 (17.1–27.2)	39.2 (27.8–50.6)	9.7 (5.3–14.2)
Sussex	24.2 (16.0–32.3)	39.9 (22.5–57.4)	11.7 (4.1–19.4)
CAUCASIAN			
United States	23.4 (23.1–23.7)	41.0 (40.4–41.6)	10.4 (10.1–10.7)
Delaware	23.4 (21.8–25.0)	40.6 (37.4–43.9)	10.5 (9.1–12.0)
Kent	20.5 (10.8–30.3)	36.7 (11.6–61.8)	9.3 (2.7–15.9)
New Castle	23.5 (17.9–29.0)	41.7 (29.2–54.3)	10.0 (5.3–14.8)
Sussex	24.8 (16.3–33.3)	40.2 (22.3–58.1)	12.4 (4.3–20.5)
AFRICAN-AMERICAN			
United States	12.7 (12.0–13.4)	19.6 (18.2–21.2)	8.1 (7.4–8.8)
Delaware	13.7 (10.4–17.0)	22.6 (15.8–29.4)	7.3 (4.2–10.5)
Kent	---	---	---
New Castle	13.4 (2.3–24.6)	20.6 (-1.3–42.6)	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 cases.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

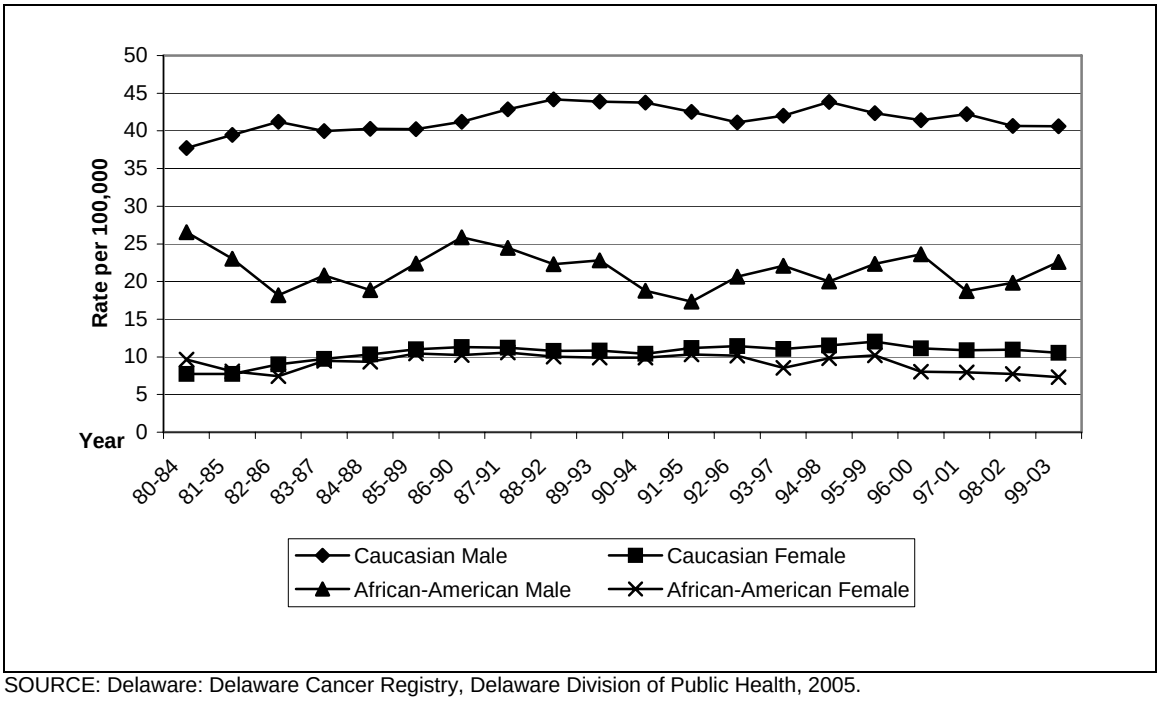
Figure 14.1. Five-Year Average Age-Adjusted Urinary Bladder Cancer Incidence Rates* in the United States (Estimates) and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.

SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute.

Figure 14.2. Five-Year Average Age-Adjusted Urinary Bladder Cancer Incidence Rates in Delaware, by Race and Sex: 1980–2003



SOURCE: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

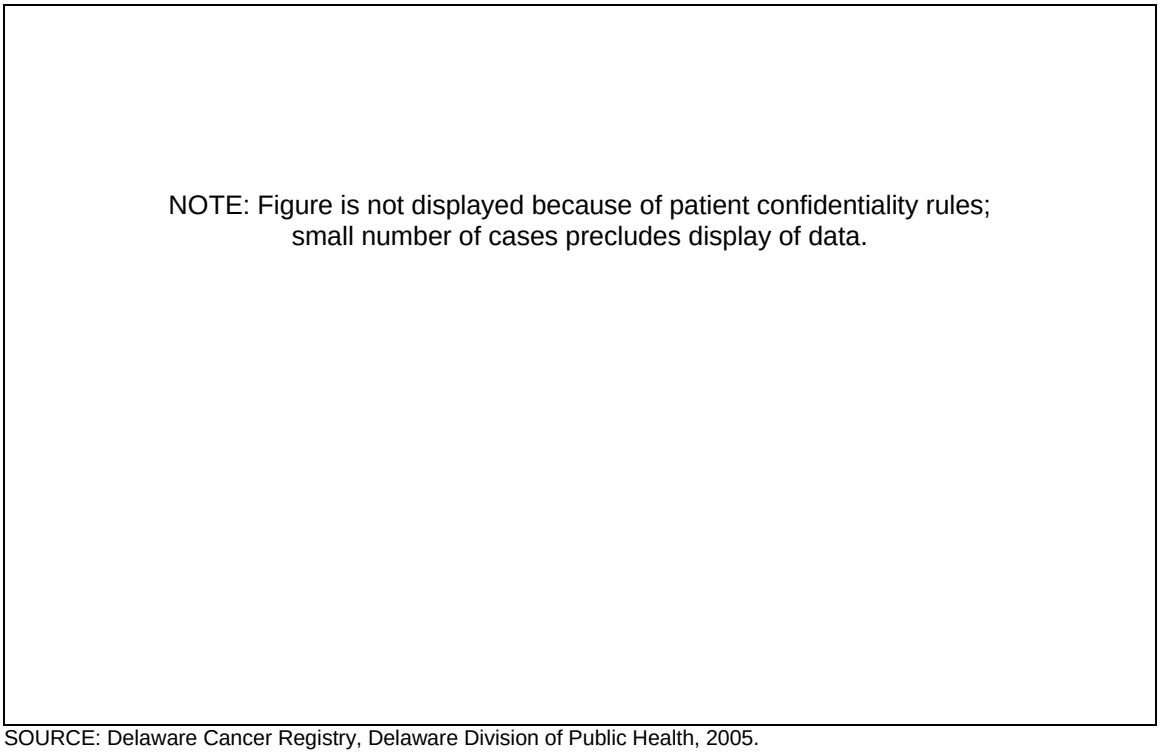
Table 14.3. Age-Specific Urinary Bladder Cancer Incidence Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	---	---	---	---	---	---	0.00	---
40–64	19.5	30.84	8.9	21.6	33.3	10.4	---	---	---
65–74	110.7	183.6	48.2	118.6	194.3	52.6	---	---	---
75–84	153.0	288.3	61.9	156.4	300.4	58.6	---	---	---
85+	132.6	252.4	85.1	133.7	269.6	79.4	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 14.3. Age-Specific Urinary Bladder Cancer Incidence Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Urinary Bladder Cancer by Stage at Diagnosis

Table 14.4. Number of Urinary Bladder Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
In Situ	440	322	118	403	295	108	25	19	6
Local	347	269	78	309	244	65	34	24	10
Regional	57	38	19	51	36	15	< 6	0	< 6
Distant	28	21	7	24	17	7	< 6	< 6	0
Unknown	47	32	15	41	28	13	< 6	< 6	< 6
Total	919	682	237	828	620	208	70	49	21

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 14.5. Percentage of Urinary Bladder Cancer Cases in Delaware, by Stage at Diagnosis, Race, and Sex: 1999–2003

Stage at Diagnosis	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
In Situ	47.9	47.2	49.8	48.7	47.6	51.9	35.7	38.8	28.6
Local	37.8	39.4	32.9	37.3	39.4	31.3	48.6	50.0	47.6
Regional	6.2	5.6	8.0	6.2	5.8	7.2	---	0.0	---
Distant	3.1	3.1	3.0	2.9	2.7	3.4	---	---	0.0
Unknown	5.1	4.7	6.3	5.0	4.5	6.3	---	---	---
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

--- = Percentage based on fewer than six cases.

SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Figure 14.4. Percentage of Urinary Bladder Cancer Cases in Delaware and the United States (Estimates), by Stage at Diagnosis: 1999–2003

Figure 14.4a. Delaware: 1999–2003

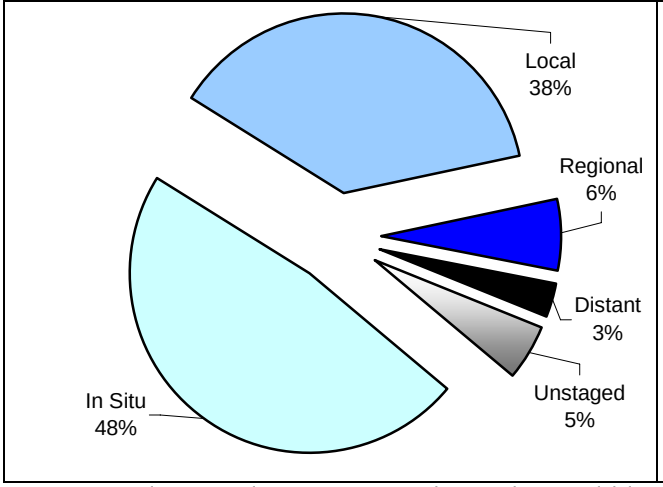
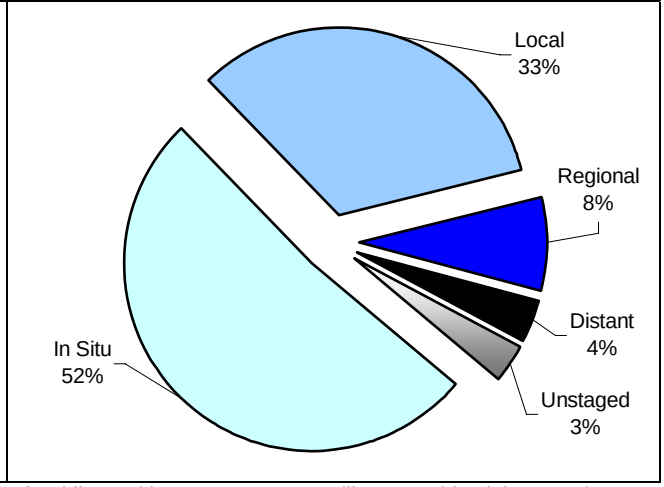
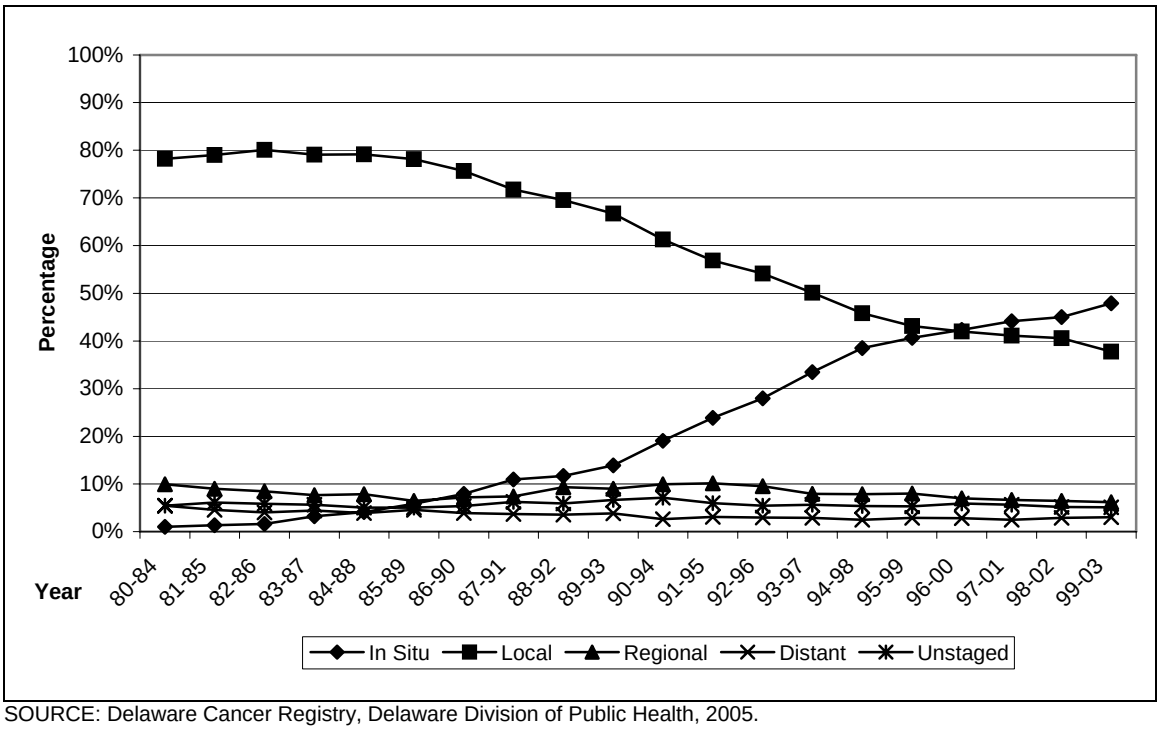


Figure 14.4b. U.S. Estimates: 1999–2003



SOURCES: Delaware: Delaware Cancer Registry, Delaware Division of Public Health, 2005; U.S.: Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, 2006.

Figure 14.5. Percentage of Urinary Bladder Cancer Cases in Delaware, by Stage at Diagnosis: 1980–2003



SOURCE: Delaware Cancer Registry, Delaware Division of Public Health, 2005.

Table 14.6. Number of Urinary Bladder Cancer Deaths in Delaware and Counties, by Race and Sex: 1999–2003

	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	206	140	66	178	128	50	28	12	16
Kent	32	22	10	26	20	6	6	< 6	< 6
New Castle	107	69	38	93	64	29	14	< 6	9
Sussex	67	49	18	59	44	15	8	< 6	< 6

SOURCE: Delaware Health Statistics Center, 2005.

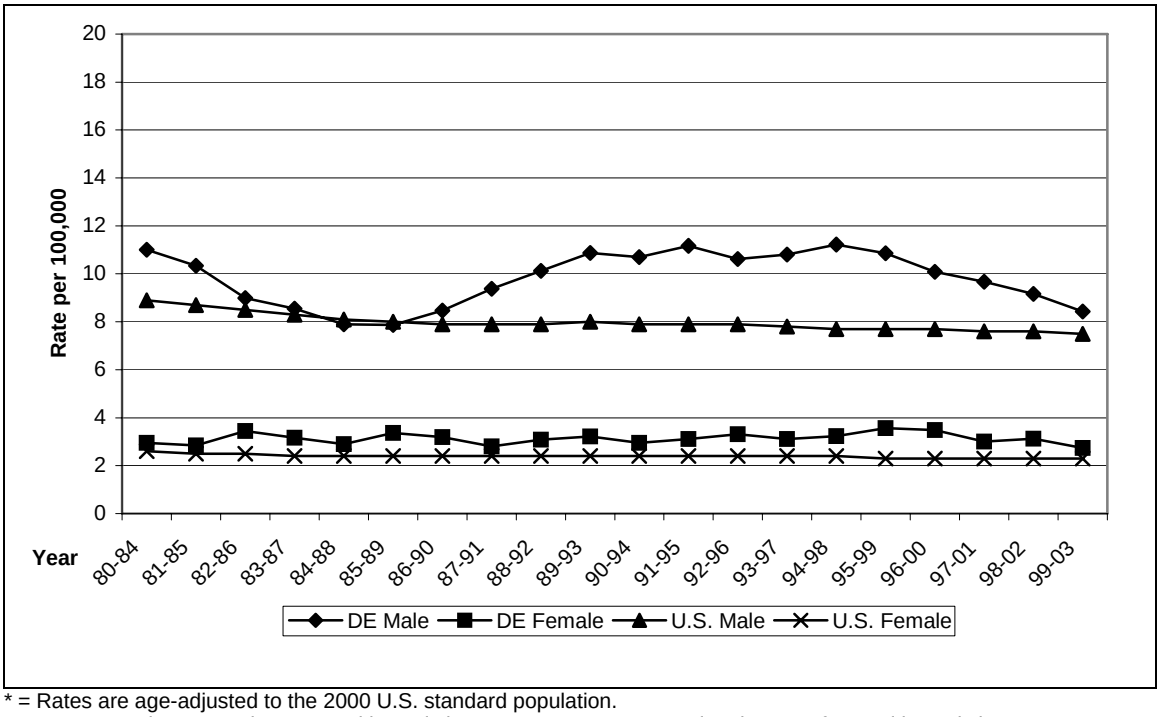
Table 14.7. Five-Year Average Age-Adjusted Urinary Bladder Cancer Mortality Rates* in the United States, Delaware and Counties, by Race and Sex: 1999–2003

RACE AND REGION	SEX		
	All	Male	Female
ALL RACES			
United States	4.3 (4.3–4.4)	7.5 (7.5–7.6)	2.3 (2.2–2.3)
Delaware	5.1 (4.4–5.8)	8.4 (7.0–9.9)	2.7 (2.1–3.4)
Kent	5.1 (-0.1–10.3)	7.9 (-2.2–18.0)	2.9 (-2.1–7.8)
New Castle	4.6 (1.8–7.3)	7.0 (1.0–13.0)	6.1 (2.1–10.2)
Sussex	6.1 (1.2–11.1)	10.4 (-0.3–21.0)	3.0 (-1.7–7.6)
CAUCASIAN			
United States	4.5 (4.4–4.5)	7.9 (7.8–7.9)	2.3 (2.2–2.3)
Delaware	5.0 (4.3–5.8)	8.8 (7.2–10.4)	2.4 (1.7–3.1)
Kent	---	---	---
New Castle	4.6 (1.7–7.6)	8.1 (1.3–14.9)	2.3 (-0.5–5.2)
Sussex	5.9 (0.9–11.0)	---	---
AFRICAN-AMERICAN			
United States	3.8 (3.7–3.9)	5.5 (5.3–5.7)	2.9 (2.7–3.0)
Delaware	5.8 (3.6–8.0)	---	---
Kent	---	---	---
New Castle	---	---	---
Sussex	---	---	---

* = Rates are per 100,000 population and age-adjusted to the 2000 U.S. standard population.
--- = Rate based on fewer than 25 deaths.

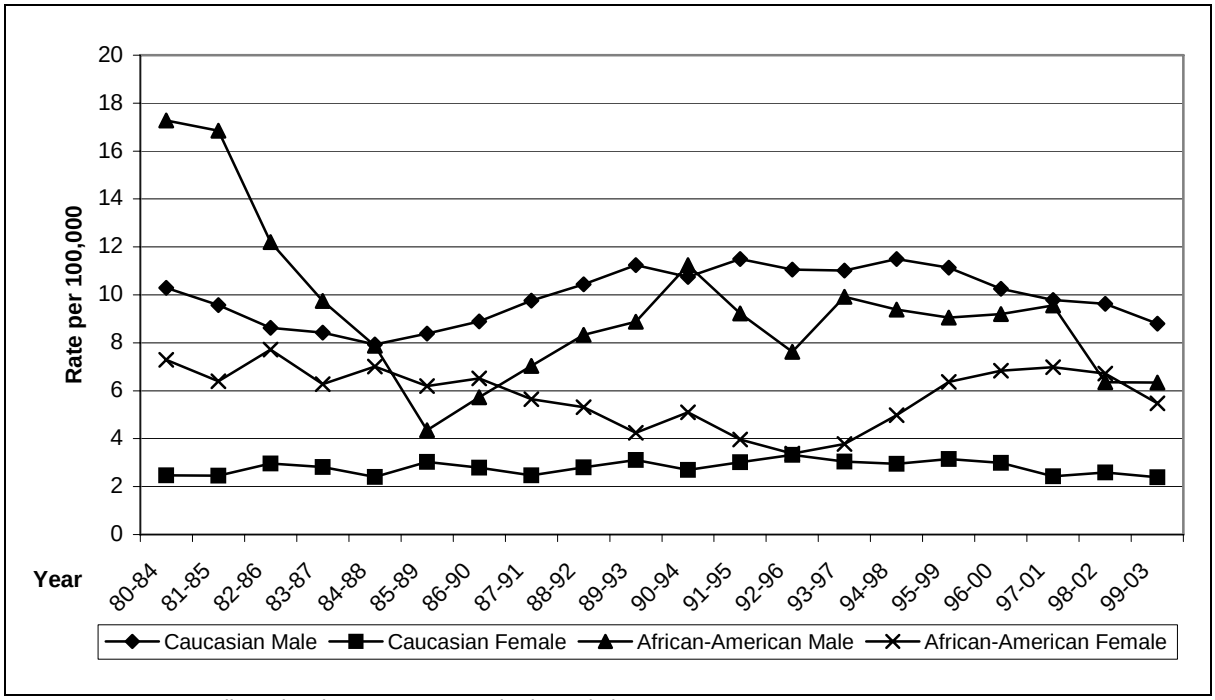
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 14.6. Five-Year Average Age-Adjusted Urinary Bladder Cancer Mortality Rates* in the United States and Delaware, by Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCES: Delaware: Delaware Health Statistics Center, 2005; U.S.: National Center for Health Statistics, 2006.

Figure 14.7. Five-Year Average Age-Adjusted Urinary Bladder Cancer Mortality Rates* in Delaware, by Race and Sex: 1980–2003



* = Rates are age-adjusted to the 2000 U.S. standard population.
SOURCE: Delaware Health Statistics Center, 2005.

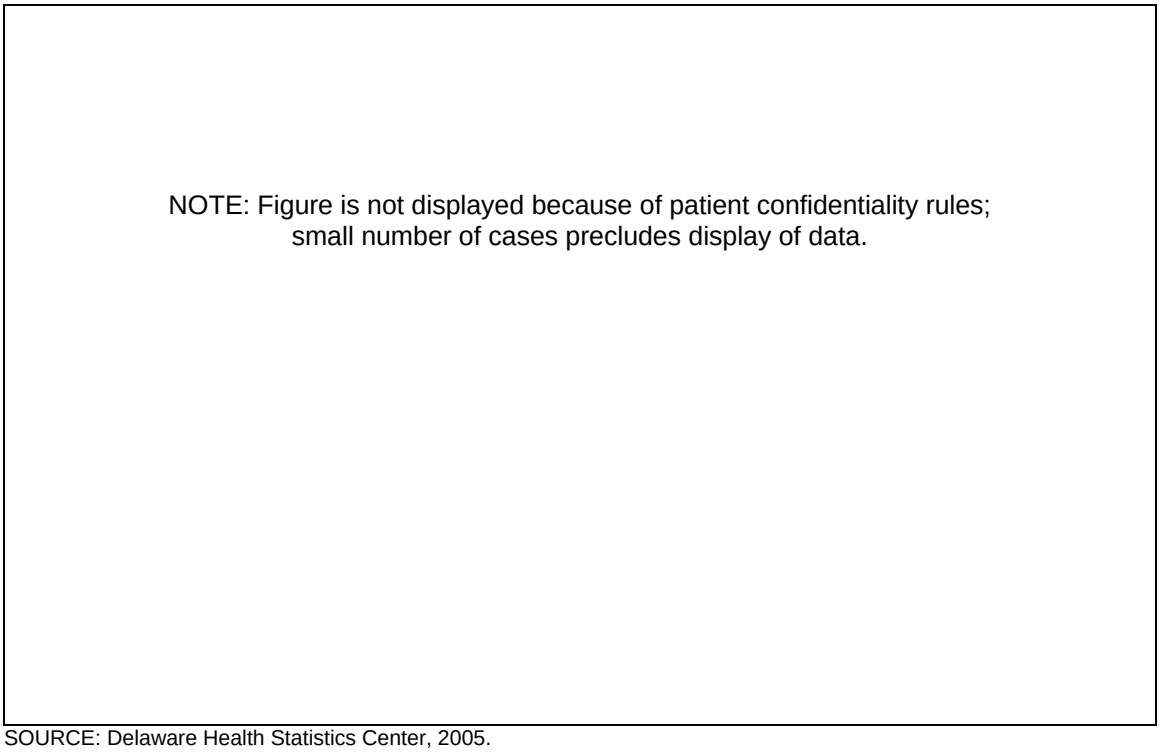
Table 14.8. Age-Specific Urinary Bladder Cancer Mortality Rates* in Delaware, by Race and Sex: 1999–2003

Age Group	All Races			Caucasian			African-American		
	All	Male	Female	All	Male	Female	All	Male	Female
0–39	---	0.0	---	0.0	0.0	0.0	---	0.0	---
40–64	2.5	---	---	2.6	---	---	---	---	---
65–74	23.1	38.7	---	23.6	41.1	---	---	---	---
75–84	37.6	70.0	---	38.6	75.5	---	---	---	---
85+	71.7	---	---	66.8	---	---	---	---	---

* = Rates are per 100,000 population.
--- = Rate based on fewer than 25 deaths.

SOURCE: Delaware Health Statistics Center, 2005.

Figure 14.8. Age-Specific Urinary Bladder Cancer Mortality Rates in Delaware, by Race: 1999–2003



SOURCE: Delaware Health Statistics Center, 2005.

APPENDIX A

HISPANIC CANCER RATES

The Delaware Division of Public Health would like to present cancer rates for racial and ethnic groups in addition to Delaware's Caucasian and African-American populations. To explore this possibility, an attempt was made to calculate rates for Delaware residents with Hispanic ethnicity. However, this report includes only cancer cases and deaths for the Hispanic population in Delaware (tables A1 and A2). Cancer rates were not calculated because of several methodological issues that would prevent the rates from being fairly compared with similar data for the Caucasian and African-American populations. Because cancer rates are calculated by dividing the number of cancer cases (numerator) by a population (denominator), the rates can be heavily influenced by changes or uncertainties in either. Specific issues that suggest that Hispanic cancer rates would be subject to misinterpretation are presented below:

- **Uncertain estimate of Delaware's Hispanic population—**Estimates of Delaware's population are derived from a census performed every 10 years by the U.S. Census Bureau. The Delaware Population Consortium (DPC) uses the census to estimate the Delaware population between census years. In 1997, the DPC began releasing studies on special topics of interest, including Hispanic population estimates. Because the estimates are calculated from mortality, fertility, labor-force, and migration statistics and because these statistics are based on a small population of Hispanics, the DPC urged that the Hispanic population estimates presented in its studies be used with caution (Delaware Population Consortium. *Delawareans of Hispanic Origin, 1991–1998*. Population Study Series. PS-00-01, April 2000). For these reasons, the estimates are not included in the DPC's annual Delaware population projection. In less-populated areas, such as small states, and especially in subsets of the population (for example, for one sex or one county), even a small inaccuracy can result in a substantial error in the cancer rate.

- **Inaccurate recording of Hispanic ethnicity on death certificates—**Race and Hispanic origin are treated as distinct concepts and reported separately on death certificates and to the Delaware Cancer Registry, in accordance with guidelines from the federal Office of Management and Budget. To assess the completeness of the reporting of Hispanic ethnicity, expected numbers of cancer cases and deaths in the Hispanic population were calculated and compared with the actual (observed) reports. Because the Hispanic population is younger than the Delaware population as a whole, and because cancer rates increase with age, the expected values were age-adjusted to ensure comparability. There were 81 deaths from cancer actually reported on death certificates between 1999 and 2003, but 130 expected. Similarly, 211 cases were actually reported to the registry, but 399 were expected. Although this analysis is a cursory attempt to estimate the degree of under-reporting of Hispanic ethnicity, it demonstrates the possibility of significant inaccurate Hispanic cancer rates.[1]

- **Small number of cases or deaths and small population sizes—**An incidence or mortality rate is an estimate, and the reliability of the estimate can be measured by calculating a confidence interval. A small confidence interval suggests that the rate is a good estimate; a wide confidence interval suggests that the rate should be interpreted with caution. If the confidence intervals of two rates do not overlap, the rates are considered to be statistically

[1] This analysis assumes that the risk of cancer in the Hispanic population, for any particular age, is the same as the Delaware population as a whole. The indirect standardization of age adjustment was used to calculate the expected number of cases and deaths in the Hispanic population. The indirect method applies the age-specific rates of a standard population (Delaware's 1998–2002 rates) to the age distribution of the study (Hispanic) population in order to estimate the expected deaths or cases in the study population. Indirect adjustment is used when the number of deaths or cases in each age group in the study population is too small to calculate stable age-specific rates. The rest of this report uses the direct standardization of age adjustment, which is explained in appendix B.

different. Both the size of the numerator (number of cases or deaths) and the denominator (the population) determine the width of the confidence interval.

To illustrate the impact of these statistical concepts on the calculation of Hispanic cancer rates, five-year average annual age-adjusted cancer rates were compared for three racial/ethnic groups, along with their 95-percent confidence intervals. A 95-percent confidence interval suggests that there is a 95-percent probability that the actual rate is within that interval.

As shown in the tables below, the small numerators and denominators for the Hispanic population produced large confidence intervals, compared with those of the Caucasian and African-American populations.

Table A1. Cancer Cases, Population, and Age-Adjusted Cancer Incidence Rates in Delaware: 1999–2003

Race/Ethnicity	Average Annual Cases (1999–2003)	Average Annual Population (1999–2003)	Annual Average Incidence Rate per 100,000	95% Confidence Interval	
				Lower	Upper
Hispanic	42	40,168	261.4	220.0	302.8
Caucasian	3,419	598,569	493.4	486.0	500.8
African-American	614	160,683	539.8	520.4	559.3

Table A2. Cancer Deaths, Population, and Age-Adjusted Cancer Mortality Rates in Delaware: 1999–2003

Race/Ethnicity	Average Annual Deaths (1999–2003)	Average Annual Population (1999–2003)	Annual Average Mortality Rate per 100,000	95% Confidence Interval	
				Lower	Upper
Hispanic	16	40,168	132.6	99.9	165.3
Caucasian	1,402	598,569	200.3	195.7	205.0
African-American	262	160,683	250.6	236.7	264.4

SOURCES: For Hispanics, the population is estimated by the U.S. Census Bureau. For Caucasians and African Americans, the population is provided by the Delaware Population Consortium. Incidence data: Delaware Cancer Registry, Delaware Division of Public Health, 2005. Mortality data: Delaware Health Statistics Center, 2005.

APPENDIX B

METHODOLOGY

The purpose of the methodology section is to document the materials, data sources, and statistical methods that were used to generate the counts and age-adjusted and age-specific incidence and mortality rates discussed in this report. Coding and classification schemes used for both incidence and mortality cases included in the report are described, and a description of technical terms and variable definitions used in the report is provided.

SOURCES OF DATA

Incidence Data

Delaware Cancer Registry

Incident cancer cases that were diagnosed between January 1, 1999, and December 31, 2003, and reported to the Delaware Cancer Registry (DCR) by November 2005 were included in this report to compute the five-year average age-adjusted incidence rates. Trends in incidence were based on cancer diagnoses from January 1, 1980, to December 31, 2003, reported to DCR by November 2005. The total number of newly diagnosed reportable cancers between 1999 and 2003 that occurred among Delaware residents was 20,793. This number includes individuals with cancers diagnosed at more than one site, also known as multiple primaries.

DCR's reporting procedures are consistent with those adopted by the American Cancer Society (ACS) and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program. Currently, the procedures exclude all cases of benign brain cancers and in situ cancer, except for in situ bladder cancer and borderline ovarian cancer. Invasive and in situ bladder cancer cases were combined in the analysis because of the difficulty in distinguishing between the two types of cancers based on the language used by pathologists.

The International Classification of Diseases for Oncology, Second Edition (ICD-O-2) was used to describe the topography (primary anatomic site) and morphology (histology) for cancers reported between 1988 and 2000. Cancers reported between 2001 and 2003 were coded using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3). The topography code (ICD-O-2 or ICD-O-3) defines both the site of the tumor and the type of neoplasm. The codes range from C00.0 to C80.9. Five-digit morphology codes ranging from M8000/0 to M9989/3 were used to describe both the histology and the behavior of the tumor. The first four digits of the morphology codes define the histology of the cancer, and the fifth digit indicates whether the cancer was malignant, benign, in situ, or uncertain (whether benign or malignant). ICD-O-2 codes were converted to ICD-O-3 codes for all cases diagnosed between 1988 and 2000 using conversion programs, primarily to account for the changes in the morphology codes. The topography codes for ICD-O-2 and ICD-O-3 were identical. Cancer primary site groupings used in this report were based on SEER Program conventions and are shown in appendix D.

SEER Program

Data from the SEER program were used to compare Delaware's incidence and mortality rates and those for the United States. The SEER program was established in 1971 after legislation was passed by Congress to collect, analyze, and disseminate data for cancer control, diagnosis, and treatment. Several population-based registries that are representative of the different regions in the United States routinely collect data to allow SEER to produce cancer incidence and mortality statistics. Connecticut, Hawaii, Iowa, New Mexico, Utah, metropolitan areas of

Detroit in Michigan, and San Francisco and Oakland in California have provided data to SEER since January 1, 1973. Other states that participate include parts of Georgia and Washington, Kentucky, Louisiana, New Jersey, and the remaining counties in California. Recently, SEER expanded data collection activities to 17 population-based registries. This report was based on the nine registries that have provided data to SEER since 1974–75. These registries include Atlanta, Connecticut, Detroit, Hawaii, Iowa, New Mexico, San Francisco-Oakland, Seattle-Puget Sound, and Utah.

Mortality Data

Delaware Health Statistics Center

Cancer mortality data used in this report were provided by the Delaware Health Statistics Center. The data file was compiled from all death certificates filed in Delaware between 1980 and 2003. Five-year average age-adjusted mortality rates were based on deaths that occurred between 1999 and 2003. Trends in cancer mortality were presented for deaths that occurred between 1980 and 2003.

The underlying cause-of-death codes were based on the International Classification of Diseases, Ninth Edition (ICD-9) for deaths that occurred between 1980 and 1998. The International Classification of Diseases, Tenth Edition (ICD-10) was used to code deaths that occurred between 1999 and 2003. The underlying cause of death was the cause of death listed on the death certificate that started the sequence of events that eventually led to the death of the individual. It was usually selected from a list of causes of death that appears on the death certificate. Only cancer deaths that occurred among residents of Delaware were included in the analysis. The recodes used to define the overall primary site cancer groups were based on those adopted by SEER (see appendix D).

National Center for Health Statistics

U.S. mortality data were obtained from the National Center for Health Statistics to allow for comparisons between Delaware's mortality rates and national data. The data were compiled from all death certificates filed in the 50 states and the District of Columbia between 1980 and 2003. Cancer deaths were coded in accordance with World Health Organization regulations, which stipulate that cancer deaths should be coded using the most current revision of the International Classification of Diseases (ICD). Accordingly, deaths that occurred prior to 1999 were coded using ICD-9. Beginning with 1999, deaths were coded using ICD-10.

Population Data

Standard Population

The year 2000 standard U.S. population was used for age adjustment of incidence and mortality rates. The standard population was used for direct standardization of the incidence and mortality rates to enable comparisons among populations (United States and Delaware counties) that had different age structures.

Population Estimates for Delaware, 2003

The Delaware Population Consortium provided population estimates for Delaware by age, race/ethnicity, sex, and county. Between 1980 and 1989, race/ethnicity was defined as Caucasian, African-American , and other. Beginning in 1990, detailed race/ethnicity categories were collected as follows: Asian/Pacific Islander, African-American, Caucasian, American Indian and Alaska Native, and Hispanic. In 2000, the population estimates included a separate multiracial category, but these cases are not included in this report. The population data for Delaware are presented in appendix E.

RISK FACTORS AND EARLY DETECTION

Cancer risk factors and effective means of preventing cancer are described at the beginning of each chapter of this report. Three web sites were used as primary sources to update risk factors for cancer: the American Cancer Society (www.cancer.org), the National Cancer Institute (www.cancer.gov), and WebMD (www.webmd.com).

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System provided estimates on the prevalence of risk factors in Delaware and the United States. Cancer risk factor data for Delaware and the United States were obtained from the Centers for Disease Control and Prevention's interactive data system. The most recent updates were from 2003, 2004 or 2005, depending on the risk factor. The results are included in the appropriate chapters on the site-specific cancers. However, data on obesity, physical inactivity, and diet are presented in appendix F, since the literature to support their role in the etiology of cancer is inconsistent.

STATISTICAL METHODOLOGY AND TECHNICAL TERMS

Age-adjusted and age-, race-, and sex-specific incidence and mortality rates are presented in this report to describe the pattern of cancer incidence and mortality in Delaware. All rates and the 95-percent confidence intervals were computed using Microsoft Excel and expressed as a five-year average per 100,000 population.

Direct Standardization and Age-Adjusted Incidence and Mortality Rates

The age distribution of a population is an important determinant of the burden of cancer. Because cancer incidence and mortality increase with age, crude rates cannot be used for comparisons of cancer statistics between sexes, racial or ethnic groups, or geographic entities or across different time spans. In order to enable comparisons that were independent of the age distribution of the population of Delaware, directly standardized age-adjusted rates were calculated (Anderson & Rosenberg, 1998; Klein & Schoenborn, 2001; Goodman & Wilkens, 1994). Age-adjusted incidence and mortality rates for Delaware were computed using an external reference population with a fixed standard age distribution. Age-standardized rates represent a theoretical rate of cancer incidence or mortality in a population with an age distribution identical to the reference or standard population.

Incidence and mortality rates were adjusted to the U.S. standard million population using direct standardization. This process involved calculating the age-specific incidence or mortality rates for the residents of Delaware and then applying or multiplying these rates to the proportion of individuals in the same age group in the reference population. The individual age-specific rates were then summed to obtain the overall age-adjusted rate.

The formula for an age-adjusted rate can be presented as follows:

$$\text{Age-Adjusted Rate} = \text{sum } (w_i \times ((c_i/n_i) \times 100{,}000))$$

Where c_i is the number of new cases or deaths in the *i* age group, n_i is the population estimate for the *i* age group, and w_i is the proportion of the standard population in the *i* age group. All rates are expressed per 100,000 of the population.

Age-Specific Incidence and Mortality Rates

Age-related differences in the risk of cancer incidence and mortality and variations in the patterns of cancer were provided by calculating age-specific rates. The age-specific rates were calculated by dividing the number of cases or deaths using the following age groups (0–39, 40–64, 65–74, 75–84, and 85 and older) in a defined time period by the total population of Delaware in that age group and for the same time period. The rates were expressed per 100,000 of the population.

Race- and Sex-Specific Incidence and Mortality Rates

Subgroup differences in patterns of observed cancer incidence and mortality were demonstrated by calculating race- and sex-specific incidence and mortality rates. These rates were calculated by dividing the number of cases or deaths that occurred in each race and/or sex group by the total population in the corresponding race and/or sex group over the same time period. These rates were adjusted to the U.S. standard population and expressed per 100,000 of the population.

Confidence Intervals

Age-adjusted incidence and mortality rates are subject to chance variation, particularly when they are based on an unusually large or small number of new cancer cases or deaths occurring over a limited period of time or in a limited geographic area. Aggregating several years of data sometimes provides more reliable estimates of incidence and mortality in these situations. The level of uncertainty associated with incidence and mortality statistics can be estimated by the standard error used to calculate the 95-percent confidence interval.

Traditional confidence limits are based on the assumption that the study population is large and that the population under investigation has a normal distribution. A population is considered to be large when the number of deaths or new cancer cases exceeds 100. When cancers are rare, it is more appropriate to calculate the confidence limit based on the inverse gamma function. This method assumes that the direct standardized rate is a linear combination of random Poisson variables (Fay & Feuer, 1997). The advantage of the Poisson model is that it assigns more variability to incidence or mortality rates that are based on a small number of cases than is

assigned to rates based on larger counts of deaths or new cases. The confidence limits for the age-adjusted rates for Delaware were calculated by assuming that the population has a normal distribution.

Stage at Diagnosis

The stage of diagnosis describes the extent to which newly diagnosed cancer cases had spread from the site of origin. SEER summary staging was used to define the stage at diagnosis for all incident cancer cases. Cancer cases diagnosed between 1980 and 2000 were coded according to the Summary Stage 1977; beginning with 2000, cases were coded using the codes for Summary Stage 2000. Four categories were used to code the metastases for any particular cancer site:

- "In situ" (Stage 0) was used to code in situ cancer cases that had not spread beyond the site of origin.
- "Local" describes tumors that were invasive but confined to the organ of origin.
- "Regional" tumors had extended beyond the limits of the organ of origin, but there was no evidence of distant metastasis.
- "Distant" stage described cancer cells that had detached from the primary site and begun to grow at a new site in the body.

OTHER TECHNICAL INFORMATION

Suppression of Data

Presentation of data was limited to those rates that were based on an adequate number of cancer cases or deaths. Rates that were based on a very small number of cases were unstable and therefore could not be reliably interpreted.

In addition, suppressing incidence and mortality statistics based on a small number of new cancer cases or deaths protected patient privacy and confidentiality (Coughlin, Clutter, & Hutton, 1999; McLaughlin, 2002). Counts were suppressed using the recommendations of the National Center for Health Statistics. All incidence and mortality counts presented for subgroups that were fewer than six per cell were suppressed. Age-adjusted incidence and mortality rates based on fewer than 25 cases or deaths were also suppressed. The same criteria were applied to age-, race-, and sex-specific incidence and mortality rates.

Interpretation

The cancer incidence rate was interpreted as the rate at which individuals developed cancer in the population of Delaware between 1999 and 2003. The mortality rate was the rate at which individuals in Delaware died from cancer between 1999 and 2003.

Definition of Race/Ethnicity

Race groupings in this report were defined using both race and Hispanic ethnicity. For incidence and mortality rates, the total population included people of Hispanic ethnicity and those of

unknown race. Race-specific incidence and mortality rates excluded all people of Hispanic ethnicity.

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APPENDIX C

FIVE-YEAR AVERAGE AGE-ADJUSTED INCIDENCE AND MORTALITY RATES FOR ALL CANCERS, EXCLUDING SPECIFIC SITES: 1999–2003

	All			Caucasian			African-American		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Incidence*									
Delaware									
Count	5,830	2,861	2,969	4,730	2,325	2,405	900	436	464
Rate	142.2 (138.5–145.8)	156.1 (150.3–161.9)	132.0 (127.3–136.8)	139.3 (135.3–143.3)	152.5 (146.2–158.8)	130.0 (124.8–135.2)	152.3 (142.0–162.6)	169.1 (151.9–186.3)	139.7 (126.8–152.6)
Kent									
Count	773	367	406	610	287	323	129	67	62
Rate	122.7 (102.4–142.9)	131.1 (94.3–167.9)	117.8 (92.9–142.7)	121.1 (99.2–142.9)	129.6 (87.6–171.6)	118.0 (91.6–144.4)	120.2 (63.9–176.5)	125.3 (57.1–193.5)	112.2 (31.2–193.1)
New Castle									
Count	3,626	1,760	1,866	2,864	1,383	1,481	625	306	319
Rate	148.8 (137.6–160.0)	163.9 (143.7–184.2)	138.5 (124.9–152.1)	145.0 133.0–156.9	158.0 (136.7–179.4)	136.4 (121.8–151.0)	161.5 (127.2–195.8)	190.9 (117.5–264.4)	144.0 (104.7–183.4)
Sussex									
Count	1,417	725	692	1,244	648	51	146	63	83
Rate	136.5 (120.2–152.9)	150.6 (123.8–177.4)	123.9 (103.3–144.4)	136.1 (118.9–153.3)	152.3 (123.8–180.7)	108.3 (86.0–130.7)	147.4 (86.9–207.9)	146.6 (56.3–237.0)	146.5 (68.2–224.8)
Mortality*									
Delaware									
Count	2,434	1,277	1,157	2,003	1,054	949	374	193	181
Rate	59.8 (57.4–62.1)	74.1 (69.9–78.3)	49.4 (46.5–52.2)	57.7 (55.1–60.2)	71.6 (67.1–76.0)	48.6 (45.5–51.7)	70.2 (62.9–77.5)	87.4 (73.9–100.8)	58.9 (50.2–67.6)
Kent									
Count	361	190	167	283	152	131	62	34	28
Rate	58.7 (41.1–76.3)	81.2 (45.9–116.5)	47.0 (27.2–66.7)	55.7 (36.8–74.7)	73.3 (34.4–112.1)	44.1 (22.9–65.3)	62.7 (16.8–108.7)	75.5 (6.4–157.4)	52.6 (3.6–108.8)
New Castle									
Count	1,483	765	718	1,194	613	581	253	133	120
Rate	62.4 (53.5–71.3)	77.6 (60.2–94.9)	52.0 (41.7–62.2)	59.9 (50.4–69.3)	74.0 (55.9–92.1)	50.1 (39.1–61.0)	74.7 (46.6–102.7)	99.0 (36.0–162.0)	60.4 (29.8–91.0)
Sussex									
Count	590	318	272	526	289	237	59	26	33
Rate	54.9 (42.2–67.6)	66.5 (44.5–88.6)	44.8 (29.4–60.2)	54.7 (41.5–68.0)	67.3 (44.1–90.6)	43.9 (27.9–59.9)	62.7 (15.4–110.0)	66.3 (12.3–145.0)	59.3 (0.9–119.6)

* = Rates are expressed per 100,000.

NOTE: Rates exclude the following sites: female breast, cervical, colorectal, esophagus, leukemia, lung and bronchus, malignant melanoma, ovarian, pancreatic, prostate, and urinary bladder.

APPENDIX D

PRIMARY SITE DEFINITIONS FOR CANCER INCIDENCE AND MORTALITY

Primary Site	ICD-O-2	ICD-O-3	ICD-9	ICD-10
Oral cavity and pharynx	C00.0–C14.8	C00.0–C14.8	140.0–149.9	C00.0–C14.8
Esophagus	C15.0–C15.9	C15.0–C15.9	150.0–150.9	C15.0–C15.9
Stomach	C16.0–C16.9	C16.0–C16.9	151.0–151.9	C16.0–C16.9
Colon and rectum	C18.0–C20.9, C26.0	C18.0–C20.9, C26.0	153.0–154.1, 159.0	C18.0–C20.9, C26.0
Liver/intrahepatic bile	C22.0–C22.1	C22.0–C22.1	155.0–155.2	C22.0–C22.9
Pancreatic	C25.0–C25.9	C25.0–C25.9	157.0–157.9	C25.0–C25.9
Larynx	C32.0–C32.9	C32.0–C32.9	161.0–161.9	C32.0–C32.9
Bronchus and lung	C34.0–C34.9	C34.0–C34.9	162.2–162.9	C34.0–C34.9
Melanoma of the skin	C44.0–C44.9 and M8720–M8790	C44.0–C44.9 and M8720–M8790	172.0–172.9	C43.0–C43.9
Female breast	C50.0–C50.9	C50.0–C50.9	174.0–174.9	C50.0–C50.9
Cervix uteri	C53.0–C53.9	C53.0–C53.9	180.0–180.9	C53.0–C53.9
Corpus/uterus, not otherwise specified	C54.0–C55.9	C54.0–C55.9	182.0–182.9, 179	C54.0–C55.9
Ovary	C56.9	C56.9	183.0	C56.9
Prostate	C61.9	C61.9	185	C61
Testis	C62.0–C62.9	C62.0–C62.9	186.0–186.9	C62.0–C62.9
Urinary bladder	C67.0–C67.9	C67.0–C67.9	188.0–188.9	C67.0–C67.9
Kidney and renal pelvis	C64.9, C65.9	C64.9, C65.9	189.0–189.1	C64, C65
Brain/other nervous system	C70.0–C72.9	C70.0–C72.9	191.0–192.9	C70.0–C72.9
Thyroid	C73.9	C73.9	193	C73
Non-Hodgkins lymphomas	M9590–M9595, M9670–M9717	M9590–M9596, M9670–M9729	200.0–200.8, 202.0–202.2, 202.8–202.9	C82.0–C85.9
Hodgkins lymphomas	M9650–M9667	M9650–M9667	201.0–201.9	C81.0–C81.9
Multiple myeloma	M9731–M9732	M9731–M9732 M9734	203.0, 203.2–203.8	C88.7–C88.9, C90.0–C90.2
Leukemias	M9800–M9941	M9733, M9742, M9800–M9948, M9963–M9964	202.4, 203.1, 204.0–208.9	C90.1, C91.0–C95.9

APPENDIX E

DELAWARE POPULATION ESTIMATES (FIVE-YEAR TOTALS), BY SEX, RACE, YEARS, AND AGE GROUP: 1980–2003

TOTAL POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	214,207	215,224	238,510	284,928	287,504	257,448	240,373	198,978	169,336	160,852	159,719	157,164	137,314	112,545	82,140	56,216	35,859	27,646	3,035,963
1981–85	218,519	217,674	235,624	278,183	285,957	262,204	247,217	205,957	176,370	163,939	158,955	156,135	138,915	115,869	84,762	58,120	36,884	28,312	3,069,596
1982–86	222,918	220,151	232,773	271,597	284,419	267,048	254,255	213,182	183,696	167,085	158,194	155,112	140,534	119,290	87,468	60,088	37,938	28,995	3,104,743
1983–87	227,406	222,657	229,956	265,167	282,889	271,982	261,493	220,660	191,326	170,291	157,437	154,097	142,173	122,813	90,260	62,123	39,023	29,694	3,141,447
1984–88	231,983	225,191	227,174	258,889	281,367	277,007	268,938	228,400	199,273	173,559	156,684	153,088	143,831	126,440	93,141	64,227	40,139	30,410	3,179,741
1985–89	236,653	227,754	224,425	252,761	279,854	282,125	276,595	236,411	207,551	176,889	155,935	152,086	145,508	130,174	96,115	66,402	41,286	31,143	3,219,667
1986–90	241,417	230,346	221,710	246,778	278,349	287,338	284,469	244,704	216,172	180,283	155,189	151,090	147,204	134,018	99,184	68,651	42,467	31,894	3,261,263
1987–91	247,002	233,344	221,422	239,937	277,915	290,859	292,199	253,305	226,107	183,991	155,843	150,234	148,777	137,280	102,762	70,853	43,848	33,044	3,308,722
1988–92	252,939	237,039	222,907	234,247	276,897	292,805	298,751	262,638	234,402	190,346	158,034	149,705	149,883	139,752	106,802	73,121	45,335	34,445	3,360,048
1989–93	258,679	241,198	226,409	230,132	275,530	292,343	303,805	272,267	241,848	198,345	162,375	149,809	150,596	141,613	110,952	75,571	46,885	36,158	3,414,515
1990–94	263,575	245,976	231,812	228,278	273,079	289,734	307,523	281,967	248,810	207,578	168,638	150,931	150,828	142,664	115,253	78,238	48,501	38,109	3,471,495
1991–95	267,276	251,644	238,648	229,237	269,266	285,672	309,672	291,351	255,795	218,395	176,552	152,922	150,922	142,984	119,406	81,230	50,469	40,220	3,531,662
1992–96	268,230	257,884	244,332	234,502	262,602	282,623	309,916	300,043	261,684	230,929	184,172	156,088	150,842	143,580	122,749	84,821	52,337	42,224	3,589,559
1993–97	267,318	264,096	249,956	241,269	256,251	279,379	309,039	307,035	269,684	240,209	193,595	160,553	150,922	144,422	125,162	88,785	54,357	44,091	3,646,121
1994–98	265,318	270,063	255,087	249,306	251,098	276,614	306,836	312,437	278,979	247,970	203,452	166,464	151,575	145,375	127,290	92,731	56,609	45,874	3,703,078
1995–99	263,097	275,155	259,963	257,829	248,402	273,725	303,060	316,753	288,783	254,999	213,433	173,368	153,324	146,388	128,811	96,676	59,072	47,686	3,760,523
1996–2000	260,887	278,384	265,330	265,682	248,998	269,598	298,611	319,891	298,156	261,724	224,182	181,016	155,416	147,743	130,117	100,350	61,687	49,464	3,817,237
1997–2001	260,222	279,236	271,171	270,361	254,617	262,938	294,526	321,205	306,718	267,541	236,586	188,557	158,410	148,605	131,729	103,494	64,856	51,192	3,871,965
1998–2002	261,182	278,111	276,995	273,420	262,695	255,987	290,542	320,747	314,036	275,407	246,059	197,923	162,941	149,202	133,595	106,149	68,385	53,284	3,926,663
1999–2003	263,147	275,728	282,716	276,063	270,531	250,646	286,717	318,458	319,534	284,720	253,936	208,082	168,894	150,079	135,437	108,913	72,185	55,811	3,981,596

TOTAL MALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	109,306	109,805	121,585	141,190	140,621	126,224	117,528	96,927	82,646	78,388	77,061	74,473	65,132	50,443	33,955	21,202	11,611	7,269	1,465,366
1981–85	111,544	111,121	120,157	137,931	140,086	128,782	121,035	100,443	86,114	79,862	76,725	74,084	65,854	51,973	35,246	22,030	11,988	7,332	1,482,307
1982–86	113,828	112,453	118,745	134,748	139,553	131,392	124,646	104,086	89,727	81,364	76,391	73,698	66,584	53,549	36,586	22,890	12,378	7,395	1,500,013
1983–87	116,159	113,801	117,350	131,638	139,021	134,054	128,365	107,861	93,492	82,895	76,058	73,314	67,322	55,173	37,976	23,784	12,780	7,458	1,518,501
1984–88	118,537	115,165	115,971	128,600	138,491	136,771	132,195	111,773	97,415	84,454	75,727	72,931	68,068	56,846	39,420	24,712	13,196	7,522	1,537,794
1985–89	120,964	116,546	114,608	125,632	137,964	139,543	136,139	115,827	101,503	86,043	75,397	72,551	68,823	58,570	40,919	25,677	13,625	7,587	1,557,918
1986–90	123,441	117,943	113,261	122,733	137,438	142,371	140,201	120,028	105,762	87,662	75,069	72,173	69,585	60,346	42,474	26,679	14,068	7,652	1,578,887
1987–91	126,361	119,575	113,147	119,415	137,266	144,393	144,160	124,332	110,654	89,453	75,440	71,791	70,326	61,932	44,245	27,669	14,586	7,935	1,602,682
1988–92	129,420	121,562	113,881	116,683	136,734	145,559	147,517	129,015	114,657	92,613	76,507	71,522	70,884	63,213	46,211	28,723	15,182	8,316	1,628,201
1989–93	132,392	123,724	115,770	114,714	136,060	145,319	150,055	133,884	118,210	96,587	78,550	71,575	71,327	64,282	48,108	29,921	15,851	8,786	1,655,113
1990–94	134,893	126,195	118,659	113,863	134,793	143,882	151,941	138,762	121,554	101,108	81,480	72,141	71,505	65,105	49,980	31,199	16,567	9,376	1,683,004
1991–95	136,777	129,054	122,259	114,510	132,759	141,725	152,970	143,435	124,882	106,389	85,222	73,078	71,636	65,589	51,812	32,650	17,462	10,031	1,712,240
1992–96	137,127	132,227	125,389	117,153	129,509	139,932	153,216	147,705	127,627	112,514	88,790	74,649	71,602	66,183	53,329	34,376	18,327	10,620	1,740,276
1993–97	136,560	135,384	128,537	120,476	126,511	138,066	152,850	151,106	131,610	116,796	93,387	76,842	71,604	66,898	54,471	36,193	19,279	11,215	1,767,785
1994–98	135,513	138,493	131,217	124,569	124,021	136,681	151,765	153,614	136,352	120,327	98,249	79,630	71,829	67,657	55,678	37,857	20,366	11,836	1,795,655
1995–99	134,370	141,136	133,699	128,994	122,710	135,375	149,777	155,661	141,353	123,570	103,159	82,833	72,633	68,311	56,850	39,503	21,522	12,507	1,823,964
1996–2000	133,161	142,939	136,383	132,978	123,174	133,430	147,574	157,118	146,142	126,696	108,399	86,446	73,549	69,158	57,860	41,098	22,776	13,252	1,852,133
1997–2001	132,716	143,337	139,243	135,903	125,672	130,319	145,374	157,968	150,411	129,323	114,470	90,033	74,975	69,650	59,001	42,519	24,294	13,961	1,879,169
1998–2002	133,022	142,634	142,083	138,230	129,134	127,095	143,248	157,865	153,944	133,336	118,785	94,643	77,147	69,924	60,295	43,821	25,892	14,804	1,905,901
1999–2003	133,607	141,297	144,922	139,954	132,619	124,625	141,349	156,805	156,439	138,155	122,341	99,690	79,962	70,284	61,539	45,363	27,474	15,850	1,932,275

TOTAL FEMALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	104,902	105,418	116,924	143,736	146,881	131,220	122,842	102,049	86,690	82,462	82,657	82,688	72,182	62,100	48,170	35,008	24,246	20,361	1,570,536
1981–85	106,976	106,551	115,467	140,250	145,868	133,416	126,178	105,512	90,256	84,074	82,228	82,047	73,061	63,894	49,496	36,082	24,893	20,959	1,587,208
1982–86	109,091	107,697	114,028	136,848	144,862	135,649	129,604	109,093	93,968	85,718	81,802	81,411	73,950	65,739	50,858	37,188	25,557	21,574	1,604,637
1983–87	111,248	108,855	112,607	133,529	143,863	137,919	133,123	112,795	97,833	87,394	81,378	80,780	74,851	67,638	52,258	38,328	26,239	22,208	1,622,846
1984–88	113,447	110,025	111,203	130,290	142,871	140,227	136,738	116,623	101,857	89,102	80,956	80,154	75,763	69,592	53,696	39,503	26,940	22,861	1,641,848
1985–89	115,689	111,208	109,817	127,130	141,885	142,574	140,451	120,581	106,047	90,844	80,536	79,533	76,686	71,602	55,174	40,714	27,659	23,533	1,661,663
1986–90	117,976	112,404	108,448	124,046	140,906	144,961	144,264	124,673	110,409	92,620	80,119	78,917	77,620	73,670	56,692	41,962	28,398	24,224	1,682,310
1987–91	120,640	113,769	108,274	120,523	140,646	146,461	148,036	128,971	115,454	94,537	80,402	78,442	78,453	75,346	58,505	43,178	29,261	25,098	1,705,994
1988–92	123,518	115,476	109,025	117,564	140,161	147,244	151,232	133,623	119,745	97,732	81,525	78,181	79,000	76,537	60,585	44,395	30,153	26,123	1,731,819
1989–93	126,286	117,475	110,640	115,418	139,469	147,023	153,749	138,383	123,639	101,757	83,825	78,235	79,270	77,330	62,842	45,649	31,034	27,370	1,759,392
1990–94	128,683	119,782	113,153	114,415	138,286	145,852	155,582	143,205	127,256	106,470	87,157	78,790	79,324	77,559	65,273	47,039	31,934	28,733	1,788,491
1991–95	130,498	122,590	116,390	114,727	136,507	143,947	156,702	147,916	130,913	112,005	91,330	79,843	79,287	77,395	67,594	48,581	33,007	30,190	1,819,422
1992–96	131,103	125,658	118,943	117,349	133,093	142,691	156,700	152,338	134,056	118,415	95,382	81,439	79,241	77,397	69,420	50,445	34,010	31,604	1,849,283
1993–97	130,758	128,712	121,419	120,793	129,740	141,313	156,188	155,930	138,074	123,412	100,207	83,711	79,318	77,523	70,691	52,591	35,079	32,877	1,878,336
1994–98	129,805	131,570	123,871	124,736	127,077	139,933	155,071	158,823	142,627	127,643	105,203	86,834	79,746	77,718	71,612	54,874	36,243	34,037	1,907,423
1995–99	128,726	134,019	126,264	128,834	125,692	138,350	153,282	161,092	147,431	131,428	110,275	90,535	80,691	78,077	71,961	57,173	37,550	35,178	1,936,559
1996–2000	127,727	135,445	128,948	132,704	125,824	136,169	151,037	162,773	152,014	135,028	115,783	94,570	81,867	78,585	72,257	59,252	38,911	36,212	1,965,104
1997–2001	127,506	135,899	131,928	134,457	128,945	132,619	149,152	163,237	156,307	138,218	122,117	98,525	83,436	78,955	72,728	60,976	40,562	37,231	1,992,796
1998–2002	128,161	135,478	134,912	135,190	133,561	128,892	147,294	162,882	160,092	142,071	127,274	103,281	85,794	79,278	73,300	62,328	42,493	38,481	2,020,762
1999–2003	129,539	134,430	137,794	136,109	137,912	126,022	145,368	161,653	163,095	146,566	131,594	108,392	88,931	79,795	73,898	63,550	44,712	39,962	2,049,321

TOTAL CAUCASIAN POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	161,578	164,018	181,424	224,599	233,283	209,496	197,457	164,950	140,805	135,974	137,745	137,055	121,128	98,211	72,417	49,295	32,140	24,892	2,486,467
1981–85	165,108	165,832	179,045	218,700	231,353	213,038	202,745	170,315	146,500	138,347	136,602	135,821	122,426	101,259	74,803	51,006	33,035	25,460	2,511,395
1982–86	168,715	167,666	176,697	212,956	229,439	216,640	208,175	175,855	152,425	140,762	135,468	134,598	123,738	104,402	77,268	52,776	33,955	26,041	2,537,576
1983–87	172,401	169,520	174,380	207,363	227,541	220,304	213,750	181,575	158,590	143,218	134,344	133,386	125,064	107,642	79,814	54,607	34,901	26,635	2,565,035
1984–88	176,168	171,395	172,093	201,917	225,659	224,029	219,474	187,481	165,005	145,717	133,229	132,185	126,404	110,983	82,444	56,502	35,873	27,244	2,593,802
1985–89	180,017	173,291	169,836	196,614	223,792	227,817	225,351	193,578	171,679	148,260	132,123	130,995	127,758	114,428	85,161	58,463	36,872	27,866	2,623,901
1986–90	183,950	175,207	167,609	191,451	221,941	231,670	231,386	199,873	178,624	150,847	131,026	129,816	129,127	117,980	87,967	60,492	37,899	28,503	2,655,366
1987–91	187,894	177,153	166,863	185,435	220,429	233,668	236,950	206,300	186,376	153,654	131,079	128,661	130,340	120,965	91,201	62,536	39,077	29,527	2,688,106
1988–92	191,482	179,322	167,125	180,133	217,986	233,865	241,209	213,099	192,430	158,654	132,454	127,698	131,049	123,163	94,871	64,638	40,365	30,776	2,720,317
1989–93	194,527	181,518	168,606	175,680	215,064	231,556	243,878	219,891	197,450	164,885	135,647	127,228	131,291	124,781	98,560	66,965	41,688	32,322	2,751,535
1990–94	196,541	183,858	171,241	172,627	211,065	227,003	245,006	226,480	201,837	171,857	140,503	127,525	130,982	125,640	102,304	69,478	43,072	34,075	2,781,094
1991–95	197,412	186,426	174,732	171,429	205,735	220,756	244,418	232,502	205,982	179,838	146,738	128,525	130,397	125,760	105,836	72,293	44,756	35,969	2,809,504
1992–96	196,651	189,133	177,569	173,360	198,474	215,370	242,035	237,686	209,264	188,958	152,691	130,589	129,548	126,041	108,655	75,544	46,418	37,738	2,835,726
1993–97	194,914	191,522	180,524	176,197	191,712	209,970	238,546	241,328	214,237	194,942	160,089	133,824	128,769	126,460	110,586	79,153	48,220	39,380	2,860,373
1994–98	192,142	193,572	183,087	180,113	185,796	205,241	233,844	243,436	220,158	199,443	167,649	138,299	128,457	126,835	112,312	82,600	50,327	40,896	2,884,205
1995–99	188,932	194,765	185,366	184,555	181,700	200,659	227,822	244,375	226,303	203,325	174,928	143,676	129,091	127,140	113,534	85,979	52,617	42,427	2,907,193
1996–2000	184,527	194,549	187,688	188,692	180,124	195,312	221,186	244,155	231,860	206,909	182,487	149,683	130,063	127,584	114,588	89,037	55,043	43,903	2,927,389
1997–2001	181,606	192,937	190,124	190,745	182,626	188,335	215,368	242,431	236,668	209,906	191,266	155,510	131,973	127,505	115,785	91,683	57,891	45,339	2,947,698
1998–2002	180,206	190,281	192,184	191,812	187,218	181,454	210,062	239,373	240,546	214,723	197,260	162,833	135,299	127,174	117,089	93,824	61,061	47,125	2,969,523
1999–2003	180,280	186,740	193,974	192,646	191,680	176,071	205,224	235,036	242,929	220,703	201,862	170,609	139,929	127,053	118,258	96,126	64,358	49,368	2,992,844

CAUCASIAN MALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	82,959	83,837	93,237	111,461	115,453	104,632	98,145	81,339	69,237	66,809	66,667	65,197	57,578	44,196	29,758	18,440	10,352	6,397	1,205,694
1981–85	84,785	84,833	92,019	108,599	114,559	106,506	100,888	84,155	72,123	67,961	66,144	64,724	58,206	45,589	30,962	19,201	10,689	6,443	1,218,386
1982–86	86,651	85,841	90,817	105,811	113,673	108,413	103,707	87,068	75,129	69,132	65,625	642,55	58,841	47,026	32,215	19,993	11,037	6,490	1,23,1724
1983–87	88,558	86,861	89,631	103,095	112,793	110,354	106,606	90,082	78,261	70,324	65,110	63,789	59,484	48,508	33,519	20,818	11,396	6,537	1,245,726
1984–88	90,507	87,893	88,459	100,448	111,919	112,330	109,586	93,200	81,523	71,537	64,600	63,327	60,133	50,037	34,875	21,677	11,766	6,584	1,260,401
1985–89	92,499	88,937	87,303	97,869	111,053	114,341	112,649	96,427	84,921	72,771	64,094	62,868	60,789	51,615	36,286	22,572	12,149	6,632	1,275,775
1986–90	94,536	89,993	86,162	95,356	110,193	116,388	115,797	99,764	88,461	74,025	63,592	62,412	61,453	53,243	37,755	23,503	12,544	6,680	1,291,859
1987–91	96,603	91,084	85,801	92,401	109,365	117,553	118,677	103,103	92,377	75,404	63,670	61,899	62,058	54,702	39,395	24,463	12,993	6,954	1,308,504
1988–92	98,415	92,299	85,916	89,772	108,060	117,753	120,867	106,617	95,377	77,933	64,379	61,412	62,459	55,871	41,201	25,486	13,518	7,317	1,324,653
1989–93	99,976	93,496	86,759	87,553	106,568	116,515	122,185	110,104	97,882	81,089	65,921	61,169	62,693	56,848	42,907	26,655	14,105	7,762	1,340,188
1990–94	100,944	94,755	88,204	86,059	104,476	114,058	122,732	113,431	100,104	84,572	68,261	61,295	62,616	57,611	44,554	27,878	14,727	8,326	1,354,604
1991–95	101,316	96,062	90,063	85,584	101,649	110,756	122,359	116,385	102,202	88,543	71,293	61,697	62,429	58,057	46,110	29,235	15,517	8,943	1,368,200
1992–96	100,728	97,455	91,652	86,573	98,014	107,767	121,224	118,867	103,867	93,072	74,142	62,694	62,034	58,543	47,411	30,791	16,313	9,468	1,380,616
1993–97	99,722	98,630	93,312	87,994	94,667	104,786	119,500	120,558	106,495	95,906	77,803	64,290	61,582	59,097	48,364	32,446	17,187	10,003	1,392,341
1994–98	98,201	99,623	94,637	90,036	91,660	102,343	117,163	121,394	109,608	98,028	81,613	66,398	61,292	59,607	49,390	33,899	18,212	10,551	1,403,657
1995–99	96,518	100,126	95,789	92,340	89,600	100,026	114,113	121,704	112,789	99,912	85,260	68,933	61,495	59,930	50,431	35,331	19,290	11,134	1,414,720
1996–2000	94,269	99,975	96,920	94,357	88,932	97,325	110,832	121,464	115,584	101,719	88,998	71,844	61,777	60,338	51,357	36,685	20,435	11,787	1,424,600
1997–2001	92,809	98,925	98,067	95,791	89,892	93,851	107,793	120,723	117,874	103,230	93,364	74,654	62,618	60,355	52,324	37,907	21,789	12,415	1,434,381
1998–2002	92,038	97,369	99,020	96,917	91,678	90,456	104,973	119,239	119,639	105,824	96,193	78,306	64,200	60,112	53,379	38,978	23,227	13,155	1,444,703
1999–2003	91,842	95,475	99,777	97,689	93,503	87,784	102,418	117,163	120,526	109,002	98,354	82,255	66,392	59,923	54,320	40,294	24,611	14,094	1,455,422

CAUCASIAN FEMALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	78,619	80,179	88,187	113,136	117,829	104,864	99,309	83,606	71,566	69,165	71,077	71,854	63,550	54,015	42,639	30,847	21,787	18,481	1,280,710
1981–85	80,323	80,997	87,026	110,099	116,793	106,532	101,853	86,153	74,375	70,386	70,456	71,092	64,219	55,670	43,813	31,793	22,344	18,998	1,292,922
1982–86	82,064	81,824	85,880	107,144	115,766	108,227	104,463	88,778	77,294	71,629	69,840	70,338	64,895	57,376	45,020	32,769	22,915	19,529	1,305,751
1983–87	83,842	82,659	84,750	104,269	114,748	109,948	107,139	91,483	80,327	72,893	69,230	69,592	65,578	59,134	46,259	33,774	23,501	20,076	1,319,202
1984–88	85,660	83,502	83,634	101,470	113,739	111,697	109,883	94,271	83,479	74,180	68,626	68,854	66,269	60,945	47,533	34,810	24,102	20,637	1,3332,91
1985–89	87,517	84,354	82,533	98,746	112,739	113,474	112,698	97,143	86,755	75,490	68,027	68,124	66,967	62,812	48,842	35,878	24,719	21,214	1,348,032
1986–90	89,414	85,214	81,446	96,096	111,747	115,279	115,585	100,103	90,159	76,823	67,433	67,401	67,673	64,736	50,187	36,979	25,352	21,808	1,363,437
1987–91	91,290	86,069	81,061	93,036	111,064	116,114	118,271	103,194	93,997	78,251	67,409	66,761	68,282	66,261	51,788	38,067	26,082	22,563	1,379,558
1988–92	93,067	87,022	81,208	90,361	109,925	116,111	120,341	106,481	97,052	80,722	68,076	66,286	68,590	67,291	53,660	39,149	26,846	23,453	1,395,640
1989–93	94,551	88,022	81,847	88,126	108,496	115,042	121,693	109,787	99,568	83,796	69,726	66,059	68,598	67,933	55,649	40,309	27,583	24,557	1,411,340
1990–94	95,596	89,103	83,037	86,568	106,589	11,2945	122,275	113,048	101,733	87,285	72,242	66,230	68,366	68,029	57,749	41,600	28,345	25,750	1,426,490
1991–95	96,096	90,364	84,668	85,845	104,086	110,000	122,059	116,117	103,780	91,295	75,446	66,828	67,968	67,703	59,727	43,058	29,238	27,026	1,441,304
1992–96	95,923	91,678	85,917	86,788	100,461	107,603	120,811	118,818	105,397	95,886	78,549	67,895	67,515	67,498	61,244	44,753	30,105	28,269	1,455,110
1993–97	95,192	92,892	87,211	88,204	97,046	105,184	119,046	120,770	107,742	99,036	82,286	69,534	67187	67,363	62,222	46,707	31,033	29,377	1,468,032
1994–98	93,941	93,950	88,449	90,077	94,136	102,898	116,682	122,041	110,550	101,414	86,036	71,901	67,164	67,227	62,921	48,701	32,115	30,345	1,480,548
1995–99	92,414	94,638	89,577	92,216	92,100	100,633	113,708	122,671	113,514	103,413	89,668	74,743	67,596	67,210	63,103	50,648	33,328	31,293	1,492,473
1996–2000	90,257	94,574	90,768	94,336	91,192	97,987	110,354	122,691	116,276	105,190	93,489	77,839	68,286	67,246	63,230	52,351	34,608	32,116	1,502,789
1997–2001	88,797	94,011	92,057	94,954	92,734	94,483	107,575	121,708	118,795	106,677	97,902	80,856	69,354	67,150	63,461	53,776	36,102	32,924	1,513,316
1998–2002	88,168	92,912	93,163	94,895	95,540	90,998	105,089	120,134	120,907	108,899	101,067	84,527	71,099	67,061	63,710	54,846	37,834	33,970	1,524,819
1999–2003	88,438	91,266	94,197	94,957	98,177	88,286	102,806	117,873	122,403	111,701	103,508	88,353	73,537	67,130	63,938	55,832	39,748	35,274	1,537,423

TOTAL AFRICAN-AMERICAN POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	46,897	45,434	51,959	55,157	49,134	42,910	37,844	29,625	24,715	22,107	19,988	18,744	15,266	13,530	9,147	6,527	3,534	2,579	495,097
1981–85	47,798	46,196	51,582	54,338	49,512	44,071	39,300	31,127	25,939	22,701	20,217	18,846	15,518	13,785	9,379	6,711	3,653	2,675	503,348
1982–86	48,717	46,971	51,208	53,532	49,893	45,264	40,812	32,705	27,223	23,311	20,448	18,949	15,774	14,045	9,617	6,900	3,776	2,774	511,919
1983–87	49,653	47,759	50,837	52,737	50,277	46,489	42,383	34,362	28,572	23,938	20,682	19,052	16,035	14,310	9,861	7,095	3,903	2,878	520,823
1984–88	50,607	48,560	50,468	51,954	50,664	47,747	44,014	36,104	29,987	24,581	20,919	19,156	16,300	14,579	10,111	7,295	4,034	2,986	530,066
1985–89	51,579	49,374	50,102	51,183	51,054	49,040	45,708	37934	31,472	25,241	21,159	19,260	16,569	14,853	10,367	7,500	4,170	3,097	539,662
1986–90	52,570	50,202	49,738	50,423	51,446	50,367	47,468	39,856	33,031	25,919	21,402	19,366	16,843	15,132	10,630	7,711	4,310	3,212	549,627
1987–91	54,172	51,175	50,053	49,380	52,258	51,673	49,437	41,844	34,988	26,674	21,825	19,558	17,117	15,379	10,960	7,860	4,499	3,339	562,191
1988–92	56,275	52,448	50,874	48,472	53,098	53,002	51,406	44,030	36,959	27,792	22,436	19,828	17,401	15,598	11,303	8,018	4,680	3,490	577,111
1989–93	58,557	53,977	52,253	48,037	53,735	54,200	53,281	46,384	39,055	29,223	23,336	20,179	17,717	15,768	11,715	8,128	4,887	3,653	594,086
1990–94	60,844	55,778	54,147	48,271	54,031	55,213	55,154	48,880	41,207	31,038	24,457	20,707	18,070	15,855	12,203	8,261	5,096	3,840	613,053
1991–95	62,920	57,989	56,443	49,280	53,969	56,174	56,918	51,458	43,509	33,330	25,785	21,344	18,506	15,917	12,721	8,409	5,361	4,035	634,069
1992–96	63,895	60,622	58,351	51,544	53,045	57,127	58,446	54,115	45,547	36,102	27,134	22,050	19,002	16,076	13,133	8,703	5,540	4,245	654,678
1993–97	64,057	63,449	60,202	54,537	52,021	57,719	59,830	56,586	47,878	38,767	28,753	22,904	19,548	16,313	13,491	8,991	5,742	4,437	675,224
1994–98	64,021	66,258	62,036	57,806	51,513	57,973	61,017	58,851	50,440	41,418	30,550	23,991	20,152	16,671	13,774	9,404	5,871	4,663	696,409
1995–99	63,978	68,919	63,926	61,065	51,864	57,878	61,835	61,040	53,223	43,955	32,627	25,196	20,862	17,138	13,925	9,881	6,005	4,905	718,221
1996–2000	64,374	71,027	66,136	64,067	53,217	57,262	62,534	63,030	56,076	46,437	35,125	26,486	21,569	17,779	14,029	10,386	6,143	5,175	740,853
1997–2001	65,054	72,187	68,668	66,184	55,750	56,044	62,816	64,727	58,871	48,620	38,016	27,870	22,250	18,402	14,284	10,768	6,400	5,421	762,333
1998–2002	66,052	72,427	71,468	67,799	58,888	54,819	62,668	66,024	61,387	50,999	40,812	29,515	23,093	19,006	14,657	11,168	6,678	5,686	783,147
1999–2003	66,965	72,306	74,289	69,286	62,010	54,087	62,215	66,882	63,510	53,597	43,489	31,386	24,127	19,632	15,102	11,524	7,083	5,923	803,414

AFRICAN-AMERICAN MALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	23,413	22,932	25,771	27,047	22,479	19,198	17,162	13,572	11,436	10,281	9,361	8,588	7,120	5,899	3,946	2,611	1,200	808	232,824
1981–85	23,891	23,338	25,628	26,664	22,826	19,852	17,861	14,215	11,990	10,553	9,467	8,635	7,190	6,021	4,026	2,670	1,235	825	236,887
1982–86	24,379	23,752	25,485	26,286	23,179	20,528	18,588	14,888	12,570	10,832	9,574	8,683	7,261	6,146	4,108	2,731	1,271	842	241,103
1983–87	24,876	24,173	25,343	25,914	23,537	21,227	19,345	15,593	13,179	11,118	9,682	8,730	7,333	6,274	4,191	2,793	1,308	859	245,475
1984–88	25,384	24,602	25,202	25,547	23,901	21,949	20,133	16,332	13,817	11,412	9,792	8,778	7,405	6,404	4,276	2,856	1,346	877	250,013
1985–89	25,902	25,038	25,062	25,185	24,270	22,696	20,952	17,106	14,487	11,714	9,903	8,826	7,478	6,536	4,363	2,921	1,386	896	254,721
1986–90	26,431	25,482	24,922	24,828	24,646	23,468	21,805	17,916	15,189	12,024	10,016	8,874	7,552	6,671	4,451	2,988	1,427	914	259,606
1987–91	27,285	25,995	25,079	24,352	25,172	24,218	22,764	18,777	16,088	12,375	10,225	8,954	7,649	6,779	4,574	3,013	1,490	925	265,715
1988–92	28,423	26,651	25,469	23,967	25,637	24,958	23,744	19,765	16,981	12,890	10,507	9,083	7,758	6,867	4,719	3,041	1,549	946	272,956
1989–93	29,636	27,393	26,167	23,794	25,968	25,603	24,686	20,891	17,881	13,544	10,917	9,253	7,899	6,933	4,882	3,067	1,618	969	281,102
1990–94	30,855	28,277	27,146	23,910	26,118	26,116	25,636	22,121	18,792	14,367	11,411	9,519	8,077	6,950	5,074	3,113	1,699	992	290,173
1991–95	31,970	29,365	283,38	24,385	26,063	26,594	26,507	23,431	19,740	15,413	11,998	9,853	8,291	6,933	5,303	3,192	1,792	1,021	300,191
1992–96	32,488	30,680	29,423	25,424	25,618	27,040	27,287	24,768	20,517	16,699	12,595	10,229	8,522	6,981	5,470	3,339	1,848	1,074	310,000
1993–97	32,547	32,134	30,512	26,801	25,168	27,304	27,979	26,010	21,491	17,863	13,334	10,665	8,813	7,062	5,612	3,469	1,919	1,118	319,801
1994–98	32,560	33,663	31,509	28,385	24,975	27,411	28,532	2,7136	22,672	18,977	14,152	11,193	9,144	7,209	5,755	3,633	1,978	1,172	330,057
1995–99	32,552	35,111	32,505	30,077	25,127	27,411	28,852	28,229	24,010	20,038	15,112	11,746	9,515	7,440	5,829	3,802	2,041	1,242	340,637
1996–2000	32,685	36,310	33,646	31,728	25,735	27,143	29,164	29,185	25,459	21,032	16,268	12,317	9,918	7,763	5,853	3,995	2,125	1,313	351,639
1997–2001	32,932	37,013	34,893	33,052	26,898	26,607	29,251	30,042	269,02	21,814	17,623	12,941	10,315	8,083	5,963	4,143	2,259	1,370	362,099
1998–2002	33,346	37,160	36,259	34,125	28,367	26,072	29,153	30,712	28,173	22,838	18,820	13,682	10,760	8,434	6,114	4,330	2,382	1,451	372,179
1999–2003	33,649	37,065	37,728	34,977	29,887	25,801	28,952	31,108	29,249	24,061	19,928	14,541	11,254	8,799	6,307	4,524	2,530	1,535	381,895

AFRICAN-AMERICAN FEMALE POPULATION

Years	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total
1980–84	23,486	22,500	26,187	28,110	26,638	23,700	20,681	16,052	13,279	11,827	10,628	10,155	8,143	7,631	5,200	3,915	2,336	1,769	262,237
1981–85	23,909	22,856	25,953	27,674	26,662	24,203	21,438	16,910	13,949	12,149	10,751	10,210	8,323	7,764	5,352	4,039	2,419	1,847	266,408
1982–86	24,339	23,217	25,721	27,245	26,686	24,717	22,223	17,814	14,653	12,480	10,875	10,266	8,508	7,899	5,508	4,167	2,505	1,929	270,752
1983–87	24,777	23,584	25,491	26,822	26,709	25,242	23,036	18,766	15,393	12,819	11,001	10,322	8,696	8,036	5,669	4,300	2,594	2,015	275,272
1984–88	25,223	23,957	25,263	26,407	26,733	25,778	23,879	19,769	16,170	13,168	11,128	10,379	8,888	8,176	5,835	4,437	2,687	2,104	279,981
1985–89	25,677	24,336	25,037	25,997	26,757	26,326	24,753	20,826	16,985	13,526	11,256	10,436	9,084	8,318	6,005	4,578	2,783	2,197	284,877
1986–90	26,139	24,720	24,813	25,594	26,781	26,885	25,660	21,939	17,842	13,894	11,386	10,494	9,285	8,462	6,180	4,723	2,883	2,295	289,975
1987–91	26,887	25,179	24,972	25,028	27,073	27,446	26,670	23,068	18,900	14,298	11,601	10,605	9,463	8,600	6,388	4,848	3,009	2,411	296,445
1988–92	27,852	25,797	25,404	24,506	27,453	28040	27,660	24,264	19,978	14,902	11,929	10,746	9,640	8,732	6,585	4,978	3,131	2,544	304,139
1989–93	28,921	26,584	26,086	24,242	27,764	28,595	28,594	25,493	21,174	15,679	12,419	10,926	9,817	8,835	6,834	5,063	3,269	2,684	312,978
1990–94	29,989	27,501	27,002	24,361	27,913	29,097	29,518	26,760	22,415	16,671	13,045	11,188	9,992	8,905	7,129	5,148	3,397	2,848	322,880
1991–95	30,951	28,624	28,105	24,896	27,906	29,580	30,411	28,027	23,768	17,917	13,787	11,492	10,215	8,984	7,418	5,217	3,568	3,014	333,879
1992–96	31,407	29,943	28,928	26,120	27,427	30,087	31,159	29,347	25,031	19,403	14,540	11,821	10,480	9,095	7,663	5,364	3,692	3,171	344,678
1993–97	31,511	31,314	29,690	27,737	26,853	30,415	31,852	30,577	26,387	20,904	15,419	12,239	10,735	9,251	7,878	5,521	3,823	3,319	355,424
1994–98	31,461	32,595	30,528	29,420	26,538	30,562	32,485	31,715	27,768	22,441	16,398	12,798	11,008	9,462	8,019	5,771	3,893	3,490	366,352
1995–99	31,426	33,808	31,421	30,987	26,737	30,467	32,983	32,811	29,213	23,917	17,516	13,449	11,348	9,698	8,096	6,080	3,965	3,663	377,584
1996–2000	31,689	34,717	32,490	32,339	27,482	30,120	33,370	33,845	30,617	25,405	18,857	14,169	11,650	10,016	8,177	6,391	4,018	3,862	306,470
1997–2001	32,122	35,174	33,775	33,132	28,852	29,438	33,564	34,685	31,970	26,806	20,393	14,929	11,936	10,319	8,322	6,625	4,141	4,051	233,242
1998–2002	32,707	35,267	35,209	33,674	30,521	28,747	33,515	35,311	33,214	28,161	21,992	15,833	12,333	10,571	8,544	6,838	4,296	4,235	410,968
1999–2003	33,316	35,241	36,561	34,310	32,123	28,287	33,263	35,775	34,262	29,535	23,562	16,845	12,872	10,833	8,795	7,000	4,552	4,388	421,519

SOURCE: Delaware Health Statistics Center, Department of Health and Social Services.

APPENDIX F

BEHAVIORAL RISK FACTORS

Delaware's Behavioral Risk Factor Surveillance System (BRFSS), an annual survey of adults ages 18 and older, is a collaboration between the Delaware Division of Public Health and the Centers for Disease Control and Prevention (CDC). The BRFSS includes a core set of questions developed by CDC and administered annually as a random-digit dial telephone survey in all 50 states. The BRFSS was developed to monitor the statewide prevalence of behavioral risk factors among adults that relate to premature morbidity and mortality. Questions in the survey include lifestyle behaviors (including tobacco use, fruit and vegetable consumption, exercise, and weight control), cancer screening practices, health status, and health care access and use. The data provided here for Delaware are a subset of the available information and relate specifically to prevalence estimates of risk factors for the development of cancer and of screening practices that affect cancer survival among Delaware residents.

More information about Delaware's BRFSS is available at http://www.state.de.us/dhss/dph/dpc/brfsurveys.html. General information on the BRFSS is available at http://www.cdc.gov/brfss/.

Overweight / Obesity

Being overweight or obese is a risk factor for several cancers, including female breast (in post-menopausal women), colorectal, kidney, and uterus. In addition, being overweight or obese is a major risk factor for other chronic diseases, including coronary heart disease, type 2 diabetes, and stroke.

The term "overweight" is defined by the Centers for Disease Control and Prevention (CDC) as a Body Mass Index (BMI) greater than 25 and less than or equal to 30; "obese" is defined as a BMI greater than 30. (BMI is calculated using a person's height and weight.)

In Delaware in 2005

- Almost sixty-three percent (62.5%) of Delaware residents were overweight or obese: 39.4% were overweight; 23.5 percent were obese. The rate of overweight/obesity among U.S. adults, according to National Health and Nutrition Examination Survey data published in 2005, was 65%.
- The prevalence of overweight people in Delaware differed by sex: 70.5 percent of males and 55.5 percent of females were currently overweight/obese.
- Among African Americans in Delaware, 74.8 percent were overweight/obese, compared with 61.6 percent of Caucasians.
- The prevalence of overweight/obese people in Delaware was highest in the 45-54 and 55-64 age groups (69.6 and 69.5 percent, respectively), followed by the 65+ age group (64.7 percent); it was lowest in the 18–24 age group (47.5 percent).
- The prevalence of overweight/obese people in Delaware was highest among those with less than a high school education (69.3 percent) and lowest among college graduates (56.9 percent).
- In Delaware, the prevalence of overweight/obese people was highest in the $35,000–$49,000 income group (72.1 percent) and lowest in the $15,000–$24,999 income group (58.7 percent).

Physical Activity

Lack of physical activity is a risk factor for colorectal cancer and a suspected risk factor in other cancers, including prostate cancer. The benefits of regular sustained physical activity, however, also include reduction in risk of other chronic diseases, including coronary heart disease, type 2 diabetes, and stroke, as well as improved overall well-being.

BRFSS questions examine the intensity, duration and frequency of activity reported by respondents. "Physically active" is defined as 30 or more minutes of exercise of moderate activity at least five days per week, or 20 or more minutes of vigorous activity at least three days per week.

In Delaware in 2005

- The prevalence of physically active people in Delaware was 45.1 percent, compared with 49.1 percent in the United States.
- Forty-six percent of females and 44.7 percent of males were physically active, compared with 47.9 percent and 50.7 percent, respectively, in the United States.
- The prevalence of physically active people in Delaware was 46.5 percent among Caucasians and 39.7 percent among African Americans, compared with 51.1 percent of Caucasians and 41.8 percent of African Americans in the United States.
- The prevalence of physical activity in Delaware was lowest among those age 65+ (37.5 percent) and highest in the youngest age group (18-24; 60.5 percent). This same pattern occurred in the U.S., where 39.0 percent of people age 65+ and 59.6 percent of people age 18-24 were physically active.
- The prevalence of physical activity was highest among college graduates (48.2 percent) and lowest among those with less than a high school education (35.8 percent). U.S. data showed the same trend of increased prevalence of physical activity with increasing levels of education.
- Delaware data showed a pattern of increased prevalence of physical activity with increasing income level for people who earned at least $15,000. Prevalence of physical activity was 31.7 percent in the $15,000–$24,999 income group and 50.4 to 50.8 percent in groups within income at/above $50,000.

Dietary Fruits and Vegetables

A diet high in fruit and vegetable intake is known or strongly suspected to be effective in the prevention of numerous cancers, including breast, cervical, colorectal, corpus uterus, esophagus, oral cavity and pharynx, ovarian, pancreatic, prostate, and stomach cancers. In addition to cancer, dietary factors are associated with coronary heart disease, type 2 diabetes, and stroke.

A diet "low in fruit and vegetables" was defined as an average daily frequency of fewer than five servings of fruits and vegetables and was summarized based on responses to the following 2003 BRFSS survey questions:

- How often do you drink fruit juices such as orange, grapefruit, or tomato?
- Not counting juice, how often do you eat fruit?
- How often do you eat green salad?
- How often do you eat potatoes, not including French fries, fried potatoes, or potato chips?
- How often do you eat carrots?
- Not counting carrots, potatoes, or salad, how many servings of vegetables do you usually eat?

In Delaware in 2005

- A similar proportion of Delaware residents (21.3 percent) and U.S. residents (23.2 percent) consumed fruit and vegetables five or more times a day.
- Delaware males were less likely than females to consume five or more fruits and vegetables daily: 17.2 percent versus 25.1 percent. Rates of adequate fruit and vegetable consumption were 18.6 percent among U.S. males, and 28.1 percent among U.S. females.

- Fewer African Americans (14.1 percent) than Caucasians (22.3 percent) in Delaware had a diet with five or more fruits and vegetables a day, compared with 21.5 percent of African Americans and 23.5 percent of Caucasians in the United States.
- The prevalence of adequate fruit and vegetable intake was highest in the 65+ age category (26.9 percent); prevalence for all other age groups was comparable – and low - ranging from 17.7 percent to 22.2 percent. This pattern was also exhibited in U.S. prevalence, though rates were slightly higher.
- Prevalence of a diet with five fruits and vegetables a day was highest among college graduates (27.0 percent) and lowest among those with less than a high school education (14.3 percent). U.S. data also showed that the prevalence of a diet with adequate fruits and vegetables decreased as level of education decreased.

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