

Adolescent/Young Adult (AYA) Cancer Incidence and Mortality in Delaware, 2012-2021

Key Highlights

- Adolescent/young adult (AYA) patients ages 15-39 diagnosed with cancer in the United States have unique needs and are noted to have differences in survival compared to older adult patients.¹
- In Delaware, AYA patients have a five-year age-adjusted all-site cancer incidence rate of 79.4 cases per 100,000 population from 2012-2021.
- Kent County had the highest five-year age-adjusted all-site cancer incidence rate of 91.7 cases per 100,000 population compared to the other two counties.
- Female AYA patients had a higher five-year age-adjusted all-site cancer incidence rate of 102.9 cases per 100,000 population compared to male AYA patients which had an incidence of 55.5 cases per 100,000 population.²
- There were 226 deaths in AYA oncology patients between 2012 and 2021. This five-year age-adjusted all-site mortality rate of 7.9 deaths per 100,000 population was similar to the United States mortality rate of 8.8 deaths per 100,000 population.
- The trend in AYA mortality rates in Delaware stayed stable between 2007 and 2021, whereas the trend in AYA mortality rates in the United States decreased by an average of 1.0% per year for the same time period.
- This is the first state-based cancer incidence and mortality report for AYA patients, underscoring the need for further evaluation of this population.

Incidence (New Cases)²

- Overall, there were 2,303 Adolescent/Young Adult (AYA) patients aged 15-39 years old diagnosed with any type of cancer in Delaware between 2012 and 2021.

Table 1. Number of all-site cancer cases by sex and race/ethnicity; Delaware and Counties, 2012-2021

	All Races			Non-Hispanic White			Non-Hispanic Black			Hispanic		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Delaware	2,303	811	1,492	1,483	583	945	467	147	320	222	86	136
Kent County	494	158	336	338	109	229	108	32	76	34	**	22
New Castle County	1,375	490	885	834	306	528	304	93	211	140	60	80
Sussex County	432	162	270	309	122	187	55	22	33	48	**	34

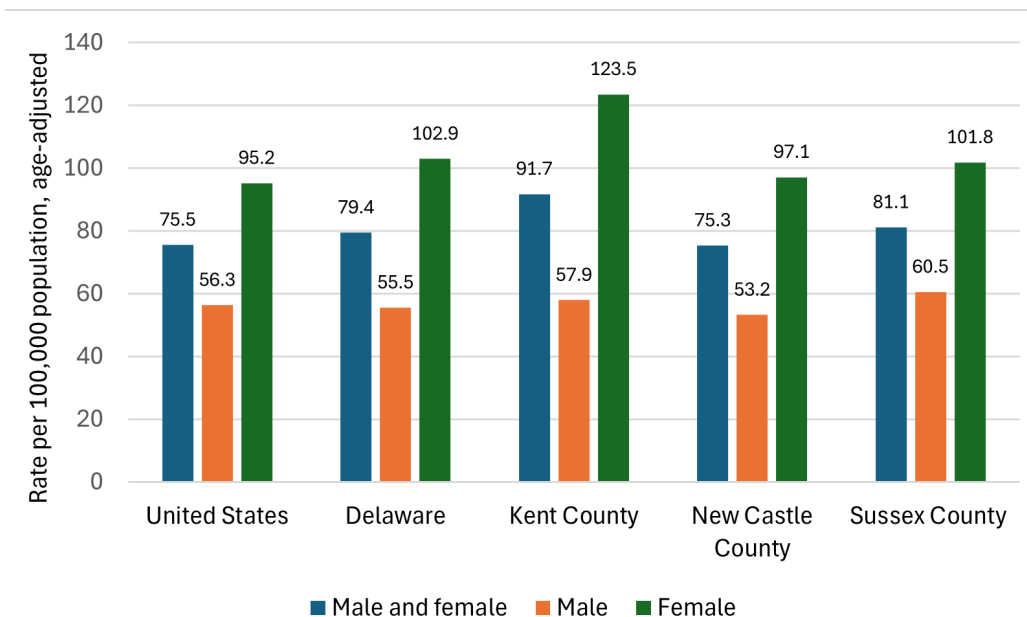
Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2025

Note: ** Data less than 16 has been suppressed

Five Year Age-Adjusted All-Site Incidence Rates^{2,4}

AYA patients in Delaware had a five-year age-adjusted all-site cancer incidence rate of 79.4 cases per 100,000 population from 2012-2021, which is similar to the 75.5 cases per 100,000 population in the United States for the same period. Delaware females had higher incidence rates compared to Delaware males. Kent County had the highest incidence rate compared to other counties for 2012-2021.

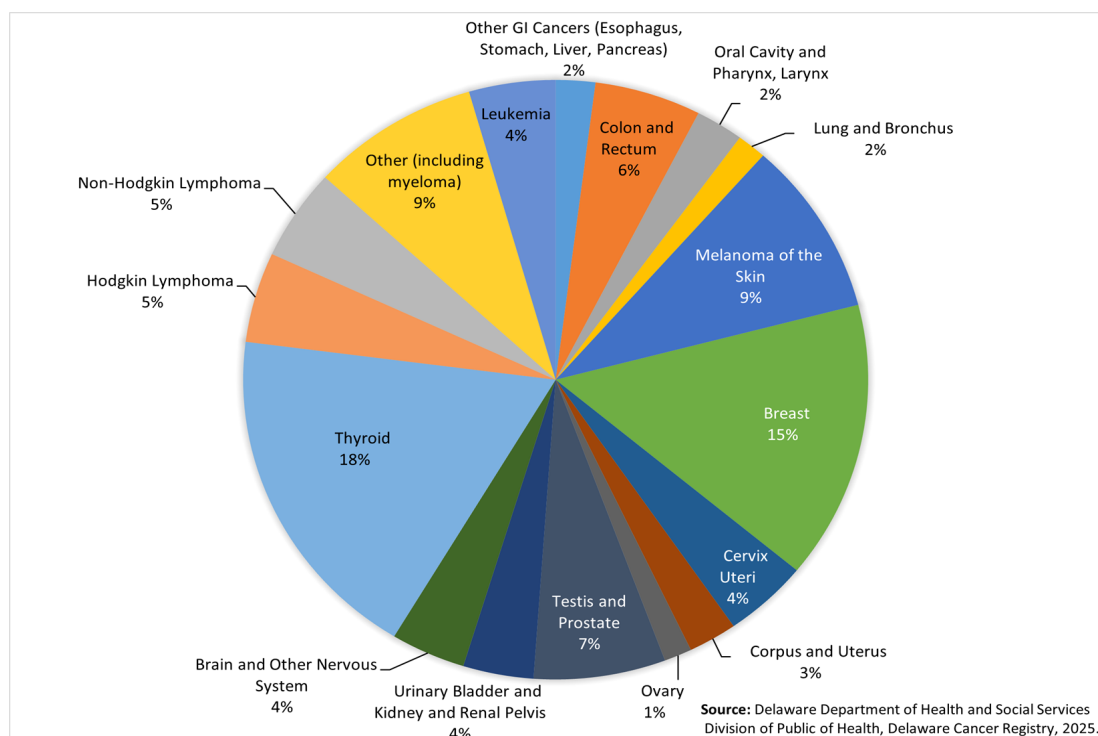
Figure 1. Five-Year Age-Adjusted All-Site Cancer Incidence Rates Overall and by Sex; U.S., Delaware, and Counties, 2012-2021^o



Source: (Delaware): Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2025 Source (U.S.): National Program of Cancer Registries and Surveillance, Epidemiology, and End Results Program SEER*Stat Database: U.S. Cancer Statistics 2001–2021 Public Use Research Database, 2023 submission.

Distribution of AYA Cancer Cases by Cancer Site

Figure 2. Distribution of Cancer Cases by Cancer Site, Delaware, 2012-2021



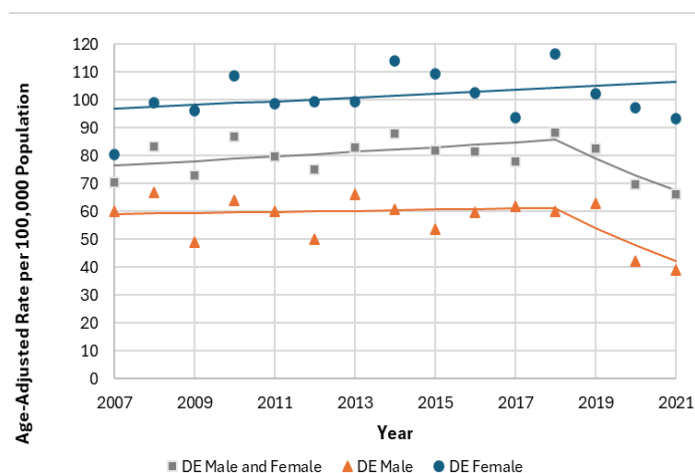
Incidence Trends^{2,4,6}

Incidence rates for AYA all-site cancer were stable in Delaware and in the U.S when averaged between 2007 and 2021. There were two distinct trends in the U.S. during this time period: a 0.8% annual increase between 2007 and 2016 and stable rates between 2016 and 2021.

Among males, incidence rates for AYA all-site cancer were stable in Delaware and in the U.S when averaged between 2007 and 2021. There were three distinct trends in the U.S. during this time period: stable rates between 2007 and 2013, a 1.3% annual increase between 2013 and 2016, and a 1.0% annual decrease between 2016 and 2021.

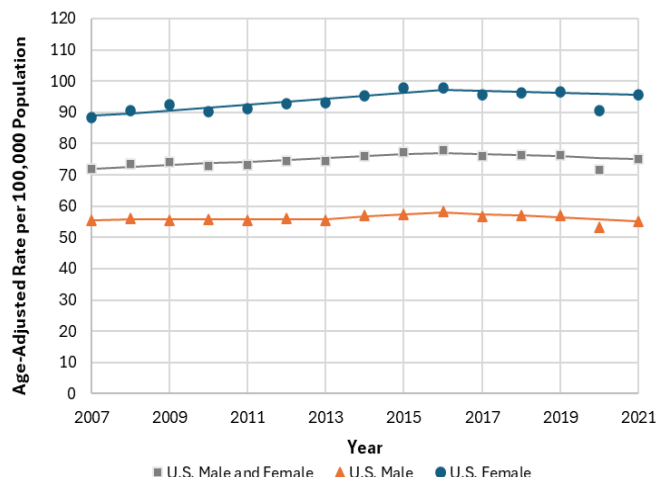
Among females, incidence rates for AYA all-site cancer were stable in Delaware and increased an average 0.5% per year in the U.S between 2007 and 2021. There were two distinct trends in the U.S. during this time period: a 1.0 % annual increase between 2007 and 2016 and stable rates between 2016 and 2021.

Figure 3. Age-Adjusted AYA All-Site Cancer Incidence Rate Trend, Delaware, 2007-2021[∞]



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2024

Figure 4. Age-Adjusted AYA All-Site Cancer Incidence Rate Trend, U.S., 2007-2021[∞]



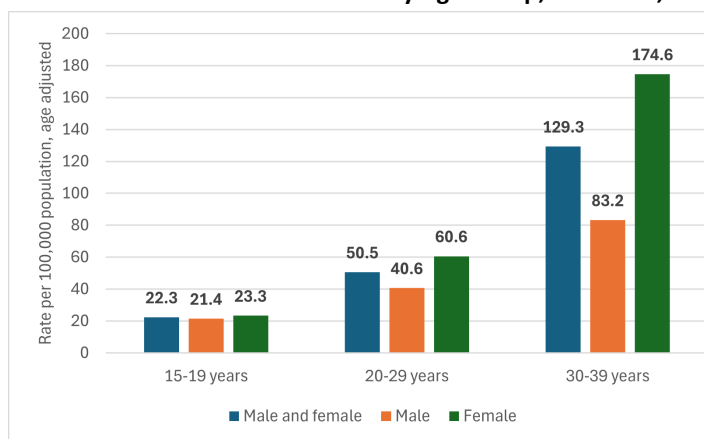
Source (U.S.): National Program of Cancer Registries and Surveillance, Epidemiology, and End Results Program SEER*Stat Database: U.S. Cancer Statistics 2001–2021 Public Use Research Database, 2023 submission

[∞] Incidence rates for year 2020 are plotted but were not used for the analysis of trends since 2020 was an anomaly and would bias estimates.

AYA Age Adjusted All-Site Incidence Rates by Specific Age Group²

Incidence increased across the AYA group, with the highest rates seen in the older AYA group aged 30 to 39 years old. In the 20- to 29-year-old age group and the 30- to 39-year-old age group, females had a higher incidence compared to males.

Figure 5. Age-Adjusted All-Site Cancer Incidence Rates by Age Group; Delaware, 2012-2021[∞]



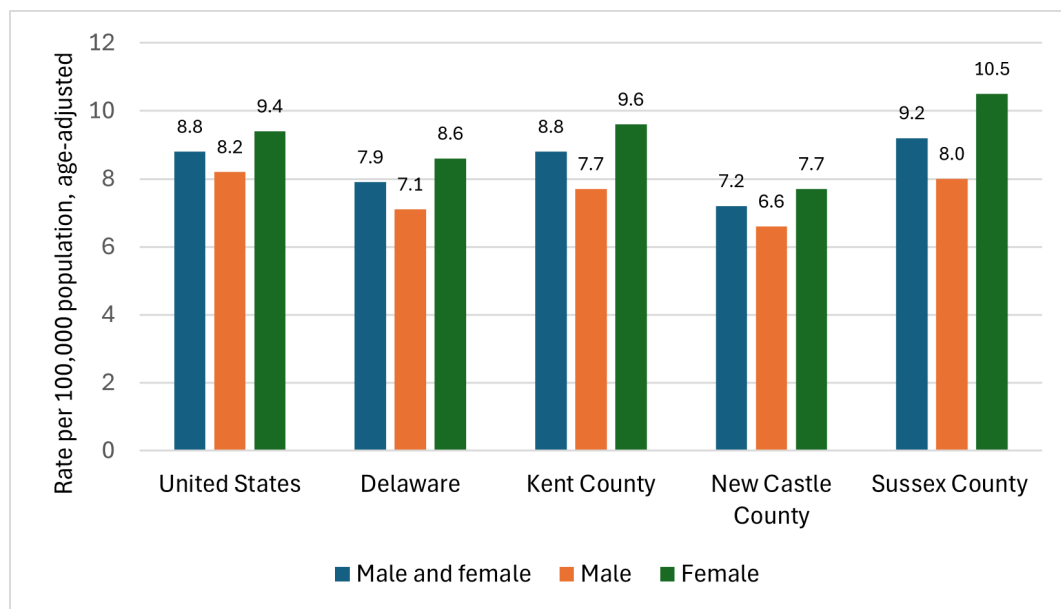
Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2024

Mortality (Deaths)^{3,5}

There were 226 total deaths in Delaware from cancer in AYA patients between 2012 and 2021.

The five year age adjusted all site mortality rate of 7.9 deaths per 100,000 population was similar to the United States mortality rate of 8.8 deaths per 100,000 population. Delaware females had higher incidence rates compared to Delaware males. Sussex County had the highest mortality rate compared to other counties for 2012-2021.

Figure 6. Age-Adjusted All-Site Mortality Rates Overall and by Sex; U.S., Delaware, and Counties, 2012-2021[∞]

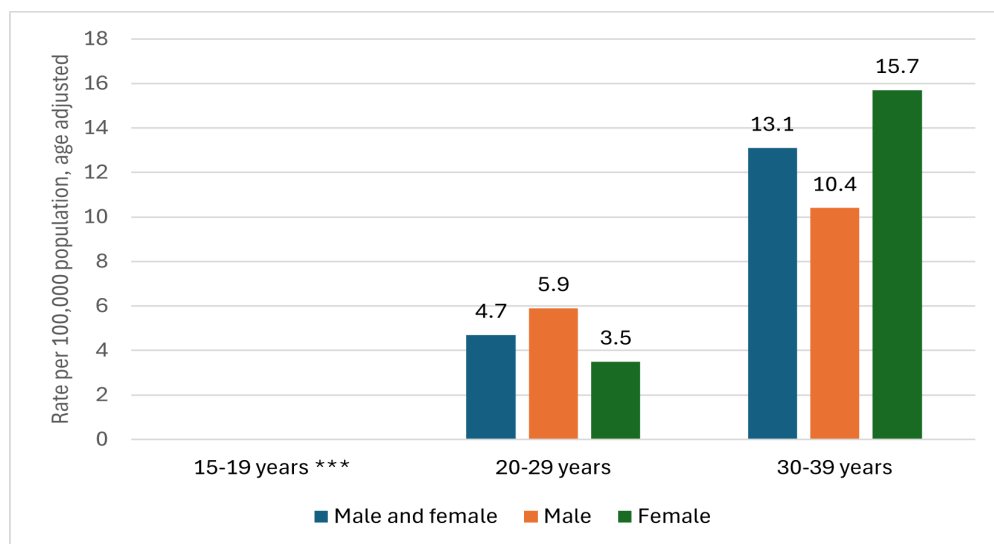


Source (Delaware): Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center, 2025

Source (U.S.): Surveillance, Epidemiology, and End Results (SEER) Program, SEER*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1990-2022)

Mortality rates for AYA all-site cancer increased in the older AYA age groups and were highest for patients aged 30-39 years old. Both male and female rates increased with age and females had higher rates compared to males.

Figure 7. Age-specific All-Site Cancer Mortality Rates by Sex and Age Groups, AYA (15-39), DE 2012-2021[∞]



Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center, 2025 ***Rates based on fewer than 16 deaths not individually calculated.

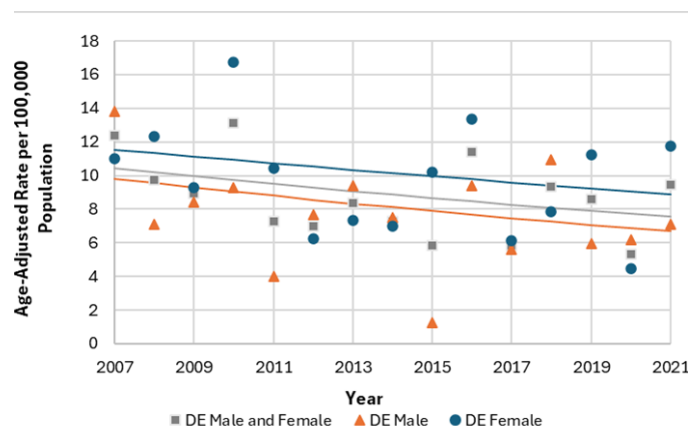
Mortality (Deaths)^{3,5,6}

Mortality rates for AYA all-site cancer were stable in Delaware and decreased an average of 1.0% per year in the U.S between 2007 and 2021.

Among males, mortality rates for AYA all-site cancer were stable in Delaware and decreased an average of 1.1% per year in the U.S between 2007 and 2021. There were two distinct trends among U.S. males during this time period: stable rates between 2007 and 2009 and a 1.4% annual decrease between 2009 and 2021.

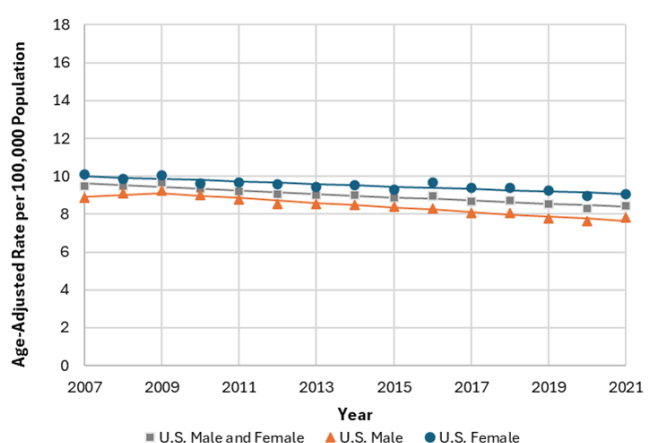
Among females, mortality rates for AYA all-site cancer were stable in Delaware and decreased an average of 0.7% per year in the U.S between 2007 and 2021.

Figure 8. Age-Adjusted All-Site Cancer Mortality Rate Trend, Delaware, 2007-2021[∞]



Source (Delaware): Delaware Department of Health and Social Services, Division of Public Health, Delaware Health Statistics Center, 2024

Figure 9. Age-Adjusted All-Site Cancer Mortality Rate Trend, U.S., 2007-2021[∞]



Source (U.S.): Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1990-2022)

To learn more about AYA cancer in the United States and survivorship:

[Adolescents and Young Adults \(AYAs\) with Cancer - NCI](#)

Citations/Notes

1. Bhatia S, Pappo AS, Acquazzino M, et al. Adolescent and Young Adult (AYA) Oncology, Version 2.2024, NCCN Clinical Practice Guidelines in Oncology. J Natl Compr Canc Netw. 2023;21(8):851-880. doi:10.6004/jnccn.2023.0040.
2. Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2025.
3. Delaware Department of Health and Social Services, Division of Public Health, Health Statistics Center, 2007-2021.
4. National Program of Cancer Registries and Surveillance, Epidemiology and End Results Program SEER*Stat Database: NPCR and SEER Incidence U.S. Cancer Statistics Public Use Research Database, 2023 Submission (2001-2021).
5. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality - All COD, Aggregated Total U.S. (1990-2022) <Katrina/Rita Population Adjustment>, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2024.
6. Notes: The lines are modeled trend lines calculated using Joinpoint Regression Program Version 5.0.2, whereas the points are the actual observed rates. The trend lines in the charts include joinpoints (i.e., changes in the trend), but the average annual percent change across the whole period is reported above. Rates are per 100,000 of population age-adjusted to the 2000 U.S. standard population.
7. [∞] Rates are per 100,000 of population using US Census estimates and age-adjusted to the 2000 U.S. standard population and are calculated using modified U.S. Census populations available from NCI (<https://seer.cancer.gov/popdata/>).