

Route 9 Data Analysis with Delaware Cancer Registry

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Delaware Cancer Surveillance:

The Delaware Division of Public Health (DPH) maintains The Delaware Cancer Registry (DCR). This is a database containing information on all cancer diagnoses made in the state. After a cancer diagnosis is confirmed, health care professionals are responsible for reporting this information to the registry. Registry data is used for the state's cancer surveillance efforts.

Utilizing the DCR, DPH compiles an annual comprehensive report titled *Cancer Incidence and Mortality in Delaware* which includes cancer incidence rates. Incidence rates describe the number of new cancer cases diagnosed in a population over a given period; rates are typically expressed as the number of new cancer cases diagnosed per year per 100,000 people. Cancer incidence rates are aggregated over five years. For example, Delaware's most recent report was released in July 2021 and discusses cancer rates from 2013-2017. Within this report, Delaware's cancer rates are also compared to national data to assess for trends and areas for improvement. The compendium titled *Census Tract-Level Cancer Incidence in Delaware, 2013-2017* discusses all-site cancer incidence within a census-tract.

Route 9

For the purposes of this investigation, the "Route 9 Corridor" has been described as the surrounding area of State Route 9. Census tracts associated with the Route 9 corridor are: 154, 155.02, 156, 158.02, 159 and 160. The values used in the calculations for these census tracts were aggregated to create the Route 9 cancer rates displayed in Table 1.

As of the 2010 Census, Delaware is divided into 214 census tracts. Lookups can be used to determine what census tract an address falls into, such as one available from the Census here:

<https://geocoding.geo.census.gov/geocoder/geographies/address?form>

Results

Cancer incidence rates are estimated values; by nature, all estimated values have some degree of uncertainty. We estimate the degree of uncertainty in an incidence rate by calculating its confidence interval (shown in parentheses in Table 1). Confidence intervals represent the range of values in which the cancer rate could reasonably fall. For example, our best estimate of the all-site cancer rate in Route 9 is 489.3 per 100,000; however, the rate could reasonably lie anywhere between 446.5 and 535.2 per 100,000. The level of uncertainty associated with an incidence rate is reflected in the width of its confidence interval. Very wide confidence intervals mean that the incidence rate is estimated with a large degree of uncertainty. The width of a confidence interval is influenced by two factors: (a) the number of cancer cases in the population under consideration and (b) the size of the population under consideration. Notice how the confidence intervals for New Castle County and Delaware are narrower than those for Route 9 due since New Castle County and Delaware are larger population bases used for rate calculation.

The cancer incidence rates described in Table 1 are for the time periods of 2011-2015, 2012-2016 and 2013-2017 which is the most recent data available. The all-site (includes all cancer types) for Route 9 in 2013-2017 was 469.7 per 100,000 which was lower than the rates for Delaware (484.3 per 100,000) and New Castle County (481.5 per 100,000). Similarly, the Route 9 all-site rate was lower compared to the Delaware and New Castle for the time periods of 2012-2016 and 2011-2015. In 2011-2015, the all-site

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cancer rate was higher in Route 9 (489.9 per 100,000) compared to New Castle County (486.3 per 100,000), but the rates are lower for the subsequent periods.

When examining the rate of breast cancer in Route 9, the rate of 107.0 per 100,000 for 2013-2017 was lower than the Delaware rate of 135.4 per 100,000 during the same period. A similar trend is noted for the previous years. Due to data privacy limitations, the complete rates for lymphoma and leukemia cannot be displayed, but the incidence rates were lower than Delaware for the displayed time periods.

Table 1: Five Year Age-Adjusted Cancer Incidence Rates by Area and Cancer Type, Route 9 Corridor, Delaware, and US, 2011-2017

	2011-2015		2012-2016		2013-2017	
	Age-adjusted Incidence Rate with Confidence Intervals	Count of Cases	Age-adjusted Incidence Rate with Confidence Intervals	Count of Cases	Age-adjusted Incidence Rate with Confidence Intervals	Count of Cases
Route 9						
All-site	489.3 [446.5, 535.2]	499	481.4 [439.4, 526.5]	504	469.7 [428.2, 514.3]	497
Lymphoma	20.3 [12.3,31.6]	20	-----	<16	19.8 [11.9, 31.0]	20
Leukemia	-----	<16	-----	<16	-----	<16
Female Breast	122.0 [94.1, 155.8]	68	103.4 [77.8,135.1]	58	107.0 [80.4, 139.9]	59
New Castle County						
All-site	486.3 [478.3, 494.3]	14,820	485.3 [477.4, 493.3]	15,098	481.5 [473.8, 489.4]	15,290
Lymphoma	23.3 [21.5, 25.1]	693	23.2 [21.4, 25.0]	704	23.6 [21.9, 25.4]	728
Leukemia	13.5 [12.2, 14.9]	400	12.8 [11.5, 14.2]	384	11.7 [10.5, 13.0]	359
Female Breast	136.2 [130.5, 142.1]	2,233	139.1 [133.3, 145.0]	2,306	140.6 [134.8, 146.5]	2,365
Delaware						
All-site	495.3 [489.4, 501.3]	28,028	491.5 [485.7, 497.4]	28,581	484.3 [478.5, 490.0]	28,938
Lymphoma	24.0 [22.7, 25.3]	1,306	24.0 [22.7, 25.4]	1,345	23.4 [22.1, 24.7]	1,339
Leukemia	14.4 [13.4, 15.5]	784	14.0 [13.0, 15.0]	779	13.0 [12.0, 14.0]	744
Female Breast	134.2 [130.0, 138.6]	4,008	136.5 [132.2,140.8]	4,146	135.4 [131.1, 139.7]	4,203
Source: Delaware Health and Social Services, Division of Public Health, Delaware Cancer Registry, December 2021, Note: Rates are per 100,00 population. All-site refers to all cancer types. Population estimates are from Woods & Poole Economics, Inc. Census Tract Estimates Controlling to Vintage 2017, 2000-2017 '----' indicates suppression of rates and counts for privacy protection with small numbers Route 9 Corridor includes tracts 154, 155.02, 156, 158.02, 159 and 160.						

For information on Delaware’s cancer reports:
<https://www.dhss.delaware.gov/dhss/dph/dpc/cancer.html>