

Cancer Incidence in the 5-town Seacoast Area 2005-2014



Key Findings:

From 2005 to 2014, the age-adjusted incidence rate for all cancers in the 5-town seacoast area decreased by approximately 1.6 percent per year; the rate of decrease is not statistically significant. By comparison, from 2005 to 2013, the age-adjusted incidence rate for all cancers in the United States (White, non-Hispanic population) decreased by approximately 1.3 percent per year; the rate of decrease is statistically significant.

The tables and graphs on the following pages were created using data from the New Hampshire State Cancer Registry and from United States Cancer Statistics (CDC Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) in a response to an inquiry about the overall rate of cancer in the seacoast area of New Hampshire; questions were raised about how the rate is trending and how it compares to other geographies, specifically the United States cancer rate. For the purpose of this report, the 5-town seacoast area includes the New Hampshire towns of Rye, New Castle, Portsmouth, Greenland, and North Hampton.

Age-adjusted rates were calculated using cancer diagnosis data from CDC WONDER and annual population estimates provided by Claritas, which is able to provide population estimates at the town level. Recognizing that age is a factor that impacts the burden of cancer (with increased rates among older populations), adjusting for age allows for comparison of incidence rates across geographies despite variances in age distribution. Table 1 includes the age-adjusted incidence rate for all invasive cancers by year for the 5-town seacoast area, Rockingham County, the state of New Hampshire, and the United States. Data for the United States are limited to the White non-Hispanic population in order for it to be more comparable to the State of New Hampshire where, according to the US census, only 9% of the population is of racial and/or ethnic minority. Ninety-five percent confidence intervals are also shown, indicating that we can say with 95% certainty that the true incidence falls between the lower and upper limits shown. Note that as the geographic area increases in size (along with the number of cases attributable to the area and the base population), the confidence intervals narrow, indicating that we can calculate the cancer incidence rate with more certainty. Caution should be used when drawing conclusions about trends in the 5-town seacoast area because small numbers of cases create an unstable rate with more uncertainty, which is reflected in the wider 95% confidence intervals. Therefore, a relatively small number of cases can have a large impact on the rate in either direction for a given year. To provide context for the calculated incidence rate, the actual number of cancer cases by year are included for the 5-town seacoast area.

Table 1. All Invasive Cancers, Age-Adjusted Incidence Rates per 100,000 population by year and region

Year	5-town Seacoast Area (Greenland, New Castle, North Hampton, Portsmouth, Rye)				Rockingham County, NH			New Hampshire			United States, White non-Hispanic		
	# of Cases	Rate	Lower CI	Upper CI	Rate	Lower CI	Upper CI	Rate	Lower CI	Upper CI	Rate	Lower CI	Upper CI
2005	236	508.1	444.6	579.1	538.4	511.7	566.1	523.2	511.1	535.5	489.2	488.3	490.1
2006	276	602.5	532.5	679.9	553.0	526.2	580.7	513.5	501.6	525.5	493.0	492.1	493.9
2007	241	517.7	453.1	589.8	533.9	508.1	560.8	510.0	498.4	521.9	496.5	495.6	497.4
2008	269	573.8	506.3	648.7	566.5	539.9	594.1	527.1	515.2	539.2	492.4	491.5	493.3
2009	254	539.6	473.6	613.2	545.2	519.4	571.9	509.7	498.2	521.5	486.8	485.9	487.7
2010	248	518.3	454.0	590.2	522.3	497.4	548.1	506.7	495.3	518.3	474.6	473.7	475.5
2011	281	586.5	517.8	662.8	546.5	521.4	572.5	513.3	501.9	524.9	473.1	472.2	474.0
2012	218	458.7	398.5	526.6	539.9	514.7	566.1	509.2	497.8	520.9	456.6	455.7	457.4
2013	250	499.8	438.6	568.3	527.9	503.5	553.2	495.7	484.6	507.0	443.3	442.4	444.1
2014	228	463.0	403.0	530.5	506.7	483.1	531.3	473.4	462.7	484.4	NA*	NA*	NA*

Data Sources: New Hampshire State Cancer Registry, Claritas population estimates, and United States Cancer Statistics: 1999 - 2013 Incidence, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. URL <http://wonder.cdc.gov/cancer-v2013.html>

*United States data not available for year 2014

- All invasive cancers includes the following types: bladder, brain and other CNS, breast (female), cervical, colorectal, esophagus, gall bladder, Hodgkin lymphoma, kaposi sarcoma, kidney and renal pelvis, larynx, leukemia, liver and intrahepatic, lung and bronchus, melanoma of the skin, mesothelioma, multiple myeloma, non-hodgkin lymphoma, oral cavity and pharynx, ovary, pancreas, prostate, stomach, testis, thyroid, uterus, and cancer not otherwise classified.

Figure 1 shows the age-adjusted incidence rate by year for the 5-town seacoast area and for the United States White non- Hispanic population. This comparison was specifically requested as part of the initial inquiry. The line graph shows the trend in cancer incidence for both the U.S. and Seacoast Area populations, but also highlights the limitations of the data due to small numbers. With a smaller population and fewer number of cancer cases in the 5-town Seacoast area, the rate varies substantially from year to year with wide confidence intervals. By comparison, the trend over time for the larger United States population shows much less variation.

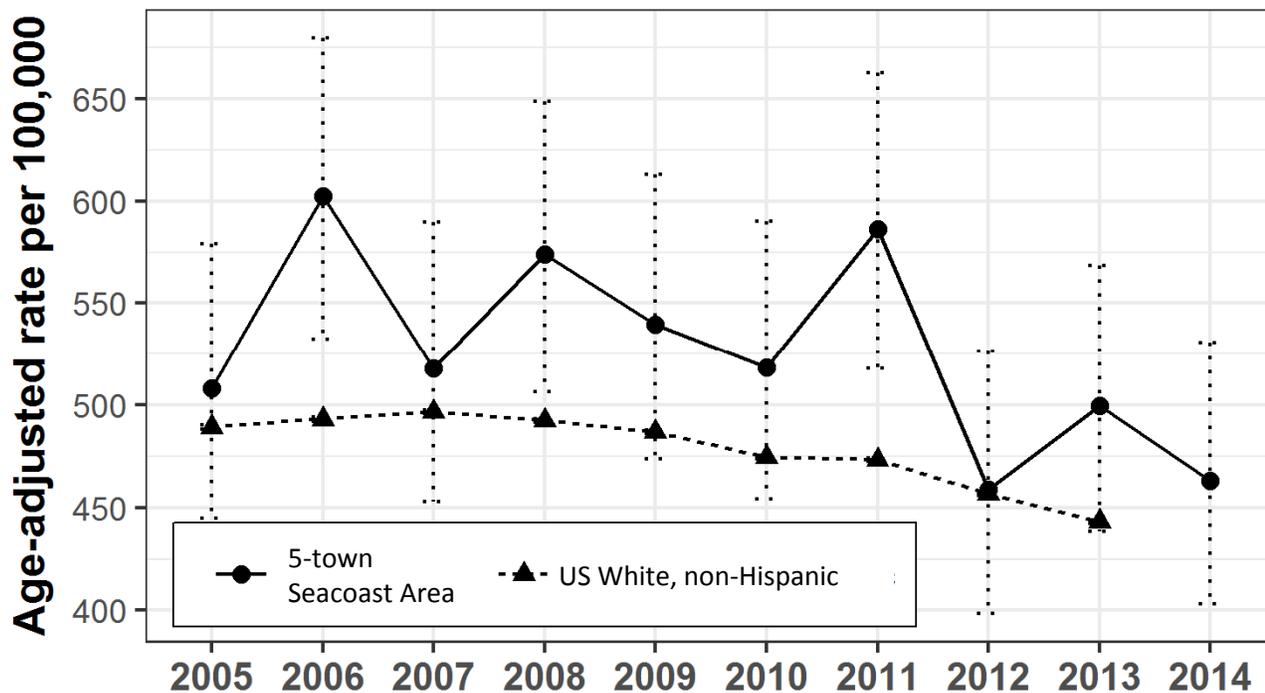


Figure 1. All Invasive Cancers, Age-Adjusted Incidence Rates per 100,000 population by year for the 5-town seacoast area and the United States White non-Hispanic population

Data Sources: New Hampshire State Cancer Registry, Claritas population estimates, and United States Cancer Statistics: 1999 - 2013 Incidence, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. URL <http://wonder.cdc.gov/cancer-v2013.html> *

*United States data not available for year 2014

- The 5-town seacoast area includes the New Hampshire towns of Rye, New Castle, Portsmouth, Greenland, and North Hampton
- All invasive cancers includes the following types: bladder, brain and other CNS, breast (female), cervical, colorectal, esophagus, gall bladder, Hodgkin lymphoma, kaposi sarcoma, kidney and renal pelvis, larynx, leukemia, liver and intrahepatic, lung and bronchus, melanoma of the skin, mesothelioma, multiple myeloma, non-hodgkin lymphoma, oral cavity and pharynx, ovary, pancreas, prostate, stomach, testis, thyroid, uterus, and cancer not otherwise classified.

To further review the trend data for the 5-town seacoast area, it was processed through Joinpoint Trend Analysis Software from the National Cancer Institute. This software takes trend data and fits the simplest model that the data allow so that the user can test the significance of an apparent trend. The analysis, depicted in Figure 2, shows the incidence for all cancers decreasing approximately 1.6 percent per year; however, the rate of decrease is not statistically significant. Analysis conducted for the National comparison group (White, non-Hispanic population) showed a decrease of approximately 1.3 percent per year; the rate of decrease is statistically significant.

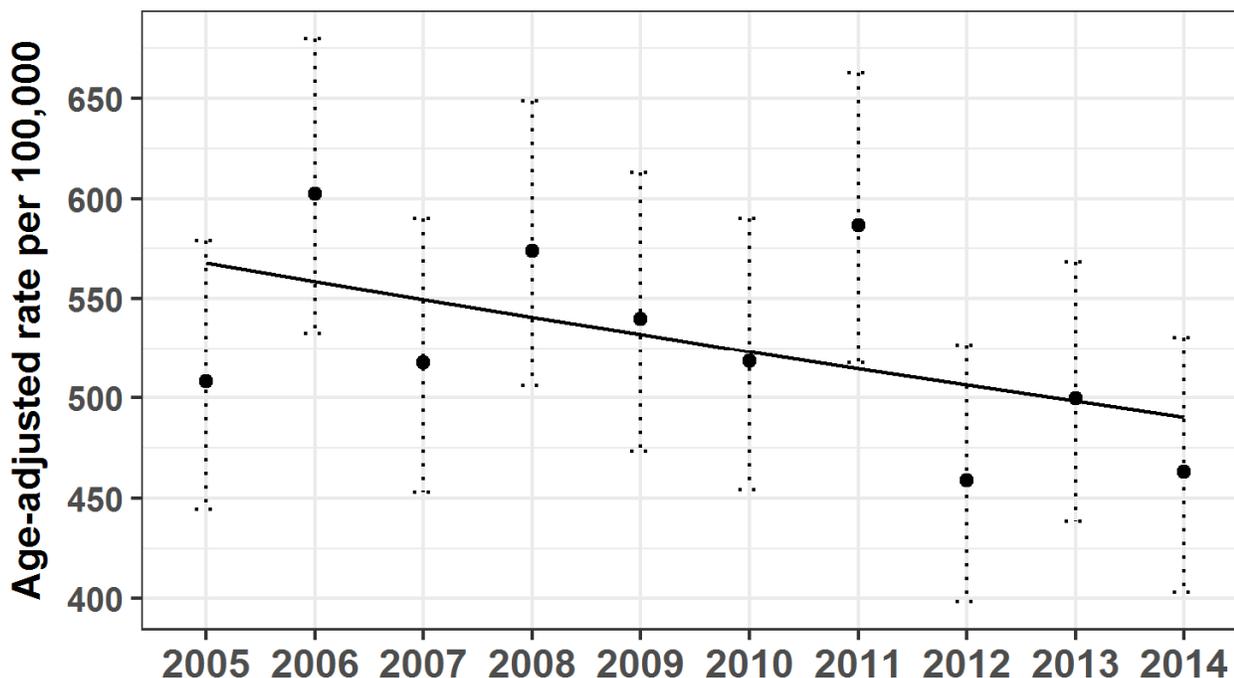


Figure 2. All Invasive Cancers, Trend in Age-Adjusted Incidence Rate per 100,000 population by year for the 5-town seacoast area

Data Source: New Hampshire State Cancer Registry and Claritas population estimates

- Output produced using Joinpoint Trend Analysis Software from the National Cancer Institute.
- The 5-town seacoast area includes the New Hampshire towns of Rye, New Castle, Portsmouth, Greenland, and North Hampton
- All invasive cancers includes the following types: bladder, brain and other CNS, breast (female), cervical, colorectal, esophagus, gall bladder, Hodgkin lymphoma, kaposi sarcoma, kidney and renal pelvis, larynx, leukemia, liver and intrahepatic, lung and bronchus, melanoma of the skin, mesothelioma, multiple myeloma, non-hodgkin lymphoma, oral cavity and pharynx, ovary, pancreas, prostate, stomach, testis, thyroid, uterus, and cancer not otherwise classified.

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