

# GOVERNOR'S CANCER RESEARCH INITIATIVE UPDATE

## Overview

Governor Cuomo's Cancer Research Initiative, announced in October 2017, is examining cancer trends and the potential causes of cancer in four regions of the state that have higher cancer rates, based on 2011-2015 data. These investigations are expected to be completed within the next few months. The New York State Department of Health (DOH) will use the findings to work with partners to enhance community cancer prevention, recommend appropriate screening efforts, and support access to appropriate high-quality health care.



## Regions and Cancers Investigated

- **Warren County of Northeastern NY** — highest rate of all cancers combined in NYS. Specific focus on lung, larynx (voice box), esophagus, oral cavity (mouth and throat), colon, thyroid, and brain cancers; melanoma (skin cancer), and leukemia (blood cancer).
- **East Buffalo and Western Cheektowaga area of Western NY** — 6 cancers elevated: colon, esophagus, kidney, lung, oral cavity, and prostate.
- **Staten Island (Richmond County)** — highest rate of all cancers combined in NYC. Specific focus on thyroid cancer, which was significantly elevated compared to other areas of NYS.
- **Centereach, Farmingville, and Selden area in Suffolk County** — 4 cancers elevated: bladder, lung, leukemia, and thyroid.

## Stakeholder Input

In July 2018, DOH met with community members and stakeholders in each study area to present the design, goals, and approaches of each investigation. Community members and stakeholders provided input at the meetings. They were also encouraged to email DOH with feedback and concerns.



## Progress to Date

DOH staff are finalizing reports for each study area. They are reviewing data about a variety of factors that might be related to higher rates of cancer in each area. DOH staff have been in contact with researchers at institutions near two of the study areas (Roswell Park Cancer Institute for the East Buffalo and Western Cheektowaga study area and Stony Brook University Hospital for the Centereach, Farmingville, Selden study area), who have provided useful advice and information about the local areas, and are exploring partnerships for the implementation of recommendations in each community.

## Cancer Registry Review

DOH staff are examining New York State Cancer Registry data, including the age and gender of patients diagnosed with cancer. They are reviewing cancer trends over time and examining characteristics of the cancers, such as the type of cells that are cancerous, tumor size, and the stage of the disease at the time of diagnosis. They are also considering whether access to health care and medical screening could be affecting the frequency of diagnoses.

## Demographic Factors and Environmental Review

DOH staff are examining data about each area, such as population age, education, income, and occupational patterns to see if these factors could be related to higher cancer rates. DOH staff also continue to work with the Department of Environmental Conservation (DEC) to identify potential sources of environmental contaminants that might be affecting cancer rates in these four regions.

**See p. 2-3 for an example of an analysis and finding for each study area. More details about the environmental review are on p.4.**

# Governor's Cancer Research Initiative

## EXAMPLES OF FINDINGS

These pages provide an example of an evaluation for each area. The final report for each area will include all cancers, risk factors evaluated, and recommendations.

### Warren County — Lung Cancer by Type and Tobacco Use

DOH staff examined each type of lung cancer and patient smoking data to evaluate the extent to which tobacco use might explain the elevated rates of lung cancer in Warren County. Most lung cancers fall into one of two categories: small cell and non-small cell lung cancers. There are three subtypes of non-small cell lung cancers: adenocarcinoma, squamous cell carcinoma, and large cell carcinoma. Although smoking increases the risk of all types of lung cancer, the risk is greatest for small cell lung cancer and squamous cell carcinomas, and weakest for adenocarcinomas.

The evaluation showed that adenocarcinomas were the most common lung cancer in the county and NYS excluding NYC (Table 1). However, the county rate of adenocarcinoma was not elevated. Squamous, small cell, and large cell carcinomas were the next most common cancers; the age-adjusted county rates for these cancers were significantly elevated.

DOH staff also examined reported smoking data for county patients diagnosed with lung cancer (Table 2). Most patients were reported as having a history of smoking; only small percentages of patients were reported as never having smoked. As expected, the percentage of reported non-smokers was lowest for small cell carcinoma and squamous cell carcinoma, the two lung cancers most strongly related to cigarette smoking.

**Table 1. Average annual number of cases and age-adjusted rate\* of lung cancer by type in Warren County and NYS excluding NYC, 2011-2015**

Type	Warren		NYS exc. NYC		Percent Elevation/Deficit
	# Cases	Rate	#Cases	Rate	
Small cell lung cancer	12.0	11.8	1,096.8	7.7	53.1**
<b>Non-small cell lung cancer</b>					
Squamous cell carcinoma	17.2	17.5	1,919.6	13.8	26.2**
Adenocarcinoma	27.8	29.5	4,220.0	30.0	-1.9
Large cell carcinoma	9.6	9.8	589.2	4.2	136.9**

\*Age-adjusted rate per 100,000 people

\*\*Statistically elevated

**Table 2. Percentage of Warren County patients diagnosed with lung cancer reported as never having smoked, 2011-2015**

Type	Percent Reported as Never Having Smoked
Small cell lung cancer	1.7
<b>Non-small cell carcinoma</b>	
Squamous cell carcinoma	2.3
Adenocarcinoma	7.9
Large cell carcinoma	8.3

### East Buffalo/Western Cheektowaga — Lung Cancer and Radon in Indoor Air

DOH staff evaluated indoor air radon testing data to see if exposures could be related to lung cancer rates in the East Buffalo/Western Cheektowaga (EBWC) area (Table 3). Radon is naturally occurring and the second leading cause of lung cancer after smoking. The US Environmental Protection Agency (EPA) recommends actions to reduce radon in homes when levels reach 4 picocuries per liter ( $\geq 4$  pCi/L).

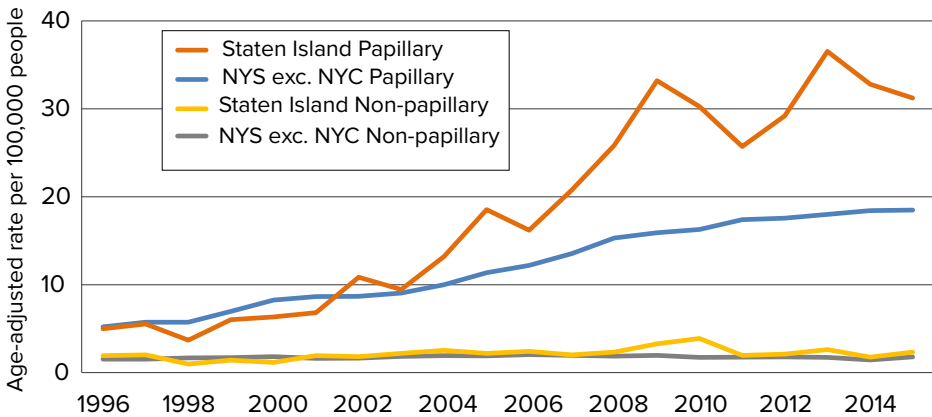
Results showed that radon levels in the EBWC study area were less than other areas of the state; only 4 percent of tests in the EBWC area had results  $\geq 4$  pCi/L. This evaluation indicates that radon does not appear to be a significant environmental exposure. However, data also show that radon testing remains relatively low. State and local outreach should continue to encourage residents to test their homes for radon ([www.health.ny.gov/radon](http://www.health.ny.gov/radon)). Additional environmental factors being reviewed in this and other areas are described on p. 4.

**Table 3. Radon test results for EBWC Study Area, Erie County, NYS, and NYS excluding NYC, 1987-2015**

Area	# of Tests All floors	Mean Concentration (pCi/L)			Max Concentration (pCi/L)	Percent Test Results $\geq 4$ pCi/L
		All floors	Basement	First Floor		
EBWC Study Area	212	0.9	0.9	0.7	11.1	3.8
Erie County	12,016	5.9	6.5	4.1	507	23.8
NYS excluding NYC	129,645	6.7	7.1	3.9	601.4	34.3
NYS	131,914	6.0	7.0	3.8	601.4	33.8

# Staten Island — A Rise in Thyroid Cancers

**Figure 1. Age-adjusted rate for thyroid cancer by type in Staten Island and NYS excluding NYC, 2011-2015**



*Staten Island is compared to NYS excluding NYC because its demographics are more similar to communities outside of NYC.*

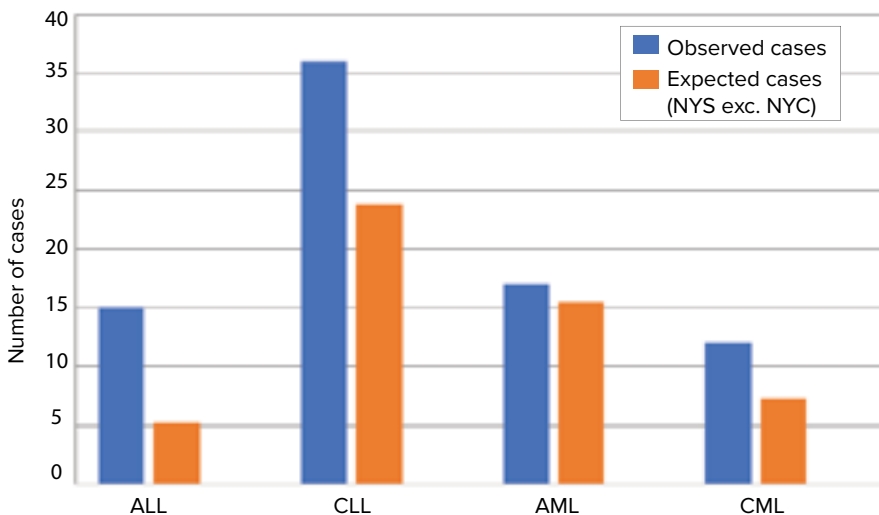
DOH staff reviewed rates of thyroid cancer in Staten Island over time. Thyroid cancer rates have been increasing statewide since the 1990s, however rates in Staten Island began to increase more rapidly than the rest of the state in 2003. To see what might account for this increase, staff evaluated the occurrence of thyroid cancer by papillary and non-papillary type. While there are several types of thyroid cancer, papillary carcinoma is the most common, accounting for about 93 percent of cases statewide and 89 percent of cases nationally. Papillary carcinomas tend to be very slow growing and are rarely fatal. They can be detected by medical imaging of the head and neck, after the removal of the thyroid for benign thyroid conditions, and for larger tumors, by physical examination of the thyroid.

Figure 1 shows that nearly all of the increase in thyroid cancer rates on Staten Island has been in diagnoses of the papillary type. These findings are consistent with those of national studies that indicate that the diagnosis of papillary carcinoma is increasing as a result of current medical imaging and other diagnostic methods.

# Centereach, Farmingville, and Selden — Leukemias by Type

DOH staff examined the occurrence of the four main types of leukemia (Figure 2). This is important because there are differences between the cancer types and the risk factors that might be related to each one. Results showed that most of the excess is in cases of acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), and chronic myeloid leukemia (CML). The number of acute myeloid leukemia (AML) cases is slightly greater than expected for the area. CLL and CML are slower growing leukemias that might be detected on routine blood tests even before symptoms appear. DOH staff are reviewing information on medical diagnostic practices and cancer reporting in this area to see if these could be playing a role in the elevation of chronic leukemias. They are also reviewing additional data on ALL cases to explore what factors could be playing a role in the elevation.

**Figure 2. Observed versus expected numbers of leukemia cases by type in Centereach, Farmingville, and Selden Study Area, 2011-2015**



*Comparing observed with expected numbers of cases is a way to analyze cancers in small geographic areas. "Observed" is the actual number of cases of each leukemia identified in Cancer Registry records. "Expected" is the number of cases calculated based on cancer rates for NYS excluding NYC applied to the number of people of different ages living in this area.*

# Governor's Cancer Research Initiative

## ENVIRONMENTAL REVIEW

DOH staff, in consultation with DEC staff, are reviewing existing environmental data to look for unusual patterns or trends in each study area compared to other areas of New York State. The environmental review focuses on air quality, radon, drinking water, and environmental remediation sites. The datasets being evaluated are described below. DOH staff are also exploring the availability of additional datasets to evaluate some concerns identified by community and stakeholder input.

The results of the environmental review will not be able to determine whether any environmental sources caused cancers, but could help identify if further investigation is warranted. The results of this evaluation will be provided in the final reports for each area.

### Outdoor Air

DEC is the state agency that carries out federal and state air pollution control and monitoring programs. DOH and DEC staff are reviewing outdoor air and emissions data for each study area to see if levels of air pollutants in the study area are higher than in other parts of the state. Air data being evaluated include nationally-available air quality monitoring and computer-modeled data for air pollutants and air toxics.

### Radon Levels in Indoor Air

Exposure to radon in indoor air is the second leading cause of lung cancer after smoking. DOH maintains data of every home tested using DOH-provided radon test kits. DOH staff are reviewing radon testing data for each study area to evaluate testing frequency and compare average concentrations to the EPA's recommended action level and to other areas of NYS.

### Drinking Water

DOH oversees the delivery of public drinking water and works with local health departments to regulate public water supplies. DOH is reviewing public drinking water testing and compliance data, and developing summaries of these results. In addition, they are exploring the availability of datasets to evaluate private wells in each study area.

### Environmental Remediation Sites

DEC oversees the remediation of contaminated industrial sites. DOH evaluates the potential for people to be exposed to site contaminants and for these contaminants to impact human health. DEC and DOH are reviewing available information about sites in each study area to assess whether potential exposures exist and if they warrant further evaluation for their contribution to cancer incidence.

Learn more:

[www.health.ny.gov/diseases/cancer/cancer\\_research\\_initiative/](http://www.health.ny.gov/diseases/cancer/cancer_research_initiative/)

Email us at [canmap@health.ny.gov](mailto:canmap@health.ny.gov)



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of Health**