



**Department
of Health**

Governor Cuomo's Cancer Research Initiative

Warren County Cancer Incidence Investigation

November 2019

Today's Presentation

- **Introduction & Background on the Initiative**
- **Approach**
- **Findings**
- **Limitations**
- **Conclusions**
- **Recommendations**
- **Acknowledgments**
- **Questions**

Introduction & Background on the Initiative

Purpose of the Governor's Cancer Research Initiative

- Learn more about the patterns of cancer in New York
- Identify any reasons for these patterns
- Enhance prevention and screening efforts
- Support access to appropriate high-quality health care services

Selection of Four Study Areas

- **Warren County:** highest overall cancer rate in NYS, 2011-2015
- **Staten Island:** highest overall cancer rate among 5 NYC boroughs, 2011-2015
- **East Buffalo/West Cheektowaga:** where six high clusters overlap (colorectal, esophagus, kidney, lung, oral, prostate)
- **Centereach, Farmingville, Selden:** where four high clusters overlap (bladder, leukemia, lung, thyroid)

Location of the Four Study Areas in the Governor's Cancer Research Initiative



Timeline and Milestones

October 2017: initiative announced in Warren County and Staten Island

October – June 2018: other two study areas identified; cancer maps updated

July 2018: regional meetings held with elected officials, stakeholders and public

July 2018 – August 2019: data analyzed and reports drafted

November 2018: study update posted on DOH website and emailed to attendees of July meetings

October - November 2019: reports released; regional webinars and meetings to present and discuss results



Sociodemographics

- Warren County is demographically more similar to NYS excl. NYC than to NYS.

Key demographic and socioeconomic characteristics by region, American Community Survey, 2011-2015

Characteristics (%)		Warren County	NYS excl. NYC	NYS
Race	White alone	96.2	80.5	64.6
	Black alone	1.2	8.9	15.6
	A/PI/AI/AN	1.2	4.2	8.4
	Other	1.4	6.3	11.4
Ethnicity - Hispanic		2.1	10.5	18.4
Foreign born		3.4	11.4	22.5
High School/College Diploma, age 25+		90.9	89.7	85.6
Income below poverty level (%)		12.0	11.9	15.7
Veterans, 18+ years (%)		9.7	7.4	5.4

A/PI/AI/AN: Asian, Pacific Islander, American Indian, and Alaska Native

Cancer Sites Examined for Warren County

Cancer Types and Percent Elevations in Incidence Rates¹, Warren County versus New York State excluding New York City and New York State, by Sex, 2011-2015

Cancer Site	Warren vs. NYS excl. NYC ²			Warren vs. NYS ³		
	All	Male	Female	All	Male	Female
Oral cavity and pharynx	33.9					
Esophagus				48.0	62.4	
Colorectal			24.7			
Larynx	87.7	80.5				
Lung and bronchus	18.4	24.4				
Melanoma of the skin				41.6	45.2	
Brain & other nervous system	66.8		115.4			
Thyroid	30.4		37.0			
Leukemia						48.5

¹ Incidence rate was age-adjusted to the 2000 US standard population.

² Values with significant elevations are shown.

³ Values with significant elevations of at least 40% are shown.

Approach

Approach

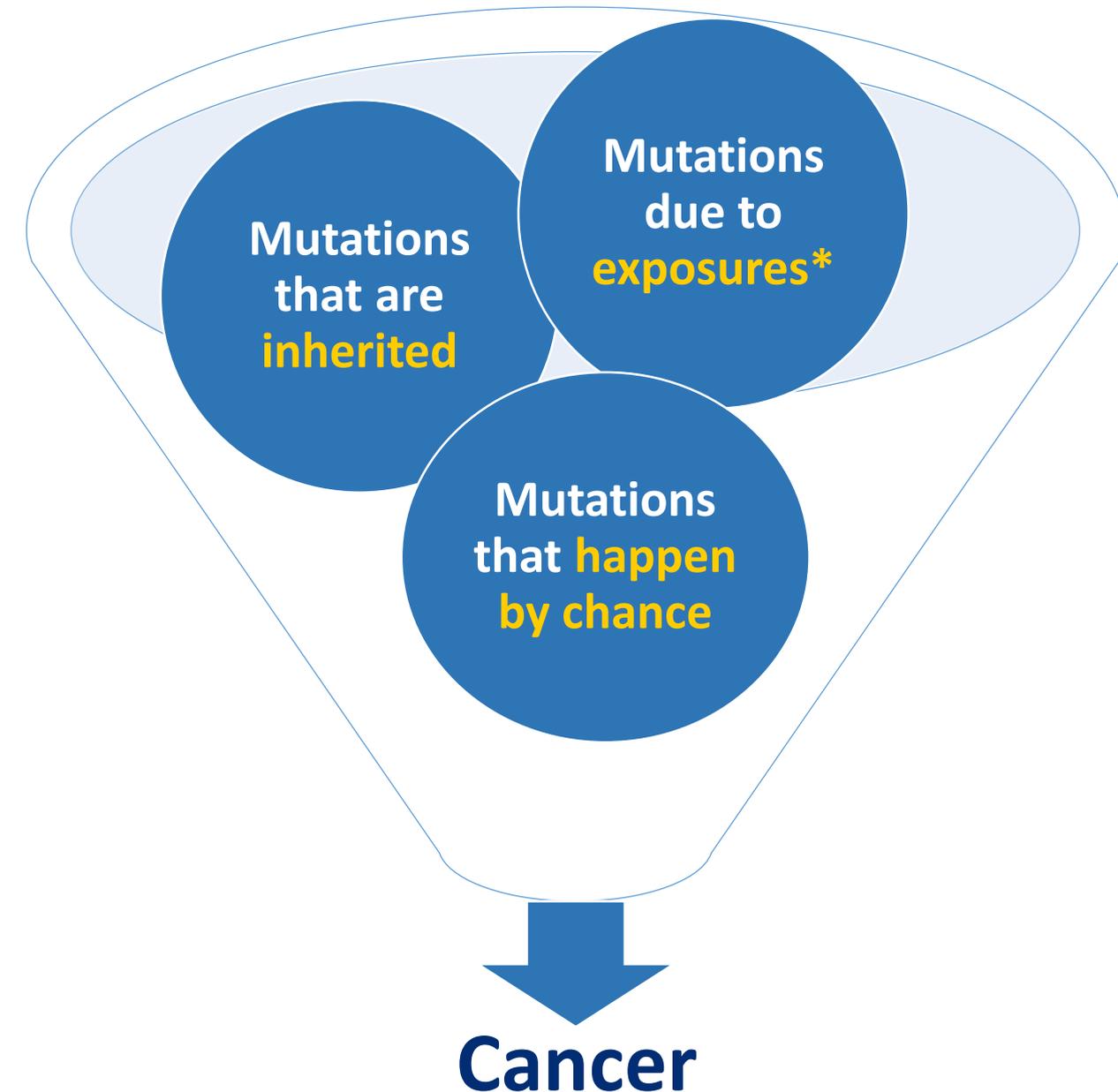
- Literature review on the risk factors for elevated cancers
- Evaluation of:
 - ✓ Trends and patterns for elevated cancers in study areas compared to other areas of NYS
 - ✓ Environmental factors that were unusual in study areas compared to other areas of NYS
 - ✓ Behavioral, healthcare and occupational factors that were unusual in study areas compared to other areas of NYS
- For most factors, no information was available on whether the people with cancer actually had or were exposed to this factor
- Study cannot draw definitive conclusions about what caused the elevations in cancer but may suggest factors that contributed to elevations

Sources of Data

- NYS Cancer Registry
- US Environmental Protection Agency's (USEPA) Air Quality System
- USEPA's National-scale Air Toxics Assessment (NATA)
- Hudson River Communities Project
- NYS Radon Program
- USEPA's Safe Drinking Water Information System (SDWIS)
- USEPA's 3rd Unregulated Contaminant Monitoring Rule (UCMR 3) Occurrence Data
- NYS DEC's Environmental Site Remediation Database
- NYS DOT's Traffic Monitoring Program
- Expanded NYS Behavioral Risk Factor Surveillance System (e-BRFSS)
- RWJF and the University of Wisconsin Population Health Institute's County Health Rankings and Roadmaps Program
- NYS Statewide Planning and Research Cooperative System (SPARCS)
- American Community Survey (ACS)

Background: What causes cancer?

- Cancer begins when the genes in a cell are damaged (mutations) and the cells grow out of control.
- Mutations may be ones you are born with (inherited), or that happen due to chance when cells grow and divide, or that happen after exposure to a cancer-causing substance.
- Several mutations may need to occur in a person to lead to cancer.
- Some people with several risk factors may never develop cancer, while other people with no known risk factors do.



* *Exposures: UV radiation, smoking, alcohol, certain chemicals, etc.*

Background: What causes cancer?

- Different cancers have different causes and risk factors.
- Anyone can get cancer; there are many factors that affect a person's chances of getting cancer.
- Some cancer risk factors can be changed, and others cannot:
 - ✓ Family history, genetics, race and ethnicity
 - ✓ Lifestyle factors: smoking, unhealthy diet, excessive alcohol, physical inactivity
 - ✓ Other exposures: Ultraviolet radiation from sunlight and indoor tanning devices, x-rays, certain chemicals that may be found in the air, water, food, drugs and workplace
 - ✓ Chronic inflammation, infectious agents, immunosuppression
 - ✓ Often multiple interacting factors

Background: Most Frequently Diagnosed Cancer Types in Females and Males, New York State, 2012-2016

Females	
Cancer Type	New Cases*
Breast	15,932
Lung	6,979
Colorectal	4,396
Uterine	4,090
Thyroid	3,138
All sites	56,389



Males	
Cancer Type	New Cases*
Prostate	13,767
Lung	6,824
Colorectal	4,585
Bladder	3,988
Lymphoma^	2,645
All sites	55,138

* Average annual incident cases

^ Non-Hodgkin Lymphoma

Findings - Examination of Elevated Cancer Incidence

Findings: Oral Cancer

- **Risk Factors**

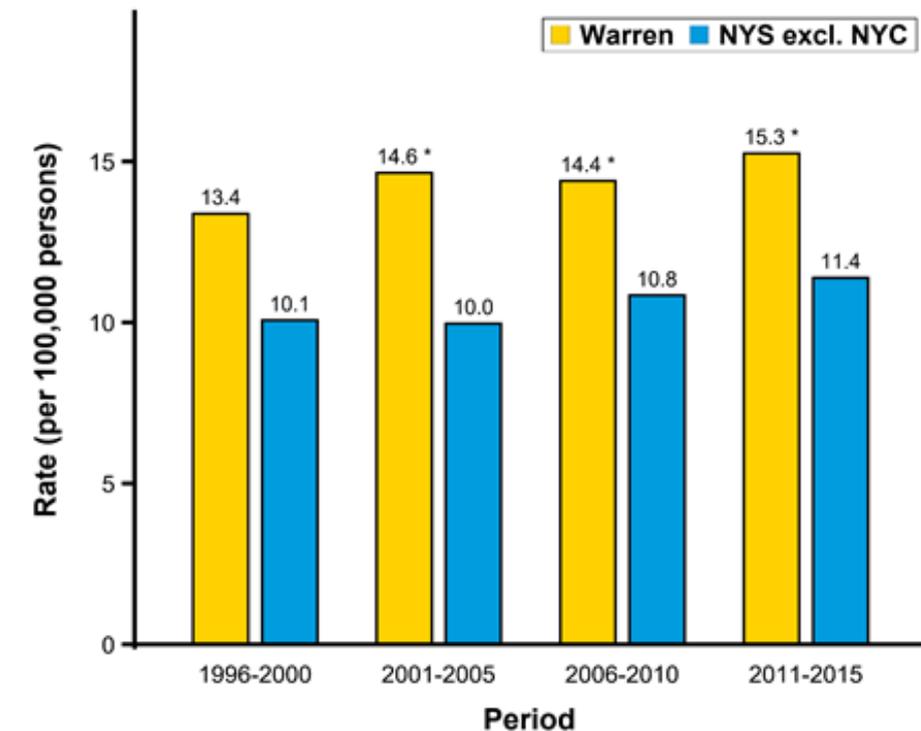
- ✓ Tobacco use
- ✓ Alcohol consumption
- ✓ Human papillomavirus (HPV) infection
- ✓ Family history
- ✓ Occupational exposures (e.g. formaldehyde and wood dust) – nasopharyngeal cancer
- ✓ Epstein Barr Virus (EBV) infection - nasopharyngeal cancer
- ✓ Sunlight - cancer of the lip
- ✓ Ionizing radiation - cancer of the salivary glands

Findings: Oral Cancer

• Incidence Trends and Patterns

- ✓ The incidence rates were at least 33% above the rates for NYS excl. NYC from 1996-2015, and were significantly higher in the latest three 5-year periods.
- ✓ In 2011-2015, about 60% of the excess oral cancer in Warren County was attributable to men.
- ✓ Most of the excess occurred among individuals aged 50-64.

5-Year Average Oral Cancer Incidence Rates¹ for Warren County and New York State excluding New York City, 1996-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Findings: Oral Cancer

- **Incidence Trends and Patterns**

- ✓ About 58% of oral cancer cases were reported to the NYSCR as either current or former tobacco users.
- ✓ The incidence rates of HPV-associated oral squamous cell carcinoma in Warren County were significantly higher relative to NYS excl. NYC among males (12.4 vs 8.0 per 100,000), females (4.7 vs 1.7), and when both sexes combined (8.4 vs 4.7).

Findings: Colorectal Cancer

- **Risk Factors**

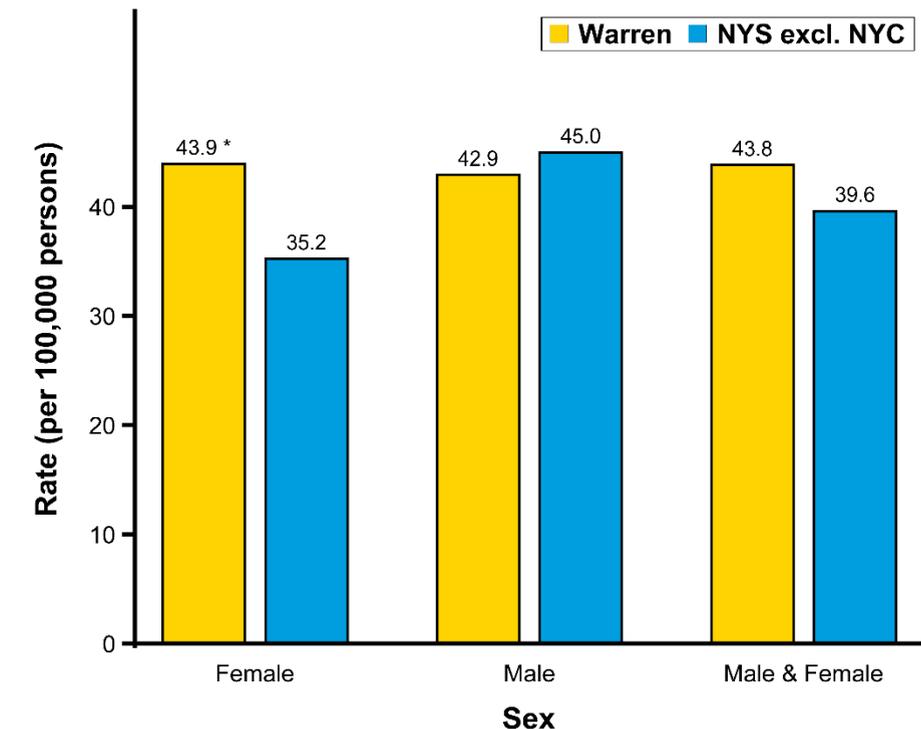
- ✓ Cigarette smoking
- ✓ Heavy alcohol use
- ✓ Physical inactivity
- ✓ Unhealthy diet
- ✓ Obesity
- ✓ Family history
- ✓ Personal history of inflammatory bowel disease or intestinal polyps

Findings: Colorectal Cancer

• Incidence Trends and Patterns

- ✓ The observed excess of colorectal cancer in Warren County during the 2011-2015 period was entirely in females.
- ✓ 52% of the excess in colorectal cancer incidence was among older women (aged 75+), and 45% was among young adult women (aged 20-49).
- ✓ A higher proportion of young women were diagnosed with local-stage tumors in Warren County (60%) than in NYS excl. NYC (37%).

Colorectal Cancer Incidence Rates¹ by Sex, Warren County and New York State excluding New York City, 2011-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Findings: Lung Cancer

- **Risk Factors**

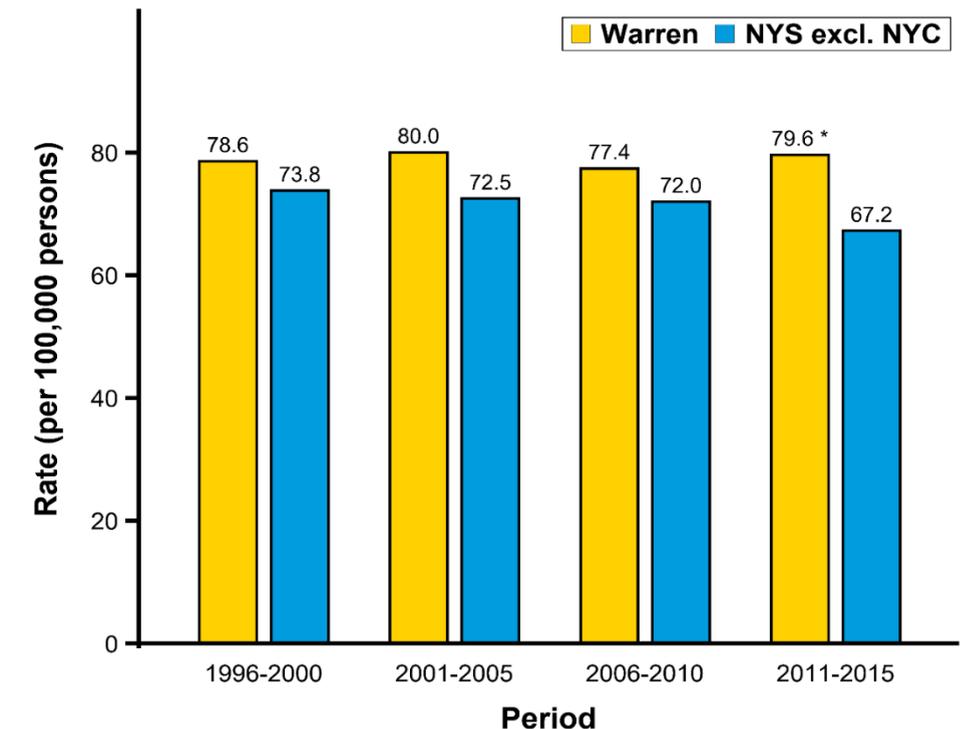
- ✓ Cigarette smoking
- ✓ Second-hand smoke exposure
- ✓ Radon
- ✓ Air pollution
- ✓ Occupational exposure (e.g. arsenic, chloromethyl ethers, beryllium, chromium, cadmium, nickel, silica, diesel exhaust, and soot)
- ✓ Ionizing radiation from medical procedures
- ✓ Family history

Findings: Lung Cancer

• Incidence Trends and Patterns

- ✓ The incidence rates for Warren County were elevated relative to NYS excl. NYC in all four periods examined, but statistically significant only in the latest period.
- ✓ About 70% of the excess lung cancer in Warren County was in men.
- ✓ Almost 60% of the excess was in younger (aged 20-49 years) and middle-aged adults (50-64 years).

5-Year Average Lung Cancer Incidence Rates¹ for Warren County and New York State excluding New York City, 1996-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Findings: Lung Cancer

- **Incidence Trends and Patterns**

- ✓ The incidence rates for squamous, small cell, and large cell carcinomas were significantly elevated.
- ✓ Among males, a higher proportion of tumors were diagnosed at regional stage in Warren County relative to NYS excl. NYC.
- ✓ 84% of patients in Warren County were reported as current or prior users of tobacco.
- ✓ About 25% of lung cancer patients had been diagnosed with prior tumors in both Warren County and NYS excl. NYC. And similar proportions of patients were ever exposed to radiation treatment for a prior tumor in both regions.

Findings: Cancers of the Brain and Other Nervous System

- **Risk Factors**

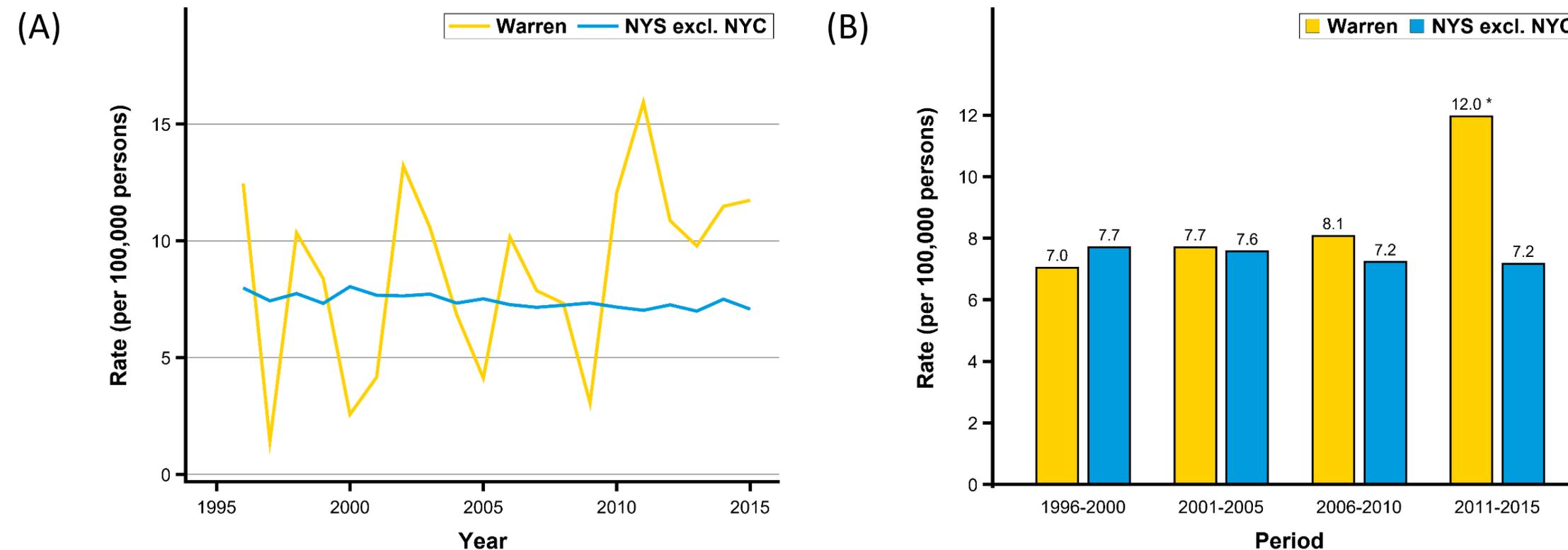
- ✓ Hereditary conditions
- ✓ Ionizing radiation of the head

Findings: Cancers of the Brain and Other Nervous System

• Incidence Trends and Patterns

- ✓ The incidence of cancers of the brain and ONS in Warren County did not differ significantly from the incidence in NYS excl. NYC until the 2011-2015 period.

Annual (A) and 5-year Average (B) Incidence Rates¹ of Brain and Other Nervous System Cancers for Warren County and New York State excluding New York City, 1996-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Findings: Cancers of the Brain and Other Nervous System

- **Incidence Trends and Patterns**

- ✓ 44 cases diagnosed during the 5-year period; 25 among females and 19 among males
- ✓ Rate among males and females combined in Warren County was statistically higher by 67%; for females alone, 115%.
- ✓ Rates for Warren County were elevated for all age groups, but only significantly higher among persons under age 20.

Findings: Cancers of the Brain and Other Nervous System

- Incidence Trends and Patterns

- ✓ Cell Type:

- There was an excess in pilocytic astrocytomas in Warren County relative to NYS excl. NYC (14% vs. 5%).
 - Pilocytic astrocytomas tend to occur more often in children and young adults. In total over the 5-year period, there were six pilocytic astrocytomas diagnosed among individuals under 50 years of age.
 - No other unusual patterns were observed by cell type. Glioblastomas comprised 55% and 54% of brain and ONS cancers in Warren County and NYS excl. NYC, respectively.

Findings: Leukemia

- **Risk Factors – vary by type and age group**
 - ✓ Ionizing radiation (all types except possibly CLL)
 - ✓ Genetic conditions such as Down syndrome (ALL, AML)
 - ✓ High birthweight (childhood ALL)
 - ✓ Occupational exposures (adult ALL and AML and possibly CML)
 - ✓ Certain chemotherapy drugs (AML and possibly CML)
 - ✓ Smoking (AML and possibly CML)
 - ✓ Obesity (AML)
 - ✓ Family history (CLL)

Findings: Leukemia

• Incidence Trends and Patterns

- ✓ Leukemia incidence rates vary markedly by race and ethnicity.
- ✓ The rate for non-Hispanic white females in Warren County was elevated, but not statistically significantly different from the comparison areas.

Leukemia Incidence Rates¹ by Race/Ethnicity, Warren County, New York State excluding New York City, and New York State, 2011-2015

Race/Ethnicity	Warren County		NYS excl. NYC		NYS	
	Male	Female	Male	Female	Male	Female
Overall	25.8	18.9 #	23.2	13.7	21.2	12.7
non-Hispanic white	25.8	19.5	24.3	14.3	24.0	14.2
non-Hispanic black	---	---	16.5	9.6	14.0	9.0
Hispanic	---	---	14.5	10.2	13.6	9.4
Asian/Pacific Islander	---	---	12.1	7.9	11.1	7.1

¹ Incidence rate was age-adjusted to the 2000 US standard population.

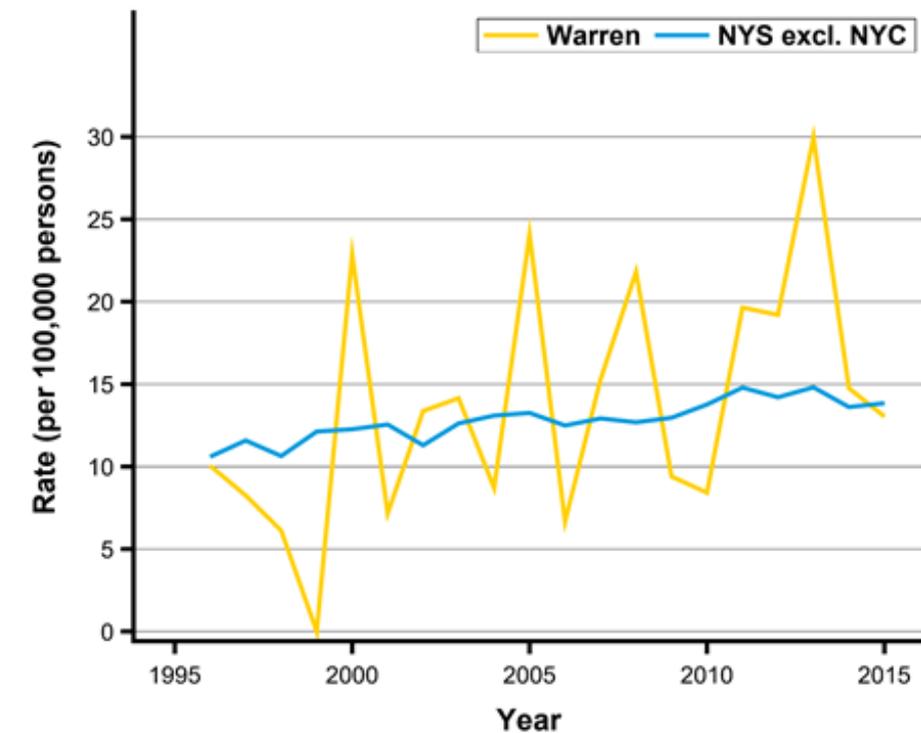
The rate for Warren County is statistically different from the rate for NYS at $p < 0.05$ level.

Findings: Leukemia

• Incidence Trends and Patterns

- ✓ The rates among non-Hispanic white females for Warren County were highly variable.
- ✓ The 5-year average rates for Warren County did not differ appreciably from the rates for NYS excl. NYC until the 2011-2015 period.
- ✓ The 2011-2015 period, which groups data together for 2011 and 2013, each a peak year, may represent an anomaly.

Annual Incidence Rates¹ of Leukemia among non-Hispanic White Females for Warren County and New York State excluding New York City, 1996-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

Findings: Leukemia

- **Incidence Trends and Patterns**

- ✓ Most of the excess in leukemia among non-Hispanic white females in Warren County is among those aged 65 years and older.
- ✓ Rates for non-Hispanic white females in Warren County were elevated for all four leukemia subtypes, but the percent excess was only appreciable for CLL.
- ✓ The percentage of leukemia cases with a history of prior cancers in Warren County was similar to that in NYS excl. NYC.

Thyroid Cancer

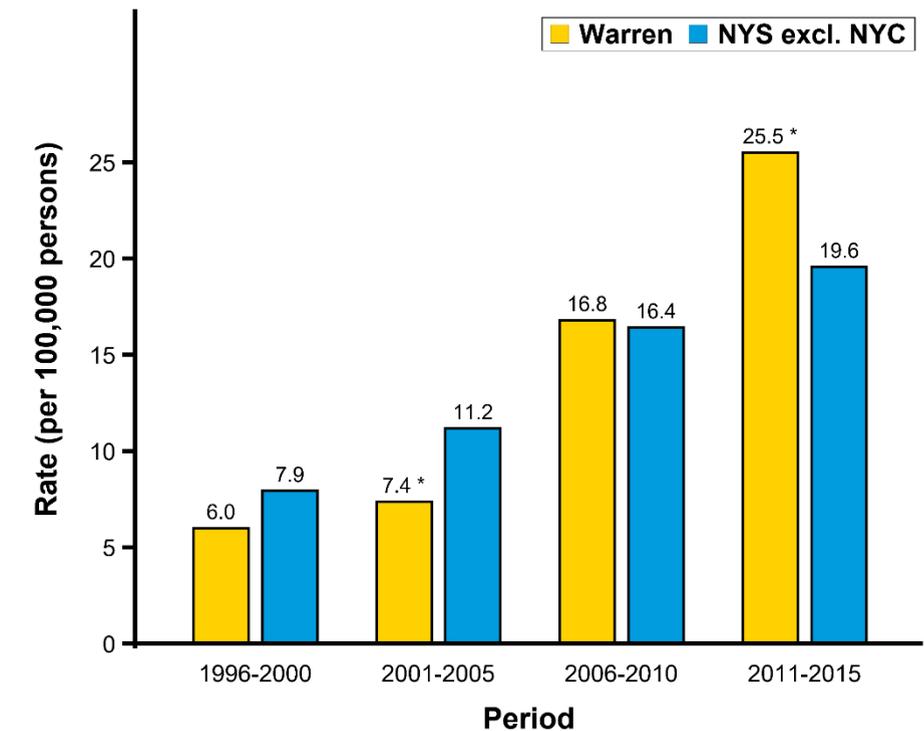
- **Risk Factors**

- ✓ Medical system (e.g. overdiagnosis)
- ✓ Exposure to ionizing radiation, particularly at a young age (e.g., from X-rays, CT scans, treatments for a previous cancer, emissions from nuclear accidents)
- ✓ Diet low in iodine - follicular subtype of thyroid cancer
- ✓ Excess body fat
- ✓ Hereditary conditions
- ✓ Family history of thyroid cancer

Thyroid Cancer

- Incidence Trends and Patterns
 - ✓ Incidence rates for Warren County and NYS excl. NYC have been increasing. The rate for Warren County grew faster in the recent decade.
 - ✓ For 2011-2015, the excess for Warren County was primarily in females.

5-Year Average Incidence Rates¹ of Thyroid Cancer for Warren County and New York State excluding New York City, 1996-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

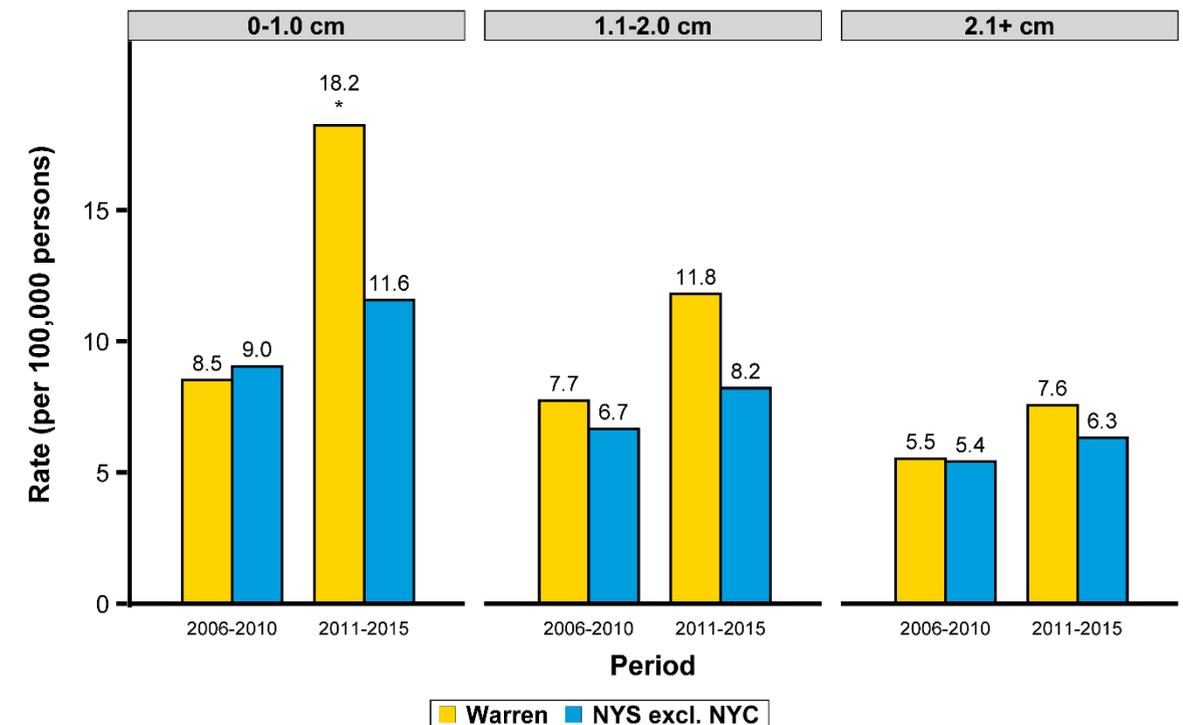
* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Thyroid Cancer

• Incidence Trends and Patterns

- ✓ The excess for females in Warren County was entirely in papillary carcinomas.
- ✓ At least 90% of the excess in papillary thyroid cancer incidence among females was due to small tumors (2 cm or less).
- ✓ The prevalence of prior cancers in Warren County and NYS excl. NYC did not differ substantially (18% vs. 12%).

Female Thyroid Papillary Carcinoma Incidence Rates¹ by Time Period and Tumor Size, Warren County, and New York State excluding New York City, 2011-2015



¹ Incidence rate was age-adjusted to the 2000 US standard population.

* The rate for Warren County is statistically different from the rate for NYS excl. NYC at $p < 0.05$ level.

Findings: Other Cancers of Interest

- **Esophageal Cancer:** low incidence; excess in men and distant-stage disease; history of tobacco consumption
- **Laryngeal Cancer:** low incidence; excess in men (esp. <65 years) and localized stage disease; history of tobacco consumption
- **Melanoma of the Skin:** not elevated among non-Hispanic whites

Findings - Review of Environmental Data

Background: Environmental Causes of Cancer

- Certain chemicals/agents are known to be human carcinogens at high exposure levels over a long period of time.
 - ✓ e.g., radon and lung cancer, vinyl chloride and liver cancer, asbestos and mesothelioma
 - ✓ Most knowledge on links between exposures to toxic substances and cancer (i.e., carcinogenicity) comes from occupational studies and laboratory studies of animals.
- Less certainty on health risks associated with exposures to chemicals at typical levels found in the environment.
 - ✓ Carcinogens are present in the environment, **but** environmental exposures are generally substantially lower than occupational exposures or laboratory studies.

Background: Environmental Causes of Cancer

- Environmental exposures are difficult to study because of:
 - ✓ Long cancer latency,
 - ✓ Mobile human populations, and
 - ✓ Many factors that affect a person's chances of getting cancer.
- Smoking, poor diet, obesity and lack of physical activity are thought to be more important risk factors for some types of cancers.
- Research continues to help us better understand:
 - ✓ Impact of lower levels of exposure on cancer burden,
 - ✓ How mixtures of toxic substances influence cancer risk, and
 - ✓ Interaction of genetic factors and personal behaviors with environmental factors.

Background: Environmental Exposure

- Exposure is contact. People can be exposed to environmental contaminants by
 - ✓ Breathing them in (inhalation),
 - ✓ Consuming them in food or water (ingestion), and
 - ✓ Getting them on their skin (dermal contact).
- *Without exposure, there can be no health effects.*

Outdoor Air Pollution

- Available data for criteria air pollutant monitoring showed that Warren County met USEPA National Ambient Air Quality Standards.
- In the 2011 and 2014 NATA, there were five known/probable carcinogens with mean estimates above the one-in-one-million cancer risk level across NYS census tracts.
 - ✓ Model-estimated cancer risk is either similar or lower in Warren County relative to NYS excl. NYC and to NYS.
 - ✓ NATA estimates suggest that residential wood combustion contributed ~12% to average inhalation cancer risk in Warren County.

Estimates of Total Cancer Risk (per million) for USEPA-designated Hazardous Air Pollutants in Warren County, New York State excluding New York City, and New York State, NATA 2011

HAPs*	Warren County	NYS excl. NYC	NYS
1,3-Butadiene	1.43	1.96	3.51
Acetaldehyde	3.09	3.31	4.20
Benzene	5.38	5.81	8.47
Carbon Tetrachloride	3.28	3.28	3.28
Formaldehyde	14.12	15.26	20.51

* known/probable carcinogens with mean estimates above the one-in-one-million cancer risk level across NYS census tracts.

Findings: Outdoor Air Pollution

- Results from a special air monitoring study, conducted as part of the Hudson River Communities Project, showed that PCB levels in Glens Falls (Warren County) were somewhat lower than levels in Fort Edward and Hudson Falls (Washington County).
- Available data on outdoor air do not indicate an unusual impact of air pollution on cancer incidence in Warren County in recent years.

Findings: Radon in Indoor Air

- Average radon levels in Warren County were lower than the levels in NYS excl. NYC.
- Radon does not appear to be unusual in Warren County in relation to the rest of NYS.
- Radon levels in tested homes do not represent other homes in the neighborhood.

Summary of Radon Tests* in Warren County, New York State excluding New York City, and New York State, 1987-2015

Area	Mean Conc. (pCi/L)	% test results ≥ 4 pCi/L
Warren County	3.22	16.7
NYS excl. NYC	6.70	34.3
NYS	5.99	33.8

* *excluding tests performed at schools and day care centers*

Findings: Public Drinking Water Quality

- 31 active public water systems, serving ~80% of the population in Warren County
- Regulated Contaminants
 - ✓ 120+ analytes in seven categories based on their properties
 - ✓ 7 MCL violations issued for disinfection byproducts in two public water systems
 - ✓ 11 violations issued for aesthetic properties in two public water systems

MCL: Maximum Contaminant Level

Maximum Contaminant Level Violations for Disinfection Byproducts among the Public Water Systems in Warren County

PWS	Analyte	Exceedance (mg/L)	Limit (mg/L)	Date*
Lagoon Manor Homeowners Assoc.				
	HAA5	0.063	0.06	2/2/09
	TTHM	0.084	0.08	2/2/09
Glens Falls City				
	TTHM	0.113	0.08	4/29/03
	TTHM	0.124	0.08	4/29/03
	TTHM	0.121	0.08	4/29/03
	TTHM	0.093	0.08	7/8/03
	TTHM	0.118	0.08	7/8/03

* This is the determination date when the local health department recorded the violation.

HAA5: Total Haloacetic Acids
TTHM: Total Trihalomethanes



Findings: Public Drinking Water Quality

- Unregulated Contaminants
 - ✓ USEPA's Third Unregulated Contaminant Monitoring Rule (UCMR 3)
 - ✓ The UCMR 3 contaminants detected in Warren County public water systems were all below USEPA's reference levels
- Summary
 - ✓ The public water systems in Warren County have met safe drinking water standards and are consistently in compliance, with very few instances of MCL exceedances.
 - ✓ Although some violations occurred for specific public water systems, it is highly unlikely that this drinking water exposure increased the cancer burden to the Warren County population.

Findings: Industrial and Inactive Hazardous Waste Disposal Sites

- A total of 22 industrial and inactive hazardous waste disposal sites were identified in Warren County.
- In some cases, on-site contamination exists but is not causing off-site exposure.
- For other sites, information continues to be gathered.
- For many sites, actions to identify, control, and/or remove existing contamination have been implemented and completed.
- Overall, based on a review of available data, there is no information suggesting that contamination from existing and known remedial sites is causing widespread exposures in Warren County.

Findings: Proximity to Traffic

- The most heavily trafficked road is Interstate 87, which runs north-south roughly through the middle of Warren County.
- Warren County has a smaller proportion of its population living near heavily trafficked roads than both NYS excl. NYC and NYS.
- The NATA results are consistent with these traffic density results.

Percent Population Living within 500 m of NYSDOT Monitored Roads, Categorized by Average Annual Daily Traffic (AADT) Volume, 2015

Area	AADT Volume (1,000 vehicles)		
	75 - 300	25 - <75	<25
Warren County	0%	6%	94%
NYS excl. NYC	5%	14%	81%
NYS	15%	21%	64%

Findings - Review of Behavioral, Health Care, and Occupational Factors

Health Behavior and Lifestyle

- Warren County was frequently ranked in the lower half among the 57 counties in NYS excl. NYC on the Health Behaviors measure, indicating less healthy lifestyles.

Health Behavior and Lifestyle Indicators for Warren County and New York State excluding New York City, New York State Expanded Behavioral Risk Factor Surveillance System, 2013-2014 and 2016 Combined

Indicator (%)	Males and Females		Males		Females	
	Warren County	NYS excl. NYC	Warren County	NYS excl. NYC	Warren County	NYS excl. NYC
Overweight or Obese	64.9	63.0	67.2	70.3	62.5*	55.4
Obese	29.9	27.2	27.0	28.4	32.9	25.9
Current Smoker	20.9*	16.7	21.0	18.8	20.7*	14.8
Binge Drinker	17.1	16.9	23.3	21.9	11.0	12.2
Gets Leisure Time Physical Activity	78.4*	74.2	78.9	75.8	78.0*	72.6
Fully Met USPSTF CCSR ^a	71.1	70.5	67.2 [^]	69.1	74.9	71.7

^a among 50-75 years old

USPSTF CCSR^s: US Preventive Services Task Force Colorectal Cancer Screening Recommendations

* significant at $p < 0.05$ level for Wald chi-square test, Warren County compared to NYS excl. NYC

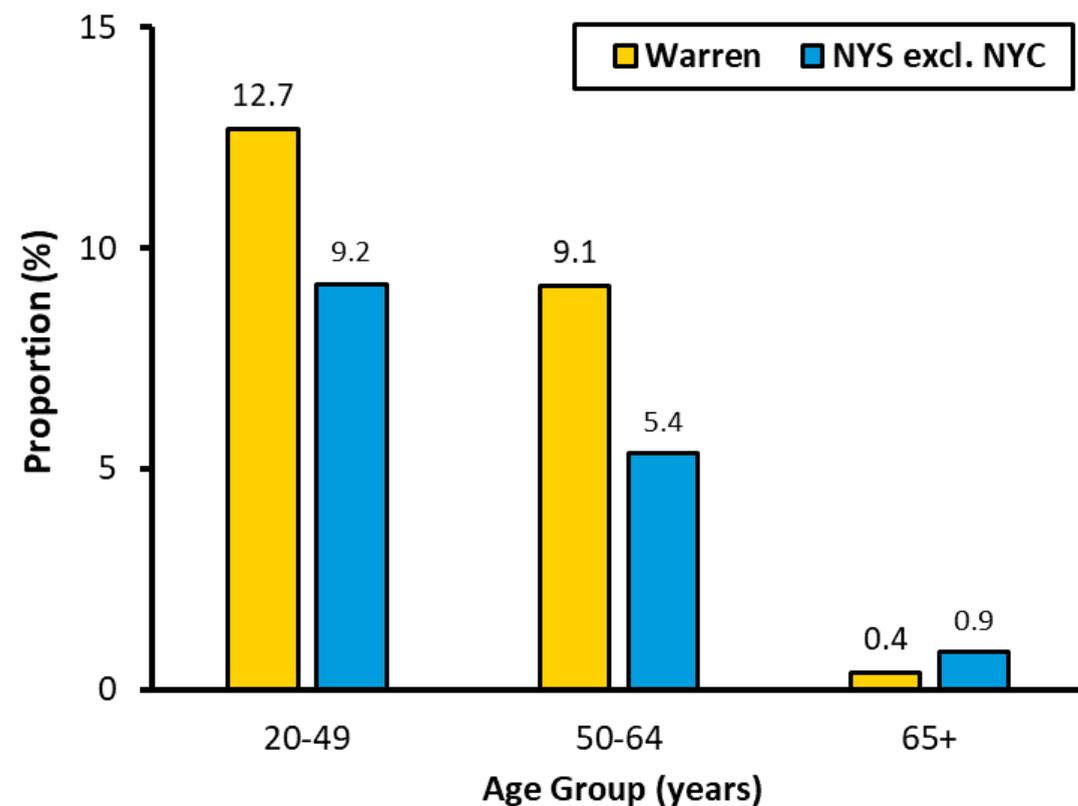
[^] high-variability estimate (i.e. having confidence limits greater than $\pm 10\%$)



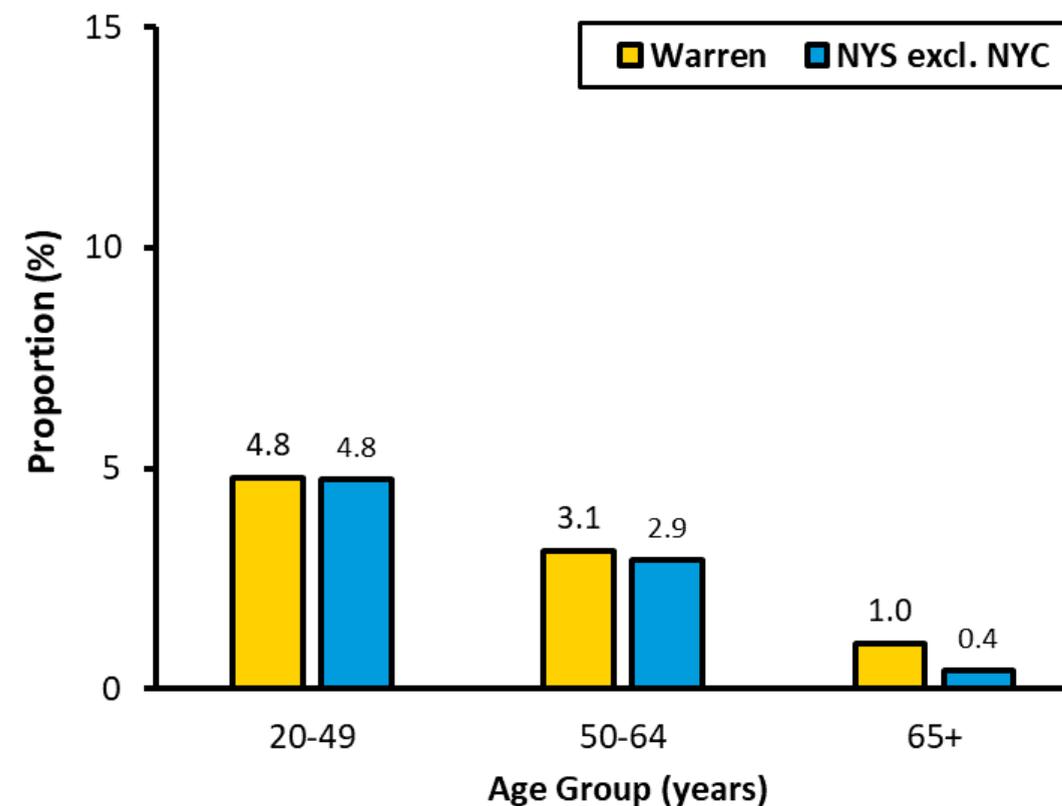
Health Behavior and Lifestyle

Prevalence of Current Smoking and Binge Alcohol Drinking by Sex and Age Category for Warren County and New York State excluding New York City, New York State Expanded Behavioral Risk Factor Surveillance System, 2013-2014 and 2016 Combined

a) Male



b) Female



Health Care

- Two major providers of primary health care services with multiple regional health care centers, various community services, and outreach to remote areas in Warren county.
- A significantly greater proportion of adults in Warren County had health care coverage than those in NYS excl. NYC (92% vs. 88%)
- Warren County was ranked high with respect to the Clinical Care Factor among the 57 counties in NYS excl. NYC, indicating good access to care and high quality of care.

Ranking of Warren County with Respect to Clinical Care among New York State (62 Counties) and New York State excluding New York City (57 Counties), the County Health Rankings & Roadmaps Program, 2010-2016

Year	NYS	NYS excl. NYC
2010	12	11
2011	8	7
2012	3	3
2013	2	2
2014	2	2
2015	6	5
2016	1	1

Occupation and Industry

- A shift of major industries in Warren County over time
 - ✓ Historically - logging, mining, and the production of timber and wood products (particularly paper)
 - ✓ Now - medical device development and manufacturing, financial services, health care, and information technology businesses
 - ✓ Recreation and tourism remain to be important to the local economy.
- A slightly higher percentage of people in Warren County (22%) worked in occupations with greater probability of exposures to elevated levels of hazardous substances than in NYS excl. NYC (20%).
- Asbestosis hospitalization rate
 - ✓ An indirect measure of potential past occupational exposure to asbestos
 - ✓ No evidence of elevated past exposure to asbestos in Warren County relative to NYS excl. NYC

Limitations

General Considerations

- Latency and population migration
- Most cancers have multiple risk factors, all of which influence incidence.

Cancer Data

- The completeness and accuracy of the data depend upon reporting from many sources.
- There may also be differences in how cancer is diagnosed, treated, and recorded in different areas of the state.

Environmental Data

- Environmental measurements are not always a good indication of exposure and there is no individual exposure assessment.
- The availability of environmental data is limited across space and time.
- Data on past exposures, which are most important for cancer, are particularly hard to come by.
- Effects of exposures to chemical mixtures are difficult to evaluate.

Behavioral, Lifestyle, Health Care, and Occupational Data

- e-BRFSS: small sample size; wider margins of error; limited number of indicators; accuracy of people's answers to the survey questions
- SPARCS: administrative data; missing non-hospital treatment info; differences in the likelihood of being admitted to or visiting a hospital facility for specific reasons
- ACS: wide margin of error in small areas; tabulated into broad categories

BRFSS: Behavioral Risk Factor Surveillance System

SPARCS: Statewide Planning and Research Cooperative System

ACS: American Community Survey

Conclusions

Conclusions

- Environmental factors evaluated in this study, including levels of radon in indoor air, environmental contaminants in outdoor air, contaminants in drinking water, industrial and inactive hazardous waste disposal sites, and proximity to traffic do not stand out from those in other parts of NYS excl. NYC.
- It is likely that a higher proportion of current and former tobacco use contributed to the elevated rates of lung, laryngeal, esophageal, and oral cancers in Warren County. The elevations in the rates for these cancers were more often observed in men.
- Alcohol consumption, independently or through a synergetic effect with tobacco use, might have contributed to the excess of oral, esophageal, and laryngeal cancers in Warren County, particularly among men.
- HPV infection may have contributed to the oral cancer excess.

Conclusions

- Most of the elevation in thyroid cancer incidence among women in Warren County is likely due to increased detection of small papillary tumors by medical imaging and other diagnostic techniques.
- The higher proportion of overweight or obese women in Warren County may have contributed to the excess in female thyroid cancer incidence as well as to the excess in female colorectal cancer incidence.
- The excess in leukemia rates among women in Warren County may represent a time-limited anomaly. DOH will continue to monitor.
- The investigation found no factors that might account for the elevated incidence of cancers of the brain and ONS in Warren County. DOH will continue to monitor.

Recommendations

Recommended Actions Based on Specific Cancers Elevated in the Warren County Study Area

Health Promotion and Cancer Prevention

- Tobacco prevention
- Alcohol prevention
- Healthy nutrition
- Physical activity
- HPV vaccination
- UV exposure reduction

Cancer Screening and Early Detection

- Lung cancer screening
- Colorectal cancer screening
- Thyroid cancer screening
(Recommendation *against* screening in asymptomatic adults)

Healthy and Safe Environment

- Radon testing and mitigation
- Reducing radiation from medical imaging
- Safety in the workplace
- High-efficiency, low-emission wood heating systems

Recommended Actions to Reduce the Burden of All Cancers Statewide

For All New Yorkers

It is not always possible to know why one person develops cancer while another person does not. But the following are things that all individuals can do to reduce their risk of cancer:

- If you use tobacco, quit. If you don't use tobacco, don't start.
- Eat nutritious meals that include fruits, vegetables and whole grains.
- Get moving for at least 30 minutes a day on five or more days each week.
- Use sunscreen, monitor sun exposure and avoid tanning salons.
- Limit alcohol use.
- For women of child-bearing age, know the benefits of breastfeeding and, if possible, breast-feed infants exclusively for at least the first six months of life.
- Discuss with your healthcare provider what cancer screening tests might be right for you.
- Get cancer-preventive vaccines such as hepatitis B and HPV.
- Learn your family health history (if possible).
- Test your home for radon.

Recommended Actions to Reduce the Burden of All Cancers Statewide

NYS Department of Health and Partner Organizations

Cancer Surveillance – NYS Cancer Registry

- Continue to meet the highest cancer registry standards for timeliness, completeness and quality of data, and make these data available to researchers, clinicians, public health officials, legislators, policymakers, community groups and the public.

Environmental Health

- Continue to identify and assess potential exposures throughout the state and take action to reduce those exposures.
- Continue to support programs to promote and maintain clean air, clean water and reduce human exposures to environmental hazards
- Promote awareness of programs and initiatives to reduce environmental hazards in our communities.

Recommended Actions to Reduce the Burden of All Cancers Statewide

NYS Department of Health and Partner Organizations

Statewide Initiatives

Overarching goal is to reduce the burden of cancer by:

- decreasing the number of new cancer cases,
- decreasing the number of cancers diagnosed at late stages,
- improving the quality of life of those diagnosed with cancer, and
- decreasing the number of deaths caused by cancer.

These efforts are detailed in two State plans:

- *New York State 2018-2023 Comprehensive Cancer Control Plan*
- *New York State Prevention Agenda 2019-2024*

Today's Announcement

- New \$675,000 grant to support local **Cancer Prevention in Action** project.
- Local Public Health Partners Identifying Interventions to Support Healthy Lifestyles
 - ✓ The Governor has also directed the Department of Health to work with local public health partners to identify effective interventions.
 - ✓ Glens Falls Hospital and Warren County Health Services are working with other public health partners, such as the Adirondack Rural Health Network, to develop community improvement plans that support healthier lifestyles as methods of preventing cancer risk in rural communities.

Acknowledgments

Acknowledgments

- This project has been funded in whole or in part:
 - ✓ by the Centers for Disease Control and Prevention's National Program of Cancer Registries through cooperative agreement 6NU58DP006309 awarded to the New York State Department of Health. The contents are solely the responsibility of the New York State Department of Health and do not necessarily represent the official views of the Centers for Disease Control and Prevention.
 - ✓ with Federal funds from the National Cancer Institute, National Institutes of Health, Department of Health and Human Services, under Contract No. HHSN261201800009I.

Acknowledgments

- This report was prepared by staff from several units from the Center for Community Health and Center for Environmental Health within the New York State Department of Health.
- The New York State Department of Health would like to thank staff from the New York State Department of Environmental Conservation for their assistance in this project.
- The New York State Department of Health appreciates the efforts of our partner organizations and many experts in the fields of cancer, environmental health, epidemiology, public health, and toxicology who provided valuable input.

Questions