Governor Cuomo's Cancer Research Initiative

East Buffalo/Western Cheektowaga Cancer Incidence Investigation

October 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

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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)

Study Area Locations

Warren County

East Buffalo/West Cheektowaga

Centereach-Farmingville-Selden

Staten Island

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East Buffalo/West Cheektowaga (EBWC) study area
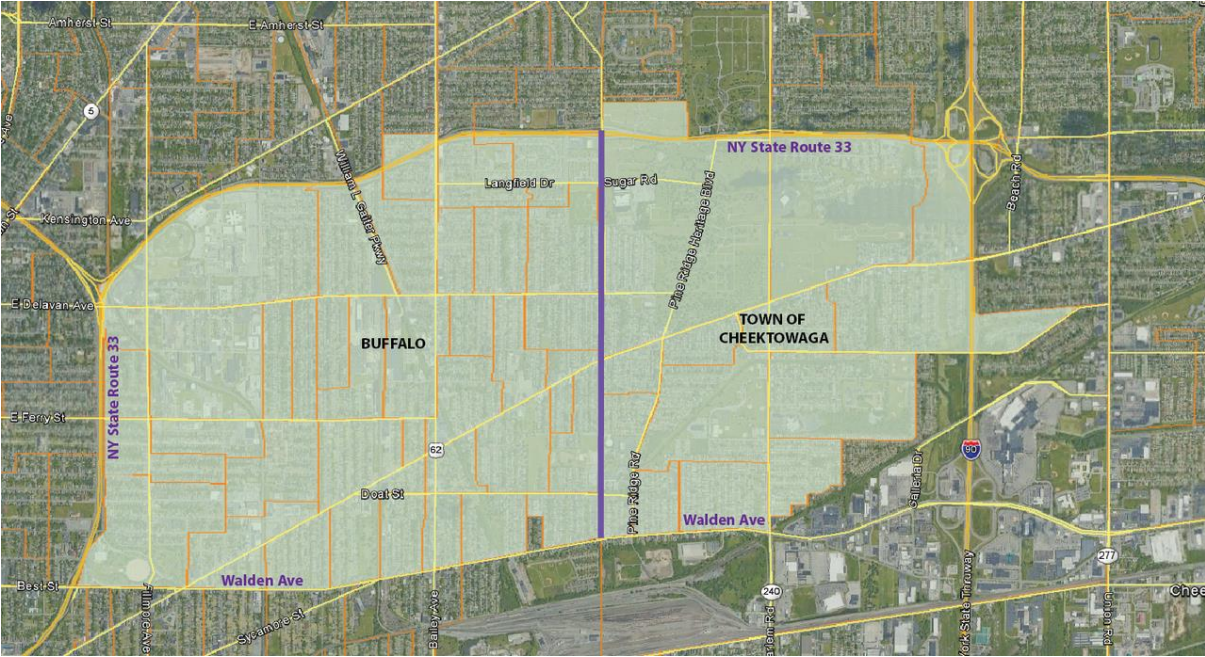
Timeline and Milestones

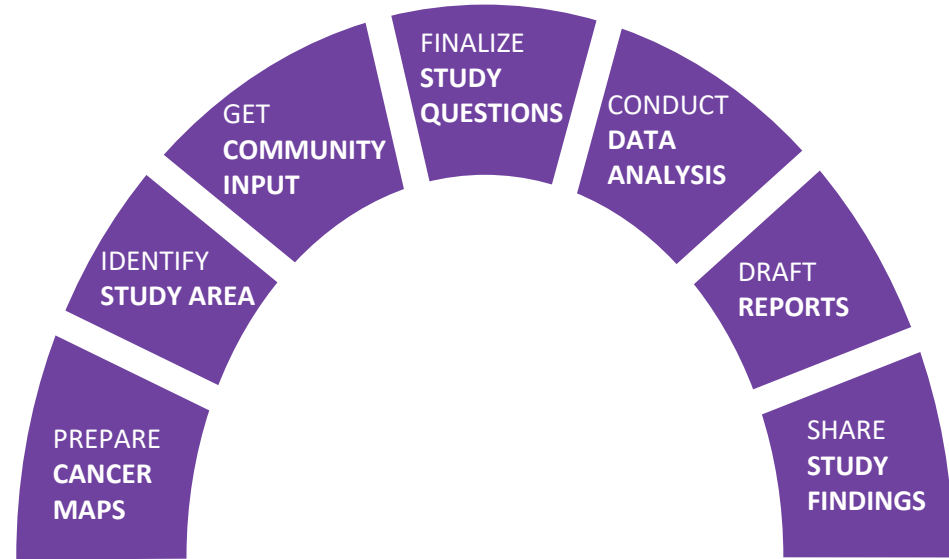**October 2017**: initiative announced in Warren County and Staten Island

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

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

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

July 2018 – September 2019:data analyzed and reports drafted

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

FINALIZE **STUDY QUESTIONS**

GET **COMMUNITY INPUT**

CONDUCT **DATA ANALYSIS**

IDENTIFY **STUDY AREA**

DRAFT **REPORTS**

PREPARE **CANCER MAPS**

SHARE **STUDY FINDINGS**

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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

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Cancer Data Source

The New York State Cancer Registry was the primary source of information on cancer occurrence.

- Reporting to the Cancer Registry is mandated by NYS law.

- Hospitals, physicians, laboratories, other healthcare facilities provide information.

- Over 100,000 new cases are reported annually.

- Information collected includes information on the cancer (anatomic site, stage, cell type), demographic information on the patient (age, gender, race/ethnicity, residence) and date and cause of death (if any).

- The Registry has received Gold-level certification since 1998, and was recently added to the NCI's SEER program.

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Data sources for environmental review

- Data on **outdoor air quality** were obtained from the US EPA's Air Quality System database, which contains results of monitoring for air pollutants, and their National-scale Air Toxics Assessment program, which estimates levels of specific toxic chemicals in the air.

- **Radon** concentrations in indoor air were based on analyses of NYSDOH-provided test kits for years 1987-2015.

- Information on **drinking water quality** was obtained from the US EPA's Safe Drinking Water Information System and results of sampling done as part of USEPA Unregulated Contaminant Monitoring Rule.

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Data sources for environmental review

- Information on **industrial and inactive hazardous waste disposal sites** was obtained from an inventory of inactive hazardous waste sites and brownfield sites developed by NYSDOH and NYSDEC. Area residents who participated in public meetings also identified sites of concern.

- **Traffic counts** were obtained from the NYS Department of Transportation traffic monitoring program.

- Information on access to healthy food was obtained from US CDC modified-Retail Food Environment Index.

Data sources for sociodemographic, behavioral and healthcare factors

Information on sociodemographic characteristics was obtained from the US Census and the Census Bureau's American Community Survey.

Information on behavioral and healthcare factors was obtained from the Behavioral Risk Factor Surveillance Survey (BRFSS) and the New York Statewide Planning and Research Cooperative System (SPARCS).

- BRFSS is an annual statewide telephone survey of the noninstitutionalized adult population designed by the US Centers for Disease Control and Prevention (CDC).

- SPARCS contains data on hospital inpatient and outpatient discharges.

Findings - Demographic

Demographics

Demographic Characteristic	Study Area	Erie County	NYS excl. NYC	NYS
Race (%)				
White race alone	24.8	78.7	80.5	64.6
Black race alone	70.2	13.3	8.9	15.6
Asian race alone	0.8	3.2	3.8	8
American Indian or Alaska Native race alone	0.4	0.5	0.4	0.4
Native Hawaiian or other Pacific Islander race alone	0	0	0	0
Some other race alone	1.4	2.2	3.7	8.6
Two or more races	2.5	2.3	2.6	2.9
Ethnicity (%)				
Hispanic	3.6	5	10.5	18.4
Foreign born (%)	4.2	6.5	10.7	22.4
Below poverty line (%)	33.7	15	11.9	15.7

Variation in the distribution of demographics in the EBWC study area in reference to other comparison areas. Foreign-born more similar to NYS excluding NYC. Smoking prevalence in NYS excl. NYC is higher than NYC. Ultimately, NYS excl. NYC was selected as comparison area.

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Demographics

Comparisons based upon different population standards change expected numbers and percent excesses. However, statistically significant results were consistent with either standard.

Cancer	EBWC Study Area	Comparison Area			
		NYS Standard		NYS excl. NYC Standard	
	Observed	Expected	% Increase	Expected	% Increase
Oral	27	22.2	22	24.2	12
Esophagus	19	10.0	90 *	11.2	70 *
Lung	188	135.1	39 *	150.8	25 *
Colorectal	122	88.1	38 *	87.2	40 *
Prostate	190	129.6	47 *	127.5	49 *
Kidney	66	36.2	82 *	39.1	69 *

Further analyses were based on NYS excl. NYC as the comparison population.

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Findings – Evaluation of Elevated Cancer Incidence

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.

Mutations that are inherited

Mutations due to exposures*

Mutations that happen by chance
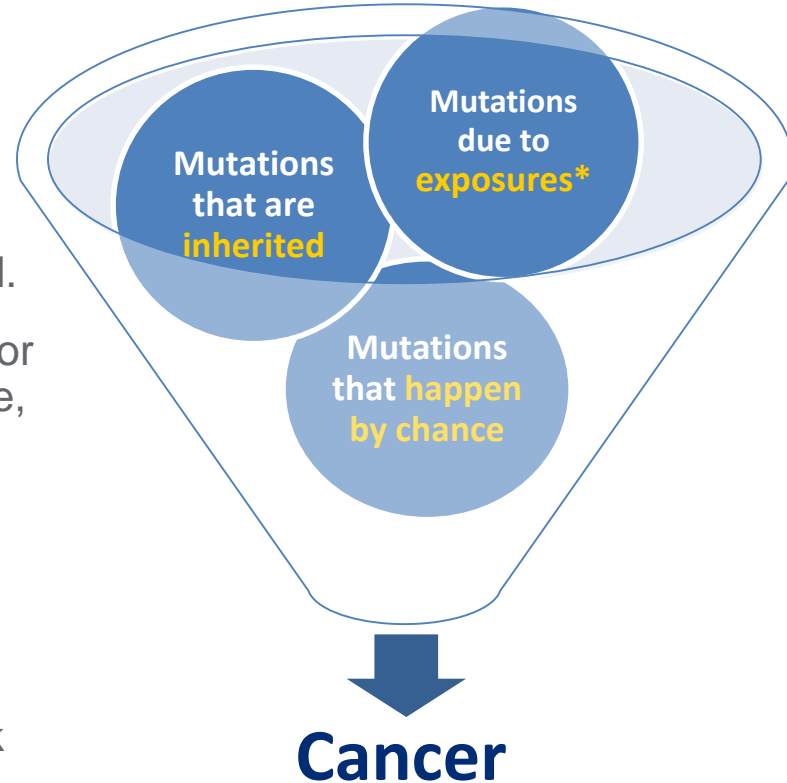
Cancer

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

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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

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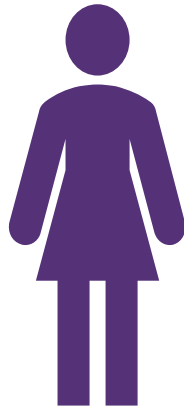
Males	
Cancer Type	New Cases*
Prostate	13,767
Lung	6,824
Colorectal	4,585
Bladder	3,988
Lymphoma^	2,645
All sites	55,138

*Average annual incident cases

^Non-Hodgkin Lymphoma

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EBWC Study Area

- Approximate area of overlap in higher than expected incidence for six cancer (colorectal, esophagus, kidney, lung, oral, prostate)

- EBWC Study Area small area of most of the clusters

- Excess may vary within clusters

Legend

- County
- Block Group
- East Buffalo/Cheektowaga Study Area

SaTScan Elevated Cancers

- Colorectal
- Kidney
- Prostate
- Oral
- Esophagus
- Lung

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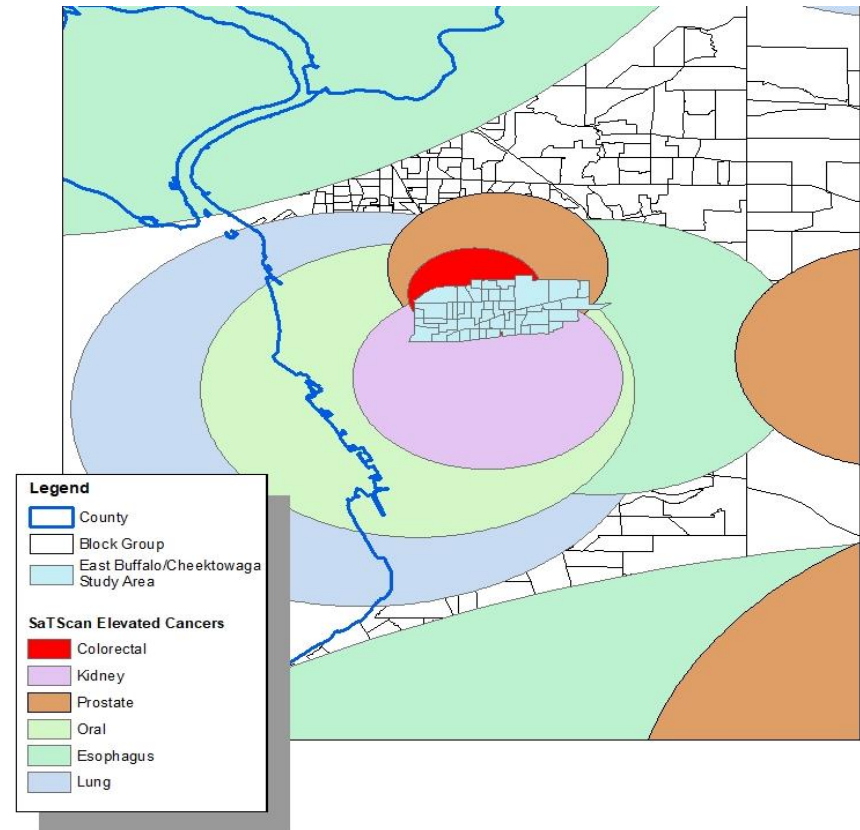
Oral cancer– Risk Factors

- 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
- Chewing of betel quid and gutka - cancer of the oral cavity
- Ionizing radiation - cancer of the salivary glands

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Oral cancer – Findings

- Small total number of observed oral cancers during the period of study (2011-2015).

- The study area is part of a larger area of excess oral cancer.

- In the Study Area the excess was not statistically significant, as the number of cases observed was not different than what might be expected by random variation alone.

- No statistically significant excess by age, sex, race/ethnicity

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Oral cancer – Findings

- Incidence of oral cancer in Erie County has been higher than NYS excluding NYC since at least 1996.

- Most people with oral cancer had a history of tobacco use at some time in their lives.

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Esophageal Cancer – Risk Factors

- Tobacco Use

- Alcohol consumption

- Obesity

- Gastroesophageal reflux disease (GERD)

- Diets low in fruits and vegetables

- Radiation

- Workers in the dry cleaning and rubber industries

Esophageal Cancer – Findings

- Small total number of observed esophageal cancers during the period of study (2011-2015).

- The excess was statistically significant in the 0-64 year old age group (age and sex groups were combined to maintain confidentiality), although a large majority of observed cases were among males age 50-64.

- Incidence of esophageal cancer in Erie County has been higher than NYS excluding NYC since 1996.

- Most people with esophageal cancer had a history of tobacco use at some time in their lives.

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Lung cancer – Risk Factors

- Cigarette smoking and second hand smoke
- Ionizing radiation
- Family history
- Radon
- Air pollution
- Chemicals found mainly in the workplace, including asbestos, arsenic, chloromethyl ethers, beryllium, chromium, cadmium, nickel, silica, diesel exhaust, soot

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Lung Cancer – Findings

- Numbers of cases were elevated in males.

- Adults age 50-64 accounted for most of the excess.

- Excess primarily in the non-Hispanic black and other race group.

- Adenocarcinoma and large cell carcinoma subtypes were diagnosed in greater-than-expected numbers.

- Most of the excess cancers were distant stage diagnoses.

- Most people with lung cancer had a history of smoking at some time in their lives.

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Lung Cancer – Findings

- Incidence of lung cancer in Erie County has been higher than NYS excluding NYC since at least 1996.

- Lung cancer incidence in the City of Buffalo was about 30% higher than NYS excluding NYC in the 2011-2015 time period.

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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

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Colorectal Cancer – Findings

- Numbers of cases were elevated in males.

- Adults age 50-64 accounted for most of the excess.

- Adenocarcinomas, the most common subtype, were diagnosed in greater-than-expected numbers.

- Excess of cancers classified as having occurred in the proximal colon.

- Most of the excess cancers were distant stage diagnoses.

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Prostate Cancer – Risk Factors

- Age
- Race
- Family history

Prostate Cancer – Findings

- Numbers of cases were elevated in the 50-64 year old age group.

- Adenocarcinomas, the most common subtype, accounted for nearly all of the excess.

- Accounting for race and ethnicity decreased the magnitude of the excess, which was similar (about 20%) both for non-Hispanic black and other races and for non-Hispanic whites.

- Excess cancers observed for localized and distant stage diagnoses.

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Prostate Cancer – Findings

- Incidence of prostate cancer in Erie County has been higher than NYS excluding NYC since 2001.

- Decline in incidence of prostate cancer since 2006 has been slower in Erie County than in the rest of NYS.

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Kidney Cancer – Risk Factors

- Hereditary conditions & family history
- Cigarette smoking
- Obesity
- Physical inactivity
- Chronic kidney disease

Kidney Cancer – Findings

- Numbers of cases were elevated in both males and females.
- Numbers of cases were elevated among ages 50 and older.
- Renal cell carcinoma, the most frequently diagnosed type, accounted for most of the excess.
- Majority of the excess in localized and regional stage cancers.

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Findings – Environmental Data Review

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.

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Environmental Causes of Cancer

- Environmental exposures are difficult to study because of:
    - Long cancer latency,
    - Mobile human populations,
    - Many factors that affect a person's chances of getting cancer.

- Smoking, poor diet, obesity and lack of physical activity thought to be more important risk factors.

- Research continues to help us better understand:
    - Impact of lower levels of exposure on cancer burden,
    - How mixtures of toxic substances influence cancer risk,
    - Interaction of genetic factors and personal behaviors with environmental factors.

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Environmental Exposure

A word about exposure

Exposure is contact. People can be exposed to environmental contaminants by

- Breathing them in (inhalation)
- Consuming them in food or water (ingestion)
- Getting them on their skin (dermal contact).

Without exposure, there can be no health effects.

Environmental Data review

Outdoor air quality – *monitoring and modeled results*

- Available data for air pollutant monitoring around EBWC show decreasing concentrations (i.e., cleaner air) over time. The area is in compliance with USEPA National Ambient Air Quality Standards for all criteria pollutants.

- Air toxics (benzene, acetaldehyde, 1,3-butadiene, carbon tetrachloride, formaldehyde)
  - Concentrations at the Dingens St. monitoring station just south of the study area are not unusual when compared to the rest of NY.
  - Estimated cancer risks for study area, based on modeled estimates, are similar to estimated risks for Erie County and NYS excl. NYC.

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Environmental Data Review

Radon concentrations in indoor air

Area	Number of tests	Mean Concentration (pCi/L)			Max Concentration (pCi/L)	% test results ≥ 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	6.9	4.1	507.0	23.8
NYS excl. NYC	129,645	6.7	7.1	3.9	601.4	34.3

Radon levels generally lower than county and rest of state. Radon does not appear to be unusually elevated in study area in relation to rest of state.

Relatively small number of tests in study area.

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Environmental Data Review

Public drinking water quality – *Regulatory compliance monitoring and sampling for Unregulated Contaminant Monitoring Rule (UCMR)*

- Public drinking water supplied to EBWC Study Area comes from two water systems, the Erie County Water Authority and the Buffalo Water Authority.

- Reviewed monitoring results for:
    - Regulatory compliance (1997-2018)
    - Samplings results from UCMR2, UCMR3, UCMR4 (taken between 2008-2018)

- Since 1997, no violations for regulated contaminants.

- Chlorate, an unregulated contaminant, was detected in EBWC public water systems at levels above the UCMR reference concentration but below exposures that cause health effects in animals.

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Environmental Data Review

Industrial and inactive hazardous waste disposal sites

NYSDOH and NYSDEC developed an inventory of inactive hazardous waste sites and brownfield sites, including NYSDEC's online database of remedial sites.

- For many sites in the study area, actions to identify, control, and/or remove existing contamination have been implemented and completed.

- In some cases, on-site contamination exists but is not causing off-site exposure. For other sites, information continues to be gathered.

- There is no information suggesting that contamination from existing and known remedial sites is causing widespread exposures in the EBWC study area population.

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Environmental Data Review

Proximity to Traffic

NYSDOH also reviewed information on traffic counts from the NYS Department of Transportation traffic monitoring program (traffic-related pollutants also accounted for in the air quality monitoring and modeling evaluations). The table below shows the percentage of people in EBWC and comparison area living within 500 m of roads with different average daily traffic volumes.

Geographic Area	Annual Average Daily Traffic (AADT) Count		
	75,000 - 300,000	25,000 - <75,000	<25,000
EBWC Study Area	23%	2%	75%
NYS excluding NYC	5%	14%	81%
NYC	29%	30%	41%
NYS	15%	21%	64%

In general, the study area had a distribution consistent with NYC, another urban area of NYS.

Traffic emissions were also included in the air quality reviews.

Findings – Evaluation of Behavioral, Healthcare, and Occupational Factors

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Behavioral factors

Indicators of **tobacco use**

- The BRFSS survey showed that 29.6% of respondents in the EBWC study area ZIP codes were current smokers, compared to 16.7% in NYS excluding NYC.

- Hospital discharge data (SPARCS) showed a greater prevalence of tobacco use indicators in persons from the EBWC study area compared with NYS excluding NYC. Across all age groups, the difference between the EBWC and NYS excluding NYC was greater than 25%.

- Five of the six elevated cancers in the EBWC study area are considered tobacco-related cancers (oral, esophageal, lung, kidney, and colorectal).

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Behavioral factors

Indicators of **obesity**

- The BRFSS survey showed that 35.6% of respondents in EBWC study area ZIP codes were obese, compared with 27.1% in NYS excluding NYC.

- Hospital discharge data (SPARCS) showed a greater prevalence of obesity indicators in people from the EBWC study area (14.2%) compared with NYS excluding NYC (8%), particularly younger adults ages 21-49 (13.4% compared to 5.8%) and middle-aged adults ages 50-64 (16.5% compared to 9.8%).

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Behavioral factors

Indicators of **physical activity**

- The BRFSS survey showed that 62.4% of respondents in EBWC study area ZIP codes get leisure time physical activity, compared with 74.3% in NYS excluding NYC.

Behavioral factors

Indicators of **alcohol use**

- The BRFSS survey showed that 21.6% of respondents in EBWC study area ZIP codes report binge drinking, compared with 16.9% in NYS excluding NYC.

- Hospital discharge data (SPARCS) showed a greater prevalence of alcohol use indicators in people from the EBWC study area compared with NYS excluding NYC, with larger differences in middle-aged adults ages 50-64 (10.3% compared to 4.4%) than in older adults ages 65 and older (4.0% compared to 2.6%).

Healthcare factors

Healthcare coverage, such as health insurance, an HMO, or a government plan

- The BRFSS survey showed that 83.2% of respondents in the EBWC study area had healthcare coverage, compared with 88.3% of respondents in NYS excl NYC. Due to the small sample size, this difference was not statistically significant.

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Healthcare factors

Indicators of **colorectal cancer screening**

- The BRFSS survey showed that 79.3% of respondents in the EBWC study area had received recommended colorectal cancer screening, compared with 70.4% of respondents in NYS excl NYC. Due to the small sample size, this difference was not statistically significant.

- Hospital discharge data (SPARCS) showed a slightly higher prevalence of colonoscopy indicators in people from the EBWC study area compared with NYS excluding NYC, with larger differences in middle-aged adults ages 50-64 (28.5% compared to 24.8%) than in older adults ages 65 and older (10.5% compared to 9.5%).

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Occupational factors

	NYS	NYS excl. NYC	Erie Co.	EBWC study area*
	Percent	Percent	Percent	Percent
Groups with higher probabilities of workplace exposures	19.6	21.0	21.6	25.3
All other occupations	80.4	79.0	78.4	74.7

As of the 2000 Census, a greater percentage of people in the EBWC study area worked in occupations with greater probability of workplace exposures to elevated levels of hazardous substances than in NYS excl NYC or NYS.

Access to healthy food

Geographic Area	Median mRFEI
EBWC Study Area	7.50
Erie County	5.88
NYS	7.76

- The modified Retail Food Environmental Index (mRFEI), developed by CDC measures the proportion of food stores more likely to have healthy food options among all food stores in an area. Serves as a screening tool for further investigation.
- Study area similar to the rest of Erie County and NYS as a whole, but there is variation within the study area. Parts of the East Buffalo portion of the study area score lower (i.e., less access to healthy food) on the mRFEI.

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Limitations

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.

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Limitations

Environmental data

- Environmental measurements are not always a good indication of exposure and no individual exposure assessment

- Limited availability in 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.

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Limitations

Occupational Data

– ACS/Census: No individual level information; tabulated into broad categories; wide margin of error in small areas

Behavioral, Lifestyle, Medical Care Utilization Information

– e-BRFSS: EBWC study area ZIP codes include a large population outside the study area boundaries; small sample size; limited number of indicators; accuracy of people's answers to the survey questions

– SPARCS: created for administrative purposes; missing non-hospital treatment info; differences in the likelihood of being admitted to or visiting a hospital facility for specific reasons limit applicability to factors in the community

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Conclusions

Conclusions

- It is likely that higher prevalence of tobacco use contributed to the elevated rates of oral cancer, esophageal cancer, and lung cancer, and to a lesser extent colorectal cancer and kidney cancer, in the EBWC study area.

- Obesity and alcohol use may have contributed to the excess in esophageal cancer.

- Obesity and lack of physical activity may have contributed to the excess in colorectal cancer.

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Conclusions

- Some of the excess in localized prostate cancer diagnoses may result from increased detection associated with screening.

- Some of the excess in distant lung, colorectal, and prostate cancer diagnoses may result from issues associated with access to healthcare.

- Some of the excess in proximal colon cancer diagnoses may result from issues associated with screening.

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Conclusions

- Historically, Erie County supported a strong manufacturing and industrial economy, with occupations where exposure to hazardous substances may have been more likely. Employment trends information suggest workers in the study area may have been employed in these occupations in higher proportions than in other areas of NYS, although available information could not identify a particular occupation or workplace that may have played a role in the elevations and detailed occupational information was unavailable.

- 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 traffic density, show no unusual environmental exposures that would likely explain the cancer incidence in the study area.

- In parts of the study area, there may be less access to healthy food options.

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Recommendations

Today's Announcement

- New $675,000 grant to support local **Cancer Prevention in Action** project.

- The Governor has directed the Department of Health to create a work group, co-chaired by Roswell Park and the Erie County Health Department to recommend strategies aimed at reducing tobacco use in the local study area and similar areas around the state.

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Recommended Actions Based on Specific Cancers Elevated in the East Buffalo/West Cheektowaga Study Area

Health Promotion and Cancer Prevention

- Tobacco prevention
- Alcohol prevention
- Healthy nutrition
- Physical activity

Cancer Screening and Early Detection

- Lung cancer screening
- Colorectal cancer screening
- Prostate cancer screening

Healthy and Safe Environment

- Radon testing and mitigation
- Safety in the workplace

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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.

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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.

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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*

Acknowledgments

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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.

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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

New York State Department of Health