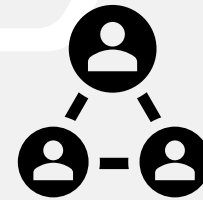


WELCOME!

While we are getting set up....

We would like to get to know our audience.



Please put your answer to the following question in the chat.



What's your interest in environmental risk factors for cancer?



Environmental Carcinogens Action Team: *The Consortium in Action*

March 12, 2024

11 AM – 12:30 PM



NYSCC QUARTERLY
MEETING SERIES



Housekeeping

Please mute your line.

If you have a question, please type it in the Chat Box.

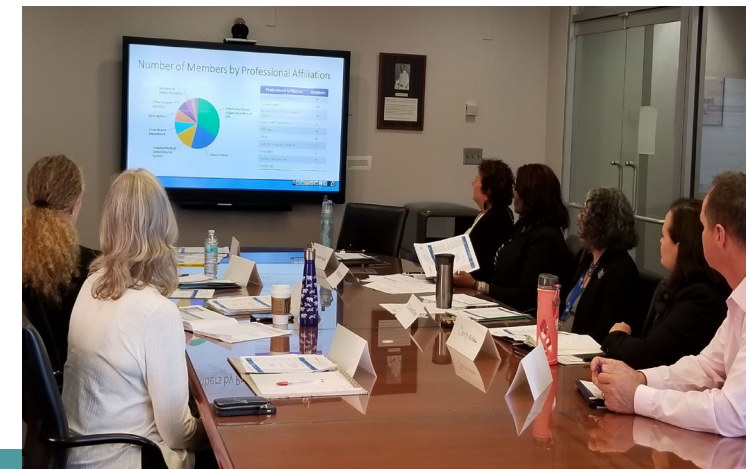
Questions will be answered after the discussion.

This meeting is being recorded.

A link to the recording will be e-mailed to everyone who registered.

About Us

We are New Yorkers from all walks of life who work together to reduce the burden of cancer.



Join Today!



➤ *Learn about state-wide cancer prevention efforts*

➤ *Find resources to promote and implement Cancer Plan priorities and measure progress*

➤ *Collaborate with other members to achieve Cancer Plan goals and objectives*

Join an Action Team to implement Cancer Plan priorities



Colorectal Cancer



HPV Coalition



Skin Cancer



HEAL



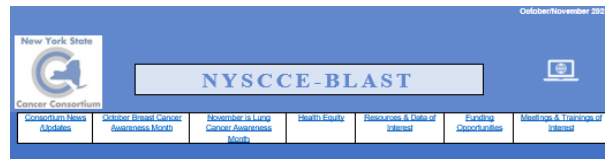
Environmental Carcinogens



Lung Cancer



Survivorship



Do you or your organization have any cancer-related webinars, trainings, or events planned? How about suggestions for health promotion articles and funding opportunities? If so, let us know! We'll be happy to include them in upcoming e-blasts. [Send us an email](#) today.

CONSORTIUM NEWS/UPDATES

Quarterly Meeting Series: The Consortium in Action



Next up in the Consortium in Action Series:

➤ **December 14, 2023**
The Survivorship and Lifestyle Behaviors Action Teams
[Register Here](#)

➤ **March 12, 2024**
The Environmental Carcinogens Action Team
[Register Here](#)

Recent Consortium in Action Events

- Lung Cancer Screening: The Consortium in Action
- Taking a Job at Cancer Prevention: Closing the HPV Vaccination Gap in New York State
- Addressing the Cancer Burden in LGBTQ+ Communities: A Training from the National LGBTQ Cancer Network

[Click to view all past Member Meetings](#)

Breast Cancer Awareness Month



New York State Department of Health Recognizes October as Breast Cancer Awareness Month

"While October is Breast Cancer Awareness Month, we need to raise awareness about the steps to detect breast cancer early," State Health Commissioner Dr. James McDonald.

According to the Centers for Disease Control and Prevention (CDC), besides skin cancer, breast cancer is the most common cancer among U.S. and New York women. One in eight women will develop breast cancer in their lifetime, and in New York State, nearly 16,700 new cases and 2,500 deaths from breast cancer are recorded each year. The risk of breast cancer increases with age and varies across racial groups. Black females are more likely to have breast cancer diagnosed at an advanced stage and die from the disease.

All cisgender women, persons assigned female at birth (including transgender men and nonbinary persons), and transwomen who currently use or have taken hormones should be aware of their personal risk for breast cancer and decide, with their health care provider, when to start screening. The [National LGBTQ Cancer Network](#) provides information about breast cancer risk, screening, and survivorship support.

If you are uninsured please visit [New York's Cancer Services Program](#) to find free breast, cervical and colorectal cancer screening near you.

Spotlighting Breast Cancer Awareness Month in Upstate New York

Dr. Stephen Edge, surgical oncologist and vice president for system quality and outcomes at Roswell Park Comprehensive Cancer Center, joined Jodie Kenney to talk about breast cancer treatment at Roswell Park, a Consortium member organization. Roswell Park is one of 58 National Cancer Institute-designated comprehensive cancer centers in the United States, and the only one in Upstate New York.

[You can watch the full interview with Dr. Stephen Edge here](#)



NYSCC Quarterly Meeting Series



Upcoming Meetings

➤ HEAL (Healthy Eating and Active Living) Action Team

June 20th, 11:00 AM – 12:30 PM

➤ TBD

September 24th, 11:00 AM – 12:30 PM



Pre-Meeting Poll Question

Please, rate your knowledge of environmental carcinogens.



NEW YORK STATE CANCER CONSORTIUM

Environmental Carcinogens Action Team

March 12, 2024



Agenda

- Environmental Carcinogens Action Team: Who we are
- State of the evidence on environmental carcinogens
- What have we done and where are we going?
- Panel Discussion: Environmental Health Equity
- Q&A

Who we are

Environmental Carcinogens Action Team

Health providers, scientists, public health representatives and advocates from 19 organizations and institutions with expertise in cancer risk reduction, the health impacts of environmental exposures, environmental modeling and data science.

Mission: Reduce the burden of cancer diagnoses from known environmental risk factors for cancer in New York State (NYS) through:

- data monitoring and modeling
- education and outreach

Environmental Carcinogens Action Team Co-Chairs



Mary Beth Terry, PhD



Kimberly Burke, MPH



Susan Lloyd, MPH

Environmental Carcinogens Action Team

JOIN US!



Visit the New York State Cancer Consortium Website and become a member!

<https://www.nyscancerconsortium.org/teams/environmental-carcinogens/>

Email us!

Kimberly: krb2160@columbia.edu

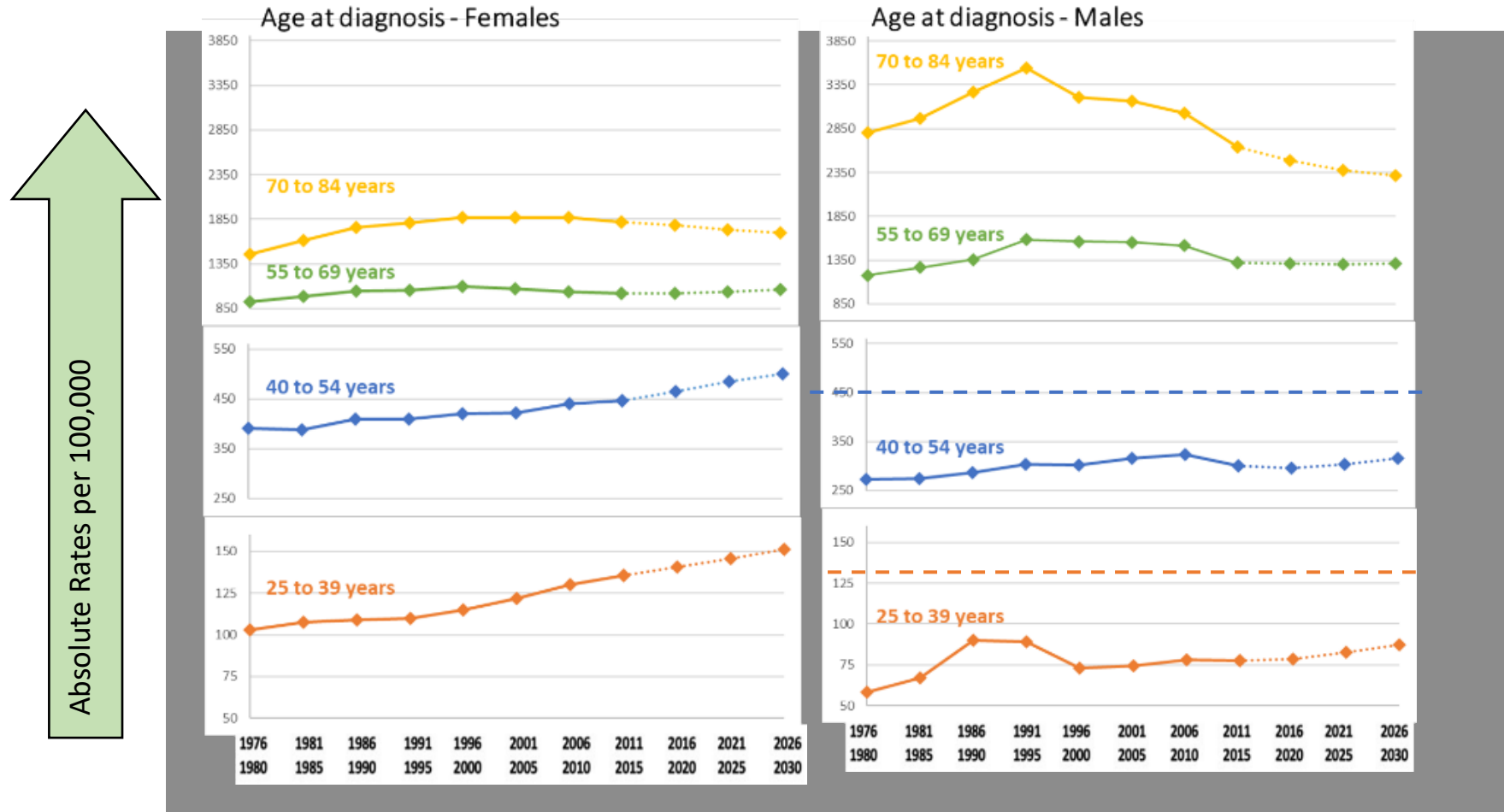
Susan: sl4279@cumc.columbia.edu

Mary Beth: mt146@cumc.columbia.edu

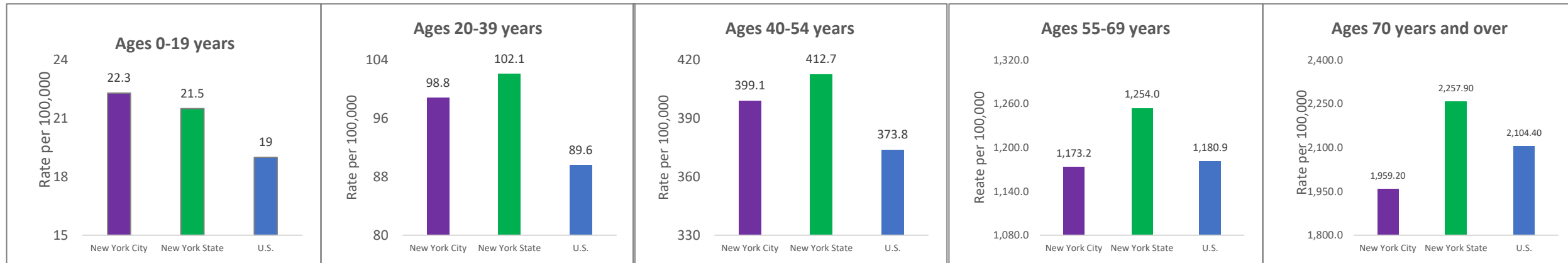
The Latest Evidence on Environmental Carcinogens

U.S. Cancer Incidence Trends (1976 with projections to 2030)

- 1) Most cancers diagnosed 70+ yrs of age
- 2) Largest annual increase in incidence are in female adults < 55 years
- 3) Population impact of changing E (environment) in Rates



NYS has higher cancer incidence across all age groups



*Age-adjusted cancer rates by age group in New York City, New York State, and the U.S., 2015-2019

How Are Carcinogens Identified?

IARC: International Agency for Research on Cancer

Classification	Definition	IARC Monographs, Volumes 1-135
Group 1 Carcinogenic to Humans	There is enough evidence to conclude that it can cause cancer in humans	128 agents
Group 2A Probably Carcinogenic to Humans	There is strong evidence that it can cause cancer in humans, but at present it is not conclusive.	95 agents
Group 2B Possibly Carcinogenic to Humans	There is some evidence that it can cause cancer in humans but at present it is far from conclusive.	323 agents
Group 3 Unclassifiable as to Carcinogenicity	There is no evidence at present that it causes cancer in humans.	500 agents

How Are Group 1 Agents Identified?

Classification	Evidence of Cancer in Humans	Evidence of Cancer in Experimental Animals	Mechanistic Evidence
Group 1 Carcinogenic to Humans	Sufficient		
		Sufficient	Strong (exposed humans)
Group 2A Probably Carcinogenic to Humans	Limited	Sufficient	
	Limited		Strong
		Sufficient	Strong (human cells or tissues)
			Strong (mechanistic class)
Group 2B Possibly Carcinogenic to Humans	Limited		
		Sufficient	
			Strong
Group 3 Unclassifiable as to Carcinogenicity		Sufficient	Strong (does not operate in humans)
		All other situations not listed	above

How Are Group 1 Agents Identified?

Classification	Evidence of Cancer in Humans	Evidence of Cancer in Experimental Animals	Mechanistic Evidence
Group 1 Carcinogenic to Humans	Sufficient	Sufficient	Strong (exposed humans)
Group 2A Probably Carcinogenic to Humans	Limited	Sufficient	Strong (does not operate in humans)
Group 2B Possibly Carcinogenic to Humans	Limited	Sufficient	Strong
Group 3 Unclassifiable as to Carcinogenicity		All other situations not listed	above

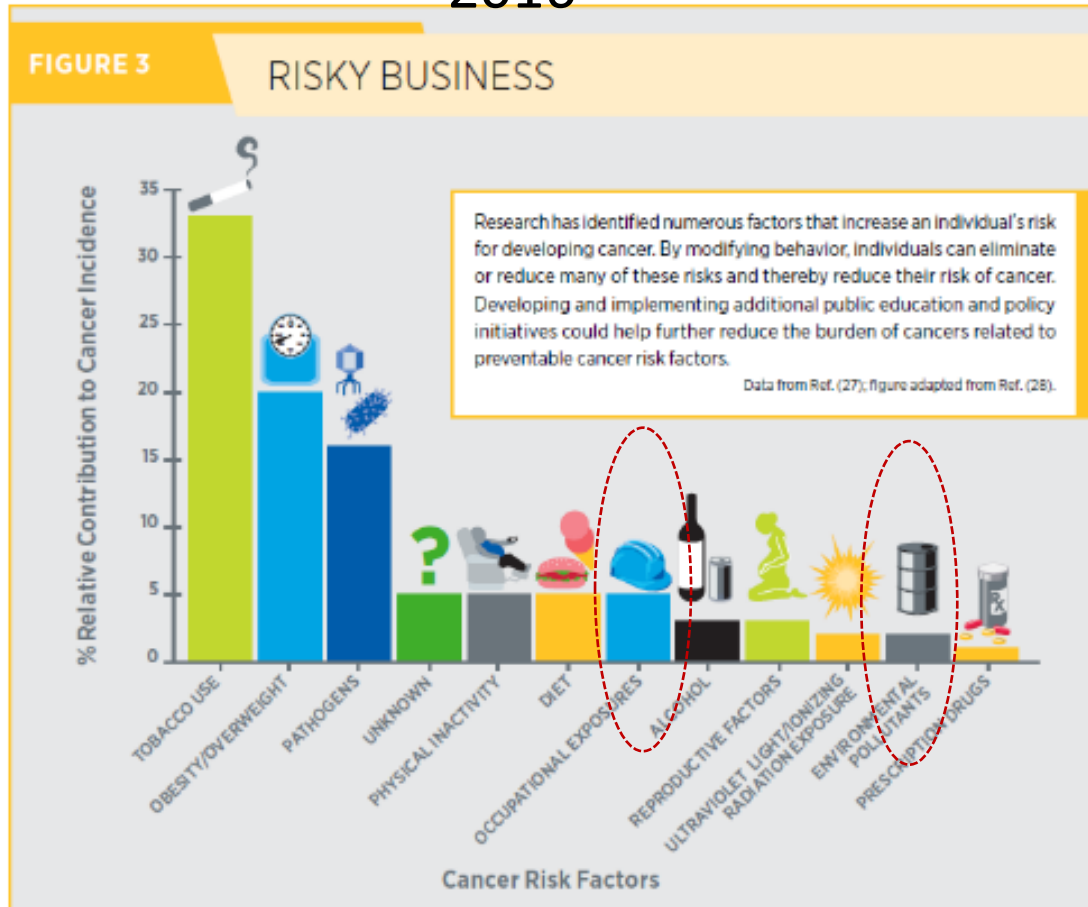
Most Group 1 agents were identified from human (observational) studies

Group 1 Carcinogens Include:

- Chemicals
- Occupational exposures
- Fibers
- Metals
- Tobacco (smoking and secondhand)
- Radiation
- Drugs
- Viral and bacterial infections
- Alcohol
- Air pollution
- Asbestos

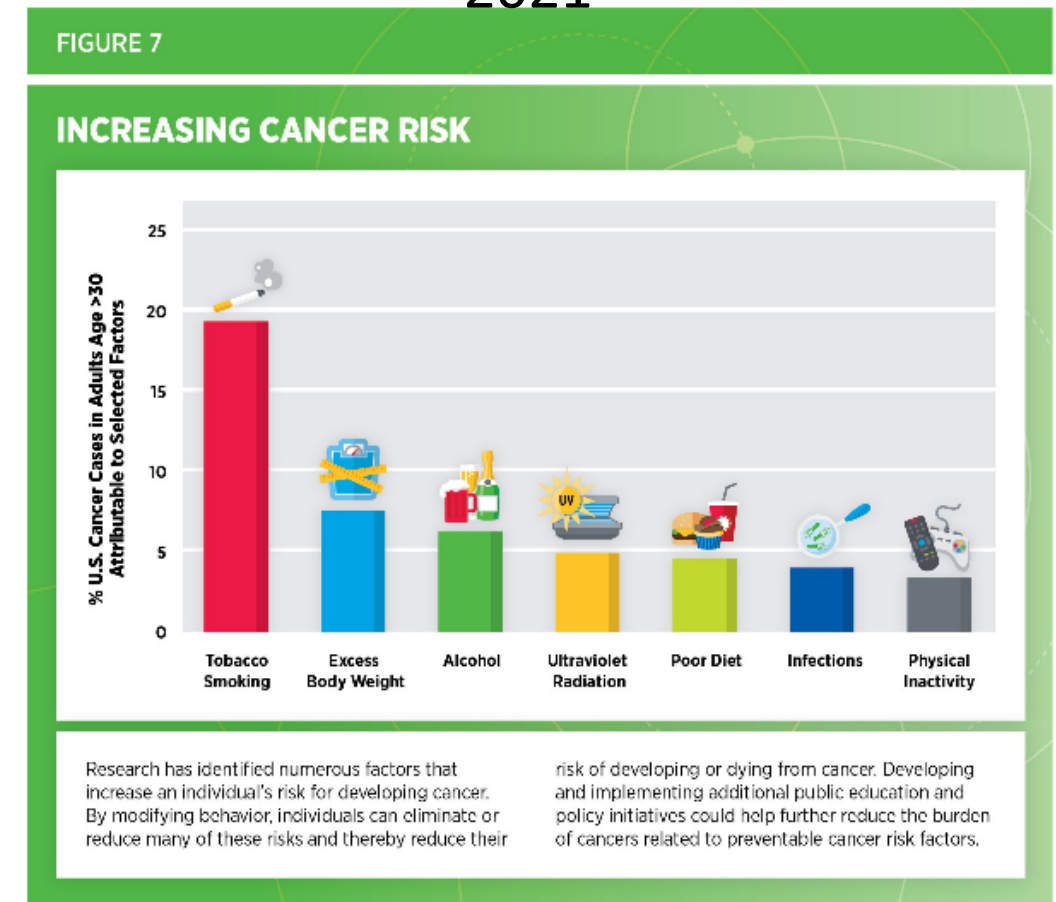
Cancer Risk Factors and Attributable Risk

2016



American Association for Cancer Research (AACR) Cancer Progress Report 2016

2021



American Association for Cancer Research (AACR) Cancer Progress Report 2021

Where are the occupational exposures and environmental pollutants?

Key Challenges

- 1) Combining all cancers together in terms of “attributable risk” masks the differences across cancer types in causes
e.g., World Health Organization estimates 25% of cancers of the trachea, bronchus and lung, as well as 63% of mesothelioma, are attributed to occupational environmental exposures
- 2) Attribution is also very much related to how well we can measure or detect things
e.g., Smoking is much easier to measure than environmental and chemical exposures
- 3) Some of these challenges in measurement have now been overcome due to better methods of measurement and ability to link to large environmental databases

Major Environmental Risk Factors for Cancer

Tobacco



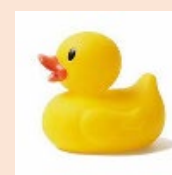
Pesticides



Volatile Organic Compounds



Endocrine Disrupting Chemicals



Metals



UV Exposure



Air Pollutants



Tobacco Smoke

First-hand smoke



Second-hand smoke



Linked Cancers

- Lung
- Larynx
- Bladder
- Kidney
- Pancreas
- Cervix
- Colon and rectum
- Liver
- Breast cancer
- Childhood leukemia



Pesticides & Herbicides

- Household and occupational exposures
- A 2018 Study of rural homes in NY state found pesticide residues present in all 132 homes sampled.¹
- Babies and children have higher exposure in home due to:
 - higher rate of respiration
 - time spent on the floor
 - touching and mouthing items

Linked Cancers:

bladder, breast, stomach, kidney, liver, lymphoma and leukemia in children

1. Laquatra J, Pierce M, Hedge A, Lemley A (2018) Common Pesticide Residues in Rural Homes of New York State. *JSM Health Educ Prim Health Care* 3(1): 1042.

Volatile Organic Compounds (VOCs)

VOCS are compounds that easily become vapors or gases.

Paints, stains,
varnishes



Cleaning products;
industrial solvents



Air pollutants



Linked Cancers: Lung, blood

Metals

Arsenic, beryllium, cadmium, chromium, lead, nickel



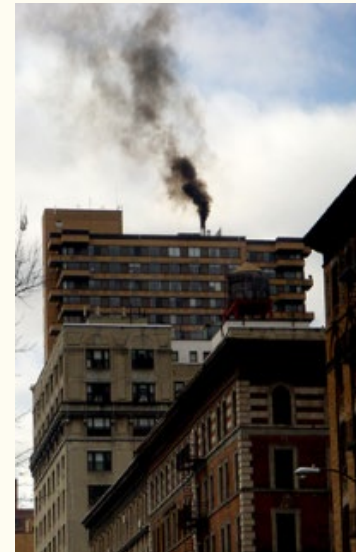
Occupational exposures:
Firefighters, miners and
smelters, pesticide
applicators, refiners,
smelters, etc.

Household exposures: cadmium and lead in child products, arsenic in drinking water, vaping and e-cigs

Linked Cancers: skin, lung, bladder, kidney, liver, brain, nasal cavity

Air pollutants from combustion

Diesel exhaust; compounds that result from burning wood, fuel, and gasoline



PAHs

Linked Cancers: Lung, skin, breast, bladder

UV Exposure from Sun and Tanning Beds



Linked Cancers: Skin, eye

Endocrine Disrupting Chemicals

A man-made or natural chemical that interferes with the normal functioning of hormones in the body.

Phthalates



Bisphenol A



Flame Retardants



High occupational exposures
for firefighters

Linked Cancers: Breast and prostate cancers

Per- and polyfluoroalkyl substances (PFAS)



Stain, water, and grease resistant products:

- Food packaging
- Waterproof fabrics
- Stain guard
- Cosmetics
- Cleaning products
- Firefighting foam
- Non-stick cookware

Widespread drinking water contaminant

Primary exposures through food and drinking water

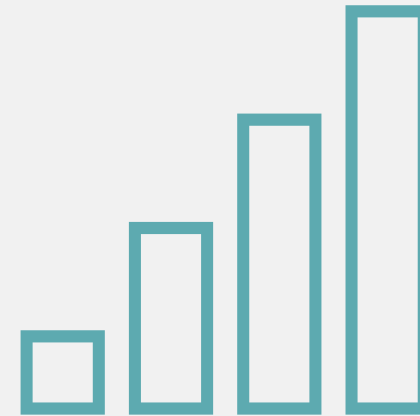
Cancers: Testicular and kidney

Poll Question

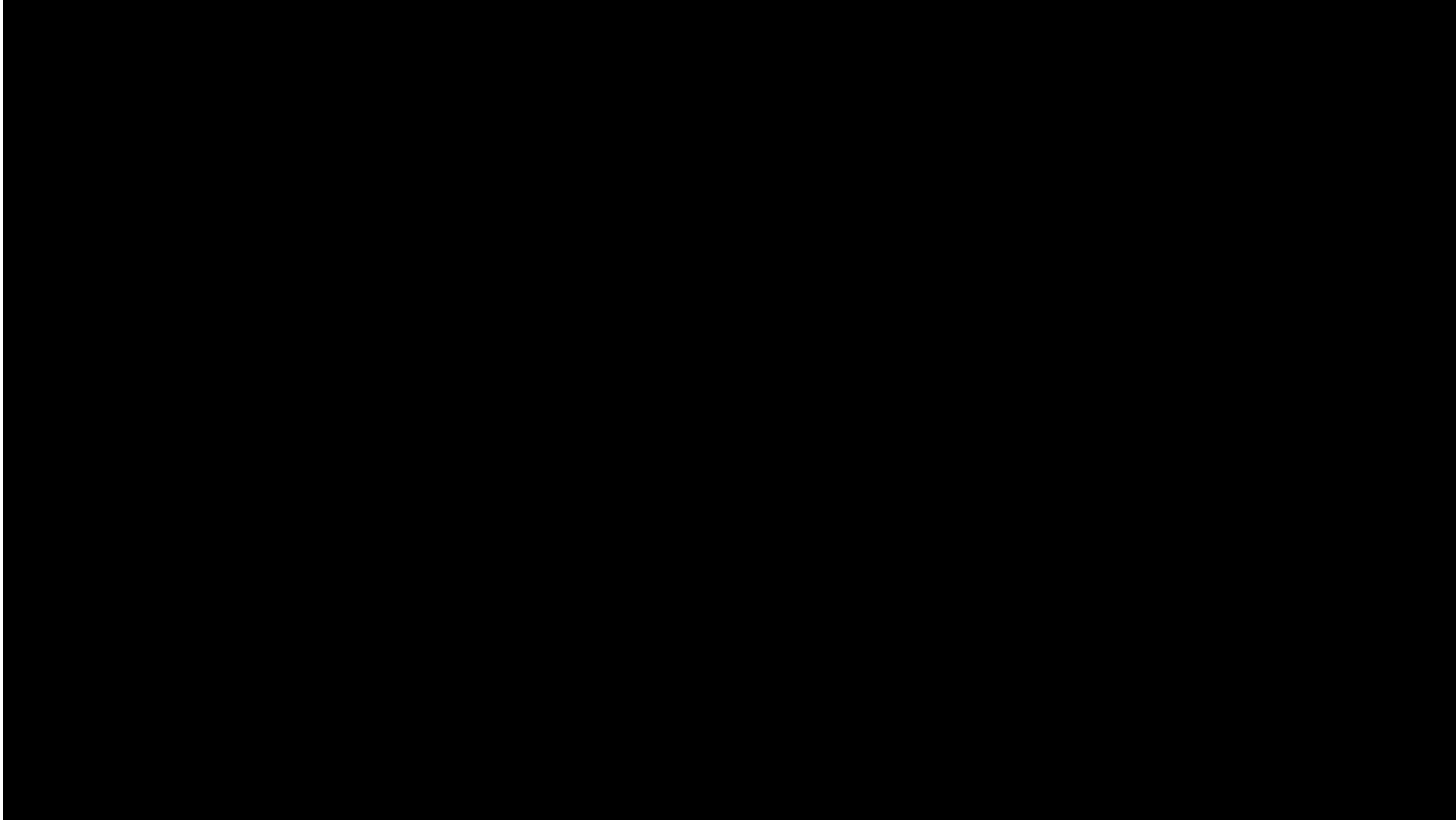
What environmental carcinogens are you concerned about in your community?

Select your top 3.

- Tobacco smoke
- Air Pollution
- Pesticides
- Metals
- Volatile Organic Compounds
- Endocrine Disrupting Chemicals
- UV Exposure
- Chemicals in Consumer Products
- Radon
- PFAS



Unacceptable Risk Trailer



Watch the full video (15 minutes):

https://www.youtube.com/watch?v=U_Zi00wVB3E



What we have done

Environmental Action Team: Major Accomplishments

Manuscript from the Modeling Working Group: *Cancer incidence in New York State and associations with common population-level exposures 2010-2018: an ecological study*

Education and Communication Working Group: Training for health care providers – Cancer and the Environment Forum

Modeling identified several common environmental risk factors

Two-stage regression modeling for 10 top cancers in New York State, stratified by age group and sex



Identified key common environmental risk factors

Type	Measure	Men			Women			Cancer
		25-49	50-69	70-84	25-49	50-69	70-84	
Air Quality	Ozone: Number of days with maximum 8-hour average concentration exceed NAAQS (monitor and modeled data)	0.46* (0.18, 0.75)	0.24* (0.01, 0.48)	0.5* (0.26, 0.73)				Prostate
	PM _{2.5} : Annual mean ammonium concentration (NH ₄ ⁺)				0.3* (0.06, 0.53)			Breast
	PM _{2.5} : Annual mean black carbon concentration (BC)	0.69* (0.25, 1.14)						Thyroid
	PM _{2.5} : Annual mean mineral dust concentration (SOIL)		0.41* (0.14, 0.67)	0.53* (0.2, 0.86)				Melanoma of the skin
	PM _{2.5} : Annual mean nitrate concentration (NO ₃ ⁻)	0.54* (0.31, 0.78)						Melanoma of the skin
Env				0.52* (0.24, 0.81)				Prostate
	Water Quality							
	Mean concentration of TTHM (micrograms per liter) by year	0.2 (0, 0.41)						Lung and bronchus
				-0.26* (-0.47, -0.05)				Lung and bronchus
					-0.47* (-0.69, -0.26)	-0.38* (-0.59, -0.16)	-0.41* (-0.73, -0.09)	Thyroid
Other								
	Percent of land used for agriculture			0.28 (-0.01, 0.57)				Kidney and renal pelvis
					0.42* (0.22, 0.62)	0.23 (0, 0.45)		Melanoma of the skin
	Rate of reported acute toxic substance release incidents per 100,000 population	0.28* (0.09, 0.48)		0.24* (0.01, 0.47)				Melanoma of the skin

Key takeaways:

- Models estimated positive associations between ambient air pollutants (ozone and PM_{2.5}) and prostate cancer, female breast cancer, and melanoma of the skin
- Models including environmental risk factors were better able to explain the variation in cancer incidence data among 25-49 year-olds, supporting the impact of common environmental exposures on cancer development, particularly in younger age groups.


**We know that
cancer is
related to
whether you
smoke and
your diet**



**But I don't
smoke and I
eat well, what
about the
environment?**


Reaching Health Care Providers: Cancer and the Environment Forum

- **One-day CME** event on state of the science of environmental carcinogenesis and the role physicians, nurses, community leaders and public health practitioners have in engaging in cancer risk reduction.
- **Hybrid event** hosted at Columbia University Irving Medical Center in New York City.
- **Target population:** Clinicians, nurses, community members, public health professionals
- **12 partner organizations** were involved in hosting this event including Clean and Healthy NY, Silent Spring Institute, Montefiore Cancer Center, Lowell Center for Sustainable Production, Cancer Free Economy, Cornell Center for Health Equity



CANCER & ENVIRONMENT
What to say to your patients about chemicals and cancer: Forums

 **COLUMBIA**
COLUMBIA UNIVERSITY
HERBERT IRVING COMPREHENSIVE
CANCER CENTER

 **Weill Cornell Medicine**
Sandra and Edward
Meyer Cancer Center

Wednesday, June 21st, 2023 | 9:30 AM - 5:00 PM
Roy and Diana Vagelos Education Center Auditorium & via Zoom

A one-day CME event on the state of the science of environmental carcinogenesis and the role physicians, nurses, community leaders, and public health practitioners play in engaging on environmental chemicals and cancer risk reduction.

Activity Reach

- 255 attended event
- 319 views on YouTube post-event

Watch the recording:



Cancer and the Environment Forum CME



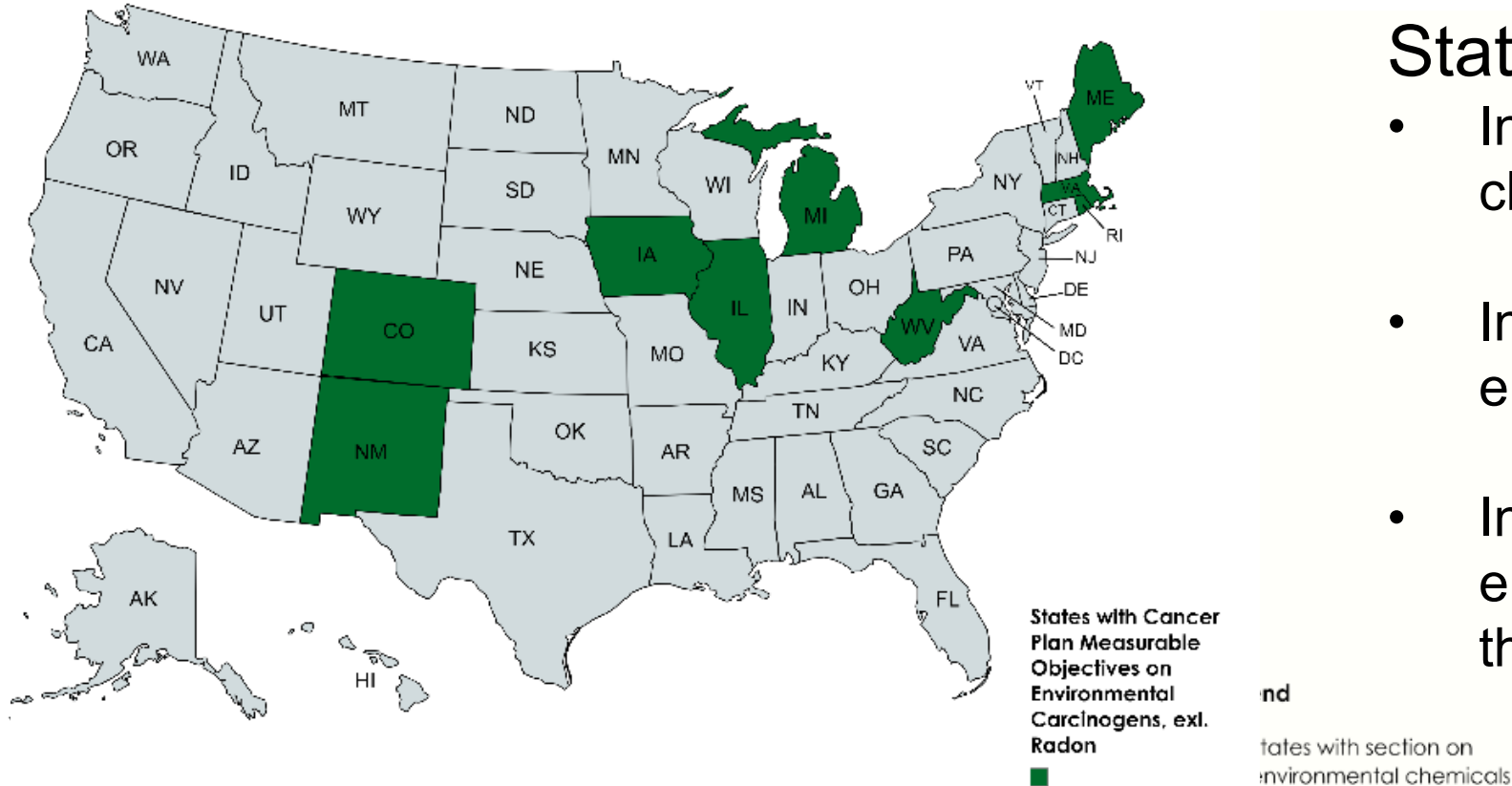
87% reported some increase or a considerable increase in confidence to refer patients to appropriate resources for smoking cessation due to the CME.

98% reported some increase or a considerable increase in confidence to discuss strategies to reduce exposure to common environmental carcinogens.

62% reported that participation in this activity led to implementation of new strategies in their practice, research and training.

Where we are going

States that include environmental chemicals in their cancer plan



State Cancer Plans

- Include a section on environmental chemicals: **26**
- Include a measurable objective on environmental chemicals: **19**
- Include a measurable objective on environmental chemicals other than Radon: **9**

Date Evaluated: Feb. 1, 2024

States that include environmental chemicals in their cancer plan

Example Measurable Objectives:

1. Increase gallons of displaced gasoline fuel due to alternative fuel use of compressed natural gas and biodiesel from 4.9 million to 5.2 million. (Colorado)
2. Reduce the average daily density of fine particulate matter in micrograms per cubic meter from 8.2 to 8.0 ug/m.(Iowa)
3. By 2025, increase the proportion of private wells tested for arsenic from 57.4% to 65.0%. (Maine)
4. Increase the number of counties with clean indoor air regulations from 31 counties to 39 counties. (West Virginia)

New York State 2024-2029 Comprehensive Cancer Plan

We are working with NYSCC to develop priorities and measurable objectives to include in the next version of the Comprehensive Cancer Plan.

Proposed Measurable Objectives include measures related to:

- Radon
- Air pollution
- Cancer screening, especially for high-risk occupations

Environmental Action Panel Discussion



Desiree Walker

Patient Advocate
and Educator



Ginger Champain

Senior Contract
Coordinator
New York State
Department of Health



Janet Gray, PhD

Professor Emerita
Psychology/Neuroscience and
Program in Science,
Technology , and Society,
(STS)
Vassar College



Sarah Evans, PhD, MPH

Assistant Professor
Environmental Medicine
& Public Health
Icahn School of Medicine
at Mount Sinai

Questions and Answers

Contact Information



New York State Cancer Consortium Environmental Carcinogens Action Team:

<https://www.nyscancerconsortium.org/teams/environmental-carcinogens/>

Email us!

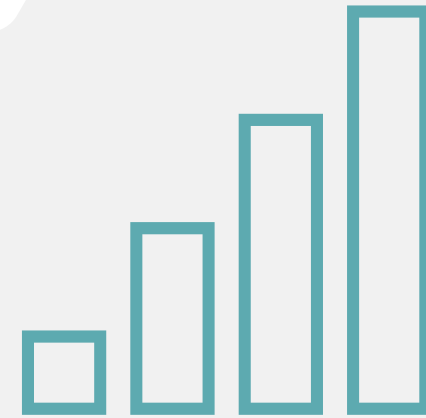
Kim: krb2160@columbia.edu

Susan: sl4279@cumc.columbia.edu

Mary Beth: mt146@cumc.columbia.edu

Post-Meeting Poll Questions

- Will you use what you learned in this webinar?
- After Participating in this webinar, please rate your knowledge of environmental carcinogens.
- What is your opinion of the balance of lecture and interactivity in this course?



Upcoming Consortium Meetings

- **New York State Human papillomavirus (HPV) Vaccination Summit**

April 4th, 9:00 PM – 12:45 PM

- **Action Team Webinar – *Colorectal Cancer Action Team***

“Nobody Told Me I Needed to Be Screened” - Increasing Colorectal Cancer Screening

April 16th, 1:00 PM – 2:00 PM

- **Quarterly Member Meeting - *HEAL (Healthy Eating and Active Living***

June 20th, 11:00 AM – 12:30 PM



Thank you for Attending



cancerconsortium@health.ny.gov

New York State



Cancer Consortium

