



Department  
of Health

# Climate Change and Public Health: Steps NYS is Taking to Adapt

Ellis Hospital Grand Round

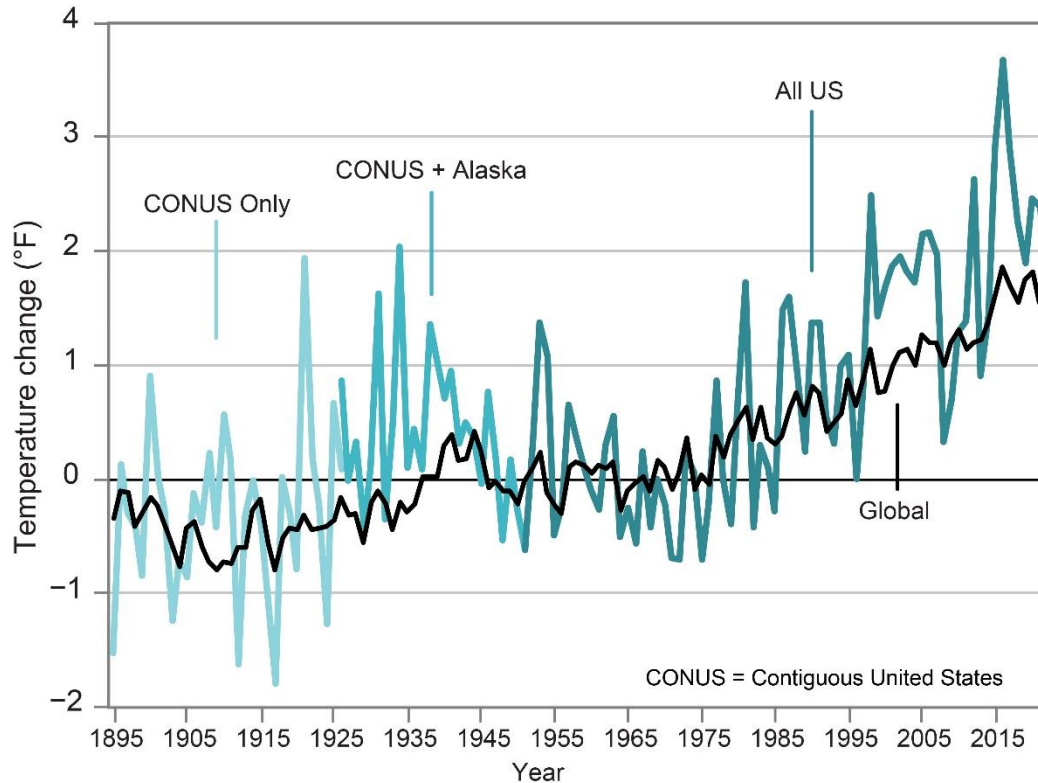
Neil Muscatiello

1/12/24

# Disclosure

\*\*\*Nothing to declare as a possible conflict of interest\*\*\*

# US and Global Changes in Average Surface Temperature

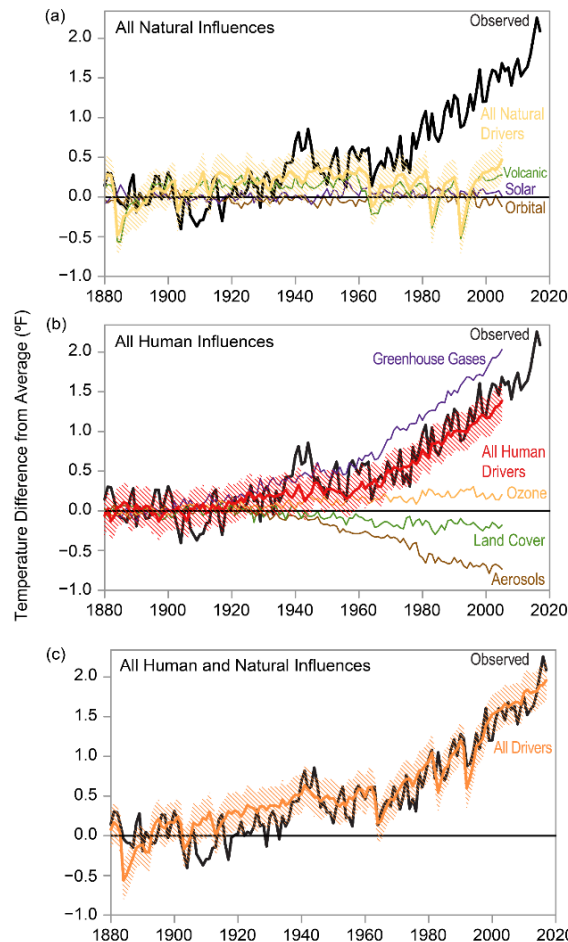


Source: 5<sup>th</sup> National Climate Assessment

[https://nca2023.globalchange.gov/img/figure/figure1\\_5.jpg](https://nca2023.globalchange.gov/img/figure/figure1_5.jpg)

# Natural vs. Human Influences on Global Temperature

- Natural influences don't explain the observed trends in temperature
- Human influences fairly closely explain observed trends in temperature
- Observed trends in temperature track very closely with combined influences from natural causes and human causes

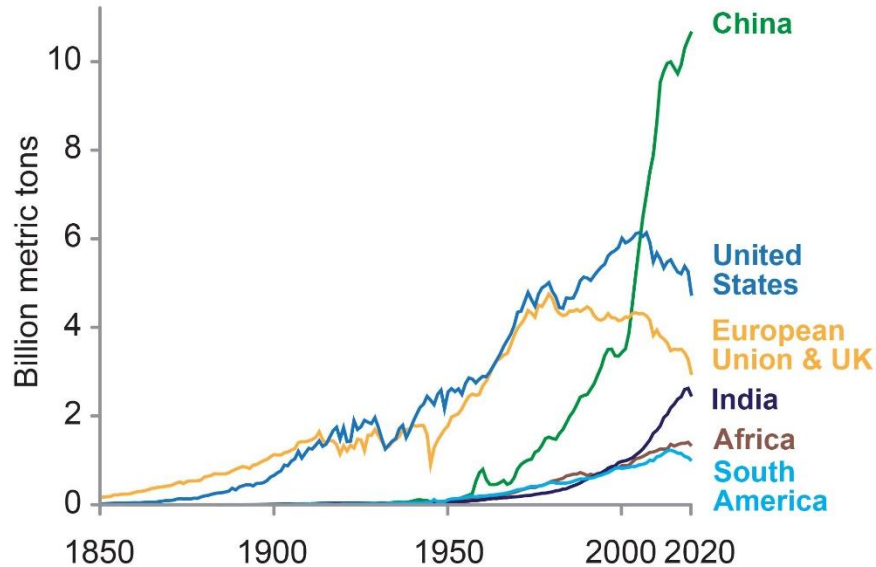


Source: 4<sup>th</sup> National Climate Assessment.

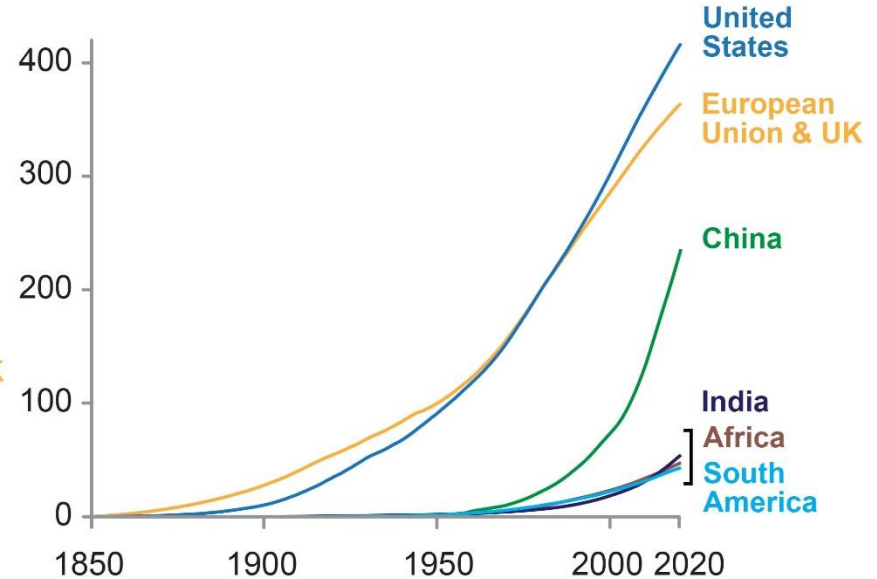
[https://nca2018.globalchange.gov/downloads/NCA4\\_Ch02\\_Changing-Climate\\_Full.pdf](https://nca2018.globalchange.gov/downloads/NCA4_Ch02_Changing-Climate_Full.pdf)

# Greenhouse Gas Emissions from the US and Other Sources

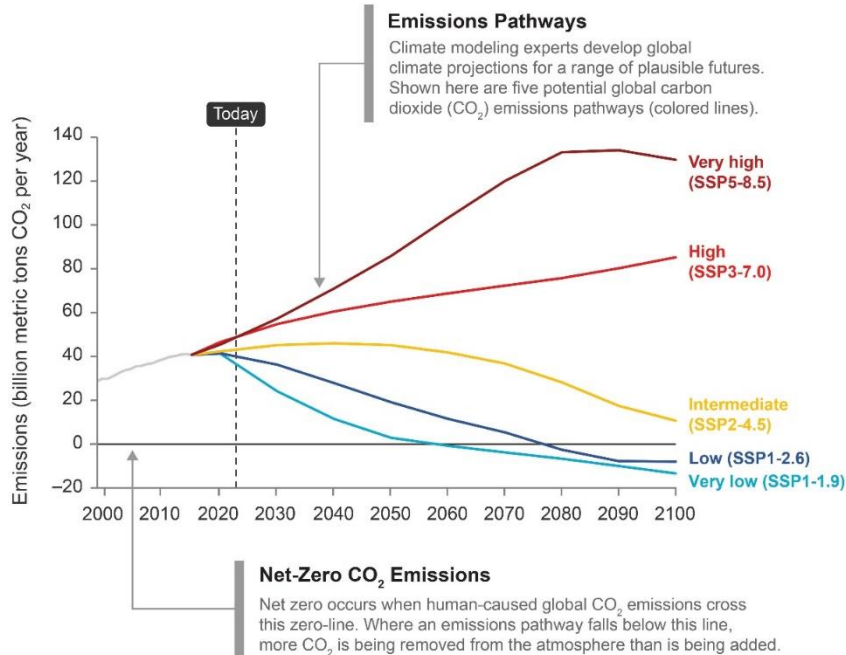
a) Annual CO<sub>2</sub> emissions from fossil fuels and industry



b) Total sum of CO<sub>2</sub> emissions since 1850



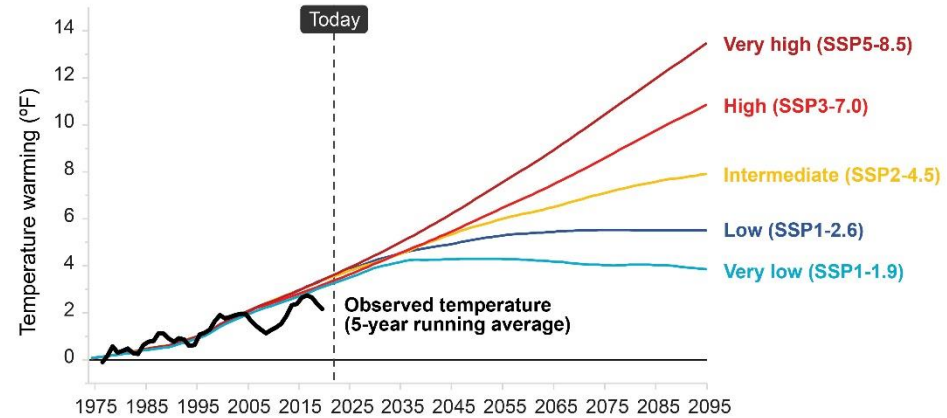
## Future Global Carbon Dioxide Emissions Pathways



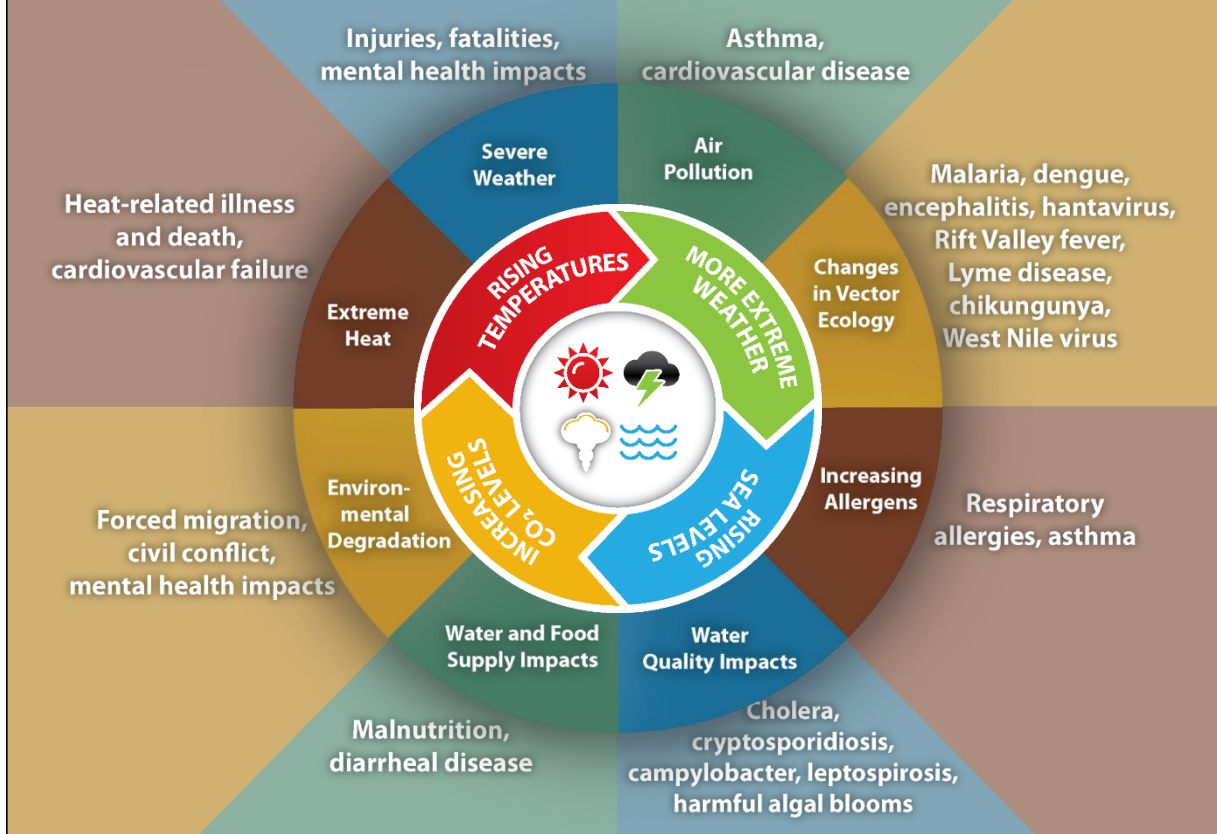
## Potential Warming Pathways in the United States

### Future Warming

Future warming in the United States will depend on the total amount of global greenhouse gas emissions.



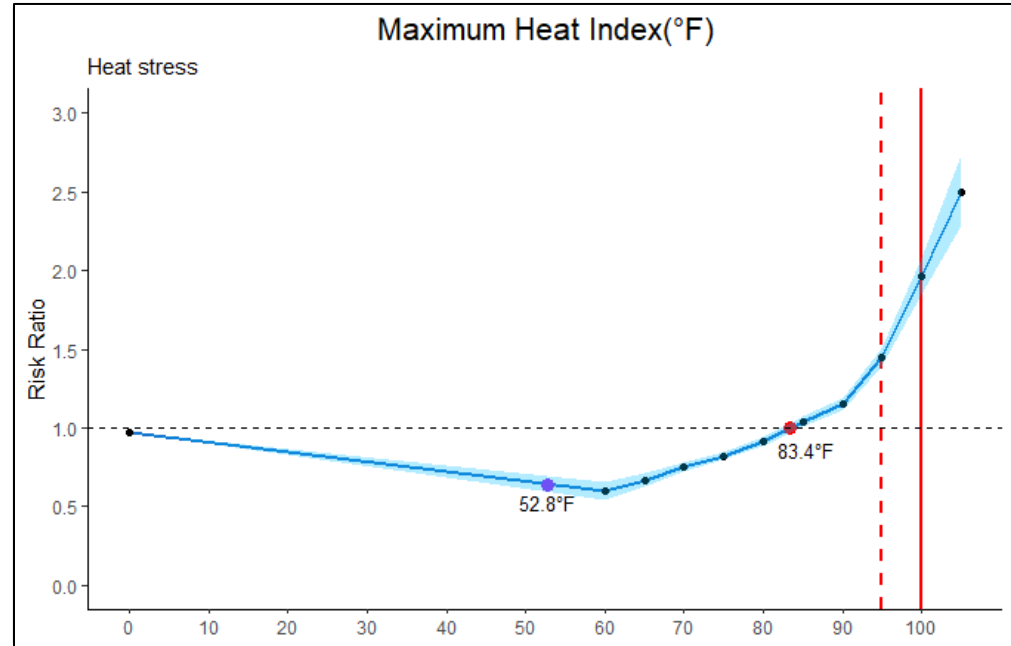
# Impact of Climate Change on Human Health



# Climate and Health

# Extreme Heat Impacts Health

- Case-crossover study analyzing ED visits in NYS from 2008-2012
- Small, statistically significant impacts seen at temperatures ~80F
- Observed associations with heat stress, dehydration, cardiovascular disease, and acute renal failure
- For heat stress, in particular, risk associated with temperature increases is higher at warmest temperatures

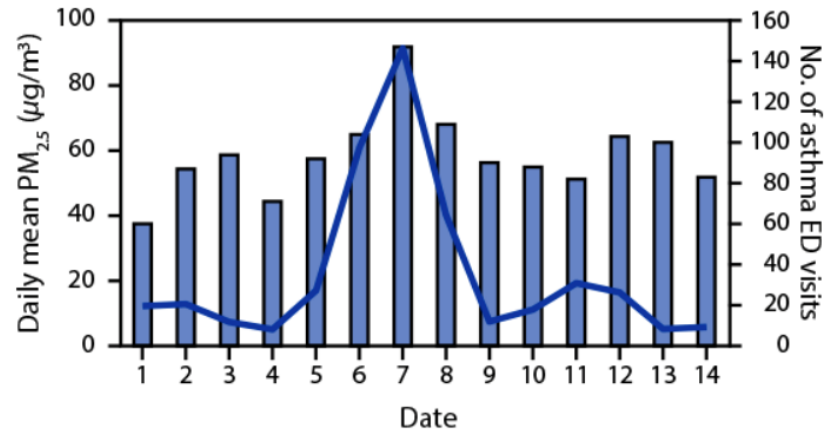




# Wildfire-Related Health Impacts, June 6<sup>th</sup>-8<sup>th</sup> 2023

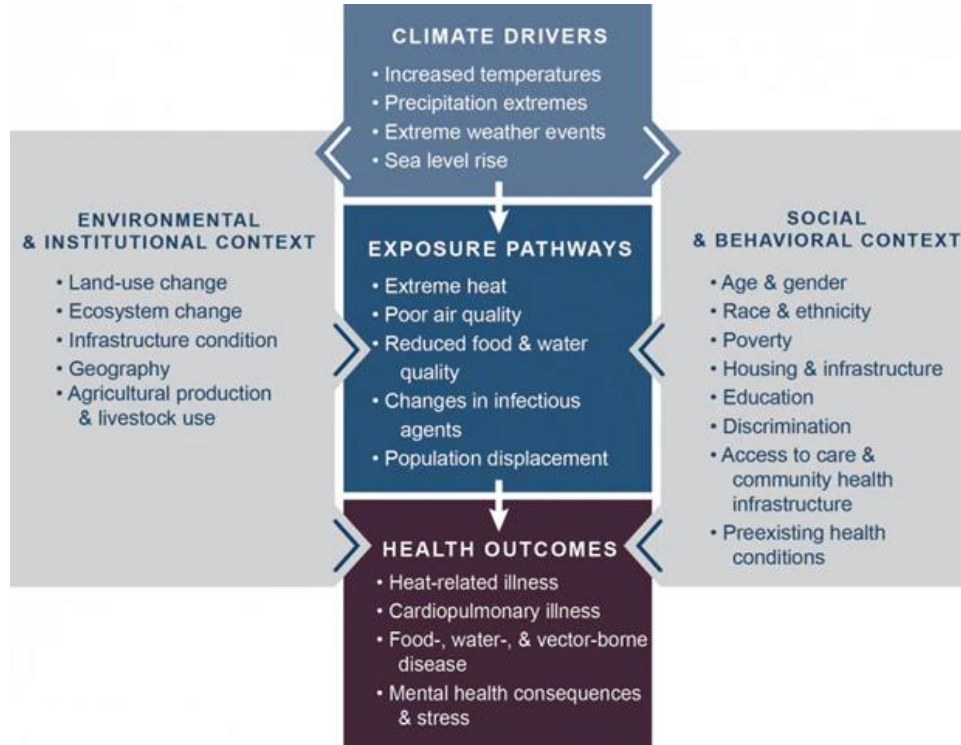
- Impacts to air quality due to smoke from Canadian wildfires
- Increased PM<sub>2.5</sub> associated with wildfire smoke linked to increased asthma ED visits across NYS compared to prior week
  - 82% increase in asthma ED visits on June 7<sup>th</sup>
  - Largest increases in Eastern Lake Ontario (179%), Central NY (133%), and Upper Hudson Valley (86%) air quality regions
- Increase in asthma ED visits observed among all age groups except 0-9 (7% decrease) compared to prior week
  - Largest increase (198%) in older children and young adults aged 10-29

Daily mean PM<sub>2.5</sub> and number of asthma-associated emergency department visits for New York excluding New York City, June 1–14, 2023



Source: Meek HC, Aydin-Ghormoz H, Bush K, et al. *Notes from the Field: Asthma-Associated Emergency Department Visits During a Wildfire Smoke Event — New York, June 2023*. MMWR Morb Mortal Wkly Rep 2023;72:933–935.

# Climate and Health Equity



Source: US Dept. Of Health and Human Services

<https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/index.html>

## Heat and Health Equity

### Heat and Health Equity



- Historically redlined communities (BIPOC and low-wealth communities) are often hotter than other neighborhoods.
- Access to cooling centers is more limited in some areas.



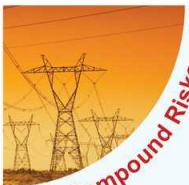
- Certain populations are more vulnerable to extreme heat and have less access to healthcare.
- Socially isolated individuals may have less access to cooling centers.



- Energy costs and the costs of repairs limit the ability to afford air-conditioning.
- Low-wealth residents often live in homes that provide less protection against extreme heat.

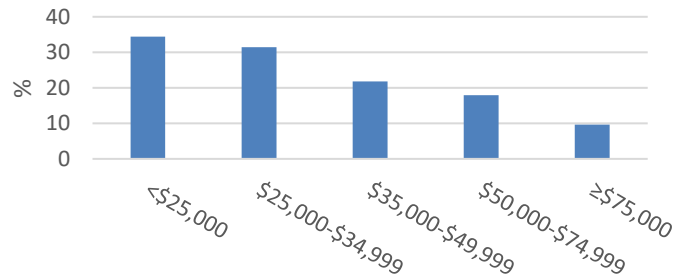


- COVID-19 protocols reduced the accessibility and effectiveness of cooling centers.
- Disadvantaged populations are more at risk for heat-related illnesses during power outages.

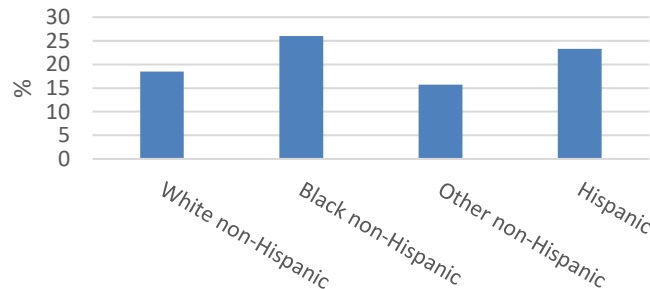


extreme heat.

Survey respondents reporting no A/C by income category, 2018 BRFSS



Survey respondents reporting no A/C by race/ethnicity, 2018 BRFSS



# What is New York State doing to address climate change?

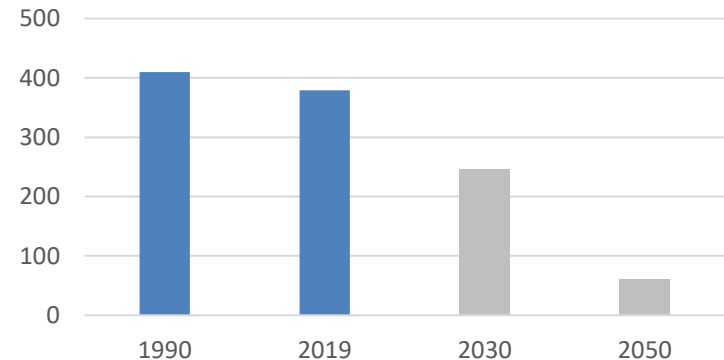
# NYS Climate Leadership & Community Protection Act

<https://climate.ny.gov/>

- Most aggressive GHG reduction goals of any major economy
- Path to carbon neutrality - 40% emissions reductions from 1990 levels by 2030 (“40x30”) and 85% emissions reductions by 2050 (“85x50”)
- Creation of a Climate Action Council, made up of the representatives from different state agencies including DOH, and development of a **Scoping Plan** (<https://climate.ny.gov/resources/scoping-plan/>)



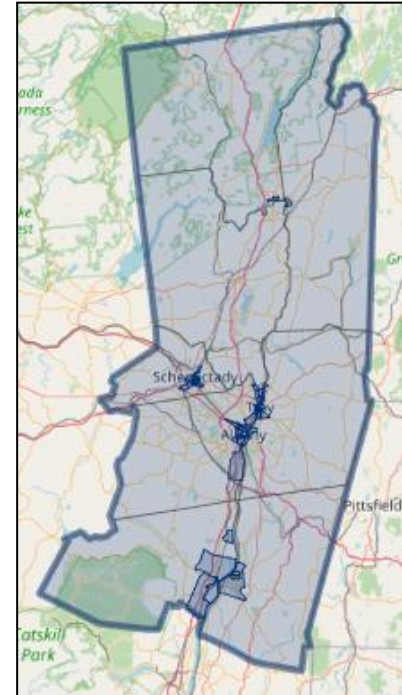
New York State GHG Emissions (MMtCO<sub>2</sub>e)



# Identifies Disadvantaged Communities

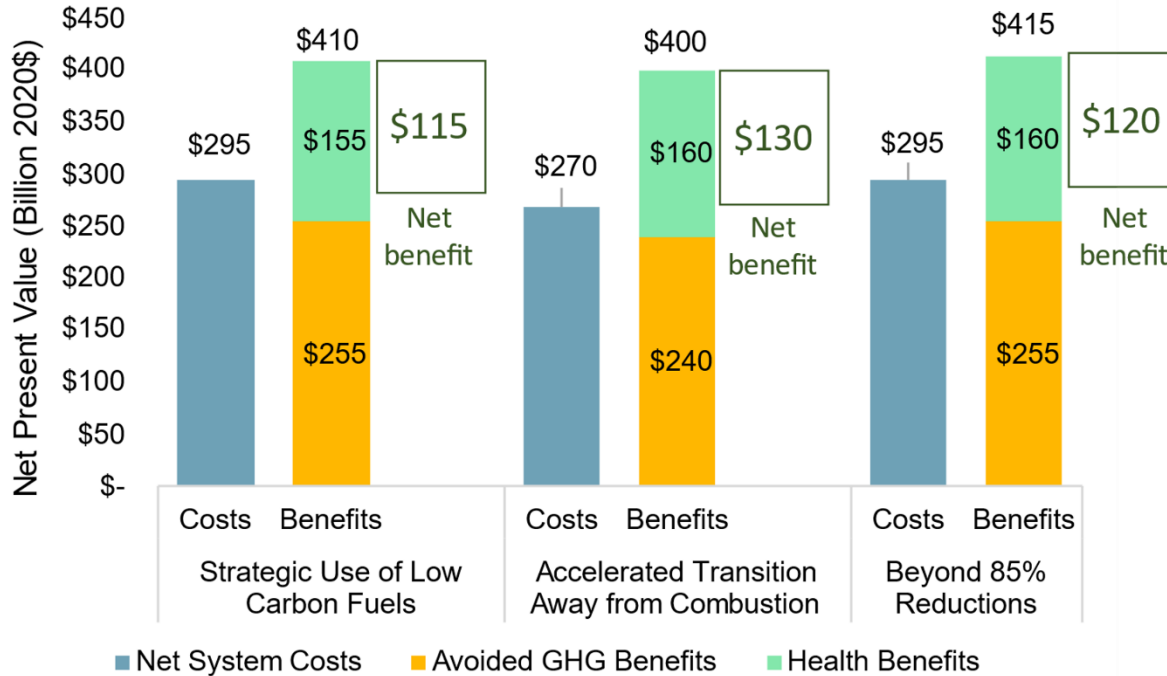
- Several provisions related to climate justice and just transition
- To ensure New York State's investments and actions to advance the Climate Law benefit all communities and address climate inequities
- Analysis of available data and information for 45 indicators
  - Environmental burdens, climate change risks, population characteristics, and health vulnerabilities

<https://climate.ny.gov/resources/disadvantaged-communities-criteria/>



Source:  
[https://climate.ny.gov/assets/leaflet/Capital%20Region\\_incl\\_counties.html](https://climate.ny.gov/assets/leaflet/Capital%20Region_incl_counties.html)

# Benefit-Cost Assessment



- Cost of inaction greatly exceeds cost of action (by over \$100 billion)
- System costs across all scenarios are in the same range given uncertainty

# Extreme Heat Action Plan

- Develop and release a "heat annex" to the State Comprehensive Emergency Management Plan to coordinate emergency preparedness, response and recovery.
- Heat adaptation plan with specific actions the State will take to build resilience and adapt to extreme heat, build local capacities, and support local communities in taking action.
- Urban heat island and extreme heat exposure maps to help target solutions to particularly exposed and disproportionately vulnerable communities.
- <https://dec.ny.gov/environmental-protection/climate-change/effects-impacts/extreme-heat>

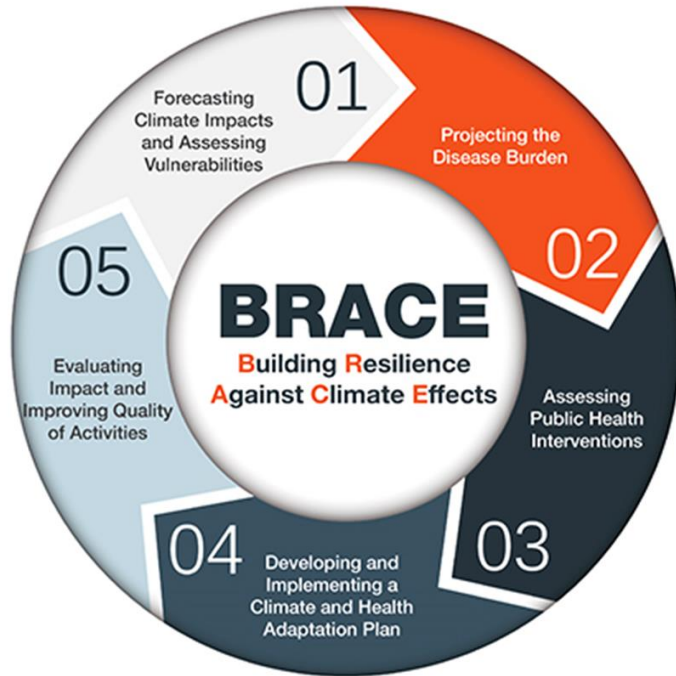


# Climate Impacts Assessment



- <https://nysclimateimpacts.org/>
- Report on how climate change is affecting the NYS communities, ecosystems, infrastructure, and industries
- Help inform climate choices at all levels of decision-making in the State
- ClimAID

<https://www.nyserda.ny.gov/About/Publications/Energy-Analysis-Reports-and-Studies/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>

**Building Resilience Against Climate Effects**

Inform the public and policymakers about health impacts of climate change

Forge new public health partnerships

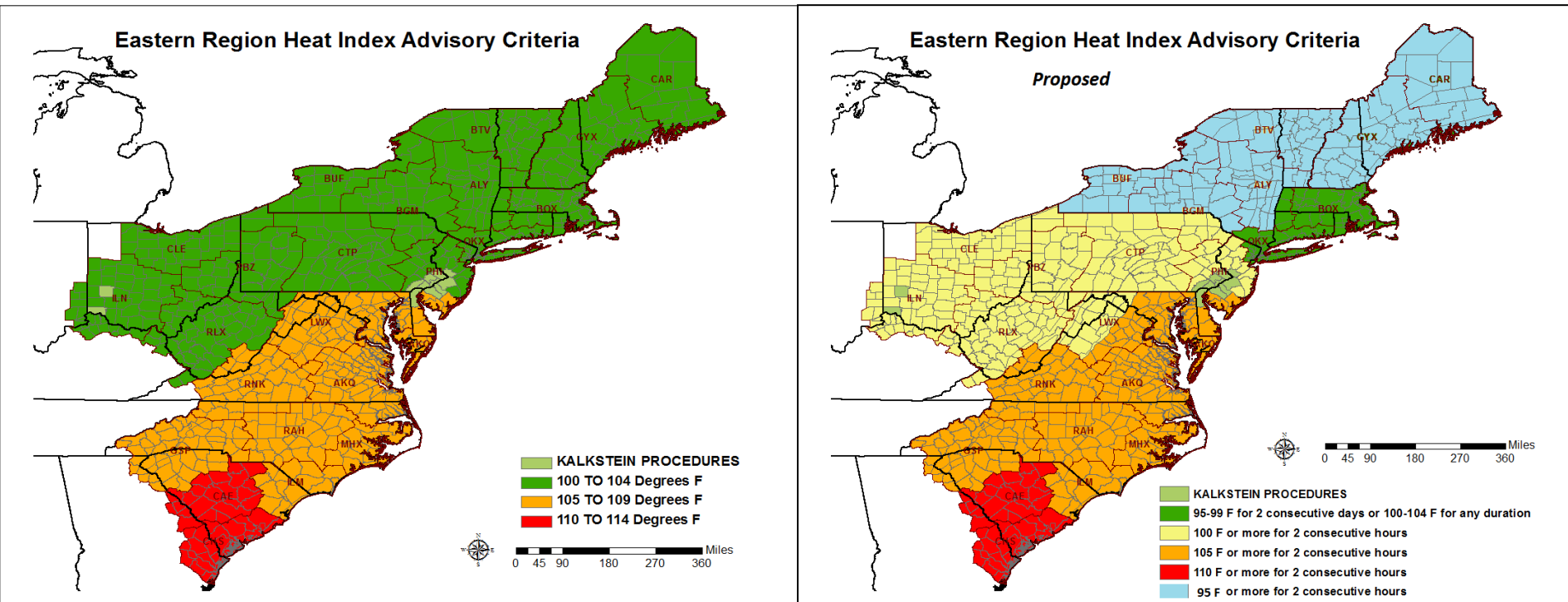
Tracking diseases and trends related to climate change

Training of health care providers

Support municipal efforts to enhance preparedness for impacts of climate change

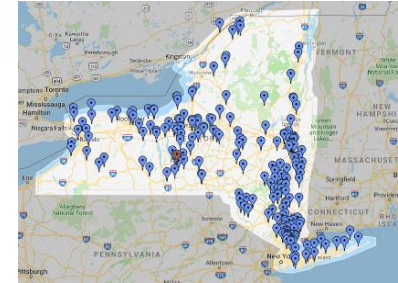
Support research on health effects of climate change

# Research → Practice: Partnership with National Weather Service





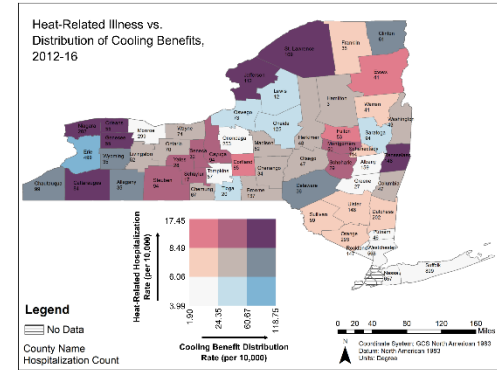
## Support Municipal Efforts to Prepare for Climate Change



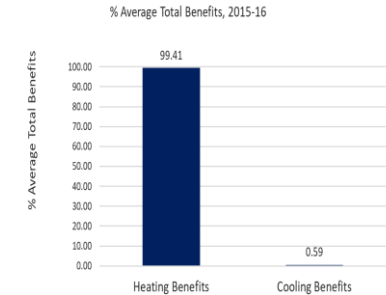
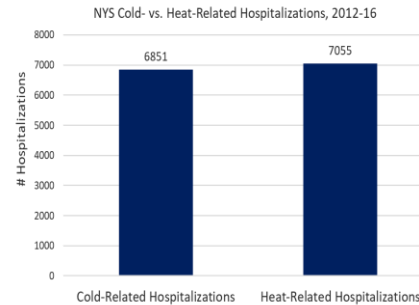
- Partnership with NYS Association of County Health Officials
- Fall 2022 workshops: <https://www.nyscho.org/topic/climate-and-health-workshops/>
- Forum for LHDs and their partners to discuss climate and health adaptation priorities
- Mini-grants
- NYS Department of Environmental Conservation
- Helps local governments take action to reduce greenhouse gas emissions and adapt to a changing climate
- Encourage integration of certification actions related to public health
- Over 100 certified CSC since 2014!

# Increasing Access to Cool Spaces

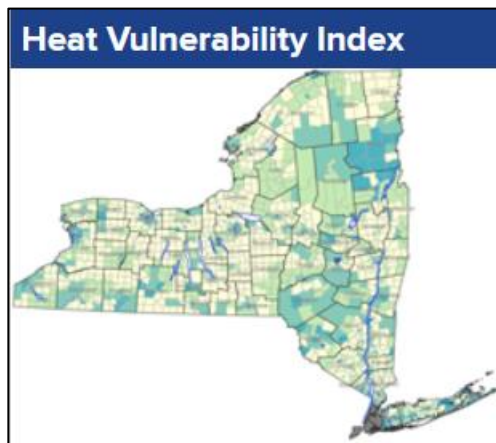
- Office of Temporary and Disability Assistance (OTDA) oversees a program to provide free A/C to people who meet certain prequalifying conditions
- DOH evaluated county-level HRI and distribution of cooling benefits
- Develop and disseminate outreach materials to enhance program awareness



## HRI/CRI and distribution of HEAP Benefits



# Inform the Public and Policymakers about Health Impacts of Climate Change



**New York State Department of Health  
Building Resilience Against Climate Effects  
(BRACE) in New York State**

**HEAT AND HEALTH IN NEW YORK STATE**

Learn more about extreme heat and what can be done to help people be better prepared for the heat.

**WHAT WE KNOW**

| Health Vulnerability   | Community Vulnerability  |
|--|--|
| The risk of heat stress, dehydration, heat-related illness, cardiovascular stress, and death increases for all but those who live in air conditioning during heat waves. | The country and its residents influence heat-related illness and death through population density, urban areas, and other factors. |

**WHAT WE LEARNED**

Heat waves can double a New York State's risk of heat-related illness.

Heat waves can double a New York State's risk of heat-related illness.

**WHAT TO DO ABOUT IT**

Know the risks and signs of heat-related illness. Check your heat-related equipment. Prepare for heat waves. Know your community plans.

**Climate and Health Profile**

June 2015

**SCHOOL OF PUBLIC HEALTH**

HEAT WAVE WARNING

Preparing for Extreme Heat in New York State

Originally presented on June 15, 2017

Speaker: Scott Brinkley, MD, MPH, Director of the Center for Environmental and Occupational Health

Co-Speakers: Dr. David Bell, Dr. David Bell, Dr. David Bell

**Heat and Health Profile Report**

Albany County

**NEW YORK STATE** | Department of Health



Climate, Weather, and Health: <https://www.health.ny.gov/environmental/weather/>  
 Heat and Health Profiles: <https://www.health.ny.gov/environmental/weather/profiles/>  
 PH Live: <https://www.albany.edu/cphce/climate-smart-communities-connections-public-health>

# What can hospitals and medical professionals do?

# Take the HHS Health Sector Climate Pledge!

- Voluntary
- Specifically, pledge signers commit to :
  - Greenhouse gas reduction targets, including tracking of progress
  - Identifying an executive to lead greenhouse gas reduction work and conduct an inventory of supply chain emissions
  - Releasing a climate resilience plan, anticipating the needs of community members that experience disproportionate risk.



# Take the HHS Health Sector Climate Pledge!

- Connect with resources, tools, and informational materials to accelerate emissions reduction and climate resilience
- Health Sector Resource Hub  
<https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/health-sector-resource-hub/index.html>
- Quickfinder for Leveraging the Inflation Reduction Act for the Health Sector  
<https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/quickfinder-ira/index.html>

# NYS Hospital GHG Mitigation Resources

- NYSERDA Clean Green Hospitals  
<https://www.nyserda.ny.gov/All-Programs/Clean-Green-Hospitals>
  - Funding and incentives to help hospitals overcome cost barriers and bridge the gap to energy-saving investments
- Decarbonize with Resilience: A Guide for New York Hospitals  
<https://decarbonizewithresilience.getoutline.com/s/537d0152-3861-451a-a4a2-45798e0edc06>
  - Primary resource of the **New York Healthcare Protocol**, an ongoing public/private collaboration of more than 80 organizations

# Discuss climate change and potential impacts health with patients!

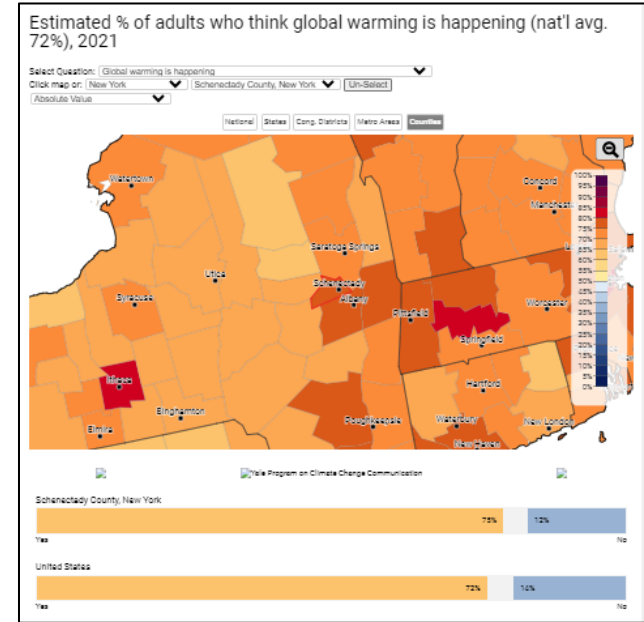
- “We know that simple, clear messages, repeated often by a variety of trusted and caring voices, is the basis of effective public health communication.” (Interview with Dr. Ed Maibach, George Mason University for *NYS LHD Climate and Health Adaptation Workshops*)
- Medical Society Consortium on Climate and Health  
<https://medsocietiesforclimatehealth.org/>
  - Medical Alert Report: [https://prhe.ucsf.edu/sites/g/files/tkssra341/f/medical\\_alert.pdf](https://prhe.ucsf.edu/sites/g/files/tkssra341/f/medical_alert.pdf)
  - Medical Promises Report: <https://medsocietiesforclimatehealth.org/reports/health-promise-climate-solutions/>
- 2022 NYSDOH Commissioner's Grand Round: Clinical Intervention and Community Engagement for Climate Change  
[https://www.health.ny.gov/commissioner/grand\\_rounds/climate\\_change/](https://www.health.ny.gov/commissioner/grand_rounds/climate_change/)
  - Pilot Project: Open Door Family Medical Center

# Discuss climate change and potential impacts health with patients!

- Strategies for Clinical Discussions About Climate Change (Senay et al. *Ann Int Med* 2020)  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7737930/pdf/aim-olf-M206443.pdf>
- The Critical Roles of Health Professionals in Climate Change Prevention and Preparedness (Kreslake et al. *AJPH* 2018)  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5922192/pdf/AJPH.2017.304044.pdf>
- Minnesota BRACE  
<https://www.health.state.mn.us/communities/environment/climate/impacts.html>

# Understand impacts climate change on health in your community!

- Yale Climate Opinion Maps  
<https://climatecommunication.yale.edu/visualizations-data/ycom-us/>
- NYSDOH resources  
[https://www.health.ny.gov/environmental/weather/community\\_resilience.htm](https://www.health.ny.gov/environmental/weather/community_resilience.htm)
- Advocate for policies that reduce GHG emissions in your healthcare setting



# Questions?