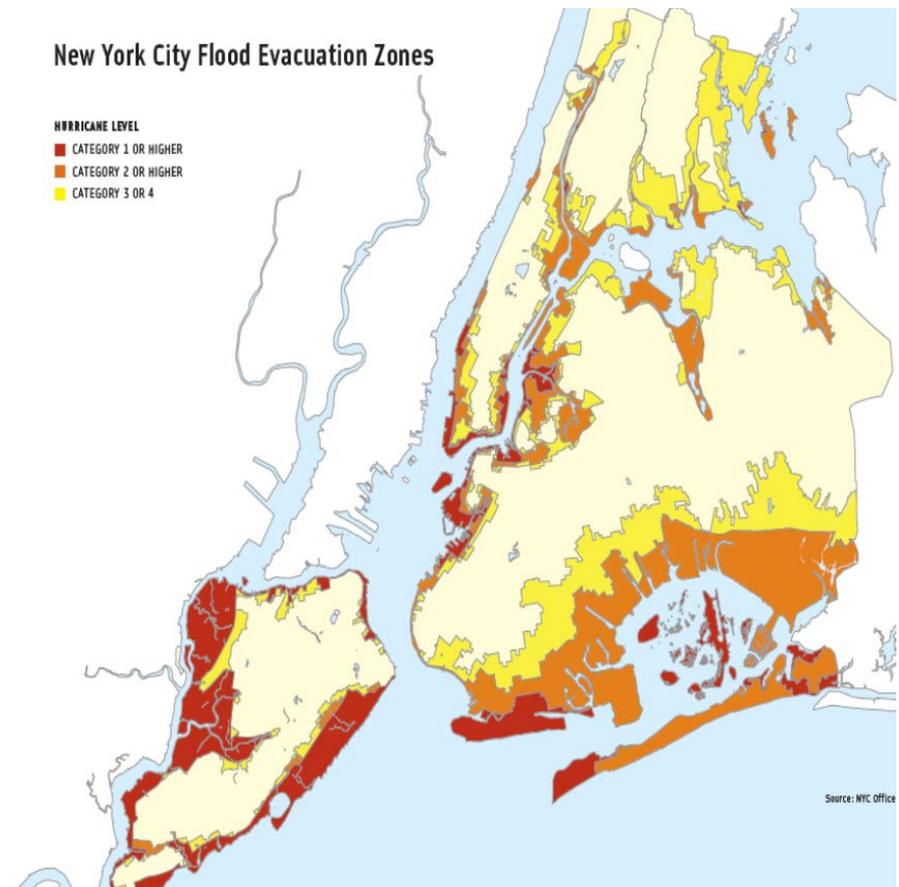

New York City Climate and Health: Responding Today, Adapting for Tomorrow

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Extreme Weather, Climate and Health Symposium
Washington, D.C.
January 31, 2013

NYC's Climate and Health Project

- Assess climate-related health impacts on NYC residents
- Develop a public health adaptation plan to prepare for and respond to the health impacts of climate change
- Enhance local public health infrastructure to climate-related impacts
- Foster community resilience to climate-related impacts, especially extreme heat events.



Climate and Health Priority Areas

Selected Hazards

- Extreme Heat
- Coastal Storms/Flooding
- Air Pollution
- Power Outages

Criteria

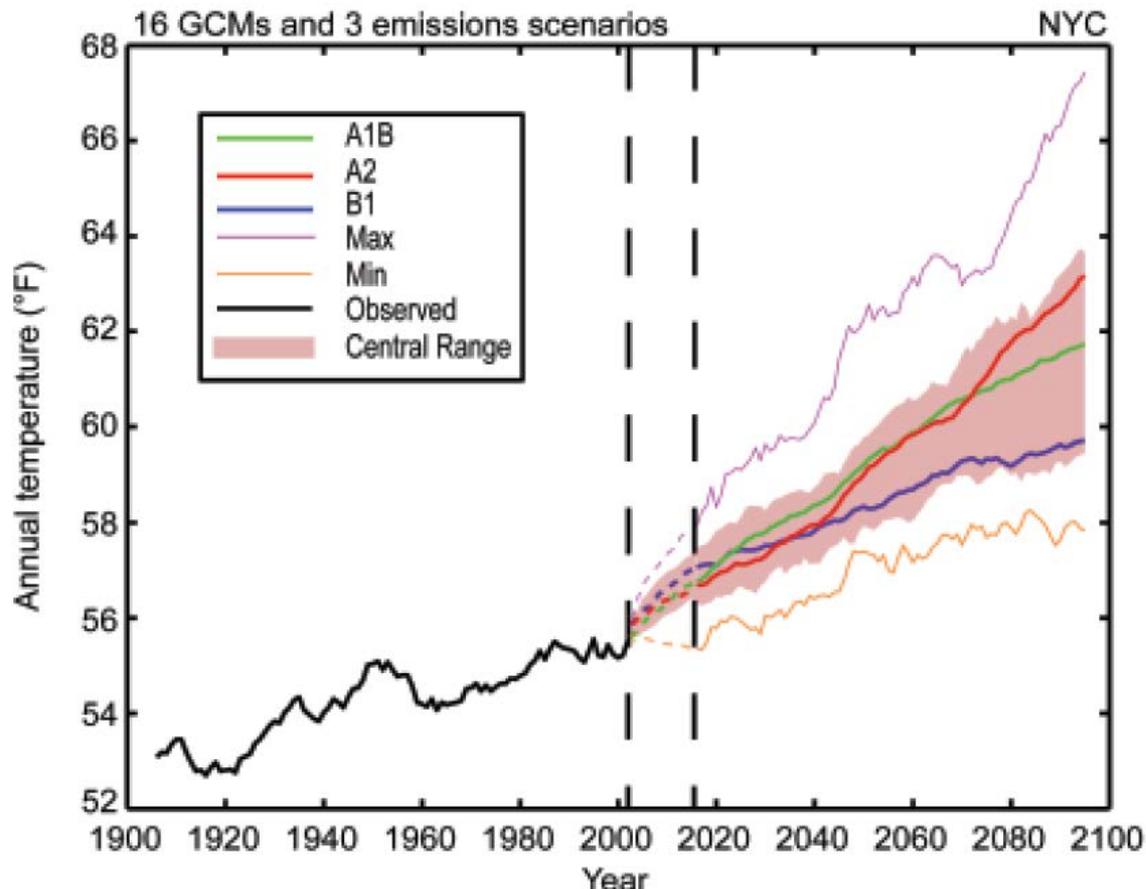
- Strong empirical data to relate projected changes in climate to greater exposure to environmental hazards

AND

- Significant morbidity or mortality in NYC under current conditions or pose current major threat



Climate Change and New York City



Source: Columbia Center for Climate Systems Research

NYC Warming Trends

Days > 90°F per Year

- 14 (1971-2000)
- 23-29 (2020s)
- 29-45 (2050s)
- 37-64 (2080s)

Extreme Heat

- Causes more deaths on average than other natural disasters in the U.S.
- 2006 NYC heat wave: ~ 140 total deaths
- NYC has a multi-agency emergency response plan for extreme heat
 - ❑ Special needs advance warning, homeless outreach
 - ❑ Public and provider advisories
 - ❑ Cooling centers
 - ❑ Public health surveillance
 - ❑ Infrastructure protection

DOHMH Heat-Health Activities

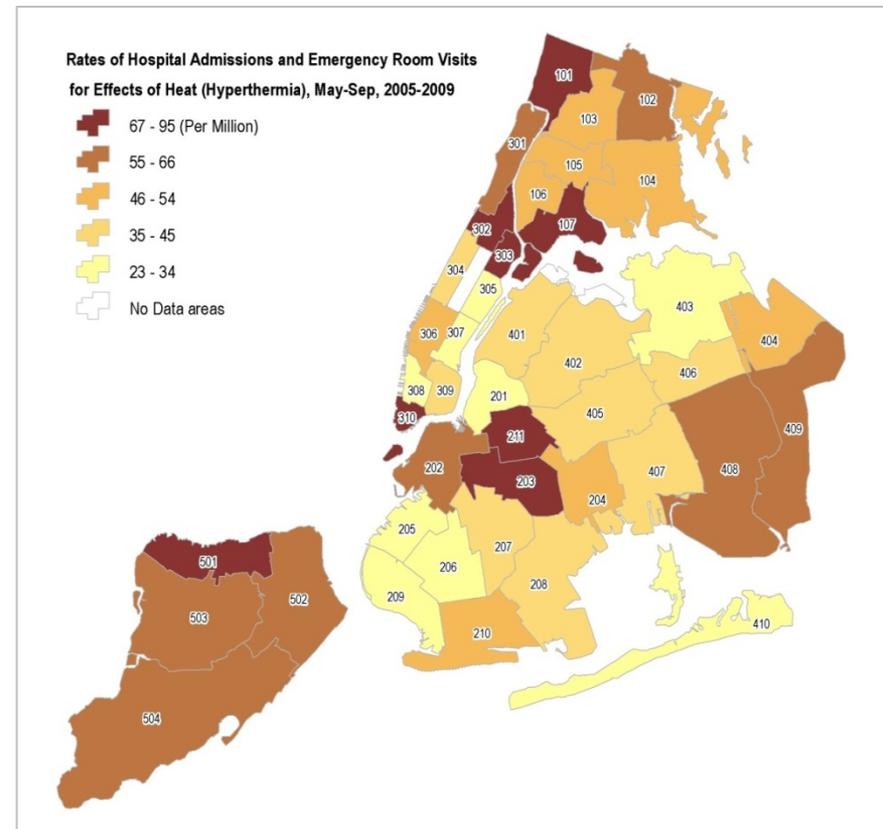
- Ongoing since 2006
 - Heat-health surveillance, research and risk assessment
 - Public and provider information and outreach
- Expanded with CRC SI Funding
 - Climate change heat-health impact estimates
 - 2011 Heat-health behavior survey
 - 2012 Heat-health focus groups
 - Adaptation planning



Heat-Health Surveillance

- Risk ↑↑↑↑ when heat index > 95 for consecutive days
- >80% of heat stroke deaths exposed at home
- Risk factors:
 - **No air conditioning**
 - Age 65+
 - Chronic physical and mental health conditions
 - Medications that impair thermoregulation
 - Alcohol & substance use

Neighborhood vulnerability varies



Data sources: OCME records & Vital Statistics; hospital discharge data (SPARCS)

Heat-Health Survey

- **~ 500,000 potentially vulnerable New Yorkers:**
 - 8% of adults with heat-health risk AND don't own/use AC
 - Common reasons: affordability, perceived need, preference
- **Most New Yorkers are aware of heat warnings:**
 - 77% heard or saw a heat warning last summer, mostly on TV
 - 54% report checking on a family member, friend, or neighbor
- **Among the most vulnerable group:**
 - About half stay home in hot weather, regardless of hearing warning

Heat-Health Focus Groups

- Vulnerable people may not understand severity of health risk
- Media tend to focus on outdoor activities
- Use media to publicize:
 - ❑ Risk severity for vulnerable people
 - ❑ Avoidance of high indoor temperatures
 - ❑ Importance of AC use and access
 - ❑ Checking on people at risk



2020s Climate-Change Attributable Health Impacts: Methods

- Attributable risk calculation to estimate 2020 health burden from rising summer temperatures using EPA BenMAP software:



• Data Sources:

Temperature: NPCC 2020 projections

Ozone: Columbia University (CMAQ/MM5 models)

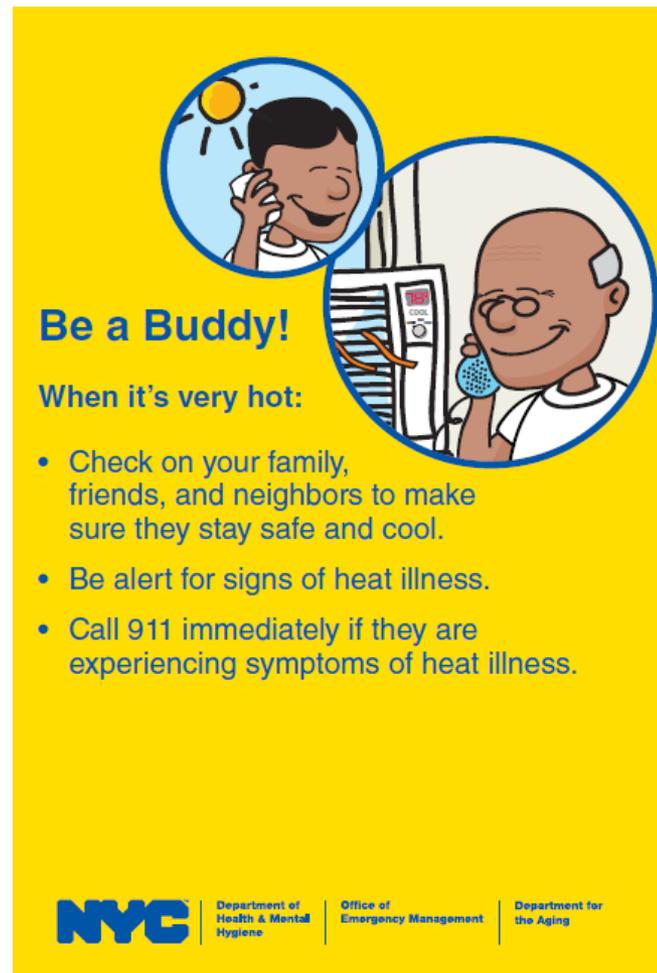
Effect estimates: NYC analyses, published literature

Baseline outcome rates: Vital Statistics, hospital discharge data

Exposed population: 2020 population estimates

Completed & Ongoing Interventions

- ❑ Public messaging & materials
 - ❑ City agencies, National Weather Service, media, senior centers
- ❑ Improving outreach to vulnerable people
 - ❑ Seniors, those with mental health conditions, buddy systems
- ❑ Increase access to AC for most vulnerable
 - ❑ Promote cooling centers & Cooling Assistance Program
 - ❑ Training for cooling center staff



Be a Buddy!

When it's very hot:

- Check on your family, friends, and neighbors to make sure they stay safe and cool.
- Be alert for signs of heat illness.
- Call 911 immediately if they are experiencing symptoms of heat illness.

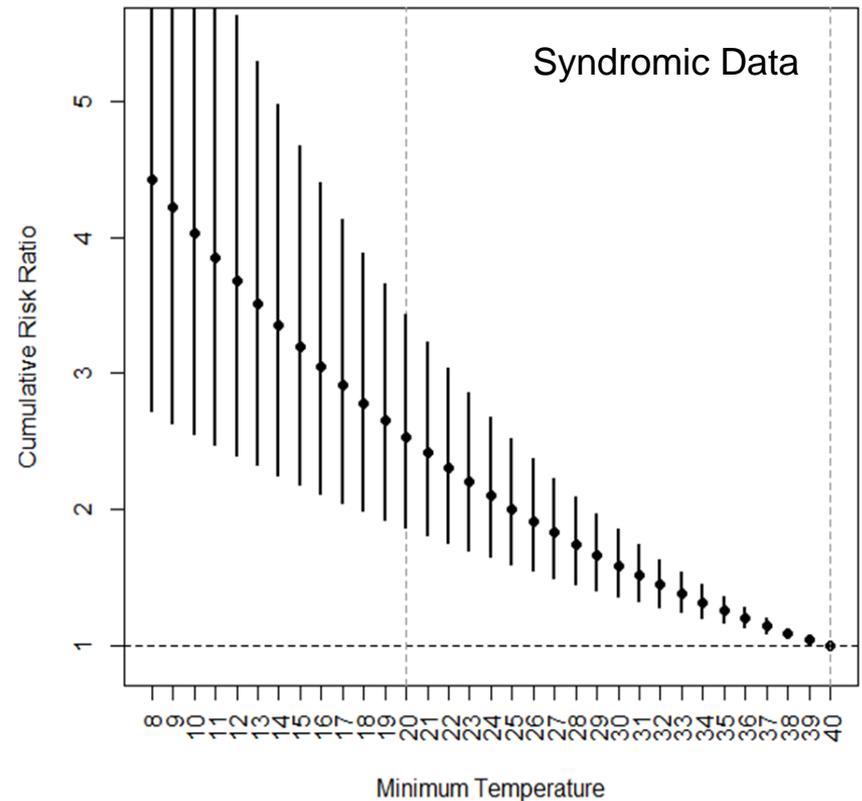
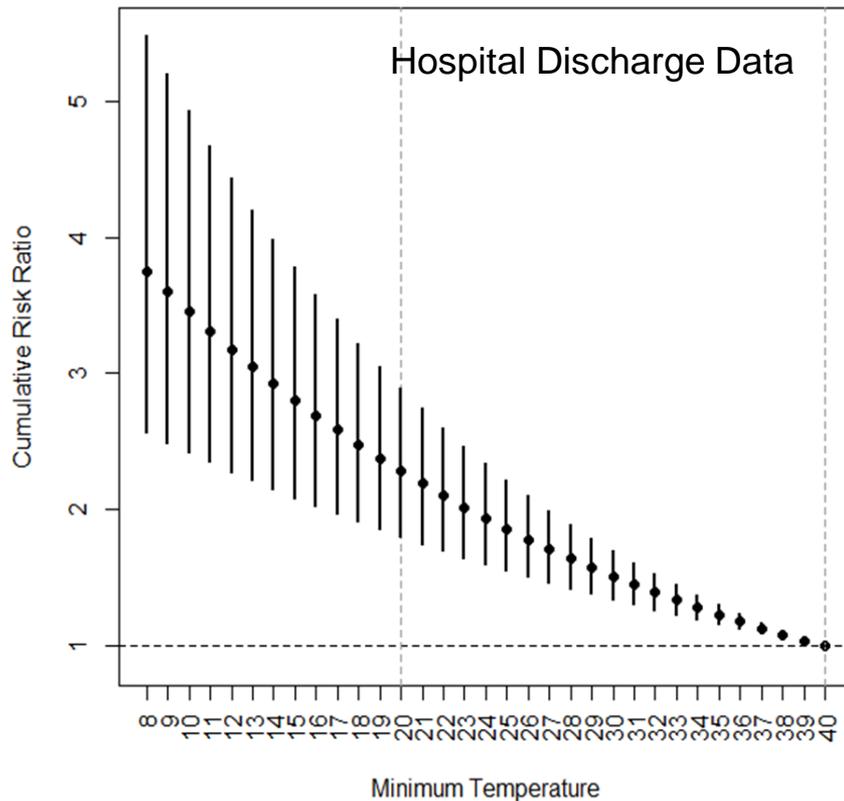
NYC | Department of Health & Mental Hygiene | Office of Emergency Management | Department for the Aging

Potential Health Impacts of Coastal Storms

- Injuries from evacuation/displacement, storm surge, wind, precipitation, structural damage
- Sheltering in place with residential utility disruption
 - Hypothermia, cold-related exacerbation of chronic disease, carbon monoxide poisoning
 - Lack of refrigeration for food and medication, safety hazards, isolation
- Disruption of chronic disease management
- Respiratory hazards from:
 - Improper cleanup and remodeling
 - Ongoing mold and moisture damage

Hypothermia and Cold Illness Surveillance

Cold Injury Risk Ratio by Minimum Temperature, Controlling for Temporal & Meteorological Variables





NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE

Thomas Farley, MD, MPH

Commissioner

2012 ALERT # 35

Health Risks Among Those Living in Dwellings Without Heat Following Hurricane Sandy

Please Share this Alert with All Physicians and Clinical Staff in Your Facility

November 28, 2012

As the recovery from Hurricane Sandy continues, some homes in the hardest hit areas remain without heat. Precise data is not available, but based on information from neighborhood door-to-door canvassing and reports from utilities and property owners, several thousand New Yorkers continue to live in apartments and homes without heat. While the city is working to speed the restoration of heat to residences through the NYC Rapid Repairs program and enforcement of the regulations requiring heat in multi-family residential properties, those remaining in unheated homes face a significant risk of serious illness and death from multiple causes, including:

- *Hypothermia.* Exposure to cold, even slightly below comfortable room temperature if prolonged, can lead to hypothermia. Certain individuals are at greater risk including: infants; the elderly; people with chronic diseases; and people with mental illness or substance use disorders. DOHMH syndromic surveillance data in the weeks following Hurricane Sandy (from November 3 – November 21) have shown a 200% increase in cold injury syndrome emergency department visits (including hypothermia) compared to data from the same time period during 2008-2011.
- *Exacerbation of pre-existing respiratory and cardiovascular conditions.* Cold and damp conditions in unheated and under-heated dwellings can exacerbate respiratory conditions, including COPD and asthma.

Deliverables

- Health Risk and Vulnerability Assessments
- Climate Readiness Toolkit for organizations providing services to vulnerable populations
- Climate health training for senior center staff
- Climate and health adaptation strategies

Additional Successes

- Improved partnerships
 - NYC DOHMH Division of Mental Hygiene and Office of Emergency Preparedness and Response
 - NYC Mayor's Office of Long Term Planning and Sustainability, NYC Office of Emergency Management, regional center of the National Weather Service, NYC agencies that serve vulnerable populations
 - Academic Partners at Columbia University and the Mount Sinai School of Medicine
 - Natural Resources Defense Council (NRDC)
- Strengthening public health role in citywide climate change planning

Research Needs

- Understand the health risks associated with population displacement and sheltering in place
- Characterize individual, community level and infrastructure related factors that influence risk and resilience
- Describe behavioral responses to climate emergencies and the factors that influence those responses
- Evaluate communication networks and assess ways to improve penetration and uptake of key messages

Closing Thoughts

- Climate and health program brings together and augments efforts to address the public health impacts of climate and weather related events
- Effective public health focused interventions require ongoing surveillance and research along with coordination of efforts and interagency collaborations
- Climate adaptation efforts require public health input