

US EPA ARCHIVE DOCUMENT

Climate Change Adaptation: Addressing Heat-Related Morbidity and Mortality among Seniors in New York City

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EPA Webinar Series: Public Health Effects of Climate Change
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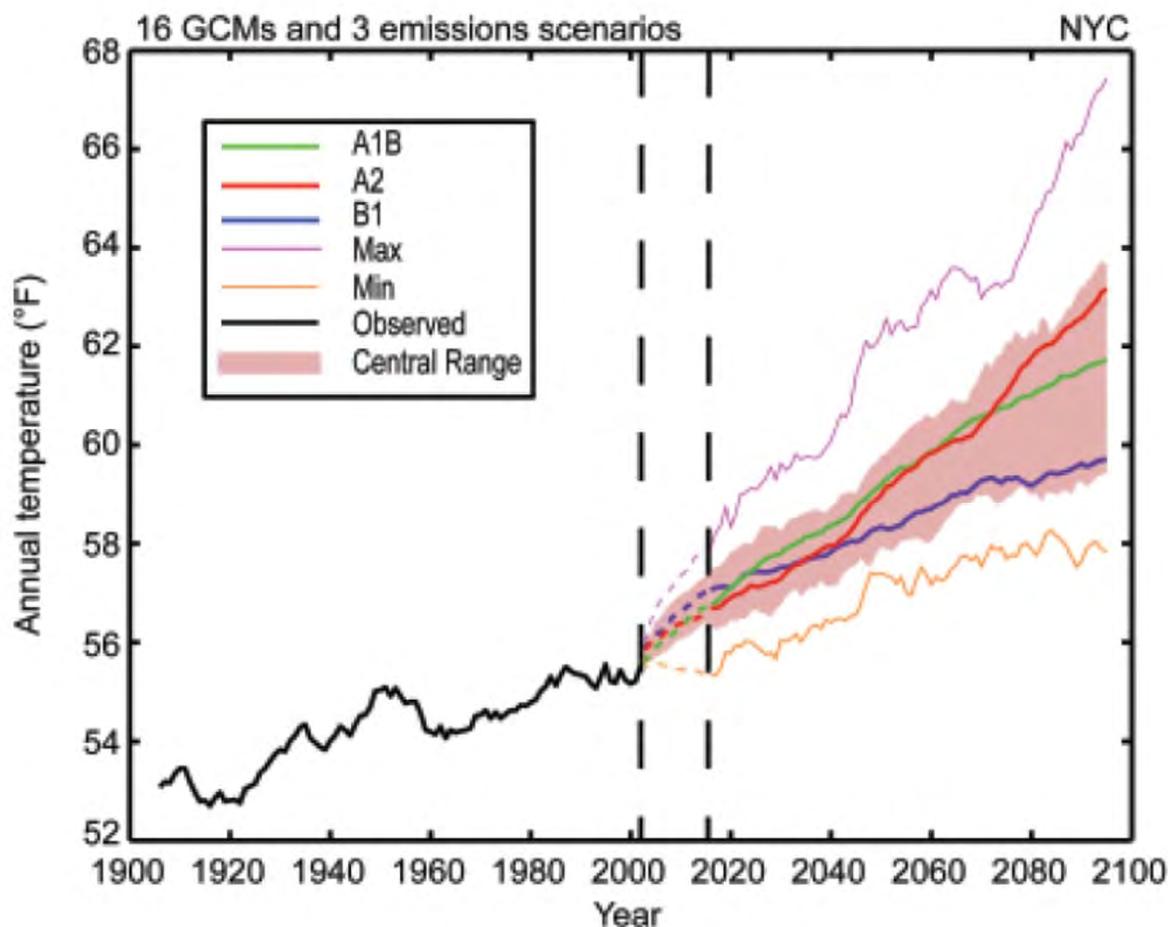
Heat Waves and Public Health

- Heat wave or extreme heat events
 - Period of very hot and humid weather that can make people sick and even lead to death

- Heat waves kill more Americans each year on average than *all other natural disasters combined*



Climate Change and New York City



NYC Warming Trends

Days > 90°F per Year

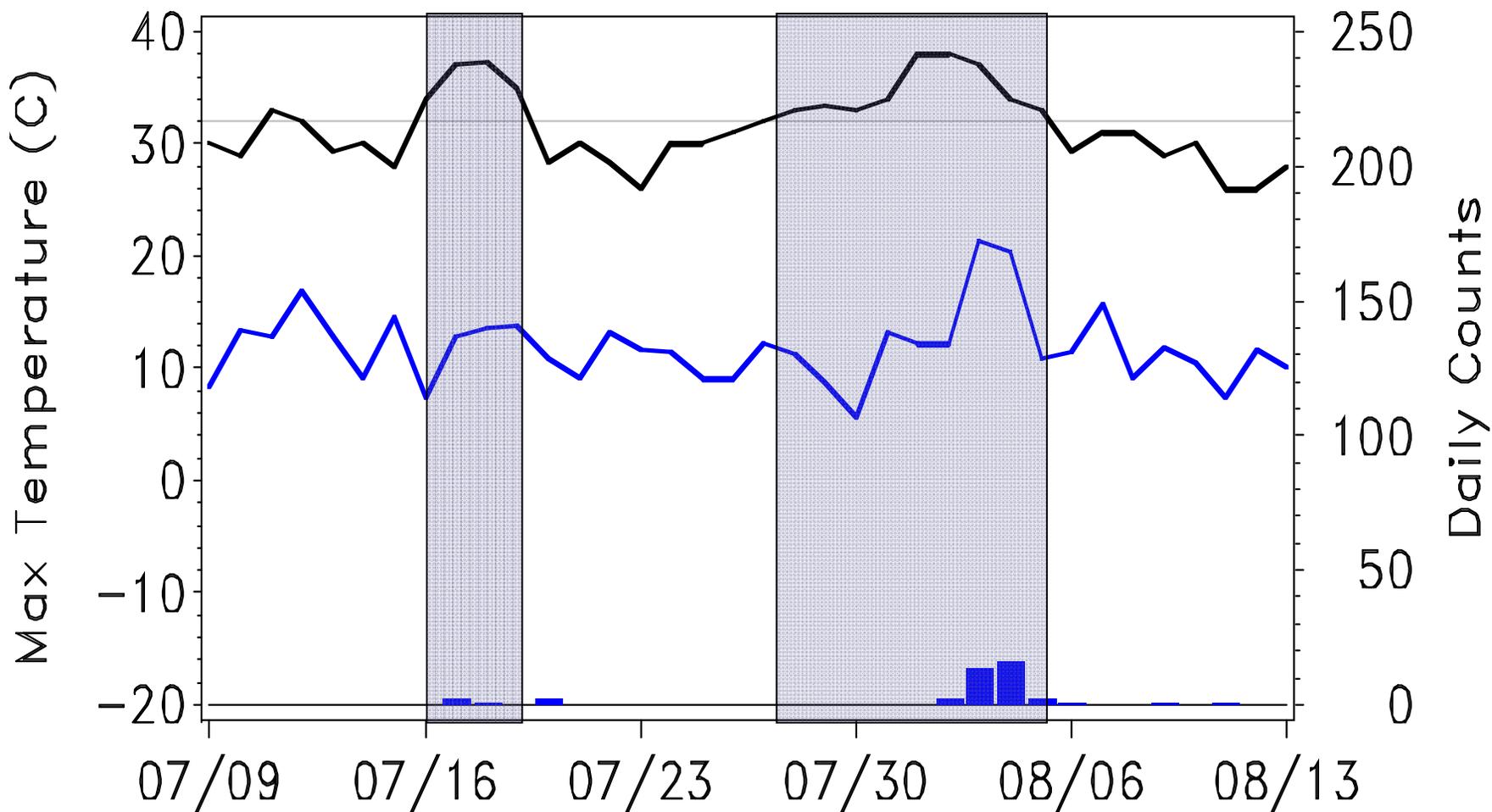
- 14 (1971-2000)
- 23-29 (2020s)
- 29-45 (2050s)
- 37-64 (2080s)

Source: Columbia Center for Climate Systems Research

Source: NYC Panel on Climate Change Report

NYC August 2006

40 heat stroke deaths and 100 excess deaths



Heat Related Mortality Risk Factors

(2006 Only; N=46)

Characteristics	n	%
Over age 65	21	53
≥ 2 medical conditions	27	68
Cardiovascular disease	27	68
Diabetes	9	23
Respiratory disease	5	13
Psychiatric cognitive disorders	11	28
Living with someone	21	53
Home air conditioner	2	5

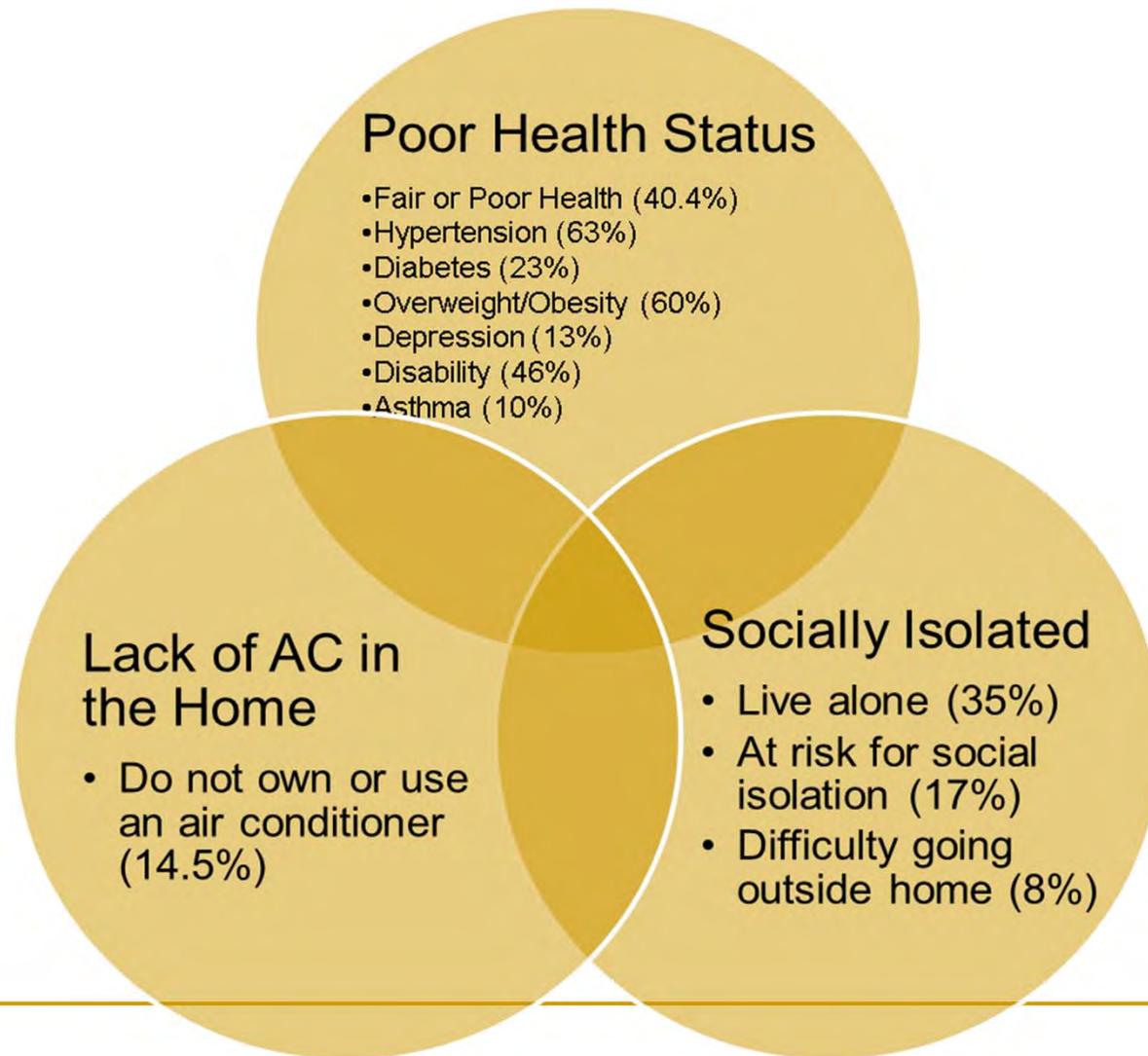
Heat Wave Characteristics Associated with Increased Morbidity and Mortality

- First of the season
- Early in the season
- Longer
- Higher maximum heat index
- Night-time lows above 80°F



Characteristics of Senior Population in NYC

1 Million Seniors \geq 65 years of Age



Sources: Epiquery Community Health Survey; NYC Department for the Aging

Heat Illness Prevention Strategy

- Policy
- Surveillance
- Structural Interventions
- Education/Outreach



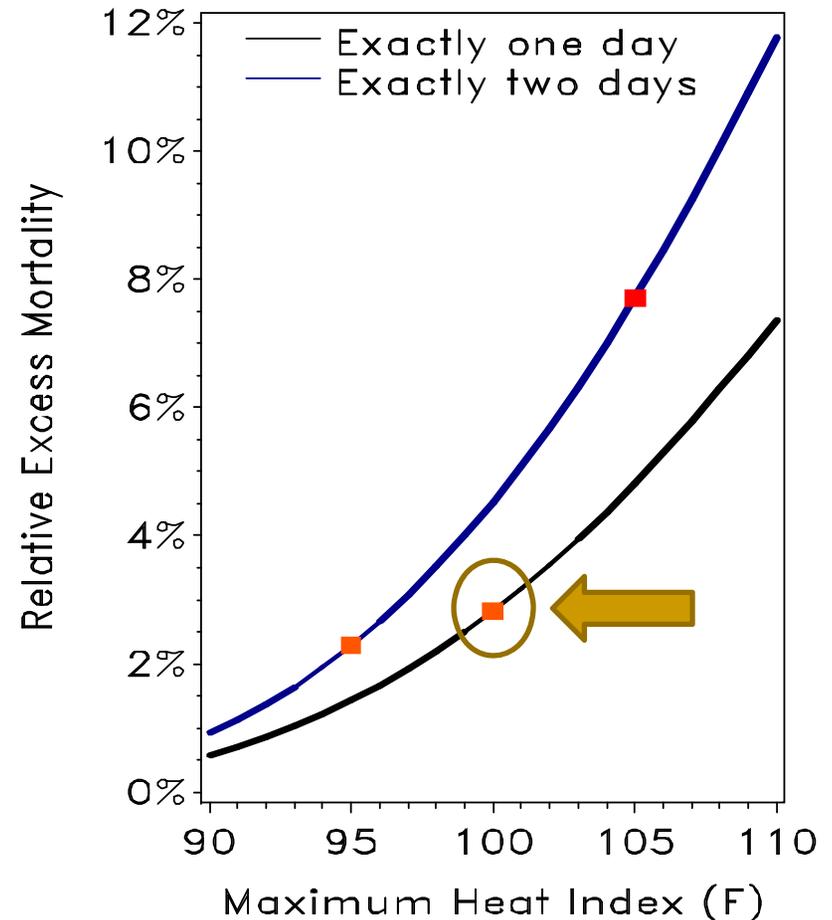
Citywide Heat Emergency Plan

- Multi-agency coordination of activities to protect New Yorkers during heat waves
- Includes:
 - Special needs advance warning
 - Cooling centers
 - Homeless outreach
 - Excavation safety alert
 - Spray cap program
- Health concerns at the forefront



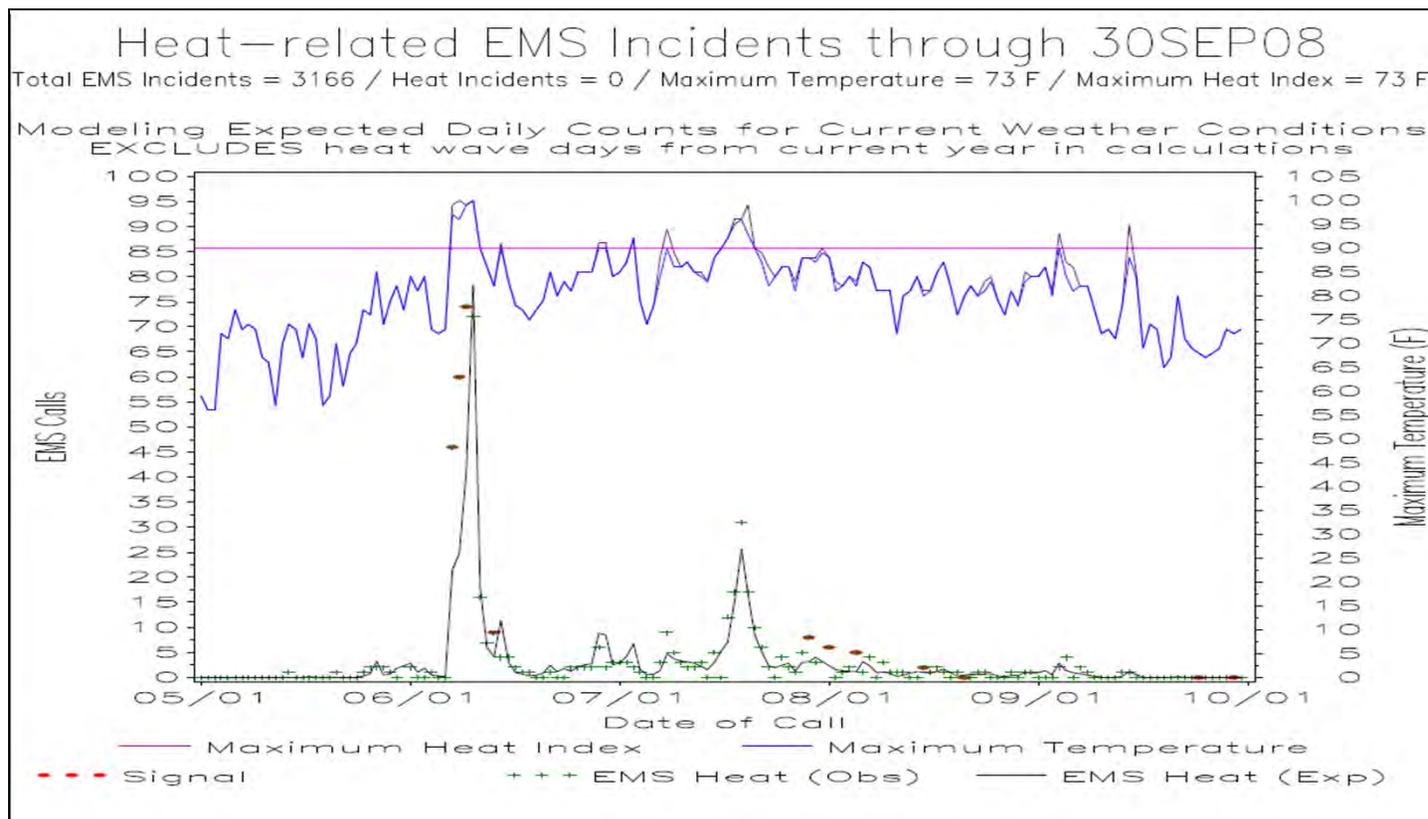
National Weather Service Advisories

- Retrospective analysis of mortality risk to evaluate heat advisory thresholds (May-September 1997-2006)
 - Excess mortality increased as heat index increased
 - Consecutive days of hot weather increased mortality risk compared with isolated days of hot weather
 - Substantial excess mortality below conventional heat warning threshold
 - Similar risk for two consecutive days HI > 95°F, one day HI >100°F



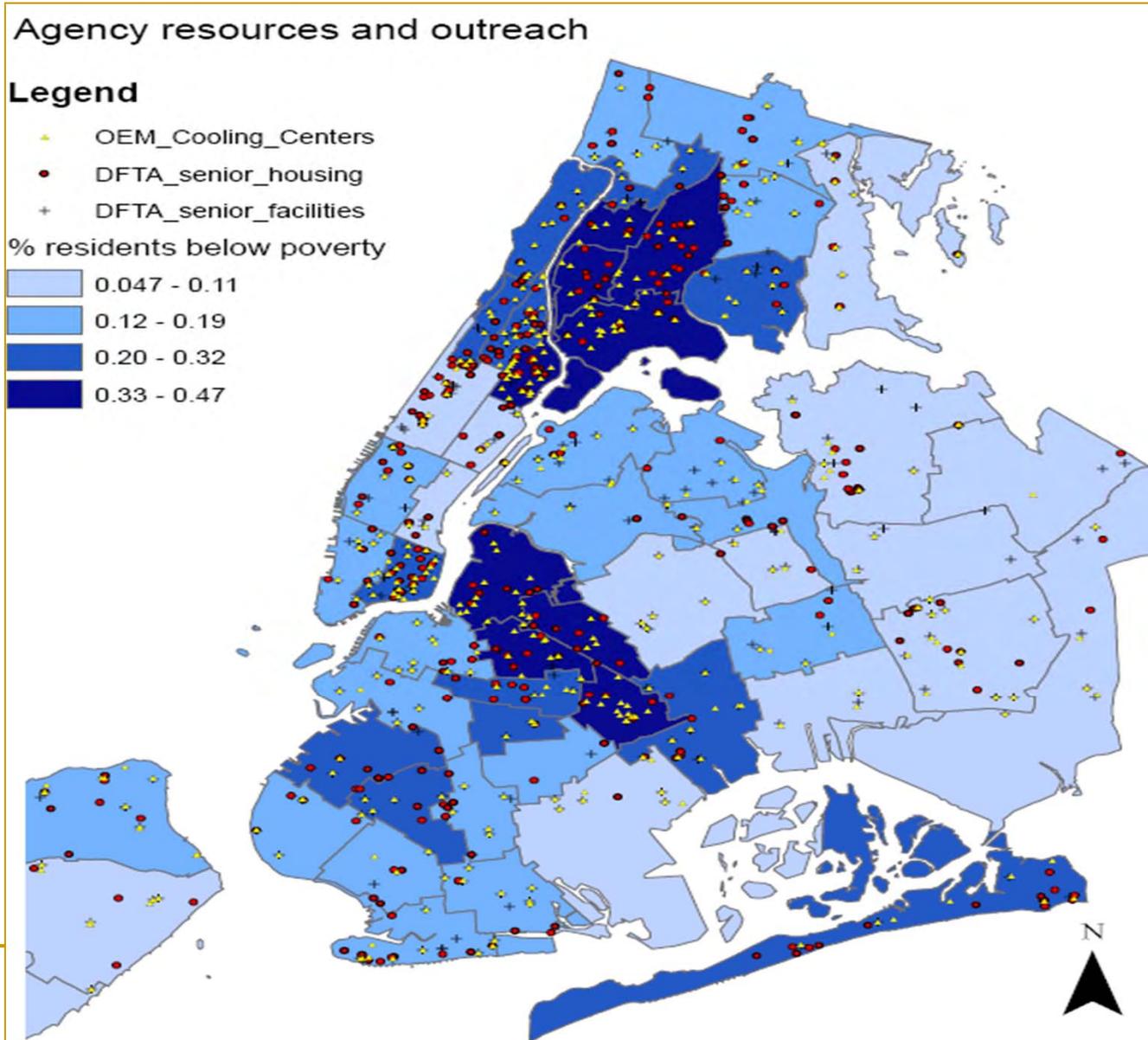
(Source: Metzger et al., 2010)

'Syndromic' Surveillance



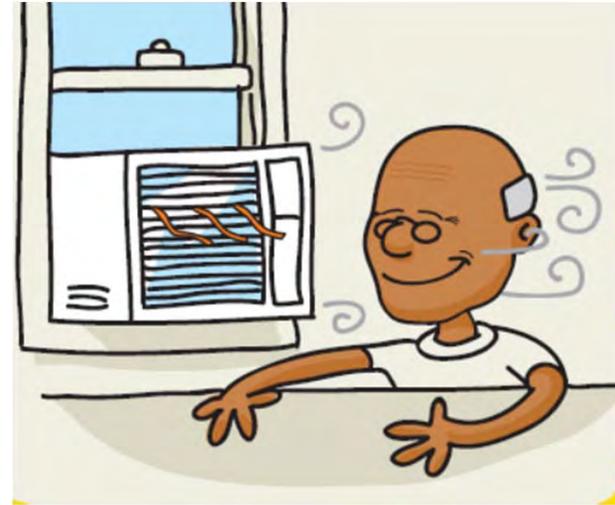
- Daily ED, EMS data from previous day
 - Compares observed counts of heat illness compared to expected counts based on time of year, weather conditions

Cooling Centers



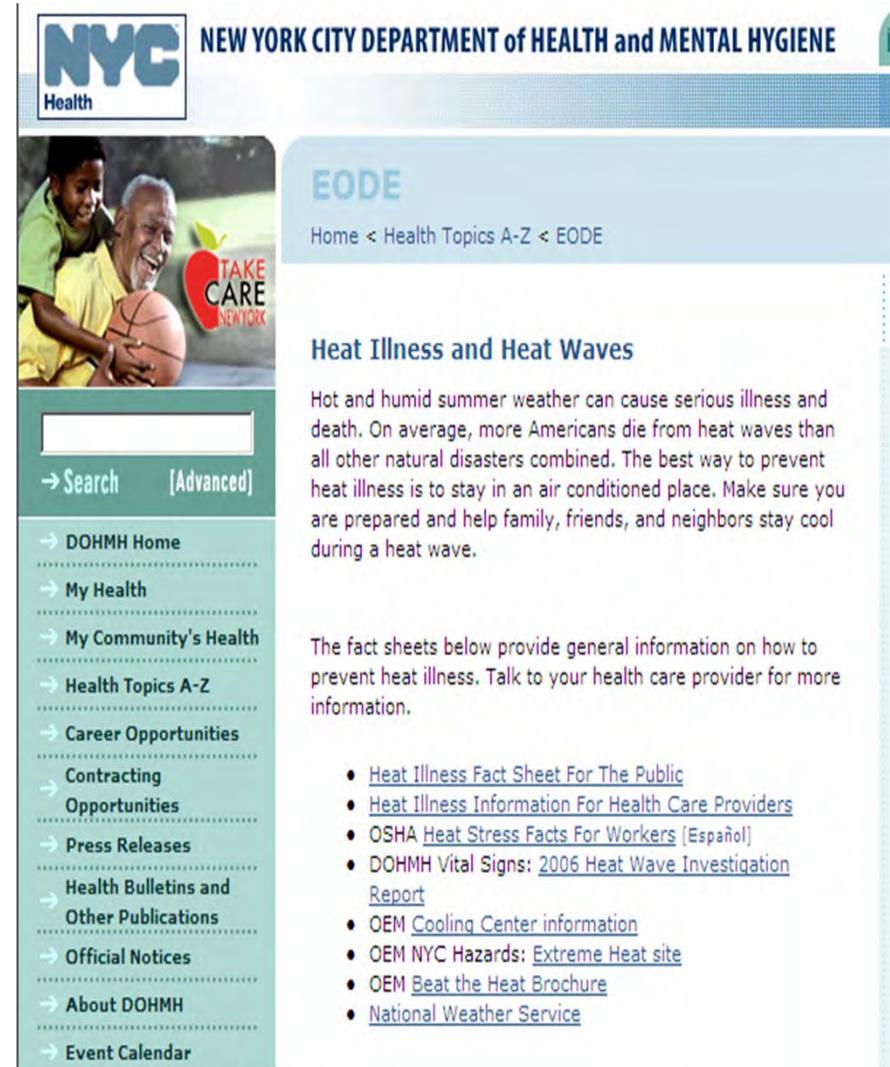
Cooling Assistance Program

- Free AC with installation
- HEAP funded
- Eligibility:
 - ❑ ≥ 60 years
 - ❑ Income
 - ❑ Increased risk for heat-related morbidity
 - ❑ Physical or mental health condition documented by health care provider
 - ❑ No working AC at home



Education and Outreach

- Print materials – high risk and social networks, providers, community organizations
- Presentations – community organizations, faith-based leaders
- Public health detailing
- Health alert network – health care providers
- Media/internet – public, press, providers www.nyc.gov/health/heat
- 311 Calls – public



NYC Health NEW YORK CITY DEPARTMENT of HEALTH and MENTAL HYGIENE

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Heat Illness and Heat Waves

Hot and humid summer weather can cause serious illness and death. On average, more Americans die from heat waves than all other natural disasters combined. The best way to prevent heat illness is to stay in an air conditioned place. Make sure you are prepared and help family, friends, and neighbors stay cool during a heat wave.

The fact sheets below provide general information on how to prevent heat illness. Talk to your health care provider for more information.

- [Heat Illness Fact Sheet For The Public](#)
- [Heat Illness Information For Health Care Providers](#)
- OSHA [Heat Stress Facts For Workers](#) [Español]
- DOHMH Vital Signs: [2006 Heat Wave Investigation Report](#)
- OEM [Cooling Center information](#)
- OEM NYC Hazards: [Extreme Heat site](#)
- OEM [Beat the Heat Brochure](#)
- [National Weather Service](#)

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Program Results (2008 - 2010)

- Distributed > 65,000 educational materials
- Mailed > 1,000 letters to faith leaders
- Visited > 230 health care providers in 90 health centers
- Presented to > 100 community board members and community organizations
- Installed > 8,000 ACs

Preparing for Present and Future Climate Emergencies

Expand on heat illness prevention model

Priority Areas

- Strong empirical data to relate projected changes in climate variables to greater environmental hazards/exposures

AND

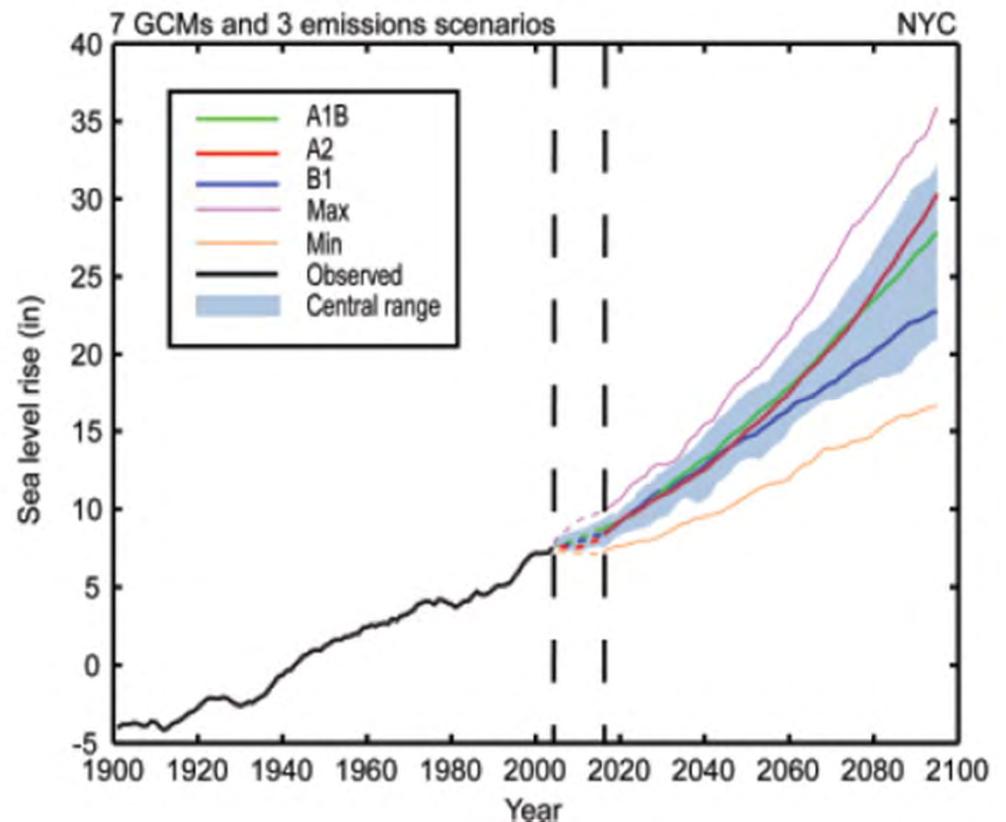
- Significant morbidity or mortality in NYC under current conditions or pose current major threats



Preparing for Present and Future Climate Emergencies: Coastal Storms and Flooding

- Projected increases in rainfall, coastal storms and continued sea level rise in NYC
- Health risks include flooding and evacuation injuries, PTSD and mental health effects of displacement, water contamination

Sea Level Rise in NYC

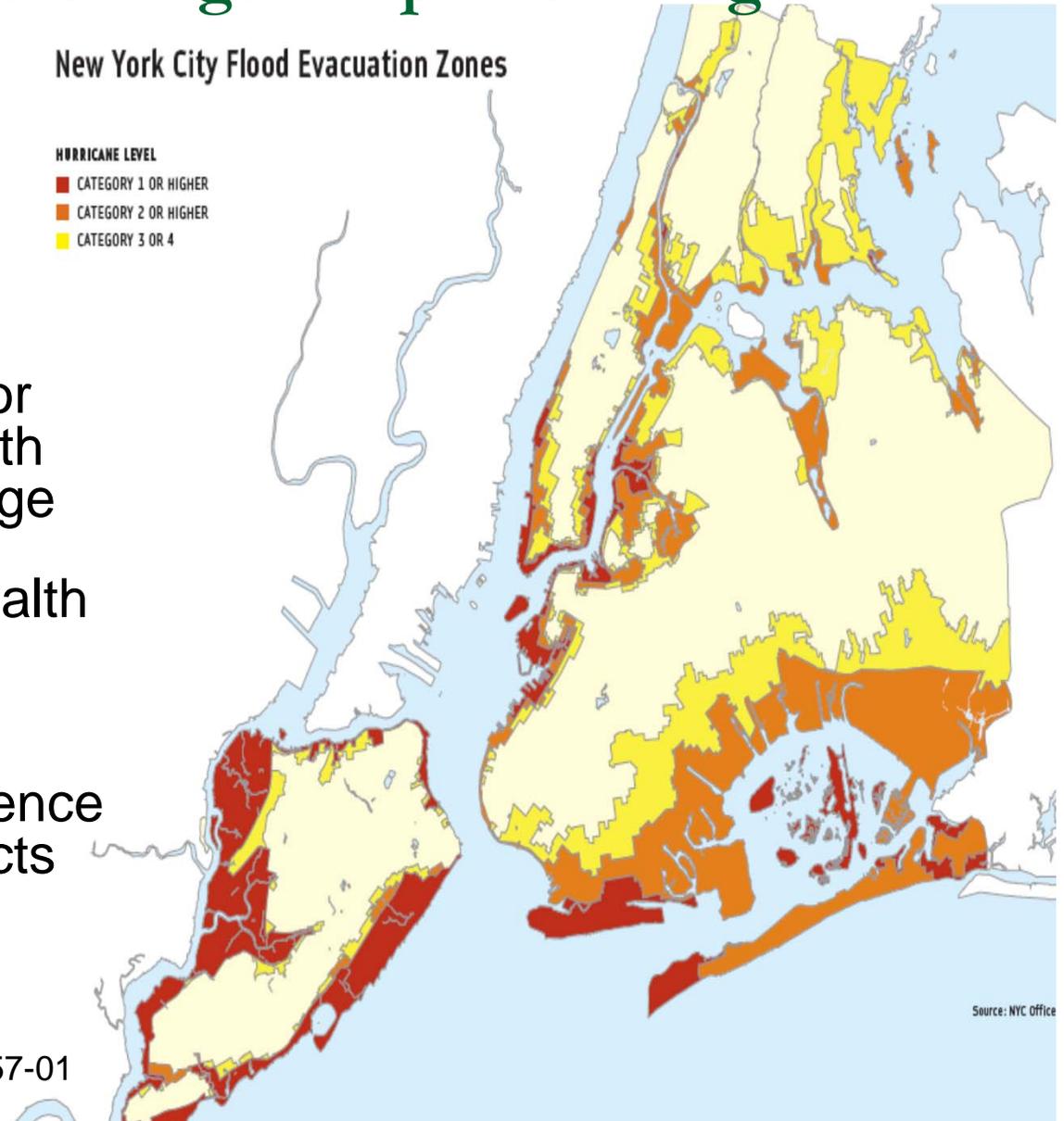


Preparing for Present and Future Climate Emergencies: Climate Change Adaptation Program

- Assess climate change health impacts on NYC residents
- Develop a public health action plan to prepare for and respond to the health impacts of climate change
- Enhance local public health infrastructure to climate change impacts
- Foster community resilience to climate change impacts

New York City Flood Evacuation Zones

HURRICANE LEVEL
■ CATEGORY 1 OR HIGHER
■ CATEGORY 2 OR HIGHER
■ CATEGORY 3 OR 4



Source: NYC Office

Supported by CDC Grant #1UE1EH000757-01

Summary – Adaptation Strategies

Interventions in NYC

- Engage diverse stakeholders and use multiple approaches
- Provide for short-term and longer term interventions
- Depend on collaboration and coordination to be successful

Thank You!

- NYC DOHMH
- NYC Department for the Aging
- NYC Office of Emergency Management
- Human Resources Administration
- NYC Housing Authority
- National Weather Service
- CDC



Questions

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