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Preparing for Extreme Heat in New York State

June 15, 2017

Featured Speakers

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Conflict of Interest & Disclosure Statements

The planners and presenters do not have any financial arrangements or affiliations with any commercial entities whose products, research or services may be discussed in this activity.

No commercial funding has been accepted for this activity.

Thank You to Our Sponsors

- University at Albany School of Public Health
- New York State Department of Health
Learning Objectives

- Describe heat-related temperature trends nationally and within NYS
- List the health risks associated with extreme heat
- Identify populations who are most vulnerable to health effects from extreme heat
- Describe at least two national and/or NYS initiatives to address extreme heat

Weather

- State of atmosphere at any given moment in time
  - Changes in temperature, humidity, precipitation, cloudiness and wind
- Changes from moment to moment
Climate

- Climate: long-term average weather patterns for a specific region
- Climate change: systematic change in long-term state of atmosphere over multiple decades or longer

Greenhouse Effect

- Ability of greenhouse gases to trap heat in the atmosphere
- Primary greenhouse gases
  - Carbon dioxide
  - Methane
  - Nitrous oxide
  - Fluorinated gases
Observed US Temperature Changes

Projected Temperature Change of Hottest/Coldest Days
Extreme Heat

- Greater-than-normal surface temperatures for a specific time of year
- Leading cause of weather-related fatality in the US

**NATIONAL WEATHER SERVICE THRESHOLDS FOR NORTHEAST**

- **HEAT ADVISORY**: 100° - 104°F
- **HEAT WARNING**: 105°F and above
- **HEAT WAVE**: 3 consecutive days 90°F or higher (daytime heat indices for 2 or more hours)

**New York City Heat Advisory**
Heat index of at least 100°F but less than 105°F for any length of time or
Heat index of at least 95°F but less than 100°F for two consecutive days

The threshold was modified for New York City, where historically the Northeast standards were used.

**NYS County - Days Above 90°F 1980-2012**

![Graph showing days above 90°F from 1980 to 2012]
Impact of Climate Change on Human Health

Heat-related illness and death, cardiovascular failure

Health Effects of Extreme Heat Events

- Heat Stroke
- Heat Exhaustion
- Heat Edema
- Heat Syncope
- Heat Cramps

- Dehydration
- Mortality
NYS Heat Stress Rates* by Age, 2008-2012

NYS Heat Stress Rates* by County, 2008-2012

*Rates are per 10,000 population
Hazard Ratios Associated with Temperature Increase

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CDC Climate Ready States and Cities Initiative (CRSCI)
Partnerships

- **Federal Agencies**
  - CDC
  - NOAA/NWS
  - NASA

- **State Agencies**
  - NYSDEC / Climate Smart Communities
  - NYSERDA
  - State OEM

- **Local Agencies**
  - Local Health Departments
  - County Emergency Offices

- **Other**
  - Other BRACE Grantee States
  - Other EPHT Grantee States
  - Academic Inst & Indep Orgs
    - University at Albany
    - University of Alabama
    - Columbia University
    - USRA

NYSDOH Activities

- Identify vulnerable populations that may be at increased risk of heat-related illness
- Monitor trends in heat-related illnesses
- Provide information to assist the public in making heat health-related choices
- Prioritize emergency preparedness planning
Preparedness & Response Components

- Emergency operations exercises
- Direct relief for supplies during emergency
- Power generators for backup power (at least 72 hours)
  - Health centers
  - Cooling centers

Why Identify Vulnerability to Heat?

- Climate changes in NYS
  - Increasing temperatures
  - Increase in frequency, intensity and duration of heat events
- Impacts largely preventable: adaptive measures or behavior modifications
- All at risk, but some more vulnerable
- Purpose: plan targeted mitigation strategies and provide sufficient adaptation resources
Everyone is Vulnerable

- Individual
  - Age (young children and older adults)
  - Chronic illness: Cardiovascular, respiratory, renal, neurologic diseases, diabetes; Those taking various medications (e.g., diuretics)
  - Obesity, alcohol use, socio-economic deprivation

- Social Community
  - Social cohesion or isolation
  - Lack of mobility
  - Less access to air-conditioned environments & housing (e.g., living on top floor, little ventilation)
  - Urban heat islands

Urban Areas

- Warming in urban areas
  - Decrease in vegetation and significant increase in the built environment

- Urban heat island effect
  - A built environment that is hotter than the surrounding rural areas
Socio-economic Vulnerability

- More difficulty accessing resources
  - Lack of cooling/transportation to cooling or health centers
  - Lack of health insurance
- Higher levels of pre-existing conditions
- Public housing residents: more time indoors due to fear of crime

Identifying Heat Vulnerability in NYS

- Goals:
  - Identify community level factors that may contribute to heat vulnerability
  - Develop a heat vulnerability index (HVI) based on these factors
- Evaluate spatial patterns in socio-demographic and land use variables associated with heat-related illness in previous studies
- Assist in identifying areas with populations that may be at increased risk of heat-related illness
Vulnerability Mapping

Language

Socio-Econ

Env/Ourban

Elderly

Heat Vulnerability Index: NYS
Cooling Centers

- Places where people may go to cool down during hot weather
  - Libraries, community and senior centers, schools, and malls
  - Recreational areas, including spray parks and community pools

- Especially important for more vulnerable groups of people, including elderly, children, those without access to air conditioning in home or place of work

https://www.health.ny.gov/environmental/weather/cooling/about.htm

Cooling Centers in NYS

- NYSDOH working with local health departments and county emergency managers to gather information on cooling center locations

- Information provided via webpage: interactive map in development

- Evaluating accessibility of cooling centers
Cooling Center Barriers

- Vulnerable populations don’t recognize own vulnerabilities
- Don’t want to leave home, or leave animals alone
- Hesitance about travel to unfamiliar place
- Can’t afford travel
- Waiting at bus stop increases heat exposure
- Embarrassment that help is needed; “only for old people”
- Worried about being bored, having nothing to do
- Less available in rural areas

Climate & Health Webpage
Educational Publications

Climate & Health Profile

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

Available at: http://www.health.ny.gov/environmental/weather/docs/climatehealthprofile6-2015.pdf

Climate and Health Profile
June 2015
Extreme Heat Webpage

www.health.ny.gov/ExtremeHeat

Making Data Available

- Environmental Public Health Tracking program
- Climate change indicators
  - Heat Stress
  - Temperature & Precipitation
  - Heat Vulnerability Index
- Additional work
  - Cooling center locations
  - Evaluating precipitation datasets and potential linkages with health outcome data
Stakeholder Engagement Plan

- Partner with NYSDOH programs for outreach to vulnerable populations
- Add climate and health information to existing tools

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<th>Voice Your Vision Sessions</th>
<th>Community Listening Sessions</th>
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<td>Native Community conferences</td>
<td>Maternal Home Visiting Program</td>
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<td>Faith based community</td>
<td>Creating Healthy Schools</td>
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<td>Chronic Disease Self-Management Program</td>
<td>Breastfeeding Friend Community Organizations</td>
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<td>Area Agencies on Aging</td>
<td>Asthma Education program</td>
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<td>Federally Qualified Health Centers</td>
<td>Community Health Worker Program</td>
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<td>Schools of Pharmacy</td>
<td>Health Neighborhood Program</td>
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<td>Injury prevention</td>
<td>Text4baby Program</td>
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NYS Learning Management System Courses

- Partnership with the OPHP – Workforce Development Group and www.NYLearnsPH.com Learning Management System (LMS)
- Established “Climate and Health” as Course Category on the LMS
- 12 courses from national distance learning providers, including CDC & APHA
- Free and available to all with Internet
Distance Learning Collaboration

OPHP Workforce Development Group facilitated collaboration with:

HRSA Region 5 - Great Lakes Public Health Training Collaborative: *Climate Change and Public Health 101 – Northeast Edition*

HRSA Region 2 Public Health Training Center (PHTC): *Four-part series on Climate and Health*

UAlbany School of Public Health – Center for Public Health Continuing Ed: Public Health Live!: Extreme Heat Events, 6/15/17, 9-10am

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Arizona Lessons Learned

- Periods of dangerously high night-time temperatures (can’t cool off)
- Homeless especially vulnerable
- More heat-related illness in poverty areas with few cooling centers
- Need cooling centers, water collection sites, hydration stations/water distribution sites, well checks by faith communities and others
- Inadequate exterior signs to identify cooling centers
- Internet not used by those who need to find cooling centers
- Cooling centers provide benefit most often to those using the sites for other non-emergency services
- 40% of heat-related deaths are indoors, 60% outdoors
- 25% report electricity cost a significant barrier to using air conditioning
- Greatest preparedness risk - sustained power outage in summer
Summary

- As the climate is changing, NYS is becoming hotter
- Steps we take now will impact magnitude of future warming and occurrence of extreme heat
- Extreme heat can cause heat stress, dehydration and even death
- NYS CRSCI provides resources for public health professionals

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