

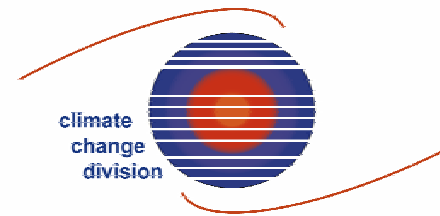


Urban Heat & Health

Beating the Heat: EPA's Role in Saving Lives in Vulnerable Urban Areas

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Heat Island Call
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Excessive Heat Events

» Rationale for Intervention and Response

◆ The Problem

- ⇒ More deaths from excessive heat than other natural hazards
- ⇒ ~700 heat-related deaths annually in U.S. (CDC, 2006); Over 700 deaths in Chicago alone during 1995 heat wave
- ⇒ Europe heat wave of 2003: 35K deaths...~15K in France
- ⇒ 2006: ~160 Heat-related deaths in Central California; ~30 deaths in both NYC and Chicago

◆ Populations most at risk

- ⇒ Older adults, poor, individuals living alone, very young, people with mental illness and chronic diseases
- ⇒ City residents (urban heat islands) in highly variable climates

Excessive Heat Events

» Rationale for Intervention and Response, cont'd

◆ Lack of public recognition

- ⇒ Little media coverage
- ⇒ No infrastructure damage (silent killer)
- ⇒ Many heat-related deaths unreported/unattributed

◆ They're not going away...

- ⇒ Global warming
- ⇒ Increased urbanization
- ⇒ Aging population

...but heat related mortality is largely preventable

through direct response and mitigation

EPA's Efforts to improve, optimize responses

» Information/Outreach

- ◆ Heat-Health Watch/Warning Systems
- ◆ Weather Channel Partnership
- ◆ Posters/brochures
- ◆ Analog study
- ◆ Excessive Heat Events (EHE) Guidebook
- ◆ Vulnerability assessment



Excessive Heat Events (EHE) Guidebook -- Goals

- » Provide local public health officials and others with convenient access to critical EHE information
 - ◆ Options for determining what conditions are dangerous
 - ◆ How to assess local vulnerability to EHEs
 - ◆ Case studies (lessons learned)
 - ◆ A “menu” of public education, notification, and response actions to consider when developing or enhancing an EHE notification and response program



EHE Guidebook Development: Who

» Federal project partners

- ◆ U.S. EPA
- ◆ National Weather Service (NWS)
- ◆ Centers for Disease Control and Prevention (CDC)

» Key contractors and consultants

- ◆ Stratus Consulting Inc.
- ◆ Laurence Kalstein, Applied Climatologists Inc.

» Technical Working Group

- ◆ Staff from U.S. EPA, NWS, CDC, Dept. of Homeland Security, Toronto Public Health, Philadelphia Department of Public Health, Philadelphia Corporation for the Aging, and Energy Coordinating Agency of Philadelphia

» Independent external reviewers



EHE Guidebook Recommendations

» Guidebook recommendations address:

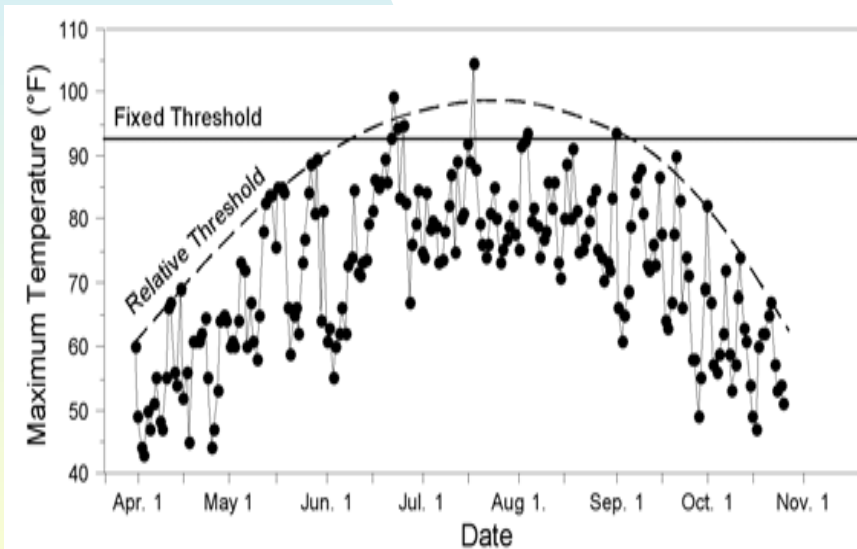
- 1) EHE definition and forecasting
- 2) Public education
- 3) Response preparation
- 4) Response actions
- 5) EHE program review and evolution



EHE Guidebook Recommendations:

1a) Defining EHE Conditions

- » Rely on local information
- » Options:
 - ◆ Use fixed thresholds:
 - ⇒ Easy to implement (+)
 - ⇒ May fail to recognize exceptional weather (-)
 - ⇒ One size does not fit all applications (-)
 - ◆ Use relative thresholds
 - ⇒ Requires active assessment of forecasts (- /+)
 - ⇒ Can account for seasonal trends or variation by location (+)



EHE Guidebook Recommendations:

1b) Assessing Vulnerability

» Demographic sensitivities

- ◆ Physical constraints
- ◆ Mobility constraints
- ◆ Cognitive impairments
- ◆ Economic constraints
- ◆ Social isolation

» Behavioral choices

- ◆ Wearing inappropriate clothing
- ◆ Failing to stay hydrated
- ◆ Consuming alcohol
- ◆ Engaging in outdoor activities
- ◆ Eating inappropriate meals



EHE Guidebook Recommendations:

2) Public Notification and Education

- » Have a plan for public notification of forecast EHEs
- » EHE notification needs to:
 - ◆ Come through a mix of media (television, radio, Internet, papers, etc.)
 - ◆ Detail anticipated arrival and severity of the EHE
 - ◆ Describe those at greatest risk (e.g., young, old, homeless)



EHE Guidebook Recommendations:

2) Public Notification and Education (continued)

- » EHE notification needs to (cont.):
 - ◆ Describe appropriate responses
 - ⇒ Spend time in air conditioned locations
 - ⇒ Stay hydrated
 - ⇒ Check on vulnerable persons
 - ◆ Discuss appropriate use of portable electric fans
 - ⇒ Vent hot air from rooms or draw cooler air in
 - ◆ Describe how to access additional information
 - ⇒ Provide toll-free lines to report health concerns



EHE Guidebook Recommendations:

3) Response Preparation

- » **It's all local**
 - ◆ Understand local constraints and opportunities
- » **Develop plan with critical service providers**
 - ◆ Public health departments
 - ◆ Emergency medical services
 - ◆ County aging offices
 - ◆ Homeless shelters/advocates
 - ◆ Public utilities
 - ◆ Persons with strong ties to vulnerable individuals and populations (e.g., religious, ethnic, and community leaders)
- » **Clearly define roles and responsibilities**



EHE Guidebook Recommendations:

4) EHE Responses

- » Encourage use of, and facilitate access to, air conditioned buildings
 - ◆ Shopping malls, libraries, movie theaters, senior/community centers
 - ◆ Designate cooling centers, provide transportation

- » Prioritize direct assessment and providing services to those at greatest risk
 - ◆ Daytime homeless outreach
 - ◆ Nursing home and senior housing visits
 - ◆ Extra staffing of emergency medical services



EHE Guidebook Recommendations:

4) EHE Responses (cont.)

- » Operate phone hotlines
- » Re-allocate available resources for EHE needs
 - ◆ Shift public health staff from inspections to assessment of at-risk populations and locations
- » Suspend utility shut-offs
 - ◆ Avoid potentially making a bad situation worse
- » Reschedule outdoor events



EHE Guidebook Recommendations:

5) Program Review and Evolution

- » Regularly review and update EHE programs
 - ◆ End-of-season review of successes and areas for improvement by program partners
 - ◆ Contact other EHE program partners to discuss their issues and responses



EHE Guidebook Roll-out

- » Released June 21, 2006
 - » 4,000 Hard Copies Distributed to
 - ◆ Public Health Agencies
 - ◆ Red Cross
 - ◆ Fire Departments/Emergency Responders
 - ◆ Public Officials
 - ◆ Meteorologists
 - » Tens of thousands of web downloads
 - » Media: Associated Press, Washington Post
- Available at: www.epa.gov/heatisland***



Vulnerability Assessment

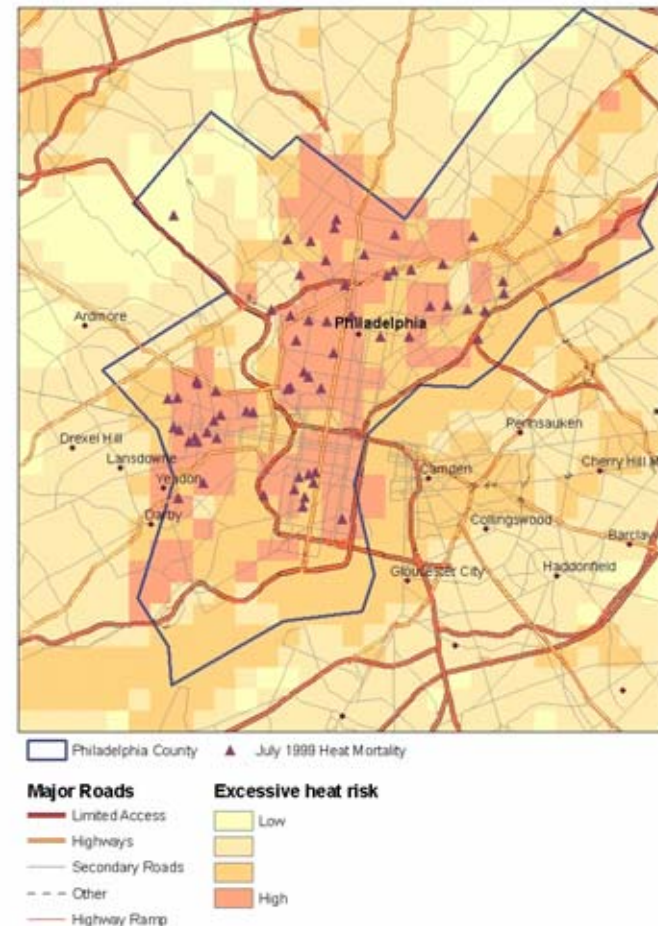
Pilot Project: Spatial Analysis of Vulnerability to Excessive Heat in Urban Areas using GIS

- ◆ Analyze urban areas overlaying physical (e.g. temp) and demographic data to identify vulnerable areas
 - ⇒ Can spatial assessment of vulnerability accurately predict areas where risk is greatest and health impacts occur?
- ◆ Two cases: Philadelphia and Phoenix

Spatial Analysis Shows Promise For Targeting Intervention

- » Superimposing 1999 heat wave mortality cases suggests analysis can predict where heat related health impacts are most likely

Collaborators: EPA Aging Initiative, NCAR, ASU, the University of Wisconsin, and Stratus Consulting



Resources

» EPA Heat Island Web site:

www.epa.gov/heatisland

- ◆ Includes Excessive Heat Events Guidebook, Heat Island Reduction information, and additional outreach materials

» Aging Initiative Web site:

<http://www.epa.gov/aging/resources/factsheets/index.htm#itstoodarnhot>

- ◆ Includes “Beating the Heat” poster and “It’s Too Darn Hot” brochure (available in English, Spanish, Portuguese, Chinese, Russian, Haitian Creole, Vietnamese, Korean and to a 6th grade reading level for those with limited reading ability.)

» EPA Climate Change Web site:

www.epa.gov/climatechange

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