Excessive Heat Events and the City of Philadelphia – Where We've Been & Where We Are Going

Northeast Monthly Climate Update: Heat and Health

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National Weather Service – Mount Holly NJ

- The area we serve is shaded in green
- 34 counties in four states
- Over 11 million people
- We issue weather, water & climate forecasts & warnings for the protection of life & property, and to enhance the national economy.
- Weather.gov/phi


Extra Cream ICE CREAM
CAUTION

Excessive heat program in Philadelphia

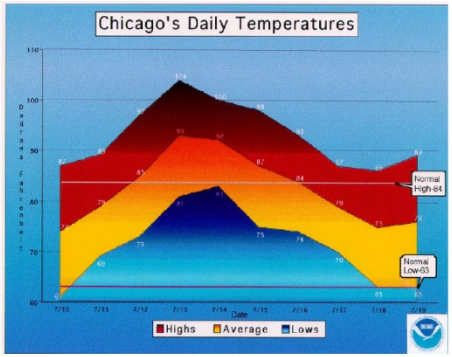
- Big changes starting back in the 1990s
- So, a brief trip down memory lane

Big heat wave in 1993

- **Philadelphia, Pennsylvania**

During a 3-week period in July 1993, the Philadelphia County Medical Examiner reported approximately 118 heat-related deaths (CDC, 1994; CDC, 1993). Although the medical examiner was initially criticized for overestimating the number of deaths, a subsequent evaluation by CDC investigators confirmed the findings. In fact, it was found that similar increases in deaths during the heat wave had occurred in other urban areas near Philadelphia although they had not been recognized at the time.

July 1995 Heat Wave



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service, Silver Spring, Maryland

The NOAA Disaster Survey Team believes the following recommendation to be of particular importance.

NWS Actions

During the July 1995 heat wave, forecasters at the NWS Forecast Office at Mt. Holly, New Jersey (whose responsibility includes the Philadelphia metropolitan area), took aggressive actions to inform their community of the dangerous heat wave. Accurate and timely forecast information was provided as much as 5 days in advance of the excessive heat. Products issued by NWS forecasters clearly conveyed important and accurate forecast information regarding excessive temperature and high humidities. A Heat Warning/Advisory was in effect throughout the event. In fact, Heat Warnings/Advisories were issued for a consecutive 2-day period. This action, based on sound professional judgment, conveyed important information on the anticipated duration of this event.

As the event neared, the office issued a variety of frequent, well-written statements that relayed emergency and safety information to the community. Statements were often targeted to high risk groups and areas. NWS forecasters exceeded operational requirements in keeping the community informed. An Outlook product indicated the likelihood of dangerous heat over 48 hours in advance of highest temperatures. In an unusual and highly successful move even prior to the issuance of a Heat Advisory, Zone Forecasts were highlighted to reflect the anticipated dangerous heat. Temperature forecasts were highly accurate and generally verified to within 2 or 3 degrees. NWS forecasters were also in contact with state, city, and local officials during the event.

Finding: **NWS forecasters clearly, effectively, aggressively, and accurately communicated a forecast for the Philadelphia area calling for dangerously high heat and humidities 36 to 48 hours prior to the event.**

Finding: **Recognizing the unique situation of an urban center, NWS forecasters issued a Heat Warning for Philadelphia (the highest level possible) for a consecutive 2-day period. This action provided community officials with key planning information.**

Recommendation: **NOAA should quantify the urban heat island effect to incorporate in NWS Heat Warnings, Watches, Advisories, and Statements.**

"City is hot, but fewer are dying" - Philadelphia Inquirer 2002

- Over 90% of heat related fatalities occur while heat warnings are in effect.

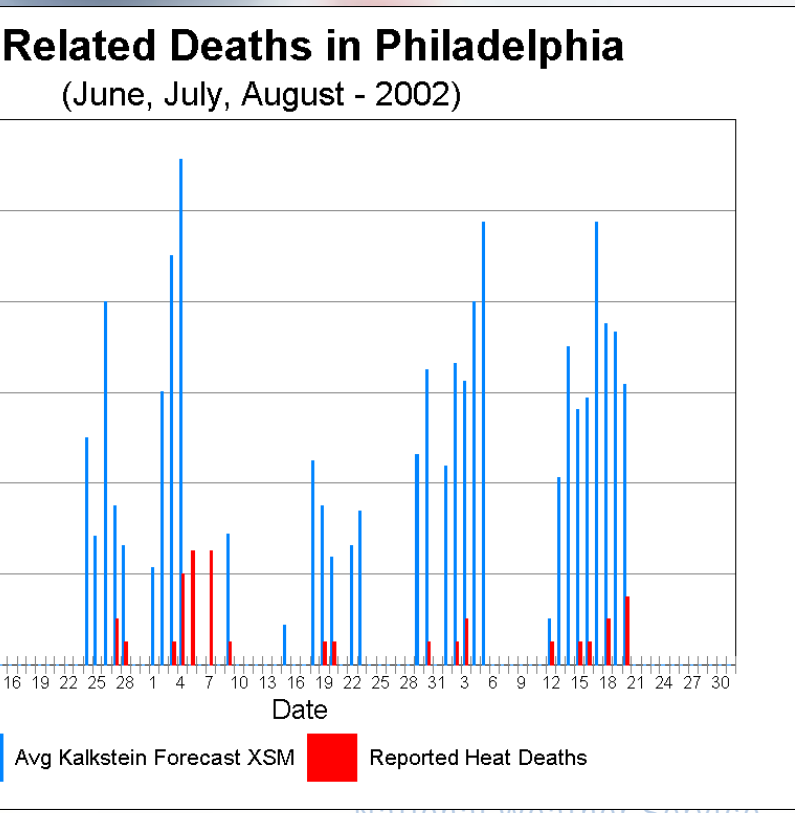
Philadelphia Heat Waves and Related Deaths

In 1993, Philadelphia health officials changed the definition for heat-related death; a heat-emergency plan then put in place reduced the number of deaths in subsequent years.

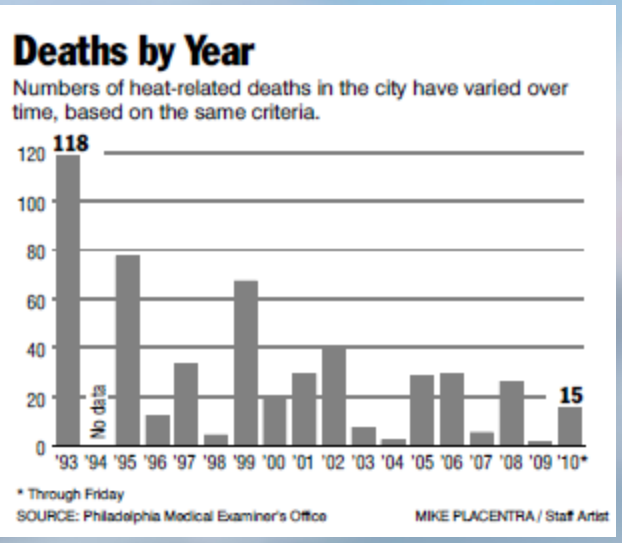
Year	Days 90 degrees or above	Heat-related deaths
1993	41	118
1994	36	26
1995	49	61
1996	7	11
1997	20	33
1998	31	14
1999	35	67
2000	10	10
2001	23	25
2002	39*	26*

*As of Friday

SOURCE: National Weather Service — The Philadelphia Inquirer



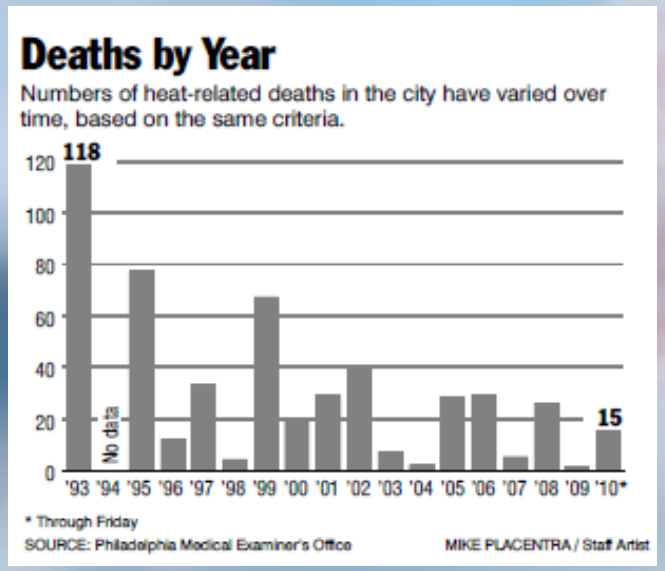
“Too darn hot, but not so deadly” – Philadelphia Inquirer 2010



DAVID SWANSON / Staff Photographer

Zelda Acheampons walks home from classes at La Salle in June. The first week of that month produced the first heat wave, and two deaths.

"The Heat was Infernal, but Relatively Few Died" - Philadelphia Inquirer August 30, 2010



1993 – Heat Wave with major loss of life in Philadelphia. Heat event does NOT meet National Weather Service (NWS) Warning criteria, barely meets NWS Advisory criteria

1995 – City of Philadelphia partners with University of Delaware on a new excessive heat forecasting system, results are shared with NWS Mt. Holly

1997 – NWS Mt. Holly takes on full time operational running of this new excessive heat forecasting system, first NWS office in country to do so.

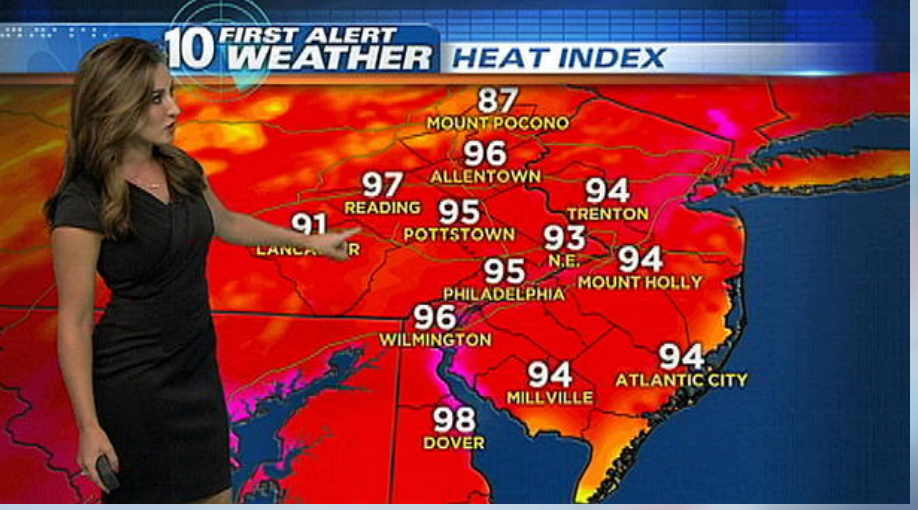
2004 – Second generation Heat Health Watch Warning system is put in place, tied into forecast information from NWS' new National Digital Forecast Database

Since 2010

- 2011 – 27 fatalities – worst excessive heat event since 1995 (70+ fatalities)
- 2012 – 8 fatalities
- 2013 – 2 fatalities
- 2014 – 0 fatalities
- 2015 – 6 fatalities

Why is this working?

- Its all about the partnerships (public, private, media, academia).
- Everyone takes this seriously, and the messaging is very consistent.



National Weather Service
Philadelphia/Mt. Holly

Why is this working?

- EPA Excessive Heat Events Guidebook 2006

Table 3.1. Summary of confirmed EHE program elements in Philadelphia and Toronto

Program elements	Philadelphia[5]	Toronto[6]
Prediction see 3.1.1, p. 23 ▶		
Ensure access to weather forecasts capable of predicting EHE conditions 1-5 days in advance	✓	✓
Risk assessment see 3.1.2, p. 23 ▶		
Coordinate transfer and evaluation of weather forecasts by EHE program personnel	✓	✓
Develop quantitative estimates of the EHE's potential health impact	✓	✓
Use the broader criteria to identify heat-attributable deaths	✓	✓
Develop information on high-risk individuals	✓	
Develop an accessible record on facilities and locations with concentrations of high-risk individuals	✓	✓
Notification and response see 3.1.3, p. 24 ▶		
Coordinate public broadcasts of information about the anticipated timing, severity, and duration of EHE conditions and availability and hours of any public cooling centers	✓	✓
Coordinate public distribution and broadcast of heat exposure symptoms and tips on how to stay cool during an EHE	✓	✓
Operate informational phone lines that can be used to report heat-related health concerns	✓	✓
Designate public buildings or specific private buildings with air conditioning as public cooling shelters and provide transportation	✓	✓
Extend hours of operation at community centers with air conditioning	✓	
Arrange for extra staffing of emergency support services	✓	
Directly contact and evaluate the environmental conditions and health status of known high-risk individuals and locations likely to have concentrations of these individuals	✓	✓
Increase outreach efforts to the homeless and establish provisions for their protective removal to cooling shelters	✓	✓
Suspend utility shutoffs	✓	✓
Reschedule public events to avoid large outdoor gatherings when possible	✓	
Mitigation see 3.1.4, p. 26 ▶		
Develop and promote actions to reduce effects of urban heat islands	Not evaluated	

Why is this working?

- Practice like you want to play
- Don't try to come up with a plan when temperatures start to rise.

City of Philadelphia
Managing Director's Office
Office of Emergency Management

FOR OFFICIAL USE ONLY
Citywide Excessive Heat Plan

City of Philadelphia

Managing Director's
Office of Emergency Management

Excessive Heat Plan

Summer 2014

Michael Nutter
Mayor

Everett Gillison, Esq.
Chief of Staff
Deputy Mayor, Public Safety

Samantha Phillips
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Summer 2014
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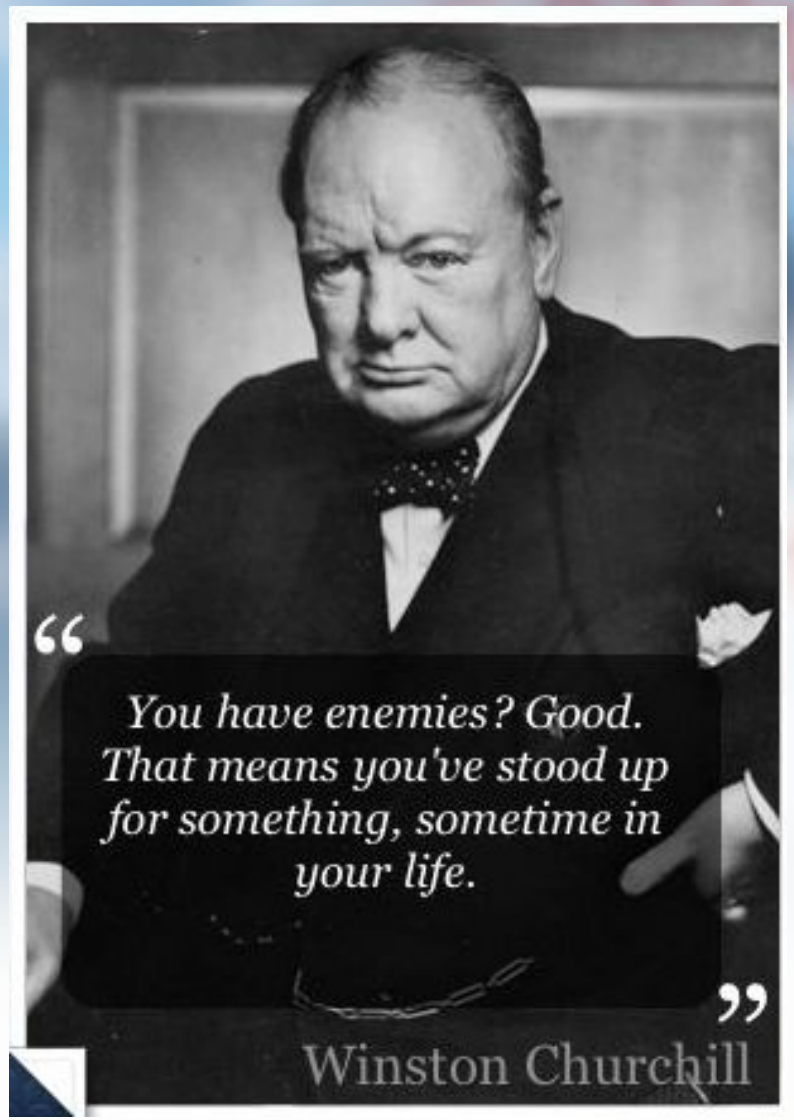
Sign You Are Accomplishing Something



Questions? Comments?