



Increased mortality associated with excessive heat: A preventable outcome

Every year, hundreds of people in the US die from excessive heat exposure and when a heat wave sweeps through regions, the death-toll can increase dramatically. According to the Centers for Disease Control and Prevention, excessive heat directly caused the death of 2239 people from 1999-2003. It was a contributing cause of death for an additional 1203 people, almost 60% of whom died of cardiovascular disease. Deaths among males outnumbered females in all age groups and people over the age of 65 seem to be disproportionately burdened by heat waves.

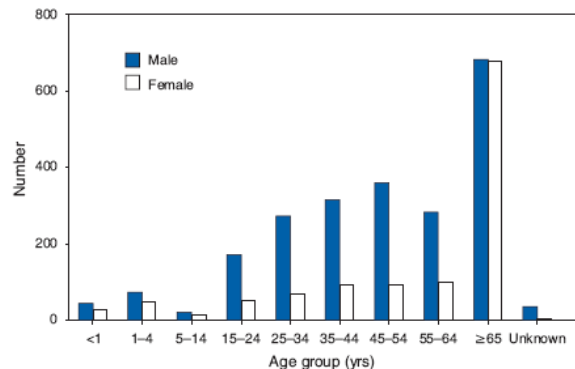
Effective risk communication and other low cost responses can mitigate the negative health effects of excessive heat in your community. Providing up-to-date and accessible information using all available media outlets or providing free public transportation service during times of heat crisis are good examples of how emergency responders can act to assist those in need. These initiatives have successfully been used in Chicago, Philadelphia and other cities in a effort to reduce heat-related mortality among its residents.

The first step in developing an excessive heat event response plan is to identify groups in your community that are most at risk of heat related morbidity and mortality.

What conditions put people at greater risk for heat-related morbidity and mortality?

- ◇ **Physiological constraints:** people who have difficulty cooling themselves naturally by increasing cardiovascular circulation or by sweating. This at-risk group includes infants, elderly over age 65, those taking certain medications, and people who suffer from obesity, substance abuse, or chronic medical conditions such as cardiovascular disease, chronic obstructive pulmonary disease, or diabetes. In addition, people living in variable climates such as the Midwest are at higher risk because they are not well adapted to extreme heat when compared to resident's of regions where long periods of heat are the norm.

FIGURE. Number of heat-related deaths,* by sex and age group — United States, 1999–2003



* Exposure to extreme heat is reported as the underlying cause of or a contributing factor to death (N = 3,442).

- ◇ **Mobility constraints:** individuals who have limited mobility are at increased risk because they may be unable to access cool locations or get assistance. This group includes the very young and those who are bedridden.
- ◇ **Cognitive impairments:** those who suffer from mental illnesses or cognitive disorders may not have the ability to make rational decisions or recognize symptoms of excessive heat exposure.
- ◇ **Economic constraints:** the poor may be at risk if their homes lack air-conditioning or because they are not willing to take appropriate actions to reduce their risk (opening windows or accessing air-conditioned shelters) for fear of crime or related injury.
- ◇ **Social isolation:** individuals who live alone or who are homeless may be unwilling or unable to reach out to others for help. Furthermore, socially isolated people are not easily identified in the community, making it harder for emergency responders to provide adequate and timely assistance.

Aggressive response reduces mortality incidence of at-risk individuals during high heat periods

Model Heat Task Force

Philadelphia's excessive heat event notification and response program is a nationally recognized initiative that was developed in response to the health impacts observed during historical heat waves that occurred across the nation. The following are key components of the program that contributed to its success:

- ◇ **Media announcements** that include warnings and risk reduction materials
- ◇ Promote a **community buddy system** through media messaging that encourages community members to check on high risk residents throughout the day during an event
- ◇ Establishment of a **telephone hotline** to handle calls from residents with heat-related questions and concerns
- ◇ **Home visits** by Health Department staff to check on or assist resident's identified through the hotline
- ◇ Agreements with respective utilities to **suspend the shut-off of services** during a high heat period
- ◇ **Increase emergency service** staff during a high heat period to manage the event
- ◇ **Extend outreach to the homeless** to minimize their exposure to severe heat conditions
- ◇ Ensure accessibility of **air-conditioned senior centers and shelters**

Sources:

1. Heat-Related Deaths --- United States, 1999--2003 available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5529a2.htm>
2. Excessive Heat Event Guidebook available at: http://www.epa.gov/hiri/about/pdf/EHEguide_final.pdf



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