

Preparing California for Extreme Heat: Guidance and Recommendations

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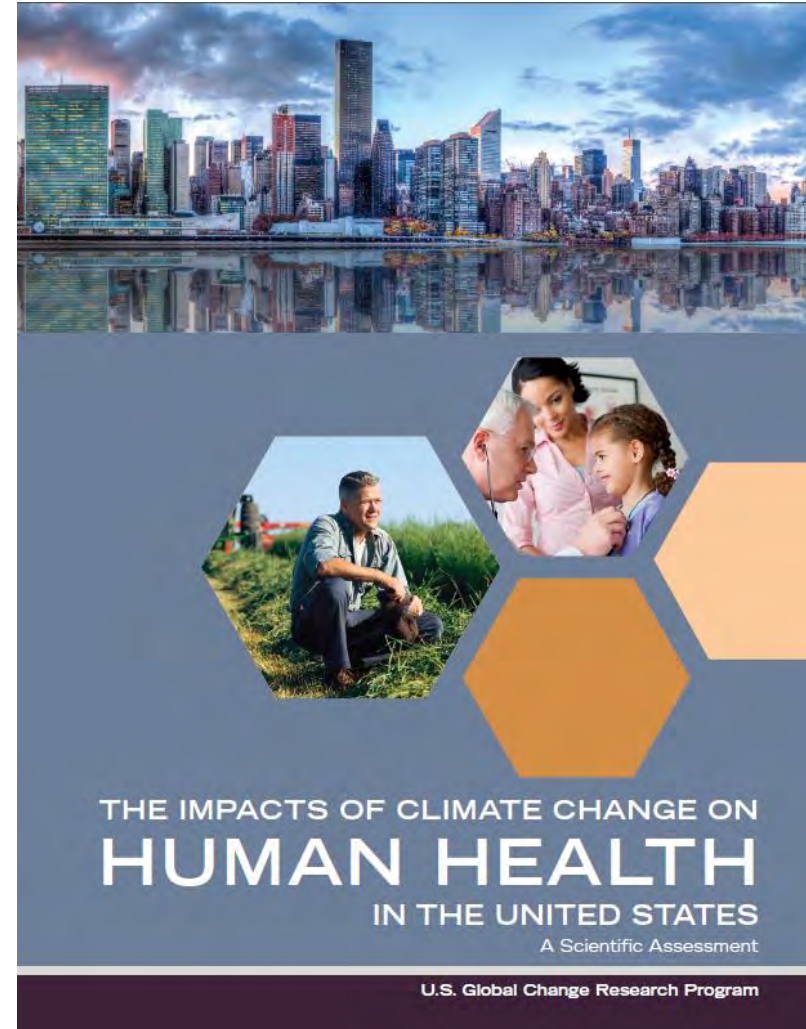
Climate Change & Extreme Heat

The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment

<https://health2016.globalchange.gov/>

Chapter 2: Temperature-Related Death and Illness

<https://health2016.globalchange.gov/temperature-related-death-and-illness>



2 TEMPERATURE-RELATED DEATH AND ILLNESS



- 1) Future increases in temperature – related deaths
- 2) Even small differences from seasonal average temperatures result in illness and death
- 3) Changing tolerance to extreme heat
- 4) Some populations at greater risk

Health Effects from Heat

- Spectrum of heat-related illness
 - Cramps, Heat Exhaustion, Heat Stroke
- Air quality and heat exposure
 - increased respiratory disease burdens
- Air-conditioning dilemma



Photo: climate.gov



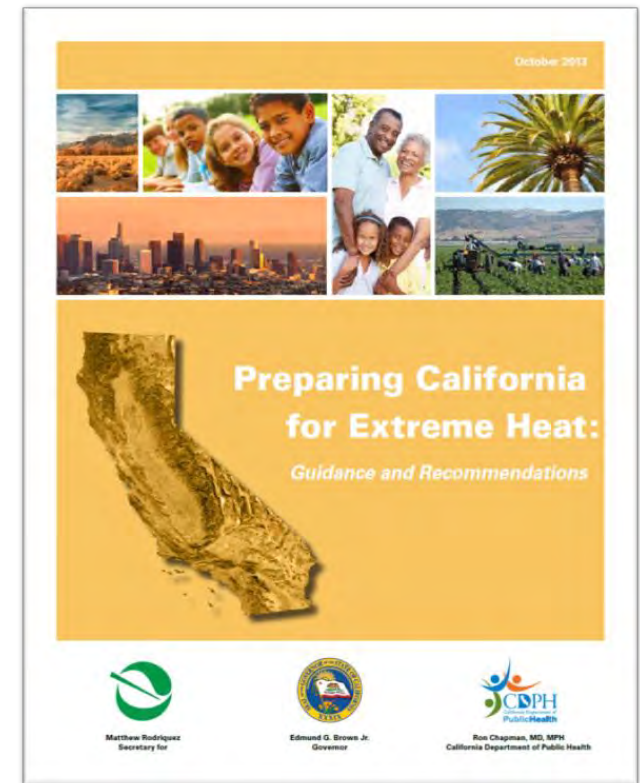
Populations at Risk

- Elderly, particularly elderly over 65 years of age and elderly living alone
- Children, women, infants, and pregnant women
- People with pre-existing chronic health conditions:
 - (e.g., respiratory disease, cardiovascular disease, diabetes, cerebrovascular diseases, respiratory diseases, and acute allergies)
- People who engage in vigorous physical activity including:
 - agricultural and outdoor workers, indoor workers, athletes (especially young athletes), military personnel, and outdoor recreationists
- People with mental or physical disability
- People in cooler areas less acclimatized to heat, with less awareness of ways to reduce exposure, and with housing not designed for warmer conditions
- Residents of urban areas, of the highest floors of apartment buildings, and without air-conditioning
- Some race/ethnic groups, particularly African American race
- People taking certain medications related to specific heart or mental health conditions
- Populations with low socioeconomic status
- Socially or geographically isolated populations



Preparing California for Extreme Heat: Contributing agencies and departments

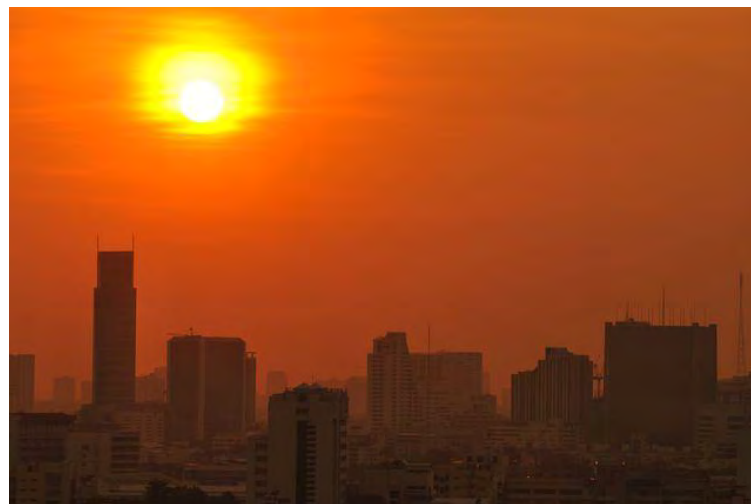
- CDPH and Cal EPA (co-chairs)
- California Air Resources Board (ARB)
- California Department of Forestry and Fire Protection (CAL FIRE)
- California Department of Transportation (Caltrans)
- California Governor's Office of Emergency Services (OES)
- California Energy Commission (CEC)
- California Natural Resources Agency (CNRA)
- Occupational Safety and Health (Cal OSHA)
- Governor's Office of Planning and Research (OPR)
- Office of Environmental Health Hazard Assessment (OEHHA)



• http://www.climatechange.ca.gov/climate_action_team/reports/Preparing_California_for_Extreme_Heat.pdf

Climate Change and Extreme Heat Projections for California

- Events become more intense
- Events will occur more frequently
- Events will last longer
- Seasonality of the events will change
- Events will have a larger geographical extent



Photos: CDC.gov

Health Equity and Heat Islands

- Nationally, African-Americans, Asians and Latinos are more likely than Whites to live in areas where:
 - impervious surfaces cover more than half the ground
 - more than half the population lacks tree canopy.
- These conditions result in greater heat island effect.
- Tend to be the same neighborhoods where residents are:
 - less likely to have air conditioning
 - more likely to have one or more chronic conditions, and
 - less likely to own cars to escape from disasters such as extreme heat



Shonkoff, Morello-Frosch, et al. Climatic Change, 2012

Preparing California for Extreme Heat: Recommendations

- 1) Build heat resilient and cooler communities
- 2) Improve preparedness and response to extreme heat events
- 3) Promote public health and health sector preparedness and readiness
- 4) Assess measures needed to protect workers at risk for extreme heat
- 5) Research needs



Photo: CDC.gov

1) Build heat resilient and cooler communities

- Cool the built environment
- Develop Urban Heat Island Index
- Expand use of cool, porous, or sustainable materials in pavement
- Urban Greening & Green Infrastructure



Photo: Californiareleaf.org



2) Improve Preparedness and Response

- Assess existing heat plans
- Improve heat warning systems
- Improve community resilience for vulnerable populations
- Protect vulnerable populations

CLIMATE CHANGE & EXTREME HEAT

Extreme heat events, or heat waves, are a leading cause of **EXTREME WEATHER-RELATED DEATHS** in the United States and the number of heat-related deaths is rising!

WHO'S AT RISK?

Adults over 65, children under 4, people with existing medical problems such as heart disease, and people without access to air conditioning

WHAT CAN YOU DO?

STAY COOL

- Find an air-conditioned shelter
- Avoid direct sunlight
- Wear lightweight, light-colored clothing
- Take cool showers or baths
- Do not rely on a fan as your primary cooling device

STAY HYDRATED

- Drink more water than usual
- Don't wait until you're thirsty to drink more fluids
- Avoid alcohol or liquids containing high amounts of sugar
- Remind others to drink enough water

STAY INFORMED

- Check local news for extreme heat alerts and safety tips
- Learn the symptoms of heat illness

LEARN MORE!

Visit CDC's Environmental Public Health Tracking Network to learn more about climate change and extreme heat at www.cdc.gov/ephtracking

www.cdc.gov/ephtracking

Logos for the California Department of Public Health and the CDC are included at the bottom.

3) Promote Public Health and Health Sector Preparedness and Resilience

- Increase health sector's extreme heat preparedness and resiliency
- Improve timeliness and completeness of heat illness and death surveillance to understand impact of heat events and guide PH planning and responses.



Photo: CDC.gov

4) Protect Workers at Risk for Extreme Heat

- Evaluate Cal/OSHA's current health illness prevention standard
- Promote coordination to protect workers at risk of extreme heat
- Augment training of employers and workers



Photo: dir.ca.gov

5) Research Needs

- 1) **ID characteristics of heat vulnerable and resilient populations (CDPH)**
- 2) ID heat adaptation strategies with co-benefits (CDPH)
- 3) Research on population acclimatization (CDPH)
- 4) Evaluate non-air conditioning strategies for vulnerable populations
- 5) Evaluate occupational health risks and strategies to reduce risks
- 6) **Assess UHI potential for cities that can be used to evaluate reduction efforts (Cal EPA)**
- 7) **Conduct research to quantify the costs/benefits of higher albedo pavement (ARB, Caltrans)**
- 8) Evaluate the effectiveness of early warning systems geared towards working populations at high risk
- 9) **Perform high resolution tree canopy analysis of the state's urban areas (CALFIRE)**

Thank you

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