

# Office of Environmental Health Hazard Assessment

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## Higher Temperatures Increase Hospitalization for Many Serious Ailments

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SACRAMENTO – Higher temperatures send more Californians to the hospital for serious ailments, with each 10-degree rise linked to an increase of more than 400 percent in hospital admissions for heat stroke, according to a new state study.

Researchers examining the link between temperature and hospital admissions found that rising temperatures also increased the number of residents hospitalized for pneumonia, kidney failure, and dehydration.

“This study demonstrates that climate change has serious implications for public health in California,” said Dr. Joan Denton, director of the Office of Environmental Health Hazard Assessment (OEHHA), which led the research. OEHHA is part of the California Environmental Protection Agency.

“Studying the effects of high temperatures on human health may help California’s hospitals and officials better prepare for heat-related natural disasters,” Denton said.

The study on rising temperatures and hospitalizations is part of OEHHA’s work to assist the Air Resources Board and the California Energy Commission in determining the health impacts of future potential increases in temperature and heat waves.

In addition to the increased hospitalizations for heat stroke, each 10-degree rise in temperature was linked to these rates of increased hospital admissions for other ailments:

- Dehydration (11 percent)
- Kidney failure (7 percent)
- Pneumonia (4 percent)
- Intestinal infections for children between 5 and 18 years old (21 percent)

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California Environmental Protection Agency

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School-aged children were particularly vulnerable to dehydration and intestinal disease. People aged 65 and older had a higher risk of certain types of strokes in hot temperatures. However, most cardiac risks did not increase as temperatures rose.

“Awareness, prevention and hydration will go a long way toward preventing risks to these sensitive populations,” said OEHHA’s Dr. Shelley Green, the lead author of the study. Co-authors included four other scientists from OEHHA and Dr. Janice Kim from the California Department of Public Health.

The study analyzed data from more than 850,000 hospital admissions in nine large counties between 1999 and 2005. The studied counties have a combined population of more than 27 million people.

Scientists compared hospital admissions with temperatures. They also studied U.S. Environmental Protection Agency air quality statistics to control for the effects of air pollution.

The new study of temperatures and hospital admissions is available at <http://www.springerlink.com/content/c463j3774444p78r/fulltext.pdf>.

The research was funded by a grant from the California Energy Commission’s Public Interest Energy Research (PIER) Program, which supports research into energy and climate issues through the state’s Climate Research Institute.

An OEHHA report last year documented that climate change is occurring in California, with effects that include hotter temperatures, more carbon dioxide in the air, and rising sea temperatures.

OEHHA is also a member of the Public Health Workgroup of the state’s Climate Action Team, which is responsible for ensuring that public health impacts are addressed in the state’s programs to reduce greenhouse gas emissions.