

# Climate may increase heat-related deaths by 2050s

**While some uncertainty does exist in climate projections and future health vulnerability, overall increases in heat-related premature mortality are likely by the 2050s, according to a recent study by Columbia University's Mailman School of Public Health and soon to be published in the November 2007 issue of the *American Journal of Public Health*.** In metropolitan New York, researchers estimate a 47 percent to 95 percent increase in summer heat-related deaths when compared to the 1990s.

Recent reports strongly suggest that both emissions and warming trends will continue to affect the atmosphere into the 21st century, with annual average temperatures for the region in the 2050s projected to rise by 2.5 degrees Fahrenheit to 6.5 degrees Fahrenheit, and summer temperature increasing 2.7 degrees Fahrenheit to 7.6 degrees Fahrenheit.

“These new results indicate that climate change will put additional stress on the health of New York residents in the absence of concerted efforts to reduce vulnerability to heat waves,” says Patrick Kinney ScD, associate professor of Environmental Health Sciences at the Mailman School of Public Health, who designed and directed the study.

The research findings also indicate that urban counties will experience greater numbers of deaths than less-urbanized counties. Currently, counties experiencing the hottest summers are the highly urbanized counties in and around New York City, which also have the greatest population density.

Millions of residents are already exposed to periodic summer heat stress, which can lead to increases in heat-related illness and premature deaths. Cities such as New York may be at particular risk from climate change because the “urban heat island effect” further increases regional temperatures, and some communities in densely populated urban centers are among those most vulnerable to heat.

“The relatively large percentage of households who live in poverty or in older residential neighborhoods in New York City where multifamily rental buildings often do not have air conditioning may enhance urban population vulnerability to heat stress,” says Kim Knowlton, DrPH, assistant clinical professor of Environmental Health Sciences, science fellow on global warming and health at the Natural Resources Defense Council, and first author. “Although temperatures are projected to warm considerably in the urban core by the 2050s, our global-to-regional model results suggest that the greatest increases in mean daily temperatures relative to the 1990s will occur in the nonurban counties well beyond the city limits of the five boroughs of New York City.”

The diverse urban population of New York includes millions of residents aged 65 years and older or with cardiovascular or respiratory illness, risk factors that increase vulnerability to summer heat stress. With the aging of the baby boomers, the proportion of the U.S. population aged 65 years and older is expected to increase until 2020, placing additional millions among those most vulnerable to heat stress. “Because this study did not factor in the future growth in population that is projected for New York City and which will expose even more New Yorkers to sweltering summer heat, it can be argued that the population constant method provides a conservative projection of possible future climate-related changes in temperature-related mortality,” noted Dr. Knowlton.

Source: Columbia University's Mailman School of Public Health

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