

## Article Summary

Heat-related morbidity and mortality in New England: Evidence for local policy  
Wellenius et al. Environmental Research, 2017.

### Background

There is a well-documented association between high ambient temperatures (referred to as “heat”) and higher rates of deaths and illness. The association between heat and deaths has been observed in dozens of countries across the world. The association between heat and emergency department visits has been shown repeatedly, although less extensively than for death. Although heat is already a recognized public health concern, the nature of the relationship varies by region, with people in cooler regions often experiencing adverse health effects at lower temperatures. Because of this, public health officials need to base policy decisions on local evidence, which is often lacking for smaller communities and has been specifically lacking in New England.

**Objectives:** To evaluate the association between maximum daily heat index (a metric that combines temperature and humidity) and morbidity and mortality in 15 New England communities (with a combined population of 2.7 million residents) in order to provide actionable evidence for local officials.

**Methods:** We applied sophisticated time-series regression models to evaluate the association between heat index and daily (May-September) emergency department visits and deaths in each of 15 study sites in New Hampshire, Maine, and Rhode Island, controlling for time trends, day of week, and federal holidays. We estimated this association at each of the 15 study sites and then combined these estimates to provide regional estimates.

**Results:** We found that heat index was associated with both the risk of emergency department visits and deaths. For example, a day with a heat index of 95°F compared to 75°F was associated with a 7.5% (95% confidence interval [CI]: 6.5%, 8.5%) higher risk of all-cause emergency department visits, and a 5.1% (95% CI: 0.2%, 10.3%) higher risk of deaths, with some evidence that the magnitude of these associations varies from town to town. We estimate that in the study area, days with a heat index at or above 95°F were associated with an annual average of 784 (95% CI: 658, 908) excess emergency department visits and 22 (95% CI: 3, 39) excess deaths.

**Conclusions:** Our analyses suggest the presence of adverse health impacts associated with heat indices even in the moderate range. We hypothesize that lowering this threshold may lead to substantially reduced heat-related morbidity and mortality in the study area.

**Implications:** Through 2016, the National Weather Service guidelines for issuing a heat advisory in the New England region was a forecast heat index of 100°F or more; heat warnings were issued when the heat index was forecast to meet or exceed 105°F. Subsequent to this research and substantial stakeholder engagement, the regional National Weather Service office has modified the guidelines for issuing heat advisories to include a forecast heat index of 95°F for two or more days, in addition to a forecast heat index of 100°F for any amount of time.