



HeatRisk - CDC/NWS Collaboration

Each year, extreme heat exposure results in numerous deaths and illnesses. As climate change intensifies, extreme heat events are becoming more frequent, more severe, and longer. Issuing alerts and health advisories before or during periods of extreme heat can save lives. These services are supported by weather and health agencies involved in emergency preparedness. Early warning systems and action plans have been shown to reduce risks of heat exposure. Guidance about how to prevent health problems from heat exposure should be built around local epidemiologic evidence, but such evidence is often not available.

CDC and the National Weather Service worked together to identify temperature thresholds and develop an alert service that issues heat forecasts using data and methods that are relevant from a public health perspective. For this effort, we used death data for all 50 states from CDC's National Vital Statistics System to identify a range of temperatures that are associated with deaths. Each year, hot weather results in an average of over 1,220 deaths for which heat is listed as the underlying or a contributing cause in the death certificate. However, these estimates might fail to capture the full spectrum of heat-related deaths, especially if excessive heat is not explicitly documented in death records. So, we used a nationally consistent study design and employed a modeling framework to link heat exposure with all-cause mortality data. This helped us look at heat-attributable deaths across locations with diverse climatology. The methods for this effort are based on a [peer-reviewed study](#) that looked at factors such as temperature ranges, hospitalizations associated with heat, and the effectiveness of existing alert criteria.

National Weather Service integrated health-based temperature thresholds that were provided by CDC with local temperature parameters to devise experimental [HeatRisk](#)—a numeric and a color-coded alert system. HeatRisk is the first multi-tiered framework that applies a consistent approach across different climate regions, incorporates high-resolution climatology and locally-relevant health evidence, and provides decision makers with a heat service that is easy to use and yet appropriate from a public health standpoint. This new alert system highlights the importance of collaborating with multiple stakeholders and across multiple disciplines. It can complement [existing information systems](#) that offer consistent prevention messages for heat through better coordination between weather and public health agencies at multiple geographic levels before, during, and after extreme heat events.