

Heat Vulnerability Index Frequently Asked Questions

What is the Heat Vulnerability Index?

Heat Vulnerability Indices attempt to summarize the most important factors associated with adverse health effects during extreme heat to help identify neighborhoods that are more at risk. The NYC Heat Vulnerability Index (HVI) was developed by researchers at the NYC Health Department and Columbia University, using a statistical model. It uses social and environmental factors to determine the relative risk of NYC neighborhoods for heat-related death during and immediately following extreme heat events.

How is the HVI used?

The purpose of the NYC HVI is to identify neighborhoods with a higher risk for heat-related deaths during extreme heat events. By identifying these higher risk neighborhoods, the City can better direct resources to these communities, including outreach efforts to residents and planting of street trees. For more information about these and other interventions, see the [Cool Neighborhoods NYC Report](#)

What environmental factors are used in the HVI?

The environmental factors used are **daytime summer surface temperature** and **green space**, such as tree, shrub and grass cover. Higher surface temperature and less green space are associated with increased risk of death during heat waves.

What social factors are used in the HVI?

The social factors used are **poverty**, as measured by the percent of people receiving public assistance, and **race**, as measured by the percent of non-Latino Blacks residing in a community. Poor residents are at increased risk for heat-related death at least, in part, because they are less likely to have or use air conditioning because of costs concerns. Additionally, in NYC, non-Latino Black residents are at increased risk of death during heat waves compared to other New Yorkers. While the factors contributing to this increased risk are not entirely understood nor available for analysis, past and current racist policies and systems that result in inequitable distribution of social and economic resources are likely contributors. These systems and policies can contribute to a higher prevalence of health conditions overall that increase risk to heat-related illness and limit access to air conditioning among non-Latino Blacks.

How are these factors related?

These environmental and social factors are inter-related. Racist systems and policies, both intentional and unintentional, have resulted in segregated or neglected communities of color, perpetuating the cycle of poverty. The residents of disadvantaged neighborhoods face greater health challenges and, thus, may be at increased risk for heat-related illness. Similarly, fewer resources for planting and maintaining trees may contribute to higher surface temperatures.

How is the HVI calculated?

Values for each factor in the HVI were standardized by “normalizing” the data so that each factor had an average of zero and a similar variation (standard deviation of 1) between higher and lower scoring neighborhoods. Values for each factor were then added together and the total for each neighborhood was then used to assign a score from 1 (lowest risk) to 5 (highest risk). **A low vulnerability score does not mean no risk.** Every neighborhood has residents at risk for heat illness and death, particularly people who do not have or use air conditioning **AND** are older adults, have chronic health conditions or severe mental illnesses, or live alone.

For more information on the HVI: (<https://www.ncbi.nlm.nih.gov/pubmed/25782056>)

Visit nyc.gov/health/heat to learn about how heat illness affects individuals and how to prevent it.