What is the Heat Vulnerability Index?
The New York City (NYC) Heat Vulnerability Index uses social and environmental factors to understand how the risk for dying during and immediately after an extreme heat event compares across NYC neighborhoods. It is based on a statistical model developed by the NYC Health Department and Columbia University. The model has been improved since its release in 2015 to now include access to air conditioning as a contributing social factor.

What environmental factors are used in the HVI?
The environmental factors used are daytime summer surface temperature (2018 data) and percent of green space, such as tree, shrub and grass cover (2017 data). 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, measured by the percent of people living below the federal poverty level, percent of non-Latinx Blacks residents (2013-2017 data), and access to air-conditioning, as measured by the percent of households that have air conditioning (2017 data).

How does racism impact the environmental and social factors?
Racist systems and policies, both intentional and unintentional, continue to impact the opportunities and resources available to low-income communities and communities of color. These policies can impact both the environmental and social factors that drive heat vulnerability. For example, fewer resources for planting and maintaining trees may lead to higher surface temperatures in communities impacted by racism. Fewer economic opportunities and less access to safe and healthy housing may contribute to a higher percentage of residents unable to afford air conditioning.

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). Please note, a low vulnerability score does not mean no risk. Every neighborhood has residents at risk for heat illness and death, especially people who do not have or use air conditioning AND are older, have chronic health conditions or severe mental illnesses, or live alone.

What are some uses of the HVI?
The HVI can help the City identify and better direct resources to the neighborhoods at higher risk during extreme heat. You can learn more about what the City is doing to address extreme heat and how the HVI is guiding that work at Cool Neighborhoods NYC. Communities can also use the index to advocate for services and resources.

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.