Overview

Research shows that constant heat exposure heavily impacts human health. People age 65 and over are at the highest risk to suffer from heat-related hospitalizations. This project aims to address via a spatial analysis which factors increase the risk of heat-related hospitalizations for older adults living in the Chicago, Illinois Metropolitan Statistical Area.

Methodology

- 45 total heatwaves between January 1st, 1991 and December 31st, 2006
- The 95th percentile temperature was about 88.2 degrees Fahrenheit
- Four factors evaluated in the final Risk assessment: Avg. heatwave temperature over 16 years, percent of population over 65, percent of people living below poverty, and population density
- Raw temperature data from 7 weather stations interpolated for each day for heatwave 43 (May 28th-30th 2006)

Results & Limitations

- Risk Assessment Map Weighted Sum: (0.1*% of People Age 65 & Up) + (0.2*Temperature) + (0.3*Population Density) + (0.4 *% of People Below Poverty)
- People age 65 and plus are more prone to heat-related hospitalizations in areas with a higher population living below poverty and in highly concentrated regions
- This analysis included data for 341 out of the 414 MSA regions
- The heatwave temperature map over 16 years was for 295 MSA regions
- Additional risk factors & impact of first annual heatwave could be further investigated
Overview: Previous research shows that constant heat exposure heavily impacts human health. People age 65 and over are at higher risk to suffer heat-related hospitalizations. This project aims to address which factors increase the risk of heat-related hospitalizations for older adults living in the Chicago, Illinois, Metropolitan Statistical Area.

Methodology
- 45 total heatwaves between January 1, 1991, and December 31, 2006
- The 95th percentile temperature was approximately 88.21 degrees Fahrenheit.
- Average maximum temperature at all the heatwaves from 1991 to 2006 by Zip Code Tabulated Area (ZCTA) is mapped on a Heatwave Temperature Map.
- Four factors evaluated in the final risk assessment: Avg. heatwave temperature over 16 years, percent of population over 65, percent of people living below poverty, and population density.
- Final risk assessment map was a weighted overlay on which factors proved to be most important.

Results & Limitations
- Risk Assessment: Weighted Sum: (0.1*% of People Age 65 & Up) + (0.2*Temperature) + (0.3*Population Density) + (0.4 *% of People Below Poverty)
- Older adults are at more prone to heat-related hospitalizations in areas with a higher population living below poverty and in highly concentrated regions.
- This analysis was able to include data & analysis for 341 out of the 414 MSA regions.
- The heatwave temperature over the 16 years determined for 295 MSA regions.
- The potential for more risk factors to be assessed for a larger scope of this study.

Prepared for use with no known bias to be assessed for a larger scope of this model.