



## **Intra-urban spatial patterns of societal risk and vulnerability to extreme heat**

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A spatial analysis of societal vulnerability and risk to extreme heat was conducted for two urban areas in the U.S.: Phoenix, AZ and Philadelphia, PA. With the goal to identify populations at risk for adverse health outcomes during extreme heat events, so effective and targeted interventions can be implemented, two cities were analyzed in terms of their climatology, environmental and societal characteristics, previous cases of excessive heat impacts, and existing strategies for heat-wave mitigation. Geographic Information Systems (GIS) and spatial statistics were used to identify spatial patterns of biophysical and social factors contributing to the heat-related morbidity and mortality. Analysis presented in this work, expands upon previous univariate ecologic studies and takes a multivariate approach to investigate the relative importance of neighborhood level heat exposure, socio-economic vulnerability and neighborhood stability to heat morbidity or mortality. Combination of social and physical factors allowed for identification of areas and population at risk from excessive heat.