Use of a Community-University Partnership To Examine Exposure and Health Disparities in North Charleston, South Carolina

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Background and Objectives: The Lowcountry Alliance for Model Communities (LAMC), a community-based organization in North Charleston, SC, developed a partnership with USC to study and address local environmental justice and health issues. The objective of this study is to assess spatial disparities in exposure and health for LAMC neighborhoods and other disadvantaged neighborhoods in Metropolitan Charleston.

Methods: Data on the spatial location of U.S. Environmental Protection Agency-regulated facilities and other land uses regulated by the State of South Carolina were obtained. Additional data on air pollution, asthma, diabetes, heart disease, and cancer were obtained from 1998 to 2008 for Metropolitan Charleston. ArcGIS 9.3 was used to map the distribution of facilities, air pollution, and disease rates. Chloropleth maps were created to show the relationship between facility location and demographic composition (percent non-white, percent poverty, percent high school education). SAS 9.2 was used to assess differences in the distribution of pollution-emitting facilities and land uses, pollution levels, and health outcomes at the census tract and census block group levels.

Results: Preliminary analyses have shown that there are spatial disparities in the distribution of environmental hazards and land uses in Metropolitan Charleston based on race and socioeconomic status (SES). In addition, we observe similar disparity patterns for asthma and heart disease in Metropolitan Charleston.

Conclusions: The initial results of the study prove that there are racial/ethnic and SES exposure and health disparities in Metropolitan Charleston. More work needs to be performed to explore the linkages between exposure to hazards and pollution and health disparities.