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Missouri Cancer Clusters: A Spatial and Temporal Analysis of Missouri's County-Level Cancer Data

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1. Background

Cancer incidence can vary widely across geographic regions, and identifying high-incidence areas is essential for targeted public health interventions. Missouri has many diverse populations consisting of varying demographics and environmental factors that influence cancer trends. The University of Kansas Cancer Center's (KUCC) catchment area spans 18 counties in western Missouri; therefore, a spatial analysis of cancer incidence at the county level would improve our understanding of cancer incidence in the state of Missouri.

2. Goals

The project aims to identify spatial and temporal clusters of cancer incidence across Missouri counties. By utilizing SaTScan software, we intend to determine areas with significantly higher or lower incidence rates, setting thresholds for statistical significance at $p < 0.05$.

3. Solutions and Methods

We are utilizing the free software SaTScan to analyze Missouri cancer incidence rate data by county and year. This analysis will utilize spatial scan statistics to detect clusters over time, adjusting for population size and other demographic factors where applicable.

4. Outcomes

This is an ongoing study, and outcomes are expected to be significant clusters of higher or lower cancer incidence by county and year. If potential hotspots are identified in any of the 18 Missouri counties in the KUCC catchment area, we would like to investigate these areas in greater detail.

5. Lessons Learned and Future Directions

Data limitations are the reason we are starting with Missouri first and not Kansas. If this analysis proves beneficial, we would like to make a formal data request to the Kansas registry and perform the same analysis for Kansas counties.

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