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Simulation Study for a Spatial Scan Test Based on Compound Poisson Model

Spatial cluster analysis has been useful in identifying spatial patterns for: organisms in ecology; precipitation in weather modeling; disease mapping in epidemiology; spatial relation in crime analysis. Very often, ‘hot spots’ are sought after to identify locations of unusual high incidence rate. We introduce a spatial scan test that identifies clusters of events in a study region based on a compound Poisson model. A simulation study will be presented to illustrate our method for cluster detection of emergency department visits, where individuals may make multiple visits.