

Hierarchical Models for Spatio-Temporally Correlated Public Health Data

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Abstract

In the past decade, hierarchical Bayesian modeling of geographically referenced data has been greatly abetted by two significant developments in computing: geographic information systems (GISs) for the simultaneous graphical display and summary of the data, and Markov chain Monte Carlo (MCMC) methods for the estimation of relevant posterior quantities. This talk surveys the author's work in this area, illustrated with examples drawn from public health practice. For instance, we will describe one study attempting to relate radon exposure and lung cancer near a former nuclear weapons facility in southwestern Ohio, and another modeling pediatric emergency room (ER) visit counts for asthma as a function of ozone exposure and a range of sociodemographic variables among children in the Atlanta, Georgia metropolitan area.