Yale SCHOOL OF PUBLIC HEALTH
Biostatistics

Presentation

"Bayesian Hierarchical Models for Two-Phase Studies"

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ABSTRACT

This talk concerns the development of Bayesian methods for two-phase studies. Two-phase study designs are appealing from an efficiency perspective since they allow sampling to be concentrated in informative cells. A number of likelihood-based methods have been developed for the analysis of two-phase data, but I describe a Bayesian approach which has previously been unavailable. The benefits of a Bayesian approach include relaxation of the reliance on asymptotic inference, and the potential to model data with complex dependencies, for example through the introduction of random effects. In particular, we are interested in the use of two-phase studies in a spatial epidemiological context where one may wish to acknowledge confounding by location via the introduction of spatial random effects. The methods are illustrated using data collected on Wilms tumour, as well as infant mortality in North Carolina.

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