Statistical and Computational Inference for Complex Multicenter Studies

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Eckhart Hall, Room 110, 5734 S. University Avenue

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ABSTRACT

Large multicenter studies present unique challenges in statistical estimation, in particular with respect to modeling of heterogeneity of effects among study centers. In the context of survival analysis, we present a multiscale hazard methodology which accounts for data censoring and center heterogeneity, while incorporating prior information about the correlation of hazard increments. A second technique, sensitive hypertempering, uses a generalization of simulated tempering to perform sensitivity analysis to prior variance while also encouraging mixing in the posterior space. Two case studies are explored: a multicenter clinical trial of tamoxifen in the treatment of breast cancer, and the reporting delay for AIDS diagnoses in the multicity AIDS Public Information Dataset (APIDS) from the Centers for Disease Control.