SEMINAR

January 8, 2015 at 3:30pm

Sidney Smith Hall, Room 1083

Refreshments will be served at 3:15pm

Case-base methods for studying vaccination safety

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Pooling of controls under nested-case control settings can produce substantial efficiency gains compared to standard time-matched analysis using the Mantel-Haenszel method or conditional logistic regression. In the context of possible adverse effects of early childhood vaccinations, we propose pooling of the information from the controls to estimate the population exposure prevalence as a parametric or nonparametric function of time, and possibly other factors. This function in turn may be used as a plug-in estimate to control for confounding in the subsequent estimation of rate ratios. We derive standard errors for the resulting two-step estimators, demonstrate through simulations the efficiency gains compared to standard matched analysis, and propose a novel graphical presentation of the vaccination and adverse event time data. We formulate the methods in the general framework of case-base sampling, which subsumes the different case-control and case-only methods.