

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, December 7, 2004
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Adjusting for Non-compliance in the Proportional Hazards Model

Abstract:

Methods for adjusting for non-compliance and contamination which respect the randomisation, are extended from binary outcomes to time-to-event analyses using a proportional hazards model. A simple non-iterative method is developed when there are no covariates, which is a generalisation of the Mantel-Haenszel estimator. More generally, a ‘partial likelihood’ is developed which accommodates covariates under the assumption they are independent of non-compliance. A key feature is that the proportion of contaminators and non-compliers in the risk set is updated at each failure time. When covariates are not independent of compliance, a full likelihood is developed and explored, but this leads to a complex estimator. Estimating equations and information matrices are derived for these estimators and evaluated by simulation studies.