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SPEAKER TITLES/ABSTRACT

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“When are PH, AFT and PO Models not Adequate for Health Risk Assessment?”

In many clinical applications of health risk assessments using survival analysis, the commonly used semiparametric models, e.g., proportional hazards (PH), proportional odds (PO), accelerated failure time (AFT) etc. may turn out to be stringent and unrealistic, particularly when there is scientific background to believe that survival curves under different covariate combinations will cross during the study period. This talk presents an overview of various classes of nonparametric regression model for the conditional hazard function. In particular, a relatively new methodology is presented that has three key features: (i) the smooth estimator of the conditional hazard rate is shown to be a unique solution of a strictly convex optimization problem for a wide range of applications; making it computationally attractive, (ii) the model is shown to encompass a proportional hazards structure, and (iii) large sample properties including consistency and convergence rates are established under a set of mild regularity conditions. Empirical results based on several simulated data scenarios indicate that the proposed model has reasonably robust performance compared to other semiparametric models particularly when such semiparametric modeling assumptions are violated.