Bayesian Analysis of Survival Data with Missing Censoring Indicators

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Abstract: In some large clinical studies, it may be impractical to perform the physical examination to every subject at his/her last monitoring time in order to diagnose the occurrence of the event of interest. This gives rise to survival data with missing censoring indicators where the probability of missing may depend on time of last monitoring and some covariates. We present a fully Bayesian semi-parametric method for such survival data to estimate regression parameters of Cox's proportional hazards model (Cox, 1972). Theoretical investigation and simulation studies show that our method performs better than competing methods. We apply the proposed method to data from the Orofacial Pain: Prospective Evaluation and Risk Assessment (OPPERA) study.