

Optimizing personalized intervention from the aspect of health economics

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Abstract: It is widely recognized that treatments often have substantially different effects across a population. Many statistical methods have recently been developed for identifying subgroups of patients who may benefit from different available treatments. Cost-effectiveness analysis (CEA) is an important component of the economic evaluation of new treatment options. In many clinical studies of costs, censored data pose challenges to the CEA. Due to the induced dependent censoring problem, standard survival analysis techniques are often invalid for censored costs. We propose a method for estimating individualized treatment benefits and costs with censored data, which would provide a tool for physicians and patients to make decisions based on personal characteristics and preference on benefit-cost tradeoff. Our method bypasses the modelling of main effect, and hence involves minimum modeling for the relationship between the outcome and covariates pertinent to measuring individual treatment benefit-cost tradeoff. We then conducted numerical studies to evaluate the performance of proposed method.