

Relative Risk Survival Tree Analysis Using TARGET

Guangzhe FAN, *University of Waterloo, Canada*, E-mail: gfan@uwaterloo.ca
J. Brian Gray, *The University of Alabama, USA*

KEY WORDS: CART, counting process, Cox model, genetic algorithm, decision tree, stochastic search

Abstract: We propose a relative risk survival tree model using TARGET- Tree Analysis with Randomly Generated and Evolved Trees, which is essentially a genetic algorithm stochastic search. The TARGET method improves on the traditional tree model using the CART recursive partitioning algorithm. Likelihood and BIC are used in model selection. Simulation studies and real data sets are used to illustrate the proposed approach. The results suggest that TARGET has advantage in more fully searching the tree space than the traditional method and provide solutions that are generally more accurate and easier to interpret.