Predicting τ -year Residual Life with Longitudinal Markers

by

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Abstract

Suppose we are interested in predicting the residual life for a future patient with a marker measurement, conditioning on that the patient is still alive at the measurement time. The common approach is to impose a statistical model describing the joint probability distribution of the survival time and the time-dependent marker measurement levels prior to the event. However, the associated estimation and statistical inference for such model remains to be difficult and cumbersome due to the complexity of the model specification. In this talk, we will propose a simple and robust approach to construct and evaluate the prediction rule based on a panel of biomarkers without requiring the correct model specification on the dynamic relationship between the survival time and biomarker level. We will also clarify the appropriate interpretation for the estimable prediction accuracy.