

Estimating Survival Chances based on data of the Hungarian Cancer Register

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Abstract

While in the USA two of three humans never get cancer, in Hungary two in three persons is struck by neoplasm at one time or another. Tumors have many predictive characteristics: the site of the disease where it was originally recognized, the histological identity of the tumor itself which may be rather different from the tissue of the tumor site, the diagnostic examination which recognized the malignant malformation, the extent of malformation, the gender and age of the patient, the county where the patient lives and the type of treatments. All of these explanatory variables may effect the time of possible death/survival following detection. In survival literature of multifactorial analysis individual survival curves are described eventually with a single parameter combining all cases parallel. The most commonly used model is the Cox model. However in our data set we will show that none of the usual and known models are applicable and we propose a novel stochastic model which is able to handle cases with constant hazard rate and rapidly decreasing ones simultaneously. With the help of this method we estimated survival chances in 189,026 tumor cases, recognized between 2001 and 2006 in Hungary and recorded by the Hungarian National Cancer Registry (HNCR).