Neural and statistical predictors for time to readmission in emergency departments: A case study

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© 2019 The prediction of readmissions in the healthcare system, i.e. patients that are discharged and come back in a short interval of time, has taken great importance as readmissions have been taken as a measure of the system quality of service. Most studies in the literature follow a classification approach predicting the occurrence of the readmission event, however in this paper we are concerned with the prediction of the time until readmission, which can be studied in the framework of survival analysis. We report the performance of several neural and statistical prediction models on a large real dataset, finding approaches (weighted k-NN and regression tree based rule system) which provide a smooth approximation of the observed survival function, thus encouraging further research in this direction.