McGill

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Dear Editors,

We are pleased to submit a manuscript titled "casebase: An Alternative Framework For Survival Analysis and Comparison of Event Rates" for consideration by the R Journal. This work describes a very flexible toolkit for parametric survival models using the `casebase` R package.

In a 2009 publication, Hanley & Miettinen explained how parametric hazard functions can be estimated using logistic regression. Their approach is based on the idea of case-base sampling: sample two series of discrete person-moments from the study base and compare their covariate profiles. Their approach naturally leads to estimates of the cumulative incidence that are smooth-in-time, which makes them easier to interpret for clinicians and patients. Our package builds on those ideas to provide an intuitive interface to a full complement of modeling functions and data visualization tools.

We believe our paper is suitable for the *Add-on packages* category as it introduces a novel and practical way to analyze and visualize survival data in R. The manuscript describes the case-base methodology and provide some intuition behind the theory. We also provide an extensive review of similar R packages for survival analysis and describe where `casebase` fits within this ecosystem. We describe how the main functions in the package fit into a cohesive toolkit. Through three unique case studies, we show how `casebase` can be used in the context of competing risks, variable selection, and time-varying covariates. The article is completed by a discussion of the results and of future directions.

We have chosen to submit this manuscript to the R Journal since we believe the broad readership of your journal, particularly those with an interest in survival analysis, can benefit from a discussion of our package and its features.

This work has been presented at several conferences in North America and Europe, where it has garnered significant interest from both statisticians and epidemiologists. However, the manuscript is not being considered for publication by any other journal. We have posted a pre-print on arXiv. We have also provided a reproducible R Markdown file of the paper with our submission.

We look forward to hearing from you, and note further that none of the authors has a competing interest to declare.

Sincerely,

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