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Title: **User-friendly software for Bayesian analysis of medical data**

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Abstract:

The American Statistical Association officially warned against the built-in flaws and misuse of p-values, and decreed that the notion of "statistical significance" should no longer be used because misleading. Besides this authoritative injunction, there are many reasons to abandon p-values and other sampling-theory-based methods in Medicine. The methods of nonparametric Bayesian theory, for example, are mathematically guaranteed to be free from inconsistencies, work in all situations without needing "corrections" (cf "Bonferroni", "Sheppard", and other corrections in sampling theory), and provide more detailed, quantitative, nuanced, easily interpretable predictions – all paramount qualities in the medical field. Abandoning "statistical significance" means not only using different maths, but also asking different and more relevant kinds of question.

Unfortunately there is no clinician-friendly software for applying and understanding Bayesian theory in Medicine. Simpler existing programs use specialized assumptions with limited applications, while more powerful programs require the user to have substantial mathematical knowledge of the theory.

To fill this gap we are developing clinician-friendly yet powerful software to perform nonparametric Bayesian analysis of (non-imaging) medical data, targeting these features:

- The maths is taken care of under the hood
- The software suggests meaningful questions to ask (in line with ASA's statement)
- Works with continuous and categorical variables

We are already using a prototype version of such software for drug-discovery research, and would be extremely happy if MMIV researchers wanted to test the software and help us improve and tailor it to their needs!

(Bibliography: [ASA Statement on Statistical Significance and P-Values](#), [Moving to a World Beyond "p < 0.05"](#), [Bayesian Nonparametrics](#), [Nonparametric Bayesian inference](#))