A Capitalized Title: Something about a Package foo

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Abstract

For a estimation of the infectiveness under the assumption of mathematical model, either of the basic reproduction number which is an estimate of the number of secondary infected persons from one infected patient or the secondary infection risk (SIR) with exposure of one infected patient in small-scale groups such as house and school is frequently employed. Longini and Koopman proposed an infectious disease mathematical model (L-K model) which estimating an infection risk from distribution of the number of infected patients in the home within one season. There are two parameters, B and Q, which should be estimated in this model, 1-B can be interpreted medically as the infection probability from a community, and 1-Q as the household secondary attack rate which is an index of SIR. Although a previous paper described the estimation method for these parameters in an epidemiological observation study, the statistical test method for the clinical trial which compares two intervention groups was not studied. In order to show the efficacy of the medical agent under development, it is necessary to plan, carry out and conduct data-analysis of the clinical trial however, the calculation of the required number of subjects is impossible without the appropriate test method. Then, the parameter estimation method was extended, and the test method for the difference of Q between 2 groups in this L-K model was newly developed. The developed tests were derived from the framework of the statistical test method for the likelihood based-model called a –likelihood ratio test–, –Wald test–, and –score test–. The computational procedure was packed into the computer program and the parameter was estimated from the data in the previous paper. As a result, the calculation result described in the paper was reproduced. Moreover, the number of subjects in a clinical trial was estimated from Monte Carlo simulation using the developed test method, and the reasonable results were obtained. It is thought that the developed statistical test method has progressivity in respect of the method which was not considered.

Keywords: keywords, not capitalized, Java.

1. Introduction

This template demonstrates some of the basic latex you'll need to know to create a JSS article.

1.1. Code formatting

Don't use markdown, instead use the more precise latex commands:

- `Java`

- **plyr**

- `print("abc")`

2. R code

Can be inserted in regular R markdown blocks.

```
R> x <- 1:10
R> x
```

```
 [1]  1  2  3  4  5  6  7  8  9 10
```

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