

Durham/Newcastle Statistics Graduate Course
Design of Experiments
March 2012

Exercise Sheet 4

The R workspace `rctdata.Rdata`, available from the website of the course, contains the data from a randomized clinical trial. The variable `y` contains the outcome variable, which is the number of clinic visits needed to clear a given skin disease. The variable `Rx` indicates which of the two treatments was allocated (two wavelengths of light) and `plaque` classifies patients into one of two strata, namely those whose disease presents with large or small plaques. It may be that it is more difficult to treat patients with one type of plaque than with the other type.

- Q1** Perform a randomization test of the null hypothesis that the treatment has no effect. What constraint, if any, do you think you should apply?
- Q2** Tabulate the data by treatment and plaque size. What does this suggest about the way the randomization was performed. Perform a new test, taking into account this observation.