

Statistics 538  
Homework 02  
Due January 24, 12:00pm

Thirty melanoma patients (stages 2 to 4) were studied to compare the immunotherapies BCG (*Bacillus Calmette-Guerin*) and *Corynebacterium parvum* for their abilities to prolong remission duration and survival time. The age, gender, disease stage, treatment received, remission duration (months), and survival time (months) are provided in the file “melanoma.csv”. All the patients were resected before treatment began and thus had no evidence of melanoma at the time of first treatment.

Note that in the data file, gender=1 corresponds to males and gender=2 corresponds to females. Also, treatment=1 corresponds to BCG and treatment=2 corresponds to *C. parvum*.

1. Plot the estimated survival functions (KM) for “remission duration” in R for the two treatment groups separately (but on the same plot). Distinguish between treatment types using either line type differences or line color differences. Remember to include a plot title, axis labels, and a legend within the plot.

2. Do the same for “survival time”.

The final write-up should be in either pdf or Word format and should include both a brief introduction (describing the data) and a summary, consisting of comments on the results.

Code utilized to generate the plot should be included as a separate file.

3. Plot the estimated survival functions (KM) in SAS for the entire population for both outcomes. That is, provide two plots, each with a single survival curve for the entire group. No write-up is necessary. Code should be included as a separate file.