

615 Project Proposal

Miriam Hu and Naichen Ni (Group 12)

November 1, 2019

We will focus on the R package Comorbidity[1], which computes Charlson comorbidity scores[2] based on ICD-9 or ICD-10 diagnosis codes[3]. The problem of this package is that the Charlson comorbidity index includes the comorbid conditions cancer and metastatic cancer. Thus, for studies looking primarily at cancer patients, this score is not that accurate. The National Cancer Institute (NCI) has developed the NCI Comorbidity Index[4], which includes just 14 of the Charlson index diseases (excludes cancer) and uses different weighting. We want to implement **an innovative method to calculate the NCI Comorbidity Index, which does not already have a package in R.** We plan to optimize the calculations by using sparse matrix methods, since the matrix of comorbid diseases will be sparse.

References

- [1] R package “comorbidity”
- [2] Original Charlson comorbidity index paper
- [3] International Classification of Diseases (ICD) codes
- [4] NCI Comorbidity Index