BIOS6643. L14 Review exercises

Question 1. Models for Beta Carotene Data

Using the Beta carotene dataset, answer the following questions using a mixed model with no random effects but an unstructure covariance R.

a. Estimate the mean response (beta carotene level) at all weeks in Roche (group2) and BASF 30mg (group 3).

b. Test for an interaction between Roche (group2) and BASF 30mg (group 3).

c. Test the hypothesis that the 4 groups differ at 6 weeks

```
## import data beta
beta <- read.csv("../data/beta_carotene_univar.csv",
                 header=TRUE)
head(beta,3)
```

```
##   Prepar Id   y time
## 1      1 71 116    0
## 2      1 71 174    6
## 3      1 71 178    8
```

```
names(beta) <- c("prepar", "id", "y", "time")
#  mutate(time = as.integer(time))
```

Question 2. Models for Stepped Care Data

STEPPED-CARE randomized trial

The dataset we will use in class resembles the trial.

- A behavioral intervention was tested versus usual care in 286 patients with lung or head and neck cancer.

- Population: low income patients in the Denver area across 5 hospitals
- Primary outcomes: anxiety, depression and coping skills scores
- Outcomes were measured at baseline, and at 6, 12 and 24 weeks

Consider the stepped care data. Use a linear mixed model with time as continuous variable and random intercepts and random slopes. Assume there are no differences in coping self-efficacy score (CSES) at baseline.

a. Estimate the mean CSES at 6 weeks for both intervention groups.

b. Estimate the mean CSES difference at 6 weeks.

c. Test the hypothesis that the mean difference 12 weeks - baseline differs across the two treatment groups.

```
# Read in data
dat.step <- read.csv("../data/stepped-care-class.csv", header=TRUE)

head(dat.step, 3)
```

```
##   id time   treat time6 time12 time24     cops
## 1  1    0 control     0      0      0 83.26686
## 2  1    6 control     1      0      0 81.52480
## 3  1   12 control     0      1      0 88.36082
```