**Question 3**:  **Using multi-level modeling, calculate the expected length of stay for the clinician and peer group, after removing the effects of previous Myocardial Infarction (MI) and Congestive Heart Failure (CHF).  Compare the performance of the clincian to the peer provider using the intercepts estimated for each group.**

##Create subsets of data for each practitioner (clinician and peer)

sub1 = subset(Clinician, Patients=="CP")

sub2 = subset(Clinician, Patients=="PP")

##Regress Length of Stay [,4] on MI [,2] and CHF[,3]

p1 =lm(sub1[,6] ~., data = sub1[, (3:5)])

p2 =lm(sub2[,6] ~., data = sub2[, (3:5)])

##Get Intercepts from P1(cp) and P2(pp)

intcp1 = coef(p1)[1]

intcp2 = coef(p2)[1]

##Call the function

intcp1

intcp2

##> intcp1 (Intercept) 4

##> intcp2 (Intercept) 4

#combine intercepts as a new variable

center.incpts= rbind(intcp1, intcp2)

There appears to be no significant difference for the length of stay for peer and clinician. Both have an average of 4 days. Therefore we do not need to preform a 2nd level regression.