

#Random effects model combining study- and arm-based summaries

```
model{
  for (i in 1:N.trial){
    prec[i]<- 1/var[i]          #Precision of differences = 1/var
    diff[i]~dnorm(delta[i],prec[i]) #Likelihood for mean differences between
arms

    delta[i]~dnorm(md[i],tau)   #Random effects model for delta's
    md[i]<- d[t.trial[i]] - d[b.trial[i]] #Define functional parameters for t[i] vs
b[i]

    # dev2[i] <- (diff[i]-delta[N.arm+i])*(diff[i]-delta[N.arm+i])/var[i]}
  # sumdev2 <- sum(dev2[1:N.trial])
}
```

```
dev2[i] <- (diff[i]-delta[i])*(diff[i]-delta[i])/var[i]}
sumdev2 <- sum(dev2[1:N.trial])
```

```
for(i in 1:N.arm){
  prec.y[i]<- n[i]/(sd[i]*sd[i])
  y[i] ~ dnorm(my[i],prec.y[i])
  my[i]<-mu[s[i]]+ delta[i+N.trial]*(1-equals(t.arm[i],b.arm[i]))
}
```

#Random effects model for treatment effects

```
delta[i+N.trial] ~ dnorm(md[i+N.trial],tau)
md[i+N.trial] <- d[t.arm[i]] - d[b.arm[i]]
```

```
  # dev[i] <- (y[i]-my[i])*(y[i]-my[i])*prec.y[i]      }
# sumdev <- sum(dev[1:N.arm])
```

```
  dev[i] <- (y[i]-my[i])*(y[i]-my[i])*prec.y[i]      }
sumdev <- sum(dev[1:N.arm])
```

```
tot.sumdev <- sumdev + sumdev2
```

```
for(j in 2:54){ mu[j]~dnorm(0,.0001)}
```

```
d[1]<-0
```

```
for (k in 2:NT) {d[k] ~ dnorm(0,.00001) } # vague priors for basic
```

parameters

```
sd.d~dunif(0,50)
```

```
# vague prior for random effects sd
```

```
tau<-1/pow(sd.d,2)
```

```
tau.squared <- sd.d*sd.d
```

```
# Ranking and prob{treatment k is best}
  for (k in 1:NT) {
    rk[k]<- rank(d[,k])
    best[k]<-equals(rk[k],1)
  }

# pairwise mean difference comparisons
for (c in 1:(NT-1)) { for (k in (c+1):NT) { SMD[c,k] <- (d[k] - d[c] ) } }

}
```