```
#Random effects model for multi-arm trials
model{
for(i in 1:NS){
        w[i,1] <-0
              delta[i,t[i,1]]<-0
              mu[i] ~ dnorm(0,.0001)            # vague priors for 65 study baselines
              for (k in 1:na[i])  {
                    r[i,k] ~ dbin(p[i,t[i,k]],n[i,k])   # binomial likelihood
                                logit(p[i,t[i,k]])<-mu[i] + delta[i,t[i,k]]
            rhat[i,k] <- p[i,t[i,k]] * n[i,k]
          dev[i,k] <- 2*(r[i,k] * (log(r[i,k]/rhat[i,k])) + (n[i,k]-r[i,k]) * (log((n[i,k]-r[i,k])/(n[i,k]-
rhat[i,k]))))
                                                }
                    sumdev[i] <- sum(dev[i,1:na[i]])

# model
                     for (k in 2:na[i]) {
              delta[i,t[i,k]] ~ dnorm(md[i,t[i,k]],taud[i,t[i,k]])  # trial-specific LOR
                                                                    distributions
              md[i,t[i,k]] <-  d[t[i,k]] - d[t[i,1]]  + sw[i,k]       # mean of LOR distributions
               taud[i,t[i,k]] <- tau *2*(k-1)/k                      #precision of LOR distributions
               w[i,k] <- (delta[i,t[i,k]]  - d[t[i,k]] + d[t[i,1]])    #adjustment, multi-arm RCTs
                 sw[i,k] <-sum(w[i,1:k-1])/(k-1) }            # cumulative adjustment for multi-
                                                                    arm trials
  }
ssumdev <-sum(sumdev[])
d[1]<-0
for (k in 2:NT){d[k] ~ dnorm(0,.0001) }     #  vague priors for basic parameters

sd~dunif(0,2)                                #  vague prior for random effects standard
deviation
tau<-1/pow(sd,2)
tau.squared <- sd*sd


# Absolute log odds(success) on Treatment A,  based on a separate model on the
#  30 studies Treatment A arms.
mA ~ dnorm(-0.476, 40.076)
# Absolute pr(success) Treatments B,C,D based on T[1] and the
#   MEAN  Relative treatment effects
for (k in 1:NT)   { logit(T[k])<- mA  +d[k] }


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

```
# pairwise ORs
for (c in 1:(NT-1))
        {  for (k in (c+1):NT)
              {  lor[c,k] <- d[k] - d[c]
                 log(or[c,k]) <- lor[c,k]
              }
         }

}
```