

Supplementary Material 1

BYM modeling code

```
model {  
  
    # Likelihood  
    for (i in 1 : N) {  
        O[i] ~ dpois(mu[i])  
        log(mu[i]) <- log(E[i]) + alpha0 + b[i] +h[i]  
        # Area-specific relative risk (for maps)  
        RR[i] <- exp(alpha0 + b[i]+h[i])  
  
# Exchangeable prior on unstructured random effects  
        h[i] ~ dnorm(0, tau.h)  
    }  
    # CAR prior distribution for random effects:  
    b[1:N] ~ car.normal(adj[], weights[], num[], tau.b)  
    for(k in 1:sumNumNeigh) {  
        weights[k] <- 1  
    }  
  
    # Other priors:  
    alpha0 ~ dflat()  
    tau.b ~ dgamma(0.5, 0.005) # prior on  
precision  
    sigma.b <- sqrt(1 / tau.b) # standard deviation  
    tau.h ~ dgamma(0.01, 0.01) # prior on precision  
    sigma.h <- sqrt(1 / tau.h) # standard deviation  
}
```