

Definitions

θ_j	Adverse event rate (log-scale)
r_j	Number of adverse events
t_j	Strata follow-up time
p_j	Prior exchangeability probability

Likelihood

$$r_j \sim \text{Poisson}(\exp(\theta_j + \log(t_j)))$$

p_j

EX

$$\theta_j \sim \text{Normal}(\mu_1, \tau_1)$$

$1 - p_j$

NEX

$$\theta_j \sim \text{Normal}(\mu_j, \tau_j)$$

$$\mu_1 \sim \text{Normal}(m_\mu, s_\mu)$$

$$\tau_1 \sim \text{Half-Normal}(m_\tau, s_\tau)$$