

Infected
(I)

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graph LR; I[Infected I] --> D[Dead D]; I --> R[Recovered R]; ED[Epidemic Data] --> D_prob["Y_t^D ~ Poisson(mu_t^D)  
log(mu_t^D) = beta_t^D + alpha_t^D log(I_{t-delta})"]; ED --> R_prob["Y_t^R ~ Poisson(mu_t^R)  
mu_t^R = nu_t^R log(I_{t-delta'})"];
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Dead
(D)

$$Y_t^D \sim \text{Poisson}(\mu_t^D)$$
$$\log(\mu_t^D) = \beta_t^D + \alpha_t^D \log(I_{t-\delta})$$

Epidemic Data

Recovered
(R)

$$Y_t^R \sim \text{Poisson}(\mu_t^R)$$
$$\mu_t^R = \nu_t^R \log(I_{t-\delta'})$$