

Parameter	Definition	Prior distribution
ϕ_1	Overdispersion parameter cases	$HC(\alpha = 25)$
ϕ_2	Overdispersion parameter deaths	$HC(\alpha = 25)$
$E(0)$	Number of exposed individuals at time 0	$U(0,1)$
ϕ	Case fatality ratio	$Beta(\alpha = 10, \beta = 10)$
ρ	Underreporting rate	$N(\mu = \frac{1}{3}, \delta = 0.1); \text{truncated}(0,1)$
R_0	Reproduction number 1st time period	$U(0,10)$
r_i	Changes in reproduction number	$U(-2,2)$

Table S1: Prior distributions.