|  |  |  |
| --- | --- | --- |
|  | **Scenario one** | **Scenario two** |
| **Target features** | **Prevalence at times 50 & 75** | **Prevalence at times 50 & 75 + peak prevalence** |
| **Targets used** | **Prev. at 50 = 0.644 (644 out of 1000)**  **Prev. at 75 = 0.404 (404 out of 1000)** | **Prev. at 50 = 0.622 (622 out of 1000)**  **Prev. at 75 = 0.371 (371 out of 1000)**  **Peak prev. = 0.677 (677 out of 1000)** |
| **Number of simulations** | **60,000** | **75,000** |
| **Parameters used to generate targets** | **Beta = 0.2**  **Gamma = 0.02** | **Beta = 0.2**  **Gamma = 0.02** |
| **Initial compartmental values** | **S = 990**  **I = 10**  **R = 0** | **S = 990**  **I = 10**  **R = 0** |
| **Time span** | **Sequence from 0 to75 incremented by 1** | **Sequence from 0 to75 incremented by 1** |
| **Beta prior** | **Uniform distribution (0,1)** | **Uniform distribution (0,1)** |
| **Gamma prior** | **Uniform distribution (0,0.5)** | **Uniform distribution (0,0.5)** |

**Simulation model (sample code):**

**library(SimInf)**

**modelforABC = function(parameters,**

**tspan = seq(0,75, by=1),**

**targetTimes = c(50,75),**

**peakPrevalence = F){ # logical**

**u0 = data.frame(S = c(990), # initial compartmental values**

**I = c(10),**

**R = c(0))**

**model <- SIR(u0,**

**tspan = seq(1,75,by=1),**

**beta = parameters[1],**

**gamma = parameters[2])**

**result <- run(model, threads = 1)**

**prev <- prevalence(result, I~.)**

**targs <- prev[targetTimes,2]**

**if (peakPrevalence){return(c(targs,max(prev[,2])))}**

**else(return(targs))**

**}**