Pseudocode outline of the simulation algorithm:

**input** contact network $G$, transmission rate $\beta$, average infectious period $\tau_I$, number of initially infected nodes $I_0$, payoff parameters $a, b, c, d, e, f, g, h$.

**initialize** state of all nodes as susceptible

**draw** $I_0$ nodes at random and set their state to infected

**compute** the no. of nodes with states susceptible ($S$), infected ($I$), recovered ($R$), vaccinated ($V$)

while $I$ not equal to 0

- **compute** $f_p$ and $f_i$ for each agent
- **compute** $U_{uv}, U_{vv}, U_{vn}, U_{nn}$ for each agent
- **label** all possible events [infection ($S \rightarrow I$), recovery ($I \rightarrow R$), vaccination ($S \rightarrow V$)] that can take place in the current round
- **compute** the propensities for each event: $P(S \rightarrow I)$, $P(I \rightarrow R)$, $P(S \rightarrow V)$
- **call** random number generator
- **compute** the time interval $\delta t$ between the current and the subsequent event
- **call** random number generator
- **determine** the next event $E$ based on propensities
- **update** $t \rightarrow t + \delta t$
- **perform** the event $E$
- **update** the no. of nodes with states $S, I, R, V$

**output** cumulative number of infected and vaccinated nodes in the network.