Generalized S-I-R model

1   Equations

These are the equations for the model:

$$\frac{dS_1}{dt} =$$

$$\frac{dE_1}{dt} = -nu_1 E_1 +$$

$$\frac{dI_{pre1}}{dt} = -gamma_1 I_{pre1} + gamma_1 E_1$$

$$\frac{dI_{symps1}}{dt} = -gamma_1 I_{symps1} + gamma_1 I_{pre1}$$

$$\frac{dI_{sympm1}}{dt} = -gamma_1 I_{sympm1} + gamma_1 I_{pre1}$$

$$\frac{dI_{asymp1}}{dt} = -gamma_1 I_{asymp1} + gamma_1 I_{pre1}$$

$$\frac{dHOSP_{m1}}{dt} = -theta_1 HOSP_{m1} + theta_1 I_{sympm1}$$

$$\frac{dHOSP_{s1}}{dt} = -theta_1 HOSP_{s1} + theta_1 I_{symps1}$$

$$\frac{dR_1}{dt} = mu_1 S_1 + nu_1 - nu_1 E_1 - nu_1 omega_1 R_1 +$$
$$nu_1 - nu_1 E_1 - nu_1 - omega_1 R_1 + omega_1 I_{symps1} omega_1 I_{sympm1}$$
$$omega_1 I_{asymp1} omega_1 HOSP_{m1} omega_1 HOSP_{s1}$$