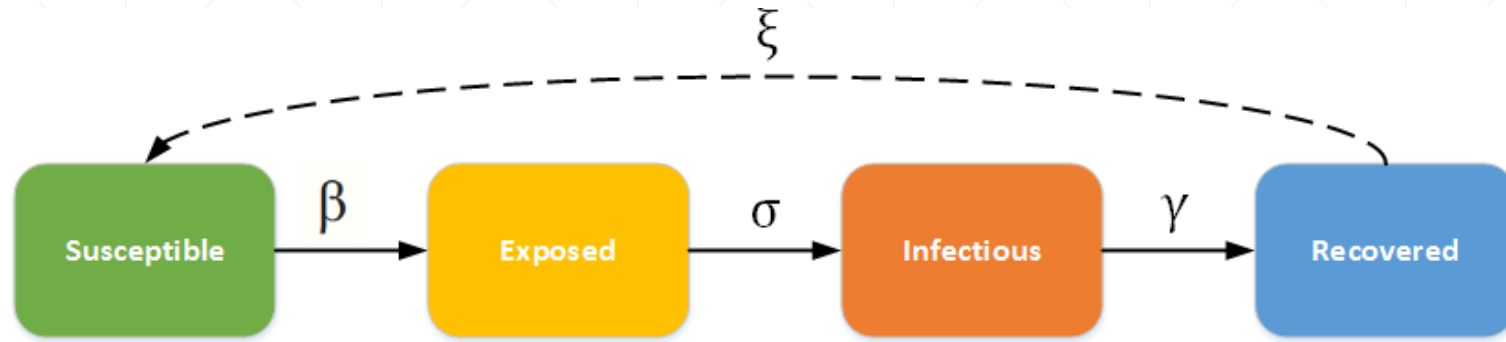# SEIR Model

$$\frac{dS}{dt} = -\frac{\beta SI}{N}$$

$$\frac{dE}{dt} = \frac{\beta SI}{N} - \sigma E$$

$$\frac{dI}{dt} = \sigma E - \gamma I$$

$$\frac{dR}{dt} = \gamma I$$

β – infectious rate;
σ – incubation rate;
γ – recovery rate;
ξ – rate of recovered return to the susceptible
(loss of immunity);
$N = S + E + I + R$ – total population