
Parameter Glossary

N	Total population size.
X, W, Y, Z	Number of susceptible, exposed, infectious, and recovered individuals.
X_A, Y_A etc	Number of susceptible, infectious individuals who also belong to class/species/population A . (Chapters 3 and 4)
S, E, I, R	Proportion of population that are susceptible, exposed, infectious, and recovered. ($S = X/N$, etc).
n_A	Proportion of entire population that belong to class A . (Chapter 3)
S_A, I_A	S_A is the proportion of the entire population that belongs to both the susceptible class and to class A . I_A is similarly defined (Chapters 3)
β	Transmission rate of infection.
β_{AB}	Transmission rate of infection to class/species A from class/species B . (Chapters 3 and 4)
γ	Recovery rate. $1/\gamma$ is the infectious period.
σ	Rate of moving from exposed to infectious class. $1/\sigma$ is the latent period.
μ	Natural per capita death rate.
ν	Birth rate; often we assume $\nu = \mu$.
R_0	Basic reproductive ratio; average number of secondary cases produced by an average infectious individual in a totally susceptible population.
R_∞	Final epidemic size; expected proportion of the population infected in a simple epidemic.
A	Average age of first infection.
p	Proportion of the population vaccinated at birth.
v	Rate of vaccination of susceptibles.
ρ	Mortality probability; probability of dying due to infection before recovery.
m	Disease-induced mortality rate; increased rate of mortality due to infection.
w	Rate of waning immunity; rate of moving from recovered to susceptible classes.
l_A	Rate at which individuals mature and leave class A for the subsequent class; $1/l_A$ is the average amount of time spent in class A . (Chapter 3)
N_{SI} etc	The proportion of the population that are in state S with respect to disease 1 and state I with respect to disease 2. (Chapter 4)

b	Bite rate of mosquitoes or other vectors. (Chapter 4)
T_{AB}	Transmission probability to species A from species B per vector bite. (Chapter 4)
β_1	Relative amplitude of sinusoidal transmission forcing. (Chapter 5)
b_1	Relative amplitude of term-time transmission forcing. (Chapter 5)
δ	Stochastic rate at which infectious imports join a population. (Chapter 6)
ε	Stochastic rate at which susceptibles are infected due to imports from an external population. (Chapter 6)
ρ_{ij}	Degree of spatial interaction to population i from population j . (Chapter 7)
$K(d)$	Transmission kernel; measures how the risk of infection declines with distance d between an infectious and susceptible individual. (Chapter 7)
ξ	Normally distributed error rate (Chapter 6).