

Table 1. R_0 model parameter settings—an index of 1 denotes *Ae. aegypti* and an index of 2 denotes *Ae. albopictus*

Symbol	Description	Constant/formula	Comments	Refs.
* a_1 * a_2	Biting rates (per day)	$a_1 = 0.0043T + 0.0943$ $a_2 = 0.5 \times a_1$	The linear dependency to temperature was based on estimates for <i>Ae. aegypti</i> in Thailand; biting rates for <i>Ae. albopictus</i> were halved based on observed feeding interval data (18)	58, 59
ϕ_1 ϕ_2	Vector preferences (0–1)	$\phi_1 = 1[0.88-1]$ $\phi_2 = 0.5[0.24-1]$	Most studies show that <i>Ae. aegypti</i> mainly feeds on humans; <i>Ae. albopictus</i> can feed on other wild hosts (cats, dogs, swine. . .), and large differences are shown for feeding preference between urban and rural settings for this species	17, 54, 60–65
b_1 b_2	Transmission probability—vector to host (0–1)	$b_1 = 0.5[0.1-0.75]$ $b_2 = 0.5[0.1-0.75]$	Based on dengue parameters—estimates from a mathematical review study	66
β_1 β_2	Transmission probability—host to vector (0–1)	$\beta_1 = 0.1$ $\beta_2 = 0.033$	Recent laboratory experiment studies generally show low transmission efficiency (in saliva) for various vector/ZIKV strain combinations (South America and Africa); estimates from ref. 15 were used in the final model version	14–16
* μ_1 * μ_2	Mortality rates (0–1 per day)	$\mu_1 = 1/(1.22 + \exp(-3.05 + 0.72T)) + 0.196$ if $T < 22^\circ\text{C}$ $\mu_1 = 1/(1.14 + \exp(51.4-1.37T)) + 0.192$ if $T \geq 22^\circ\text{C}$ $\mu_2 = 1/(1.1 + \exp(-4.04 + 0.576T)) + 0.12$ if $T < 15^\circ\text{C}$ $\mu_2 = 0.000339T^2 - 0.0189T + 0.336$ if $15^\circ\text{C} \leq T < 26.3^\circ\text{C}$ $\mu_2 = 1/(1.065 + \exp(32.2-0.92T)) + 0.0747$ if $T \geq 26.3^\circ\text{C}$	Mortality rates were derived for both mosquito vectors from published estimates based on both laboratory and field data, and they were capped to range between 0 and 1	67
* eip_1 * eip_2	EIP (days)	$eip_1 = 1/\nu_1 = 4 + \exp(5.15-0.123T)$ $eip_2 = 1/\nu_2 = 1.03(4 + \exp(5.15-0.123T))$	EIPs for dengue were used because estimates for ZIKV were only available at a single temperature; 50% (100%) of <i>Ae. aegypti</i> mosquitoes were infected by ZIKV after 5 d (10 d) at 29°C (7). An EIP longer than 7 d was reported in ref. 15 at similar temperature. Model estimates for dengue suggest $eip_1 \sim 8-9$ d at 29°C . The 1.03 multiplying factor for <i>Ae. albopictus</i> was derived from ref. 67	68
m_1 m_2	Vector to host ratios	$m_1 = 1,000 \times prob_1$ $m_2 = 1,000 \times prob_2$	m was derived as the product of a constant with probability of occurrences published at global scale for both mosquito vectors; <i>Materials and Methods</i> has additional details	51
r	Recovery rate (per day)	$r = 1/7$		69

T , temperature.

*Parameters that are dynamically simulated in space and time over the whole time period.

www.pnas.org/cgi/doi/10.1073/pnas.1700746114