Table 1: Estimates of baseline epidemiological parameter values

Parameter	Epidemiological description	Value	Range
μ_H	Host birth rate = death rate	1/60 year^{-1}	1/59-1/68 year^{-1} [A]
k	Average number of female mosquitoes / host	2 (1)	0.3- >20 (2, 3)
μ_V	Vector mortality	1/14 day^{-1}	1/42-1/8 day^{-1} (4–6)
$1/\sigma_H$	Average latent period in host	5 days	4-7 days (7, 8)
$1/\sigma_V$	Average extrinsic incubation period in vector	10 days	7-14 days (7, 9)
$1/\gamma_i$	Average infectious period in host	6 days	4-12 days (10, 11)
R_{0i}	Basic reproductive ratio	3.5	2-8 (12)
b	Biting rate	0.5 day^{-1}	0.33-1.0 (5, 13)
$p_i = q_i$	Transmission probability from vector to host (= host to vector)	0.38[B]	0.33-1.0 (1)
$\{\alpha_i = \beta_i = bp_i = bq_i$	Transmission rate from vector to host (= host to vector)	70 year$^{-1}\}$	

[A] For 1970-2000, Thailand, source: United Nations.

[B] Because R_{0i} (9) is a function of the other epidemiological parameters:

$$R_{0i} = \frac{kp_iq_ib^2\sigma_H\sigma_V}{\mu_V(\gamma_i+\mu_H)(\sigma_H+\mu_H)(\sigma_V+\mu_V)},$$

we fix R_{0i} and use this expression to calculate the transmission probabilities $p_i = q_i$. This leads to additional constraints when varying the other epidemiological parameter values because of the range of observed transmission probabilities. In addition, if we assume that ADE has no effect on the biting rate, then increased transmission implies increased probability of transmission (whether susceptibility or infectiousness), which cannot be $> 1/p_i$. We therefore always consider our ADE parameter $\chi \leq 1/p_i \approx 3$.

1. Newton, E. A. C. & Reiter, P. (1992) *Am. J. Trop. Med. Hyg.* **47**, 709–720.

2. Southwood, T. R. E., Murdle, G., Yasuno, M., Tonn, R. J. & Reader, P. M. (1972) *Bull. World Health Org.* **46**, 211–226.

3. Focks, D. A., Brenner, R. J., Hayes, J. & Daniels, E. (2000) *Am. J. Trop. Med. Hyg.* **62**, 11–18.

4. Sheppard, P. M., Macdonald, W. M., Tonn, R. J. & Grabs, B. (1969) *J. Anim. Ecol.* **38**, 661–701.

5. Trpis, M. & Haussermann, W. (1986) *Am. J. Trop. Med. Hyg.* **35**, 1263–1279.

6. Trpis, M., Haussermann, W. & Craig, G. B. (1995) *J. Med. Entomol.* **32**, 27–33.

7. Siler, J. F., Hall, M. W. & Hitchens, A. P. (1926) *Philipp. J. Sci.* **29**, 1–304.

8. Sabin, S. B. (1952) *Am. J. Trop. Med. Hyg.* **1**, 30–50.

9. Watts, D. M., Burke, D. S., Harrison, B. A., Whitmore, R. E. & Nisalak, A. (1987) *Am. J. Trop. Med. Hyg.* **36**, 143–152.

10. Gubler, D. J., Suharyono, W., Tan, R., Abidin, M. & Sie, A. (1981) *Bull. World Health Org.* **59**, 623–630.

11. Vaughn, D. W. *et al.* (2000) *J. Infect. Dis.* **181**, 2–9.

12. Ferguson, N. M., Donnelly, C. A. & Anderson, R. M. (1999) *Philos. Trans. R. Soc. London Ser. B* **354**, 757–768.

13. Putnam, J. L. & Scott, T. W. (1995) *Am. J. Trop. Med. Hyg.* **55**, 225–227.