

**Table S2: Estimates for the aCC-model given multiple foci using different fixed values for the assumed number of neighbors per cell,  $k$ .**

<b>Parameter</b>	$k = 4$	<b><math>k = 6</math></b>	$k = 8$	$k = 15$
$\beta_c$ ( $\times 10^{-6} \text{h}^{-1} \text{cell}^{-1}$ )	1.72 [1.70, 1.73]	1.72 [1.70, 1.74]	1.72 [1.70, 1.73]	1.71 [1.70, 1.72]
$\theta$	2.73 [2.66, 2.78]	1.78 [1.70, 1.86]	1.32 [1.29, 1.37]	0.69 [0.67, 0.71]
$z$ (cells)	2.44 [0.22, 4.80]	2.19 (0, 6.61]	1.12 (0, 8.55]	$10^{-5}$ (0, 15.05]
AICc	75.7	75.3	75.2	75.6

Data were simulated using  $k = 6$ . Numbers in brackets represent 95%-confidence intervals for estimates based on  $10^4$  individual fits. Corrected AIC-values indicate model performance. Parameters include the cell-to-cell transmission rate,  $\beta_c$ , the number of infected cells over which the transition term for the smooth approximation spans,  $z$ , and the parameter  $\theta$  scaling for irregular foci growth (see also Text S1 for a detailed explanation of the parameters). The results show that the estimates for the cell-to-cell transmission rate  $\beta_c$  are robust for deviations in the assumed underlying neighbor-distribution  $k$ .