

S4 Table. Parameters describing disease severity and mortality for Germany (GER) and the USA.

Parameters	Description	Value	
	Fraction of ...		
$f_S^{(NI)}$	...susceptibles that fails to immunize after vaccination	cf. Table 1	
$f_S^{(PI)}$	...susceptibles that develops partial immunity after vaccination		-
$f_S^{(ADE)}$	...susceptibles that develops ADE after vaccination		-
$f_S^{(R)}$	...susceptibles that develops permanent immunity after vaccination		-
$f_E^{(NI)}$	...latently inf. that fails to immunize after vaccination	cf. Table 1	
$f_E^{(PI)}$	...latently inf. inds. that develops partial immunity after vaccination		-
$f_E^{(ADE)}$	...latently inf. that develops ADE after vaccination		-
$f_E^{(R)}$	...latently inf. that develops permanent immunity		-
$f_P^{(NI)}$	...prodromal inds. that fails to immunize after vaccination	cf. Table 1	
$f_P^{(PI)}$	...prodromal inds. that develops partial immunity after vaccination		-
$f_P^{(ADE)}$	...prodromal inds. that develops ADE after vaccination		-
$f_P^{(R)}$	...prodromal inds. that develops permanent immunity after vaccination		-
$f_I^{(U, +)}$	...detected or sympt. fully inf. inds. that were waiting for vaccination		0.005
$f_I^{(NI)}$	...fully inf. inds. that fails to immunize after vaccination	cf. Table 1	
$f_I^{(PI)}$	...fully inf. inds. that develops partial immunity after vaccination		-
$f_I^{(ADE)}$	...fully inf. inds. that develops ADE after vaccination		-
$f_I^{(R)}$	...fully inf. inds. that develops permanent immunity after vaccination		-
$f_I^{(I, \sim)}$	...fully infectious inds. vaccinated during this phase with neutral outcome		0.95
$f_L^{(NI)}$	...late inf. inds. that fails to immunize after vaccination		0
$f_L^{(PI)}$	...late inf. inds. that develops partial immunity after vaccination		0
$f_L^{(ADE)}$	...late inf. inds. that develops ADE after vaccination		0
$f_L^{(R)}$	...late inf. inds. that develops permanent immunity after vaccination		0
$f_L^{(I, \sim)}$	...late infectious inds. vaccinated during the fully inf. phase with neutral outcome		0.95
$f_L^{(L, \sim)}$	...late infectious inds. vaccinated during this phase with neutral outcome		0.99
		GER	USA
f_{Sick}	...sympt. individuals	0.58	0.58
f_{Dead}	...sympt. inds. who die from COVID-19	0.016	0.04
f_{Iso}	...inds. who are isolated	0.58	0.48
$f_{Sick}^{(PI)}$	...sympt. inds. with partial immunity		0.50
$f_{Dead}^{(PI)}$	...sympt. inds. with partial immunity who die from COVID-19		0.02
$f_{Dead}^{(ADE)}$	...sympt. inds. with ADE who die from COVID-19		0.07, 0.2
$f_{Sick}^{(U, +)}$	...sympt. or diagnosed individuals that were waiting to be vaccinated		cf. eq. 3
$f_{Sick}^{(ADE)}$	...sympt. inds. with ADE		0.92
$f_{Sick}^{(I, *)}$	...sympt. fully inf. inds. vaccinated during this phase with del. outcome		0.58
$f_{Dead}^{(I, *)}$	...lethal infs. among fully inf. inds. vaccinated during this phase with del. outcome		0.07
$f_{Sick}^{(L, *)}$	...sympt. late inf. inds. vaccinated during this phase with del. outcome		0.58
$f_{Dead}^{(L, *)}$	...lethal infs. among late inf. inds. vaccinated during this phase with del. outcome		0.07

Abbreviations: del. ...deleterious; eq. ...Equation; inf. ...infectious; infs. ...infections; inds. ...individuals; sympt. ...symptomatic.