

Supplementary Material SM5

Table S1. Reference values and search intervals for the fitting process of the individual vaccine effectiveness profiles.

| Parameter | Reference values | Search interval |
|------------|------------------|-----------------|
| A_L | 3.0 | 2.5 to 5.0 |
| B_L | 2.5 | -2.0 to 4.0 |
| C_L | 0.02 | -5.00 to 5.00 |
| D_L | -70 | -100 to -40 |
| A_R | -5.0 | -10.0 to -4.5 |
| B_R | 5.0 | -5.0 to 5.4 |
| C_R | 0.015 | 0.010 to 5.000 |
| D_R | 50 | 0 to 100 |
| Q | 0.3 | 0.15 to 0.85 |
| Δk | 35 | 28 to 45 |