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Figure S1. Model structure. Figure (A) shows the original transmission model by Atchison et al. and (B) illustrates how vaccination was included in the current analysis.

(A) Transmission model

1. Maternal protection
2. Susceptible: 1st infection
3. Infected: 1st infection
4. Susceptible: 2nd infection
5. Susceptible: 3rd infection
6. Susceptible: 4th infection
7. Infected: 2nd infection
8. Infected: 3rd infection
9. Infected: 4th infection
10. Recovered

Maternal protection → $\mu$

$\lambda$: $
\alpha_1 \gamma$

$\lambda$: $(1-\alpha_1) \gamma$

$\lambda$: $\alpha_2 \gamma$

$\lambda$: $(1-\alpha_2) \gamma$

$\lambda$: $\alpha_3 \gamma$

$\lambda$: $(1-\alpha_3) \gamma$

$\omega$

(B) Model including vaccination

1. Maternal protection
2. Susceptible: 1st infection
3. Infected: 1st infection
4. Susceptible: 2nd infection
5. Susceptible: 3rd infection
6. Susceptible: 4th infection
7. Infected: 2nd infection
8. Infected: 3rd infection
9. Infected: 4th infection
10. Recovered

Vaccine

$\mu$: $\nu_1 c_1$

$\lambda$: $\nu_2 c_2$

$\nu_1 c_1$

$\nu_2 c_2$

$\nu_1 c_1$

$\nu_2 c_2$

$\nu_1 c_1$

$\nu_2 c_2$

$\nu_1 c_1$

$\nu_2 c_2$