Figures and figure supplements

Integrating between-host transmission and within-host immunity to analyze the impact of varicella vaccination on zoster

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**Figure 1.** Observed (open circles) and simulated (continuous lines) Belgian herpes zoster (HZ) incidence data by age.
DOI: 10.7554/eLife.07116.004

**Figure 2.** Observed (open circles) and simulated (continuous lines) Belgian HZ incidence data by age.
DOI: 10.7554/eLife.07116.006
Figure 2—figure supplement 1. Observed (open circles) Belgian HZ incidence data by age and simulated HZ incidence data (continuous lines) for the 13 best parameter sets with a sensitivity analysis for the HZ infectiousness parameter (values: 0.03, 0.10, 0.17, 0.24, 0.31, 0.38 and 0.45) and three runs per parameter set.
DOI: 10.7554/eLife.07116.007

Figure 3. Normalized varicella-zoster virus (VZV)-specific CMI averaged over 80 simulation years and over all individuals for the two best parameter sets. Caption: note that this figure shows average dynamics although some individuals will have VZV-specific CMI values below 1 (making them susceptible to HZ).
DOI: 10.7554/eLife.07116.008
Figure 4. Predicted HZ incidence (aggregated for all ages) over time with a CP vaccine for 1 year olds using the best-fitting parameter sets. The red line indicates the moment of CP vaccine introduction, which is assumed to be 100% effective. DOI: 10.7554/eLife.07116.009

Figure 5. Time-evolution of the relative contribution to HZ incidence per age group before and after introduction of 100% effective varicella vaccination for 1 year olds. DOI: 10.7554/eLife.07116.010
**Figure 6.** Simplified dynamics of VZV-CMI, VZV reactivation and boosting events as modeled. The sequence of exogenous boosting and VZV reactivation can be switched.

DOI: 10.7554/eLife.07116.011
Figure 7. V2V IBM demography.
DOI: 10.7554/eLife.07116.012
Figure 8. Three different boosting scenarios. (A) Illustrates the exponential decline parameterized by a peak (+120%) at 6 weeks, (+60%) 1 year later, (50%) 2 years later and (+40%) 3 years later as presented by the Zostavax vaccine trial by Levin et al. (B) Illustrates the exponential decline from peak (+120%) to (+60%) 1 year later and constant for x years (as defined by the parameter set) afterwards, as a modified interpretation of the Figure 8. continued on next page
Figure 8. Continued

results of the Zostavax vaccine trial by Levin et al. (C) Illustrates the increase to a peak value as defined by the parameter set that is followed by an exponential decline so that the pre-boosting value is reached after x years.
DOI: 10.7554/eLife.07116.014
Figure 9  Different cumulative distribution functions (CDF) for Force of Reactivation (FoR).
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