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Figures and figure supplements

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

Benson Ogunjimi, et al.

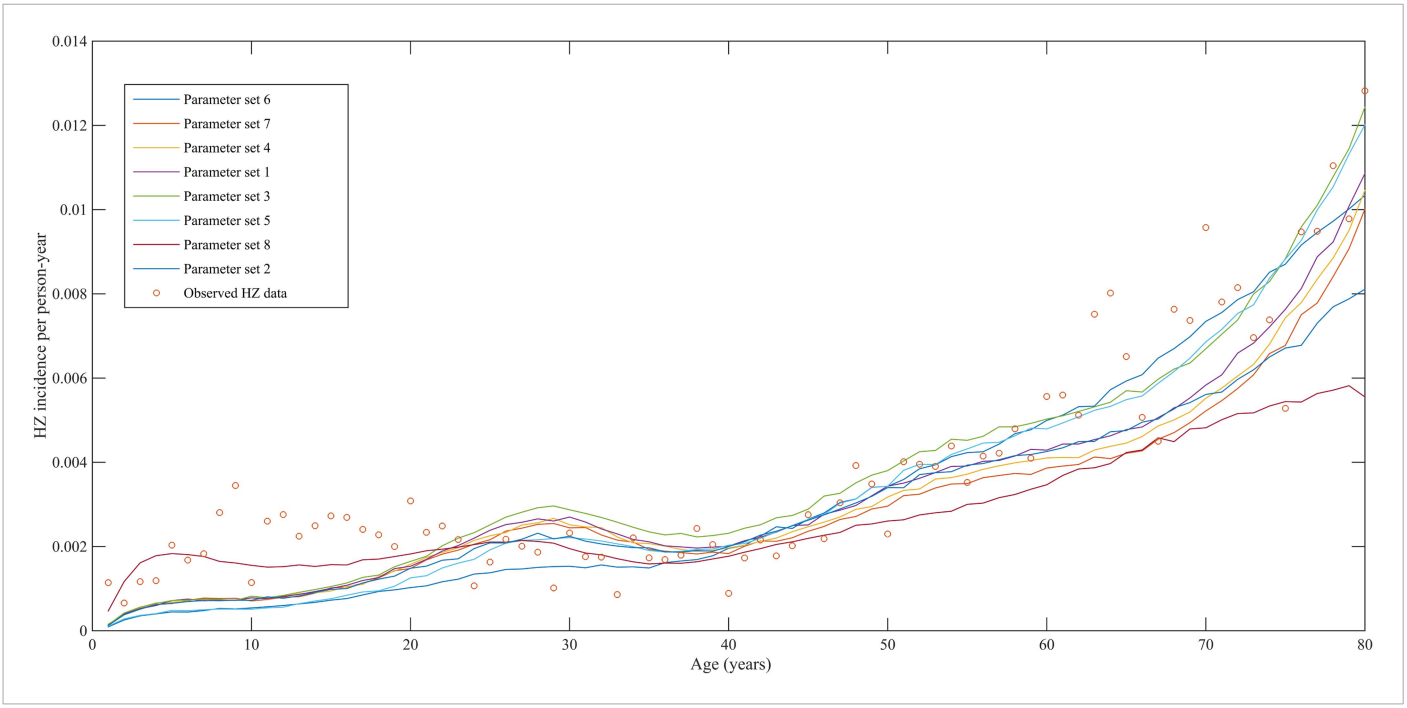

Figure 1. Observed (open circles) and simulated (continuous lines) Belgian herpes zoster (HZ) incidence data by age.
DOI: 10.7554/eLife.07116.004

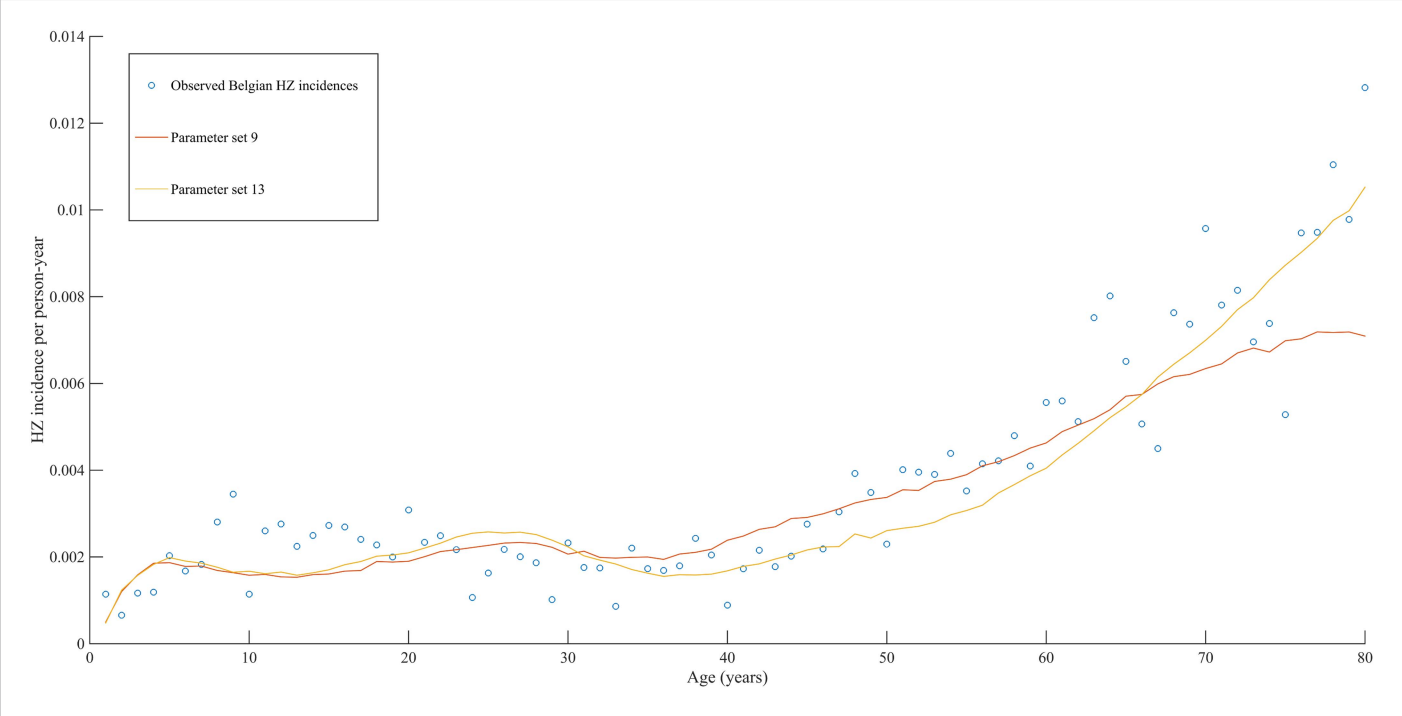

Figure 2. Observed (open circles) and simulated (continuous lines) Belgian HZ incidence data by age.
DOI: 10.7554/eLife.07116.006

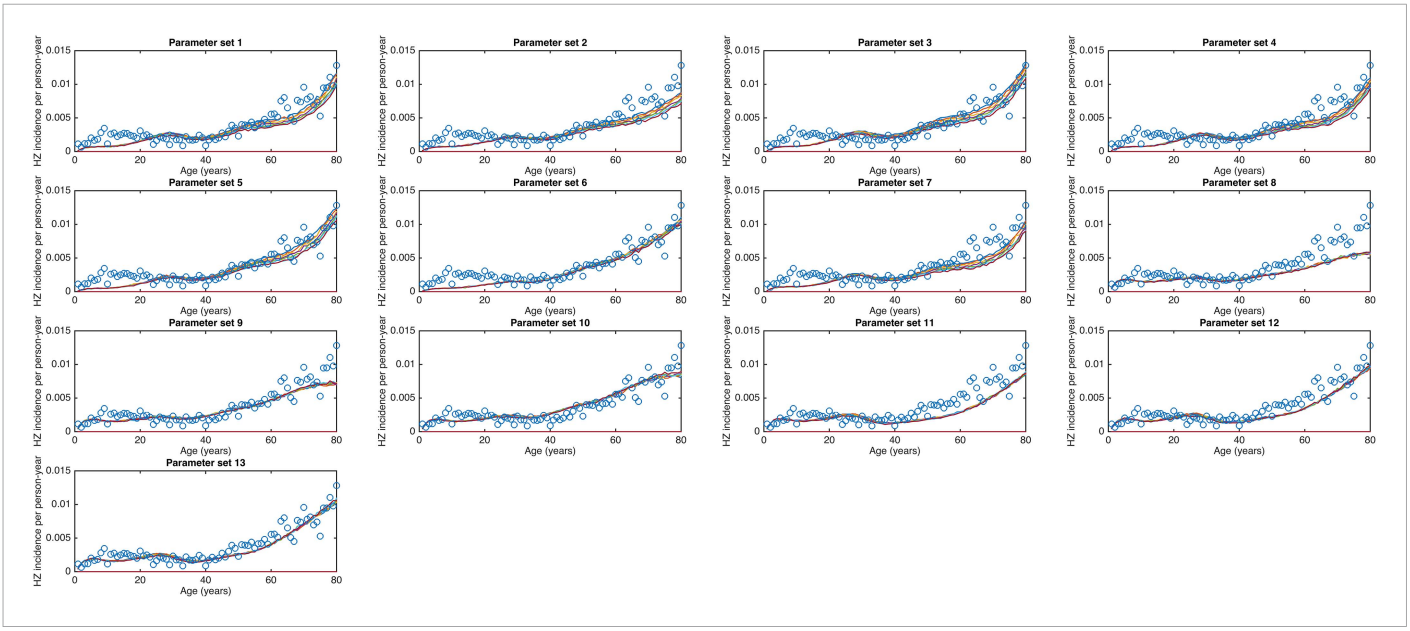

Figure 2—figure supplement 1. Observed (open circles) Belgian HZ incidence data by age and simulated HZ incidence data (continuous lines) for the 13 best parameter sets with a sensitivity analysis for the HZ infectiousness parameter (values: 0.03, 0.10, 0.17, 0.24, 0.31, 0.38 and 0.45) and three runs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

DOI: 10.7554/eLife.07116.007

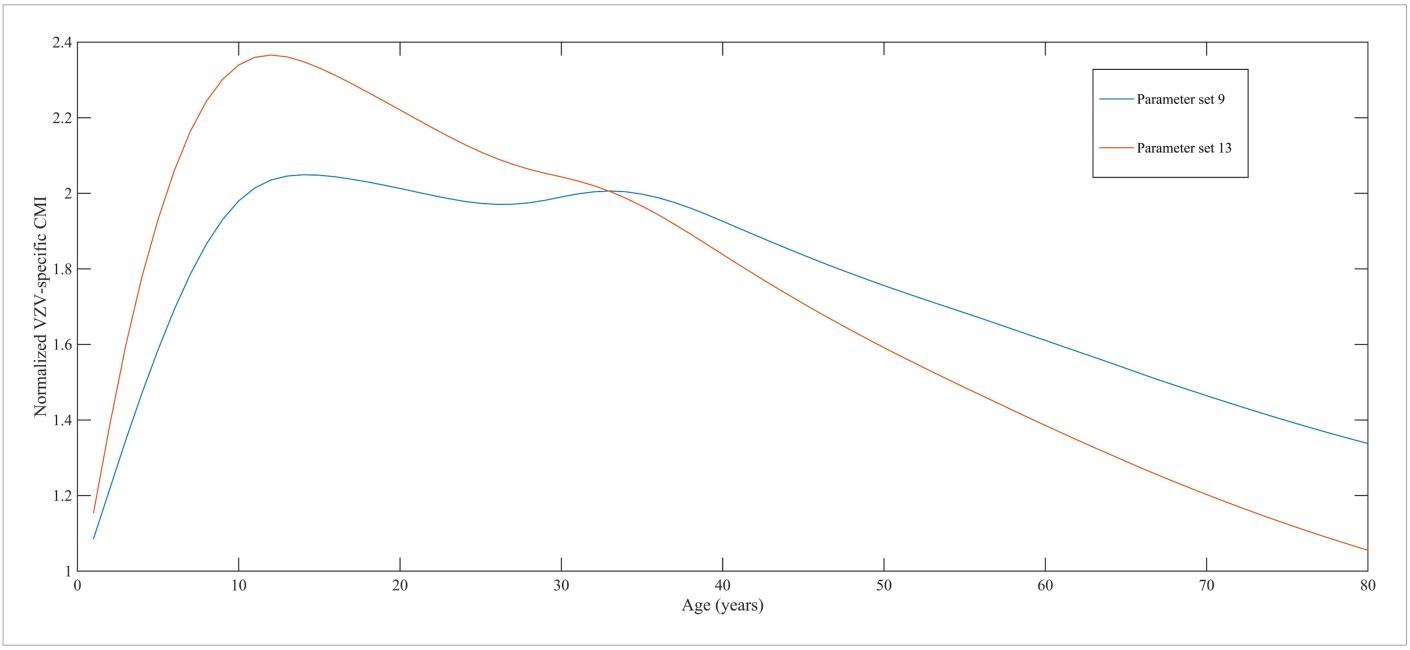

Figure 3. Normalized varicella-zoster virus (VZV)-specific CMI averaged over 80 simulation years and over all individuals for the two best parameter sets. Caption: note that this figure shows average dynamics although some individuals will have VZV-specific CMI values below 1 (making them susceptible to HZ).

DOI: 10.7554/eLife.07116.008

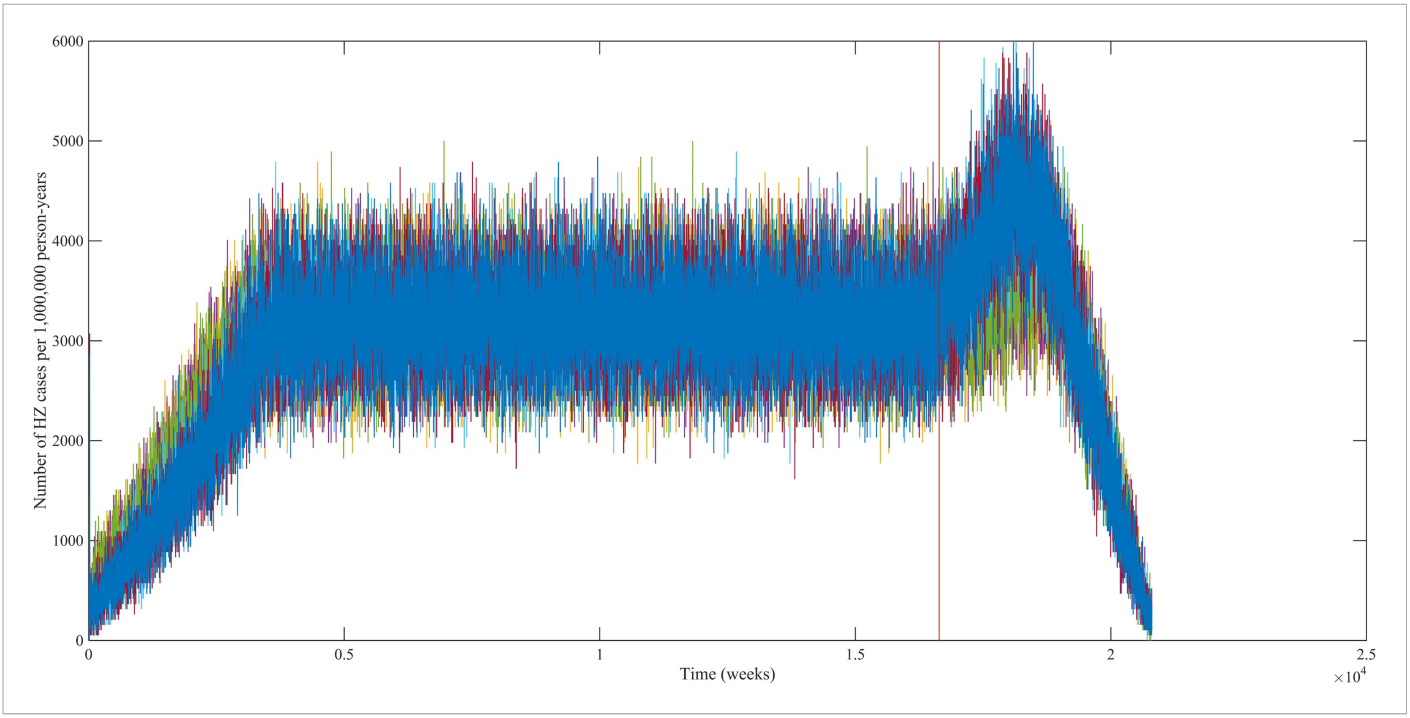

Figure 4. Predicted HZ incidence (aggregated for all ages) over time with a CP vaccine for 1 year olds using the best-fitting parameter sets. The red line indicates the moment of CP vaccine introduction, which is assumed to be 100% effective.
DOI: 10.7554/eLife.07116.009

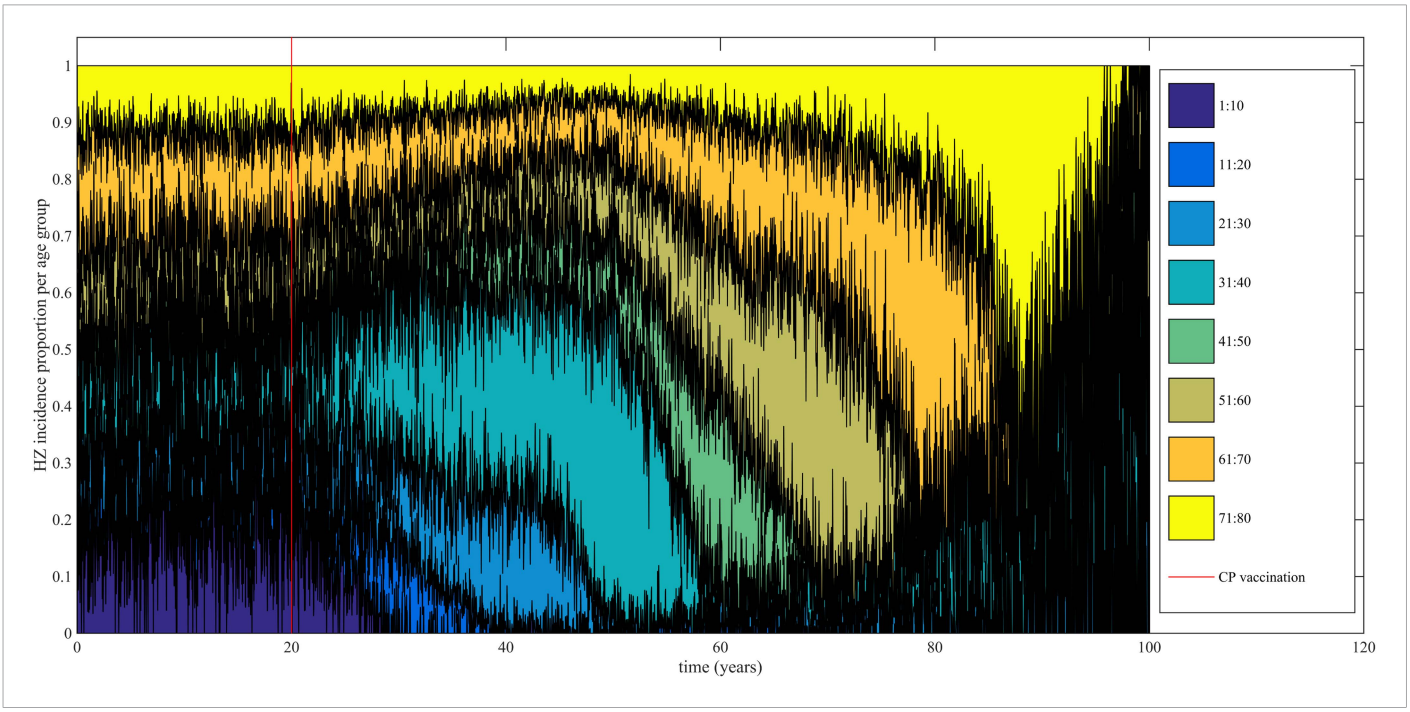

Figure 5. Time-evolution of the relative contribution to HZ incidence per age group before and after introduction of 100% effective varicella vaccination for 1 year olds.
DOI: 10.7554/eLife.07116.010

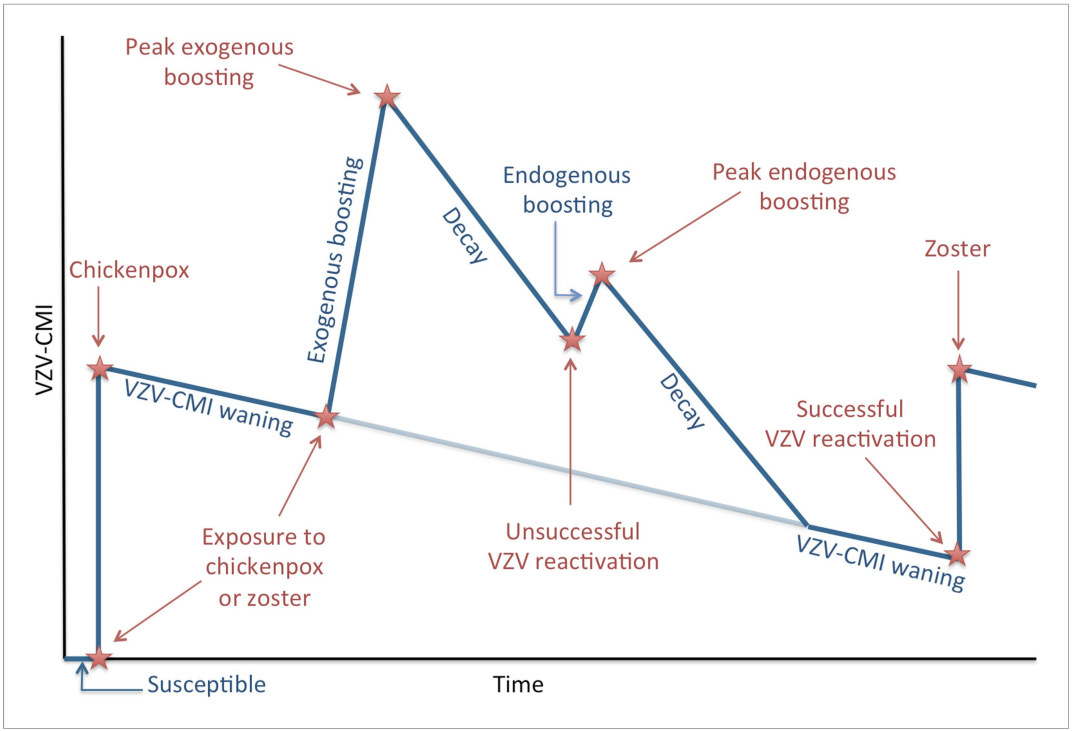

Figure 6. Simplified dynamics of VZV-CMI, VZV reactivation and boosting events as modeled. The sequence of exogenous boosting and VZV reactivation can be switched.

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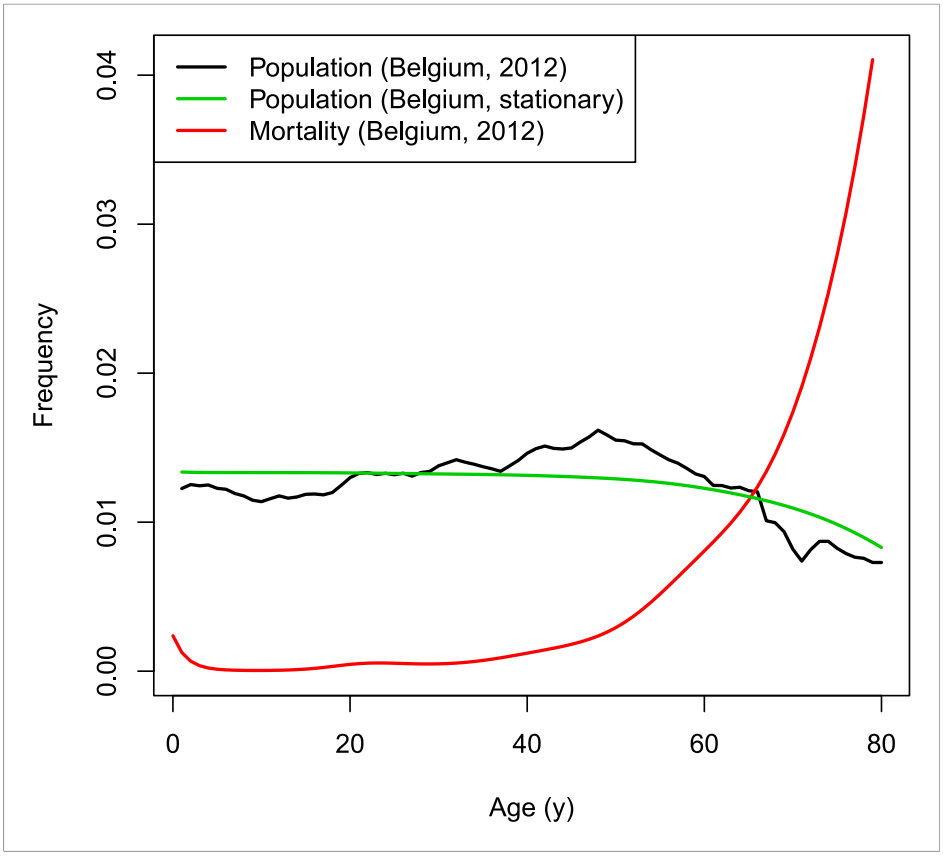

Figure 7. VZV IBM demography.
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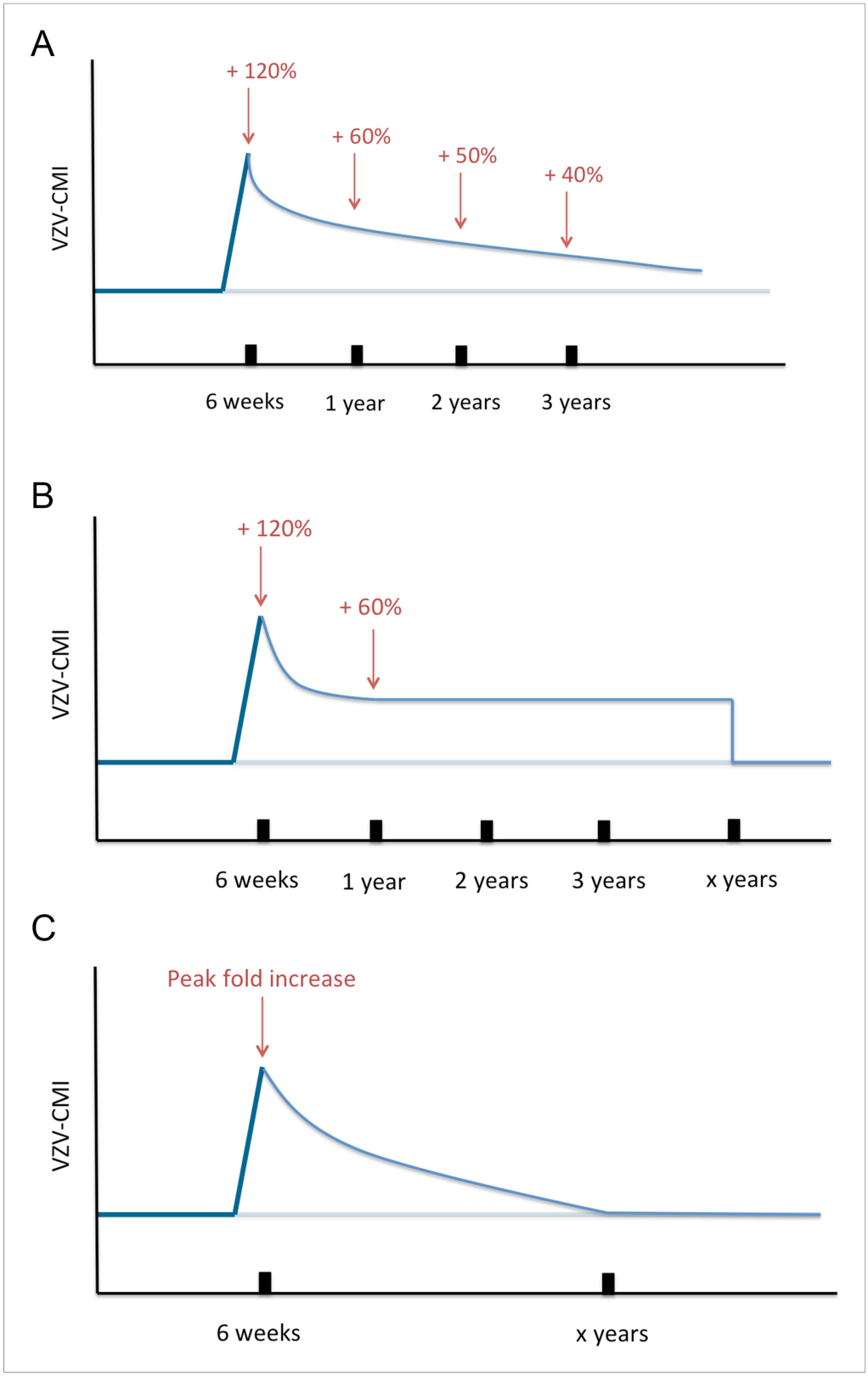

Figure 8. Three different boosting scenarios. (**A**) Illustrates the exponential decline parameterized by a peak (+120%) at 6 weeks, (+60%) 1 year later, (50%) 2 years later and (+40%) 3 years later as presented by the Zostavax vaccine trial by Levin et al. (**B**) Illustrates the exponential decline from peak (+120%) to (+60%) 1 year later and constant for x years (as defined by the parameter set) after wards, 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.

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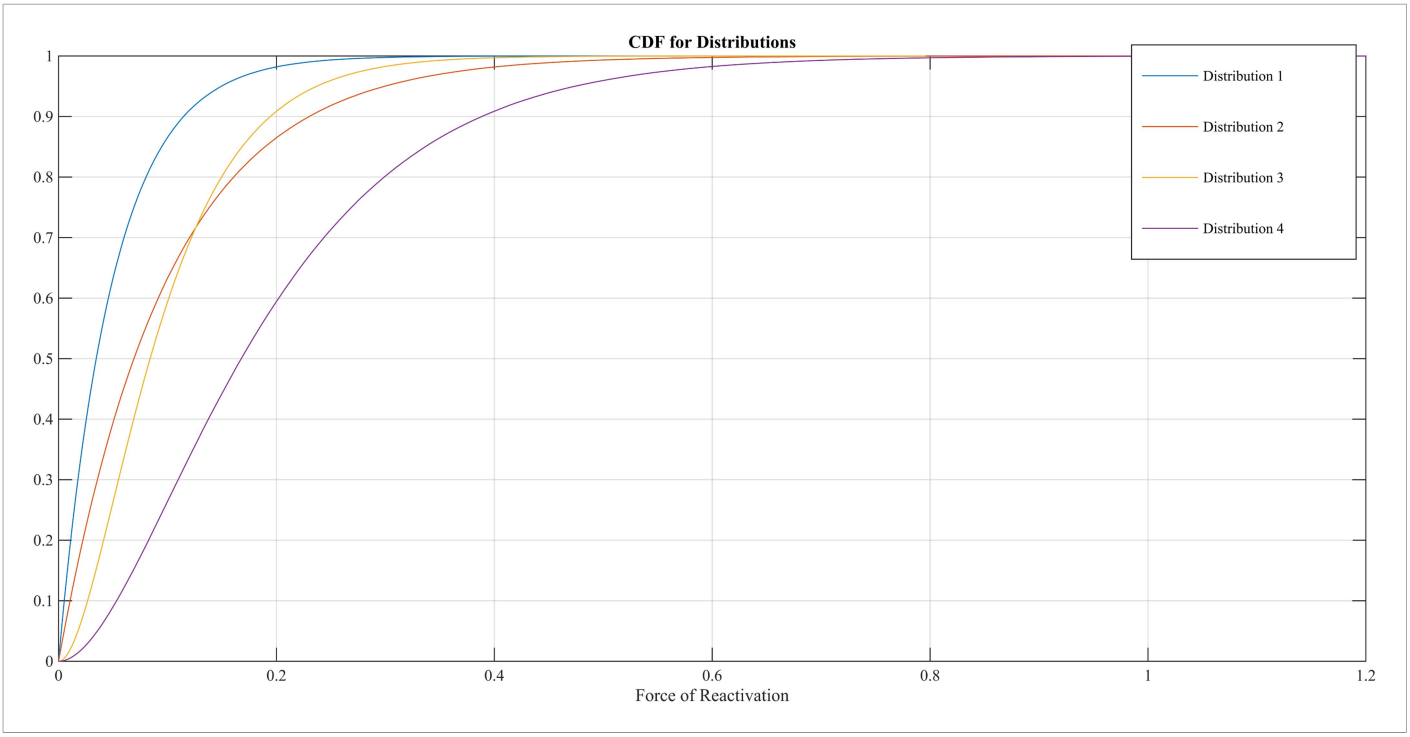

Figure 9. Different cumulative distribution functions (CDF) for Force of Reactivation (FoR).
DOI: 10.7554/eLife.07116.015