File S1

Main formula in the static model

The post vaccination incidence is calculated by multiplying the pre-vaccination incidence with 1 minus the vaccine-efficacy multiplied by the coverage of vaccination. See formula 1.

$$\text{Projected incidence vac}_{d,t,a,y} = \text{Projected incidence}_{d,t,a,y} * \left(1 - \text{Vaccine Efficacy}_{d,t,a} * \text{coverage}_t\right) \qquad [1]$$

In which d stands for disease type, thus IPD or pneumonia, t for vaccine-type, thus PCV7, PCV10 minus PCV7, PCV13 minus PCV10, PPV23 minus PCV13, non-vaccine types, a for age in years and y for calendar year, thus 2018 until 2027. Future disease incidence was projected as described in the main text.