Pitzer, VE; Bowles, CC; Baker, S; Kang, G; Balaji, V; Farrar, JJ; Grenfell, BT (2014) Predicting the impact of vaccination on the transmission dynamics of typhoid in South Asia: a mathematical modeling study. PLoS neglected tropical diseases, 8 (1). e2642. ISSN 1935-2727 DOI: https://doi.org/10.1371/journal.pntd.0002642

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Table S1. Sensitivity of estimated parameters to fixed parameter assumptions. The log-likelihood of the best-fit model with the original parameter assumptions is -6,379.

<table>
<thead>
<tr>
<th>Fixed parameter</th>
<th>Original value</th>
<th>New value</th>
<th>Estimated parameters</th>
<th>Log-likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of full immunity from infection (1/ω)</td>
<td>104 weeks</td>
<td>4 weeks</td>
<td>$R_{0,p} = 2.46$ $R_{0,w} = 0.23$ $q = 0.82$ $\phi = 18.8$ weeks $\epsilon = 2.86 \times 10^{-7}$ $r = 0.01$ $f = 0.0053$</td>
<td>-6,370</td>
</tr>
<tr>
<td>Duration of full immunity from infection (1/ω)</td>
<td>104 weeks</td>
<td>50 years</td>
<td>$R_{0,p} = 1.82$ $R_{0,w} = 1.26$ $q = 0.19$ $\phi = 16.8$ weeks $\epsilon = 2.49 \times 10^{-6}$ $r = 0.01$ $f = 0.0052$</td>
<td>-6,377</td>
</tr>
<tr>
<td>Duration of infectiousness (1/δ)</td>
<td>4 weeks</td>
<td>2 weeks</td>
<td>$R_{0,p} = 2.80$ $R_{0,w} = 0.17$ $q = 0.96$ $\phi = 22.5$ weeks $\epsilon = 4.71 \times 10^{-13}$ $r = 0.01$ $f = 0.0050$</td>
<td>-6,380</td>
</tr>
<tr>
<td>Duration of infectiousness (1/δ)</td>
<td>4 weeks</td>
<td>8 weeks</td>
<td>$R_{0,p} = 2.67$ $R_{0,w} = 4.57 \times 10^{-5}$ $q = 0.79$ $\phi = 45.9$ weeks $\epsilon = 1.61 \times 10^{-8}$ $r = 0.01$ $f = 0.0055$</td>
<td>-6,388</td>
</tr>
<tr>
<td>Fraction infected who become carriers (θ)</td>
<td>0.003-0.101 depending on age</td>
<td>0.0003-0.0101 depending on age</td>
<td>$R_{0,p} = 2.23$ $R_{0,w} = 0.24$ $q = 0.66$ $\phi = 15.2$ weeks $\epsilon = 5.40 \times 10^{-9}$</td>
<td>-6,366</td>
</tr>
</tbody>
</table>
| Fraction infected who become carriers ($\theta$) | 0.003-0.101 depending on age | 0.006-0.202 depending on age | $R_{0,p} = 2.85$  
$R_{0,w} = 0.23$  
$q = 1.00$  
$\phi = 19.8$ weeks  
$\epsilon = 3.14 \times 10^{-11}$  
$r = 0.01$  
$f = 0.0050$ | -6,387 |
| Rate of decay of infectious particles from water supply ($\xi$) | 1/3 week$^{-1}$ | 1 week$^{-1}$ | $R_{0,p} = 2.29$  
$R_{0,w} = 0.48$  
$q = 0.004$  
$\phi = 52.5$ weeks  
$\epsilon = 7.45 \times 10^{-9}$  
$r = 0.01$  
$f = 0.0051$ | -6,395 |
| Rate of decay of infectious particles from water supply ($\xi$) | 1/3 week$^{-1}$ | 1/9 week$^{-1}$ | $R_{0,p} = 2.77$  
$R_{0,w} = 0.001$  
$q = 0.014$  
$\phi = 9.9$ weeks  
$\epsilon = 9.69 \times 10^{-9}$  
$r = 0.01$  
$f = 0.0053$ | -6,394 |