### Comparison table of WHO prequalified typhoid conjugate vaccines (TCVs)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Typbar TCV® (Bharat)</th>
<th>TYPHIBEV® (Biological E)</th>
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<tbody>
<tr>
<td><strong>Composition</strong></td>
<td>Salmonella Typhi Vi polysaccharide conjugated to tetanus toxoid</td>
<td>Vi polysaccharide prepared from <em>Citrobacter freundii sensu lato</em>&lt;sup&gt;a&lt;/sup&gt; conjugated to CRM (1–3).</td>
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<td><strong>Immunogenicity</strong></td>
<td>Single dose <em>Typbar TCV</em> elicited a protective immune response&lt;sup&gt;b&lt;/sup&gt; among children and adults aged 6 months to 45 years (2, 5–7).</td>
<td>Clinical trial immunogenicity data establish non-inferiority to <em>Typbar TCV</em>. Among individuals ≥6 months to &lt;64 years of age, 95.59% had protective immune response (8).&lt;sup&gt;b&lt;/sup&gt;</td>
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<td><strong>WHO prequalification</strong></td>
<td>December 2017</td>
<td>December 2020</td>
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| **WHO recommendation for programmatic use** (2) | • WHO recommends TCV as a single dose (0.5 mL) for individuals ≥6 months to ≤45 years of age in typhoid-endemic regions.  
• WHO encourages routine programmatic administration of TCV at 9 months of age, or in the second year of life. Catch-up vaccination up to 15 years of age is recommended when feasible and supported by epidemiological data. | |
| **Comparability of products** | Based on non-inferiority data, these vaccines are expected to have similar performance despite difference in the conjugation protein. | |
| **Efficacy/effectiveness** (Blood-culture confirmed typhoid fever in endemic settings) | **Efficacy**  
Nepal: 79.1% (95% CI, 62.0%, 88.5%), 9 months–16 years of age, 2 years follow-up (5).  
Malawi: 80.7% (95% CI: 64.2%, 89.6%), 9 months–12 years of age, 18–24 months follow-up (6). | Efficacy/effectiveness data are not yet available.  
**Effectiveness**  
India: 80.2% (95% CI: 53.2%, 91.6%), 9 months–14 years of age (9). |
| **Coadministration**     | • TCV is recommended for routine programmatic use at the same time as other vaccine visits at 9 months of age or in the second year of life (2).  
• Available data on *Typbar TCV* co-administration with measles-containing vaccines (2) and meningococcal conjugate serogroup A vaccine (7) show no evidence of interference with the immune response to either *Typbar TCV* or the coadministered antigen.  
• Coadministration data for *TYPHIBEV* are not yet available. | |
| **Safety**               | Based on a comprehensive review of clinical data by WHO SAGE (2), a review by the Global Advisory Committee on Vaccine Safety (3) and safety surveillance after routine introduction in India (10), *Typbar TCV* has a favourable safety profile with no safety signals. | Based on clinical trial data (8), *TYPHIBEV* has an acceptable safety profile with no safety signals to date. The Global Advisory Committee on Vaccine Safety is expected to review the data in the future. |

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<sup>a</sup>Vi polysaccharide from *Citrobacter freundii* is structurally similar and immunologically indistinguishable to Vi from *S. Typhi* (1).

<sup>b</sup>No internationally agreed correlate or surrogate of protection has been identified for Vi conjugate vaccines (4).

**Appendix:** Gavi Detailed Product Profiles for typhoid conjugate vaccines: [https://www.gavi.org/about/market-shaping/detailed-product-profiles/](https://www.gavi.org/about/market-shaping/detailed-product-profiles/)
References


