

## Potential of typhoid conjugate vaccines in Pakistan

Typhoid, a serious enteric fever spread through contaminated food and water, is a substantial public health issue that disproportionately impacts children and marginalized populations in Asia and sub-Saharan Africa. The Global Burden of Disease (GBD) study estimates that, in 2016, there were nearly 12 million typhoid cases and more than 128,000 typhoid deaths worldwide.<sup>1</sup> Additionally, strains of drug-resistant typhoid are spreading, causing global concern.<sup>2</sup>

### TYPHOID CONJUGATE VACCINES

Typhoid vaccination can reduce the need for antibiotics, slow expansion of drug-resistant strains, and save lives. Newly licensed and World Health Organization (WHO)-prequalified typhoid conjugate vaccines (TCVs) have several advantages over earlier typhoid vaccines. They:

- provide longer-lasting protection;
- require only one dose; and
- are suitable for young children over 6 months.

These qualities will allow better protection for younger children and expanded coverage through inclusion in routine childhood immunization programs.

### WHO RECOMMENDATION AND GAVI SUPPORT

In March 2018, WHO recommended that typhoid-endemic countries introduce prequalified TCVs into routine childhood immunization programs as a single dose for infants and children over 6 months of age, accompanied by catch-up vaccination campaigns for children up to 15 years of age, where feasible. Additionally, WHO recommended prioritizing countries with a high burden of disease and/or a growing burden of drug-resistant typhoid, and in response to confirmed typhoid outbreaks. Gavi, the Vaccine Alliance has earmarked US\$85 million to support the introduction of TCVs into routine immunization programs and is accepting applications for financial support, with introductions anticipated as soon as 2019.



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### AN OPPORTUNITY FOR PAKISTAN

TCVs could have a substantial benefit in Pakistan, where typhoid inflicts a significant public health burden. The latest GBD analysis estimates that, in 2016, Pakistan had:

- **574,424 typhoid cases** or **301 cases per 100,000 population**, 61 percent of which were among children under 15 years of age; and
- **7,811 typhoid deaths**, 68 percent of which were among children under 15 years of age.<sup>1</sup>

Pakistan is currently battling an outbreak of extensively drug-resistant typhoid, which has infected more than 850 people and could spread widely.<sup>3</sup> Typhoid also imposes an economic burden in Pakistan, with the average cost for one case of typhoid at US\$55.<sup>4</sup> Preliminary findings from an economic analysis predict that, even in the absence of a Gavi subsidy, a catch-up campaign followed by routine childhood immunization with TCVs would potentially be cost-effective in Pakistan.<sup>5</sup>

#### References

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4. Poulos C, et al. Cost of illness due to typhoid fever in five Asian countries. *Tropical Medicine & International Health*. 2011;16(3): 314-323.
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