

## Potential of typhoid conjugate vaccines in Cambodia

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 2017, there were nearly 11 million typhoid cases and more than 116,000 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.



### AN OPPORTUNITY FOR CAMBODIA

TCVs could have a substantial benefit in Cambodia, where typhoid inflicts a significant public health burden. The GBD estimates that, in 2017, Cambodia had:

- **31,016 typhoid cases or 192 cases per 100,000 population**, 53 percent of which were among children under 15 years of age; and
- **300 typhoid deaths**, 51 percent of which were among children under 15 years of age.<sup>1</sup>

Typhoid likely also imposes an economic burden in Cambodia. While costs of illness have not yet been evaluated for Cambodia, analyses from several other settings in Asia have found that families often bear a significant cost, especially for cases in young children.<sup>3</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 Cambodia.<sup>4</sup>

### References

1. Global Burden of Disease. *The Lancet*. 2018.
2. Wong VK, Baker S, Pickard DJ, et al. Phylogeographical analysis of the dominant multidrug-resistant H58 clade of *Salmonella* Typhi identifies inter- and intracontinental transmission events. *Nature Genetics*. 2015;47:632-639.
3. Poulos C, Riewpaiboon A, Stewart JF, et al. Cost of illness due to typhoid fever in five Asian countries. *Tropical Medicine & International Health*. 2011;16(3): 314-323.
4. Bilcke J, et al. Setting global performance standards for a cost-effective typhoid conjugate vaccine strategy: a modelling study. *In prep*.

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