

## The potential of typhoid conjugate vaccines in Burkina Faso

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 2019, there were more than 9 million typhoid cases and more than 110,000 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. 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 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 supports the introduction of TCVs into routine immunization programs and is accepting applications for financial support. Pakistan was the



According to GBD estimates, Burkina Faso had 356 typhoid cases per 100,000 population in 2019—the highest typhoid incidence rate in Africa and the second highest in the world.

first country to introduce TCV in 2019, followed by Liberia and Zimbabwe in 2021.

### AN OPPORTUNITY FOR BURKINA FASO

TCVs could have a substantial benefit in Burkina Faso, where typhoid inflicts a significant health and economic burden. The GBD estimates that, in 2019, Burkina Faso had:

- **80,672 typhoid cases** or **356 cases per 100,000 population**, 69 percent of which were among children under 15 years of age; and
- **1,530 typhoid deaths**, 84 percent of which were among children under 15 years of age.<sup>1</sup>

A recent modeling study<sup>3</sup> shows that a catch-up campaign up to 15 years of age followed by routine immunization is the preferred strategy and likely to be cost-effective in Burkina Faso.\*

\*At a willingness-to-pay threshold of %100 or more To avert one disability-adjusted life-year (DALY).



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Typhar TCV® was prequalified by the World Health Organization in December 2017. A second TCV, TYPHIBEV, was prequalified in December 2020.



Groupe de Recherche Action en Santé

9-month-old Ibrahim was the first child vaccinated as part of the TyVAC safety and immunogenicity study in Burkina Faso, December 2018.

## TyVAC STUDY IN BURKINA FASO

In order to build evidence of the effectiveness of TCVs in protecting children from typhoid, researchers with the Typhoid Vaccine Acceleration Consortium (TyVAC) are conducting four different studies in Bangladesh, Burkina Faso, Malawi, and Nepal. In Burkina Faso, TyVAC and project partners studied how well TCVs produce an immune response to typhoid in children between 9 months and 2 years of age as well as the safety of the vaccine when given alone or alongside other routine childhood vaccines. The study found that TCV can be successfully co-administered to children with yellow fever, meningococcal A, and measles-rubella vaccines.<sup>4,5</sup> While WHO already recommends TCV introduction in all typhoid-endemic countries, this additional evidence will help inform ongoing decisions about TCV vaccination in low- and middle-income countries.

## REFERENCES

1. Institute for Health Metrics and Evaluation. Global Burden of Disease. 2019. Accessed via: [ghdx.healthdata.org/gbd-results-tool](https://ghdx.healthdata.org/gbd-results-tool).
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(6):632-639.
3. Bilcke J, Antillón M, Pieters Z, et al. Cost-effectiveness of routine and campaign use of typhoid Vi-conjugate vaccine in Gavi-eligible countries: A modelling study. *The Lancet Infectious Diseases*. 2019; 19(7):728-739.
4. Sirima SB, Ouedraogo A, Barry N, et al. Safety and immunogenicity of Vi-typhoid conjugate vaccine co-administration with routine 9-month vaccination in Burkina Faso: A randomized controlled Phase 2 trial. *International Journal of Infectious Diseases*. 2021;108:465-472.
5. Sirima AB, Ouedraogo A, Barry N, et al. Safety and immunogenicity of co-administration of meningococcal type A and measles-rubella vaccines with typhoid conjugate vaccine in children aged 15-23 months in Burkina Faso. *International Journal of Infectious Diseases*. 2021;102:517-523.

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