The potential of typhoid conjugate vaccines in Bangladesh

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. Additionally, strains of drug-resistant typhoid are spreading, causing global concern.

**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 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 BANGLADESH**

TCVs could have a substantial benefit in Bangladesh, where the rate of typhoid is thought to be among the highest in the world. The GBD study estimates that, in 2017, Bangladesh had:

- 1,008,864 typhoid cases or 643 cases per 100,000 population, 57 percent of which were among children under 15 years of age; and
- 12,558 typhoid deaths, 63 percent of which were among children under 15 years of age.

According to GBD estimates, Bangladesh had 643 cases of typhoid per 100,000 population in 2017—the highest typhoid incidence rate in the world.
subsidy, a catch-up campaign followed by routine immunization with TCVs would potentially be cost-effective in Bangladesh.\(^4\)

**TyVAC EFFECTIVENESS STUDY IN BANGLADESH**

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 Bangladesh, TyVAC and project partners are studying how well TCVs prevent typhoid in children between 9 months and 16 years of age as well as the safety, impact, and cost of the vaccine. While the WHO already recommends TCV introduction in all typhoid-endemic countries, these studies add to the evidence base as low- and middle-income countries consider TCV vaccination strategies.

**REFERENCES**