

Accelerating typhoid conjugate vaccine introduction

WHY TYPHOID

Typhoid, a serious enteric fever caused by *Salmonella Typhi*, is spread through contaminated food and water and is a substantial public health issue in much of Asia and sub-Saharan Africa. The burden of typhoid is likely underestimated due to difficulties in surveillance and diagnostic challenges, but current estimates indicate that each year there are nearly 11 million cases and more than 116,000 deaths, with infants and children younger than 15 years old disproportionately impacted. Though treatable with antibiotics, the rate of cases resistant to the available antibiotics is increasing.

A TROUBLING TREND

Pakistan's ongoing outbreak, which has infected more than 15,000 people, is the first-ever reported outbreak of ceftriaxone-resistant typhoid and represents an alarming trend in the spread of drug-resistant typhoid. Not only is the strain resistant to ceftriaxone, the standard IV treatment in many parts of the world, but it is also resistant to all but one oral antibiotic for typhoid, making it increasingly challenging and costly to treat. Bangladesh has reported cases of azithromycin-resistant typhoid, meaning typhoid is showing resistance to all available oral antibiotics.

This trend underscores the urgency to deploy existing, proven interventions—typhoid conjugate vaccines (TCVs) and water, sanitation, and hygiene (WASH) improvements—to prevent typhoid infections, reducing the need for antibiotics and limiting the spread and evolution of drug resistance.

TYPHOID CONJUGATE VACCINES

TCVs have the potential to overcome many of the challenges that impeded uptake of earlier vaccines, including longer-lasting protection, fewer doses, and suitability for children under 2 years of age. Interim results from a study in Nepal show that the World Health Organization (WHO)-prequalified vaccine prevents 81.6 percent of typhoid cases in vaccinated

children. WHO recommends that typhoid-endemic countries introduce prequalified TCVs into routine childhood immunization programs as a single dose for infants and children older than 6 months of age, accompanied by catch-up vaccination campaigns for children up to 15 years of age, where feasible. Gavi, the Vaccine Alliance earmarked US\$85 million to support eligible countries with TCV introduction.

Pakistan began the introduction of TCV in Sindh Province in November 2019, with nearly 10 million children vaccinated. Pakistan will continue with their phased introduction until the vaccine is available nationally for all children at 9 months of age. Liberia and Zimbabwe also plan to introduce TCV into their routine childhood immunization programs.

TyVAC'S APPROACH

TyVAC works closely with local and global stakeholders to accelerate the introduction of TCVs in low-income countries and facilitate access in the most at-risk and marginalized communities.

Our approach is multidisciplinary—at the global level, we work closely with WHO, Gavi, and other partners to ensure sufficient data and evidence to inform global guidelines, financing decisions, and a sustainable vaccine supply. Similarly, TyVAC works with local partners to support program preparation, ensure evidence-based policy decisions, and provide technical assistance for TCV introduction.

TyVAC assesses existing data and generates new evidence on TCV safety, effectiveness, and co-administration, disease burden, drug resistance, cost-effectiveness, and health impact studies. We conduct country-level analyses on cost and economic value of vaccines to inform decision-makers at the national level.

TyVAC is committed to ensuring typhoid prevention and control is a global health priority. By taking an integrated approach that includes TCVs and improved WASH, we can mitigate typhoid's substantial and detrimental impact.

