Potential of typhoid conjugate vaccines in Zimbabwe

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.[1] Additionally, strains of drug-resistant typhoid are spreading, causing global concern.[2]

TYPHOID CONJUGATE VACCINES

Typhoid vaccination can reduce the need for antibiotics, slow expansion of drug-resistant strains, and save lives. Typhoid conjugate vaccines (TCVs) are licensed, prequalified by the World Health Organization (WHO), and have advantages over earlier typhoid vaccines. TCVs provide longer-lasting protection, require only one dose, and are safe and efficacious for children over 6 months.

Three large Phase 3 efficacy studies conducted in Bangladesh, Malawi, and Nepal showed that TCV prevented 85, 84, and 79 percent of typhoid cases in children 9 months to 16 years old, respectively. These results demonstrate that TCV is protective across diverse settings in Africa and Asia.

WHO RECOMMENDATION AND GAVI SUPPORT

In March 2018, WHO recommended TCV as the preferred typhoid vaccine because of its improved performance and suitability for younger children. WHO recommends the introduction of TCV be prioritized in countries with the highest burden of typhoid disease or a high burden of drug-resistant typhoid. WHO encourages routine administration to be accompanied by catch-up vaccination campaigns for children up to 15 years of age, where feasible and supported by data. Gavi, the Vaccine Alliance has provided financial support for eligible countries to introduce TCVs since 2018. Several countries have already introduced TCV into their routine immunization programs including Liberia, Pakistan, Samoa, and Zimbabwe. More than 36 million children have been vaccinated with TCV.

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AN OPPORTUNITY FOR ZIMBABWE

The TCVs now in Zimbabwe's routine immunization program are projected to have a substantial public health benefit. Typhoid is endemic in Zimbabwe and outbreaks have long plagued the country, particularly around Harare. Beginning in late 2016, annual outbreaks have significantly increased Zimbabwe's typhoid burden, with more than 4,000 cases recorded in 2018.[3] However, the true burden is likely much higher due to diagnostic limitations. Drug-resistant typhoid is also a major problem in Zimbabwe, with up to 73 percent of cases in Harare suburbs resistant to first-line antibiotics.

Typhoid likely also imposes an economic burden. Analyses from settings in sub-Saharan Africa have found that the average costs of a typhoid case borne by families can amount to two months of average family income.[4] An economic analysis predicts that Zimbabwe's catch-up campaign and subsequent routine childhood immunization with TCVs will likely be cost-effective, even in the absence of a Gavi subsidy.[5]

References

1. GBD Results Tool. Available at: http://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;47:632-639.
3. Health Information System, Ministry of Health and Child Care, Government of Zimbabwe. 2018.
4. Riewpaiboon A, Piatti M, Ley B, et al. Cost of illness due to typhoid fever in Pemba, Zanzibar, East Africa. *Journal of Health, Population and Nutrition*. 2014;32(3):377-385.
5. Bilcke J, 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):P728-739.

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