Burden of Typhoid in

Malawi

Malawi is a typhoid-endemic country, with a high burden of typhoid.

A large typhoid surveillance study called Strategic Typhoid Alliance across Africa and Asia (STRATAA) was conducted in Blantyre and estimated a rate of **444 typhoid cases per 100,000 people** per year.

The bacteria that causes typhoid, *S.* Typhi, was the primary cause of bloodstream infection in people with fever in the surveillance study.

Additionally, **children 5-9 years old had the highest typhoid incidence rate** of all age groups included in the study.[1]

While typhoid is rarely fatal, the recovery is long and difficult. The disease steals time, money, and productivity from those infected and their families and is associated with numerous long-term complications.

Drug resistance has likely caused typhoid cases in Malawi to increase rapidly over the past years.[2,3]

Data from Blantyre show that **multidrug-resistant (MDR) typhoid** strains became prominent in 2011.

Following the introduction of MDR strains in 2011, **typhoid became the predominant bloodstream infection among adults and children in Malawi**, with a 21% incidence of complications among children.[2-4]

The recent STRATAA study found **high rates of MDR typhoid in Malawi**. 92% of isolates were MDR.[1]

All isolates from typhoid cases identified in a large Phase 3 typhoid conjugate vaccine efficacy study conducted in Malawi were MDR.[4]

Most typhoid cases in Malawi occur in children **younger than 15 years old.**

In the cases identified through the STRATAA surveillance study, incidence rates were highest among children younger than 15 years old.[1]

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Typhoid conjugate vaccines (TCVs) in Malawi

The World Health Organization (WHO) recommends the introduction of prequalified TCVs be prioritized in countries with a high burden of typhoid disease or a high burden of drug-resistant typhoid. Gavi, the Vaccine Alliance support for introduction is available now.

Prequalified TCVs are highly effective and safe for children as young as 6 months of age. Recent data from a large Phase 3 study in Malawi show that TCV is safe and 84% effective in preventing typhoid.[4] TCVs:

- Require **one dose**;
- Are **more effective and may be longer-lasting** than other typhoid vaccines; and
- Can be **co-administered with measles-rubella vaccine.**[5]
- The Government of Malawi has **prioritized typhoid prevention** and control and plans to introduce TCV into its routine childhood immunization program in 2023.

Let's Take on Typhoid in Malawi

- Typhoid is endemic in Malawi, with a *high rate* of typhoid cases per year.
- Malawi's burden of typhoid is most heavily borne by children *younger than 15* years of age.
- Data show *increasing rates of drug-resistant typhoid*, making cases more difficult to treat.
- *TCVs* are safe, effective, and WHO-recommended for routine immunization as part of a cost-effective, integrated approach to typhoid prevention and control alongside safe water, sanitation, and hygiene interventions.
- Malawi plans to introduce TCV into its *routine immunization program* with support from Gavi.

Findings from an economic analysis predict that, even in the absense of a Gavi subsidy, a catch-up campaign with TCV could be cost-effective in Malawi.[6]

Photo: Sabin Vaccine Institute/Thoko Chikondi

1. Meiring JE, Shakya M, Khanam F, et al. Burden of enteric fever at three urban sites in Africa and Asia: A multicentre population-based study. *The Lancet Global Health*. 2021;9(12):E1688-1696.
2. Feasey NA, Gaskell K, Wong V, et al. Rapid emergence of multidrug resistant, H58-lineage *Salmonella* Typhi in Blantyre, Malawi. *PLoS Neglected Tropical Diseases*. 2015;9(4):E0003748.
3. Feasey NA, Masesa C, Jassi C, et al. Three epidemics of invasive multidrug-resistant *Salmonella* bloodstream infection in Blantyre, Malawi, 1998-2014. *Clinical Infectious Diseases*. 2015;61(Suppl 4):S363-S371.
4. Patel PD, Patel P, Liang Y, et al. Safety and efficacy of a typhoid conjugate vaccine in Malawian children. *New England Journal of Medicine*. 2021;385(12):1104-1115.
5. 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.
6. Blicke J, Antillon 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.

TyVAC Typhoid Vaccine Acceleration Consortium
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