

# Burden of Typhoid in Tanzania

Tanzania is a typhoid-endemic country. The Global Burden of Disease study estimated that, in 2023, there were at least:

- 36,883** typhoid cases (56 cases per 100,000)
- 461** typhoid deaths
- 36,435** disability-adjusted **life-years lost** to typhoid<sup>1</sup>

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

## Drug-resistant typhoid strains are a growing problem in Tanzania, regionally, and across the globe.



Typhoid was the most commonly found invasive bacteria in two separate studies in Zanzibar and rural Korogwe District. In Korogwe, **88% of typhoid isolates were resistant to chloramphenicol**, which is a first-line treatment option.<sup>2,3</sup>



An evaluation of blood culture-confirmed typhoid cases in Moshi, Tanzania, between 2011 and 2013 found that **89% of samples were multidrug-resistant (MDR)**.<sup>4</sup>



In another analysis using sites from both rural and urban Moshi, 36% of all blood culture-confirmed cases were MDR. **The urban site estimated a population incidence of MDR typhoid of 103 cases per 100,000**.<sup>5</sup>



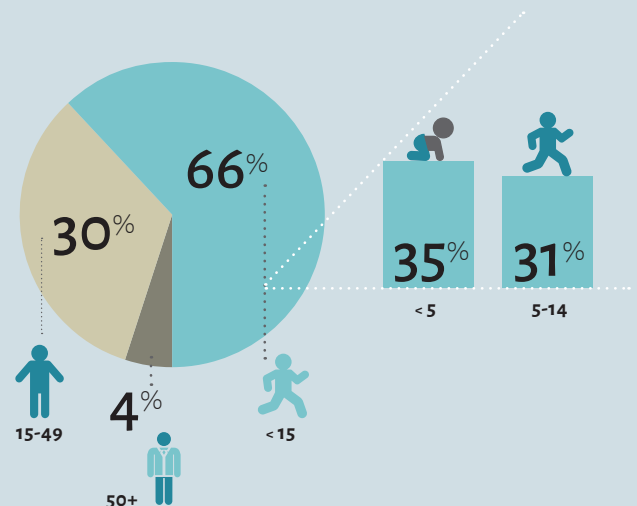
Each typhoid case in Zanzibar costs families an average of US\$154.47, nearly two months of average family income.<sup>6</sup> As drug-resistant typhoid becomes more common, it will become more difficult to treat and **force the use of more expensive and less readily-available treatment options.**

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



Photo: PATH/Doane Porter

## TYPHOID CASES IN TANZANIA BY AGE (2023)<sup>1</sup>



# Typhoid conjugate vaccines (TCVs) in Tanzania

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**. TCVs:



Are highly effective and safe for children as young as **6 months** of age;



Require a **single dose** to prevent 79-85% of typhoid cases in children;



Offer strong protection for **at least 4 years**; and



Can be **co-administered with measles-rubella and meningococcal A vaccines**.<sup>8</sup>

Findings from an economic analysis predict that, even in the absence of a Gavi subsidy, a catch-up campaign with TCV could be cost-effective in Tanzania.<sup>9</sup>

## Let's Take on Typhoid in Tanzania

- ✓ Typhoid is endemic in Tanzania, with more than **36,800** cases per year.
- ✓ Tanzania's burden of typhoid is most heavily borne by children **younger than 15** years of age.
- ✓ Data show an increase in **drug-resistant typhoid** in Tanzania, regionally, and globally.
- ✓ **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.
- ✓ **Gavi support** for TCV introduction is available **now**.

1. Institute for Health Metrics and Evaluation. Global Burden of Disease. 2023. Accessed via: [ghdx.healthdata.org/gbd-results-tool](https://ghdx.healthdata.org/gbd-results-tool).
2. Thriemer K, Ley B, Ame S, et al. The burden of invasive bacterial infections in Pemba, Zanzibar. *PLoS ONE*. 2012;7(2):e30350.
3. Mahende C, Ngasala B, Lusingu J, et al. Bloodstream bacterial infection among outpatient children with acute febrile illness in north-eastern Tanzania. *BMC Res Notes*. 2015;8:289.
4. Al-Emran HM, Eibach D, Krumkamp R, et al. A multicountry molecular analysis of *Salmonella enterica* serovar Typhi with reduced susceptibility to ciprofloxacin in sub-Saharan Africa. *Clinical Infectious Diseases*. 2016;62(S1):S42-S46.
5. Park SE, Pham DT, Boinett C, et al. The phylogeography and incidence of multi-drug resistant typhoid fever in sub-Saharan Africa. *Nature Communications*. 2018;9:5094.
6. 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.
7. 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.
8. Sirima SB, 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;102:517-526.
9. 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*. *Lancet Infectious Disease*. 2019;19(7):728-739.