

Burden of Typhoid in Rwanda

Rwanda is a typhoid-endemic country. The Global Burden of Disease study estimated that, in 2019, there were at least:

12,115 typhoid cases (96 cases per 100,000)

201 typhoid deaths

15,086 disability-adjusted **life-years lost** to typhoid¹

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 Rwanda, regionally, and across the globe.

Typhoid intestinal perforations are a severe and life threatening complication of the disease. A study found that typhoid intestinal perforation was the third most common reason for peritonitis surgery in children at the University Teaching Hospital in Kigali.² These cases have a more complicated recovery, are more expensive to treat, and have a higher mortality rate.



Global data show that multidrug-resistant (MDR) typhoid prevalence has increased dramatically since 1992.³ A study from Kigali found a significant increase of MDR typhoid, from 9.1% to 25% between 2007 and 2008.⁴

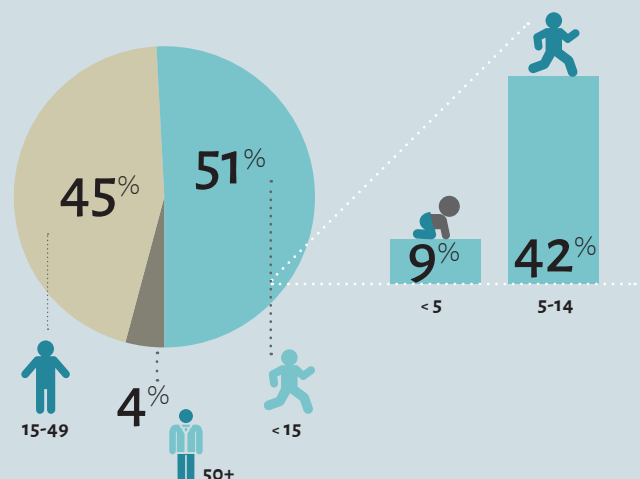


As drug-resistant typhoid becomes more common, it will become more difficult to treat and **force the use of more expensive and less readily-available** treatment options.



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

TYPHOID CASES IN RWANDA BY AGE (2019)



Typhoid conjugate vaccines (TCVs) in Rwanda

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 Malawi show TCV is safe and 84% effective in preventing typhoid.⁵ 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.⁶

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 Rwanda**.⁷

Let's Take on Typhoid in Rwanda

- ✓ Typhoid is endemic in Rwanda, with more than **12,000** cases per year.
- ✓ Rwanda's burden of typhoid is most heavily borne by children **under 15** years of age.
- ✓ Data show an increase in **drug-resistant typhoid** in Rwanda, 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. 2019. Accessed via: ghdx.healthdata.org/gbd-results-tool.
2. Mutabazi E, Bonane A, Ndibanje AJ, Rickard J. Epidemiological study of peritonitis among children and factors predicting mortality at a tertiary referral hospital in Rwanda. *East and Central Africa Journal of Surgery*. 2017;22(3):21-28.
3. 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(6):632-639.
4. Ashok R, Peter K, Joselyne N, Emma N. Antimicrobial susceptibility patterns of *Salmonella* Typhi from Kigali, Rwanda. *Shiraz E Medical Journal*. 2010;11(3):117-121.
5. 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.
6. 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.
7. 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.