

# Burden of Typhoid in Cambodia

Cambodia is a typhoid-endemic country. The Global Burden of Disease study estimated that, in 2017, there were at least:

**31,016** typhoid cases (192 cases per 100,000)

**300** typhoid deaths

**21,071** disability-adjusted **life-years lost** to typhoid<sup>1</sup>

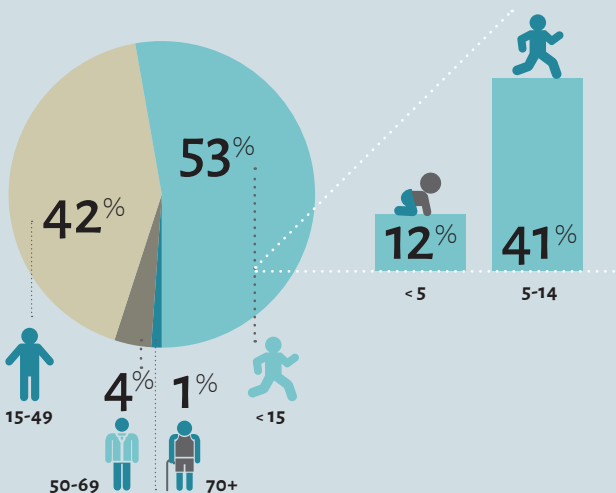
While typhoid is rarely fatal, the recovery is long and difficult. The disease takes time, money, and productivity from those infected and their families and is associated with numerous long-term complications.



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



TYPHOID CASES IN CAMBODIA BY AGE (2017)



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



Global data show that the multidrug-resistant (MDR) H58 typhoid strain prevalence has **increased dramatically since 1992**.<sup>2</sup>



A study found that **typhoid in Cambodian children is dominated by the H58 strain**. Additionally, 85% of the isolates analyzed were MDR, leading the authors to conclude that drug-resistant typhoid is common in Cambodian children and therapeutic options are limited.<sup>3</sup>



Another study found that the majority of isolates tested were MDR, and 80% had reduced susceptibility to ciprofloxacin<sup>4</sup>, the standard treatment for typhoid in many parts of the world.



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.

# Typhoid conjugate vaccines in Cambodia

**Typbar-TCV<sup>®</sup>** is a newly licensed and World Health Organization (WHO)-prequalified and recommended tool for typhoid prevention in endemic areas. **Gavi, the Vaccine Alliance support for introduction is available now.**

Typbar-TCV is highly effective and safe for children as young as 6 months of age,<sup>5</sup> and:



Only requires **one dose**;



May be **more effective and longer-lasting** than other previous typhoid vaccines; and



Can be **co-administered with measles-rubella** vaccine.

Preliminary findings from an economic analysis predict that, even in the absence of a Gavi subsidy, a catch-up campaign with TCV could be potentially cost-effective in Cambodia.<sup>6</sup>

## Let's Take on Typhoid in Cambodia

- ✓ Typhoid is endemic in Cambodia, with more than **31,000** cases per year.
- ✓ Cambodia'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 Cambodia and globally.
- ✓ **A new TCV** is 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. 2018. Accessed via: [ghdx.healthdata.org/gbd-results-tool](https://ghdx.healthdata.org/gbd-results-tool).
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3. Emary K, Moore CE, Chanpheaktra N, et al. Enteric fever in Cambodian children is dominated by multidrug-resistant H58 *Salmonella enterica* serovar Typhi with intermediate susceptibility to ciprofloxacin. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 2012;106(12):718-724.
4. Kasper M, Sokhal B, Blair PJ, et al. Emergence of multidrug-resistant *Salmonella enterica* serovar Typhi with reduced susceptibility to fluoroquinolones in Cambodia. *Diagnostic Microbiology and Infectious Disease*. 2010;66(2):207-209.
5. Jin C, Gibani MM, Moore M, et al. Efficacy and immunogenicity of a Vi-tetanus toxoid conjugate vaccine in the prevention of typhoid fever using a controlled human infection model of *Salmonella* Typhi: a randomized control, phase 2b trial. *The Lancet*. 2017;390(10111):2472-2480.
6. Bilcke J, et al. Setting global performance standards for a cost-effective typhoid conjugate vaccine strategy; modelling study. In prep.