

Burden of Typhoid in Laos

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

359 typhoid cases (5 cases per 100,000)

4 typhoid deaths

327 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.

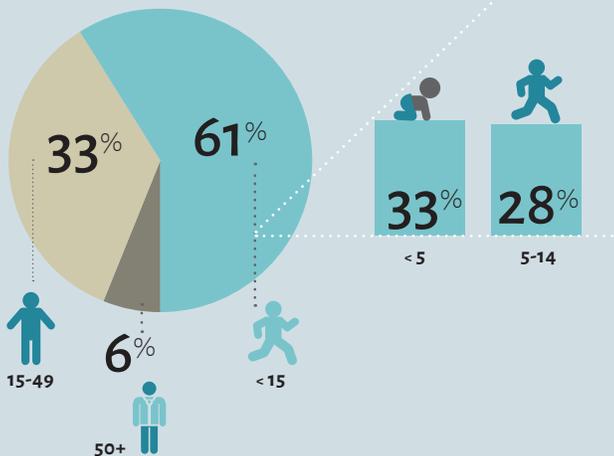


Most typhoid cases in Laos occur in children **younger than 15 years old.**



Photo: FAO/Aaron Joel Santos

TYPHOID CASES IN LAOS BY AGE (2023)



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



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



Testing of typhoid isolates taken from patients in Vientiane, Laos, between 2000 and 2004 **found resistance and multi-drug resistance to ampicillin, co-trimoxazole, and chloramphenicol.**³



Additionally, a retrospective study of patient urine samples from 3 hospitals in Laos found a **high frequency of antibiotic use that is likely to engender worsening drug resistance** for several pathogens, including typhoid.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.

Typhoid conjugate vaccines in Laos

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;^{5,6}



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



Can be **co-administered with measles-rubella** vaccine.⁷

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 Laos.⁸



Let's Take on Typhoid in Laos

- ✓ Typhoid is endemic in Laos, with more than **350** cases per year.
- ✓ Laos's burden of typhoid is most heavily borne by children **younger than 15** years old.
- ✓ Data show an increase in **drug-resistant typhoid** in Laos 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.
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(6):632-639.
3. Phetsouvanh R, Phongmany S, Soukaloun D, et al. Causes of community-acquired bacteremia and patterns of antimicrobial resistance in Vientiane, Laos. *American Journal of Tropical Medicine and Hygiene*. 2006;75(5):978-985.
4. Khennavong M, Davone V, Vongsouvat M, et al. Urine antibiotic activity in patients presenting to hospitals in Laos: Implications for worsening antibiotic resistance. *American Journal of Tropical Medicine and Hygiene*. 2011;85(2):295-302.
5. Shakya M, Voysey M, Theiss-Nyland K, et al. Efficacy of typhoid conjugate vaccine in Nepal: Final results of a phase 3, randomised, controlled trial. *The Lancet Global Health*. 2021;9(11):e1561-1568.
6. Qadri F, Khanam F, Liu X, et al. Protection by vaccination of children against typhoid fever with a Vi-tetanus toxoid conjugate vaccine in urban Bangladesh: A cluster-randomised trial. *The Lancet*. 2021;398(10301):675-684.
7. 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.
8. Bilcke J, Antillón M, Pieters Z, et al. Cost-effectiveness of routine and campaign use of typhoid Vi-conjugate vaccine in Gavi-eligible countries: A modelling study. *Lancet Infectious Disease*. 2019;19(7):728-739.