Together We Can
Take on Typhoid

Burden of Typhoid in

Laos

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

14,381 **typhoid cases** (206 cases per 100,000)

185 **typhoid deaths**

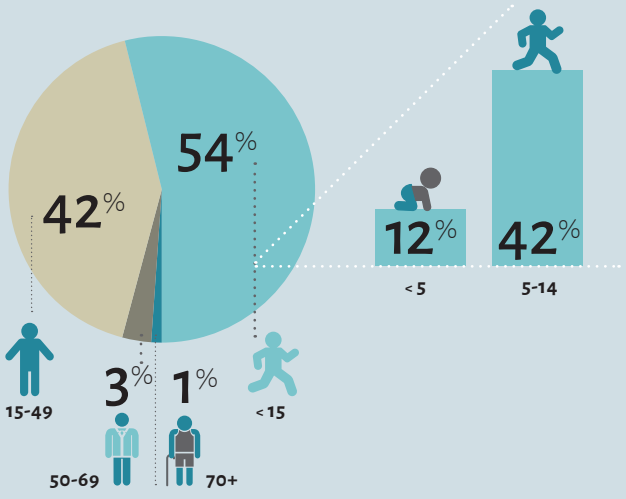
13,501 disability-adjusted **life-years lost** to typhoid[1]

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.


Photo: ACH/Aaron Joel Santos

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

TYPHOID CASES IN LAOS BY AGE (2017)



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

Typbar-TCV® 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,[5] 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.

Let's Take on Typhoid in Laos

- Typhoid is endemic in Laos, with more than ***14,000*** cases per year.
- Laos'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 Laos 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***.

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 Laos.[6]

Photo: AUTV/Aaron Joel Santos

1. Institute for Health Metrics and Evaluation. Global Burden of Disease. 2018. 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, Vongsouvath 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. 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.

TyVAC Typhoid Vaccine Acceleration Consortium
CENTER FOR VACCINE DEVELOPMENT • OXFORD VACCINE GROUP • PATH

COALITION AGAINST TYPHOID a program of the Sabin Vaccine Institute