Together We Can
Take on Typhoid

Burden of Typhoid in

Vietnam

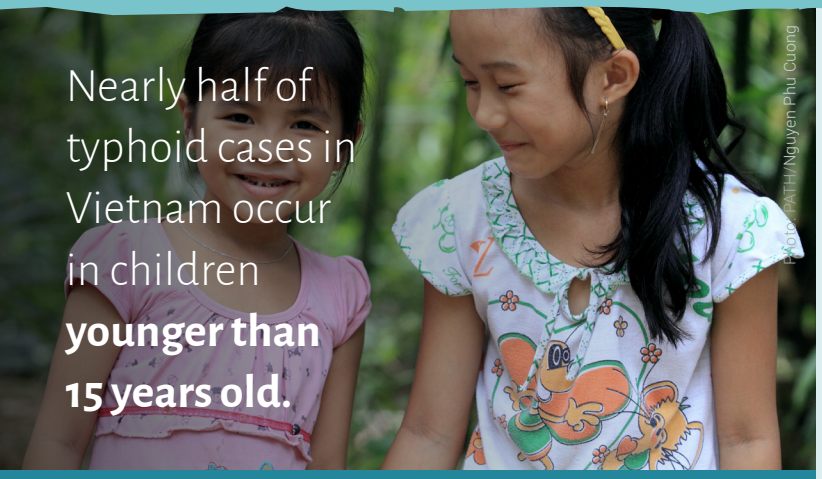
Vietnam is a typhoid-endemic country. The Global Burden of Disease study estimated that, in 2017, there were at least:

117,770 **typhoid cases** (123 cases per 100,000)

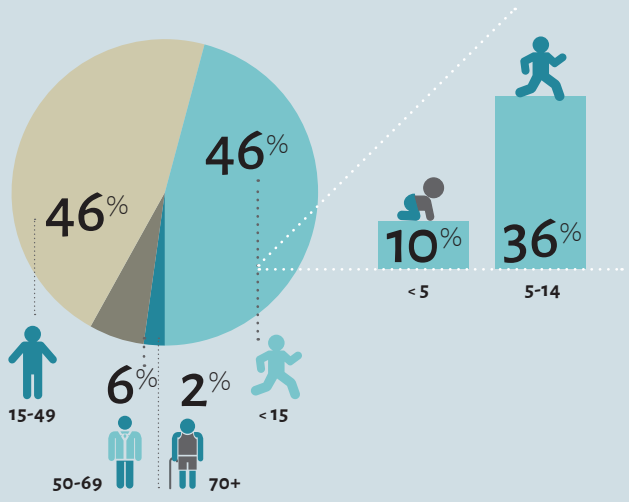
1,193 **typhoid deaths**

80,281 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.



TYPHOID CASES IN VIETNAM BY AGE (2017)



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

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

There is a significant burden of typhoid in the Mekong River delta region. Data show that 91% of isolates analyzed from this region in 2001-2005 were the H58 strain. Further, **98% of the isolates in the study were resistant to 4 classes of antibiotics, placing great pressure on the effective use of fluoroquinolones**.[3]

Another study conducted in 2008 showed that **84% of the isolates from Vietnam were MDR**.[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 Vietnam

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 Vietnam

- Typhoid is endemic in Vietnam, with more than ***117,000*** cases per year.
- Nearly half of Vietnam's typhoid burden is borne by children ***younger than 15*** years of age.
- Data show ***MDR typhoid*** is present in Vietnam.
- ***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***.

An analysis that modeled the cost-effectiveness of TCV introduction in five Asian countries predicts that routine vaccination would be cost-saving in Vietnam.[6]

Photo: PATH/ Jammohamed

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. Holt KE, Dolecek C, Chau TT, et al. Temporal fluctuation of multidrug resistant *Salmonella* Typhi Haplotypes in the Mekong River delta region of Vietnam. *PLoS Neglected Tropical Diseases*. 2011;5(1):e929.
4. Chiou C-S, Lauderdale T-L, Phung DC, et al. Antimicrobial resistance in *Salmonella enterica* Serovar Typhi isolates from Bangladesh, Indonesia, Taiwan, and Vietnam. *Antimicrobial Agents and Chemotherapy*. 2014;58(11):6501-6507.
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. Antillón M, Bilcke J, Paltiel AD, Pitzer VE. Cost-effectiveness analysis of typhoid conjugate vaccines in five endemic low- and middle-income settings. *Vaccine*. 2017;35(27):3506-3514.

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

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