TCV vaccines indicator

Burden & epidemiology

Number of new cases per year (last 3-5 years)

Global modelled estimates indicate approximately 6.2 million typhoid illnesses in 2023,[1] compared with 7.2 million illnesses in 2021.[2] A systematic review of blood culture–confirmed incidence (studies 1954–2023) found pooled incidence of 119 per 100,000 person-years (95% CI: 81.9–174.4) in population-based studies and 123 per 100 000 (95% CI: 77.2–196.2) in hybrid-surveillance studies overall, highest in Asia (206.8 and 259.1 per 100 000 respectively) and lower in Africa (68.9 and 72.5 per 100 000) and Europe (55.6 per 100 000, population-based only).[3] Data were insufficient to generate incidence estimates for the Americas; no Oceania estimates were identified.

Proportion of the population affected by the disease or infected with the antigen

Global pooled age-occurrence estimates indicate that 1.3% of illnesses occur before six months of age, 3.6% before 15 months, 18.7% before five years and 55.5% before 15 years; approximately 36.8% occur between five and 15 years of age.[4] The age distribution varies geographically and between surveillance sites, and population-based estimates remain limited in many endemic countries.[5, 6]

Serogroup or serotype distribution (for serogroup- or serotype-specific vaccines)

Typhoid fever is caused by *Salmonella enterica* serovar Typhi, which expresses somatic O, flagellar H and capsular Vi antigens.[5] The Vi polysaccharide is the antigen used in all currently available typhoid conjugate vaccines (TCVs). Vi is also expressed by *Salmonella* Paratyphi C and, rarely, by other organisms, but is absent from *Salmonella* Paratyphi A and B. TCVs are directed against Vi-expressing *S*. Typhi and are not expected to protect against *S*. Paratyphi A or B infections. A whole-genome-sequencing-based SNP genotyping framework for S. Typhi (GenoTyphi) provides a phylogenetically informative nomenclature for circulating lineages and their antimicrobial resistance (AMR) determinants.[7, 8]

Number of deaths from the disease per year

The Global Burden of Disease Study estimated approximately 72 000 typhoid deaths globally in 2023 (95% UI: 38 000–120 000).[9] The WHO Foodborne Disease Epidemiology Reference Group estimated 94 700 deaths in 2021 (95% UI: 46 900–161 000).[2] Mortality burden is concentrated in South Asia and sub-Saharan Africa, with substantial variation in the countries within these regions. These are modelled estimates rather than vital-registration counts, reflecting incomplete diagnosis, limited blood-culture access and under-ascertainment in many endemic settings.

Case Fatality ratio (number of deaths / number of new cases, in %)

A global systematic review and meta-analysis (reports 1980–2025) estimated an overall pooled case fatality ratio (CFR) of 2.1% (95% CI: 1.7–2.7) among non-surgical typhoid reports; 2.7% (95% CI: 1.8–4.0) among children aged ≤15 years and 1.8% (95% CI: 1.3–2.4) in mixed-age populations.[10]

CFR was higher in facility-based than community-based studies and higher in sub-Saharan Africa than in Asia. Typhoid intestinal perforation occurs in approximately 1–2% of illnesses and carries substantially higher mortality risk than uncomplicated typhoid fever.[11] Case fatality is strongly influenced by timely diagnosis and access to effective antimicrobial and surgical care.

Outbreak, epidemic or pandemic risk

Salmonella Typhi is transmitted through food or water contaminated with faeces from infected people, and outbreaks are facilitated by inadequate water, sanitation, hygiene and food-safety systems.[12] Large and prolonged outbreaks have occurred in endemic settings, including outbreaks involving multidrug-resistant and extensively drug-resistant organisms, notably in Pakistan.[13] TCV has been used in outbreak-response campaigns in Pakistan and Zimbabwe alongside case management and water, sanitation and hygiene interventions.[14, 15, 16] The emergence of resistance to the major antimicrobial classes used to treat typhoid increases the clinical and public-health consequences of outbreaks and may limit treatment options.[17, 18, 19]

Contribution of the vaccine to achievement of the national, regional or global disease goals

There is currently no regional or global disease control or elimination goal for typhoid fever.

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