

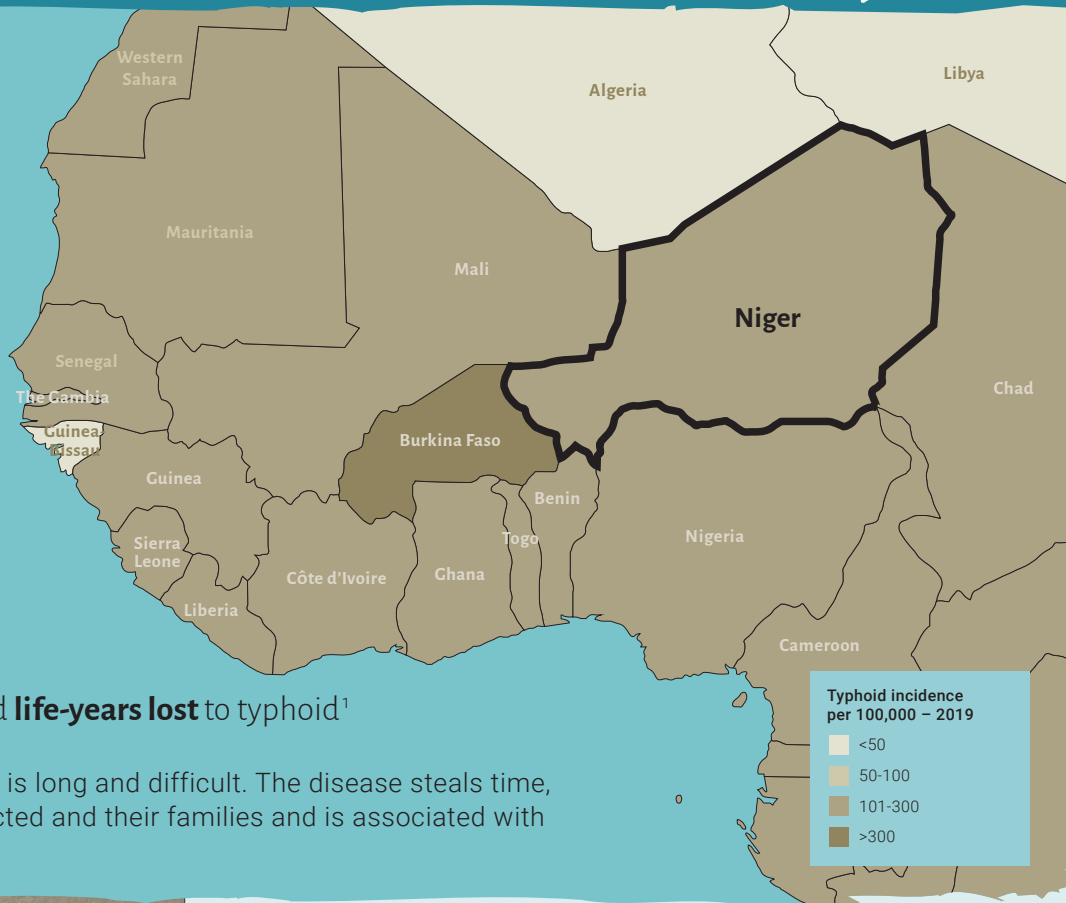
# Burden of Typhoid in Niger

Niger is a typhoid-endemic country. The Global Burden of Disease 2019 study estimated that Niger experienced at least:

**31,141** typhoid cases  
(134 cases per 100,000)

**491** typhoid deaths

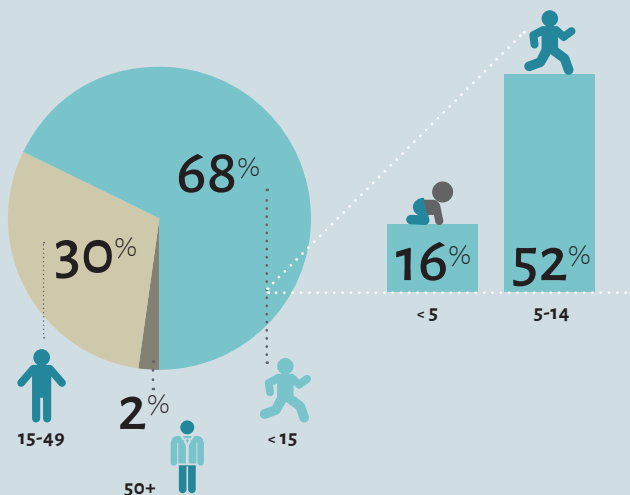
**38,895** disability-adjusted **life-years lost** to typhoid<sup>1</sup>



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

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

TYPHOID CASES IN NIGER BY AGE (2019)



## The risk of typhoid may be increasing in Niger.



Typhoid is spread through contaminated food and water. **In Niger, more than half of the population does not have access to basic water services and 85% do not have access to basic sanitation services.**<sup>2</sup> This raises typhoid risks.



Global data show that multidrug-resistant (MDR) typhoid prevalence has increased dramatically since 1992.<sup>3</sup> **A study in Niger found that all 4 typhoid isolates identified were MDR.**<sup>4</sup> While the total number of isolates from this study is small, it confirms that MDR typhoid is present in Niger. Drug-resistant typhoid is more difficult to treat and forces the use of more expensive and less readily-available treatment options.



Typhoid intestinal perforations are a severe and life threatening complication of the disease. A study of childhood abdominal emergency surgeries at Niamey National Hospital found that **38% of the abdominal surgeries performed in children younger than 5 years old were for intestinal perforation due to typhoid.**<sup>5</sup> These cases have a more complicated recovery, are more expensive to treat, and have a higher mortality rate.

# Typhoid conjugate vaccines (TCVs) in Niger

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. Support for introduction from Gavi, the Vaccine Alliance 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;<sup>6</sup>



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



Can be **co-administered** with measles, yellow fever, and meningococcal A vaccines.<sup>7,8</sup>

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 Niger.<sup>9</sup>

## Let's Take on Typhoid in Niger

- ✓ Typhoid is endemic in Niger, with more than **31,000** cases per year.
- ✓ Niger's burden of typhoid is most heavily borne by children **younger than 15** years of age.
- ✓ Data show a **high number of intestinal perforations** due to typhoid as well as increasing **drug resistance**, which is more difficult to treat.
- ✓ **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. 2019. Accessed via: [ghdx.healthdata.org/gbd-results-tool](https://ghdx.healthdata.org/gbd-results-tool).
2. Sustainable Development Report. Niger. 2020. Available at: <https://dashboards.sdindex.org/profiles/niger/indicators>.
3. 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.
4. Abdelkader AS, Oumarou SS, Yacoubou B. Epidemiology, diversity and resistance to antibiotics in *Salmonella* strains isolated from humans in two cities of Niger Republic. *International Journal of Current Research*. 2018;10(2):65364-65370.
5. Didier LJ, Adamou H, Habou O, et al. Non-malformative emergency abdominal surgery in children aged 0-5 years. *Surgical Science*. 2021;12(7).
6. Patel PD, Patel P, Liang Y, et al. Safety and efficacy of a typhoid conjugate vaccine in Malawian children. *New England Journal of Medicine*. 2021;385(12):1104-1115.
7. Sirima SB, Ouedraogo A, Barry N, et al. Safety and immunogenicity of co-administration of meningococcal type A and measles-rubella vaccines with typhoid conjugate vaccine in children aged 15-23 months in Burkina Faso. *International Journal of Infectious Diseases*. 2021;102:517-526.
8. 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.
9. 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