

# Typhoid fever surveillance study in sub-Saharan Africa shows need for typhoid conjugate vaccines in endemic countries

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A child receives typhoid conjugate vaccine during the TCV Introduction in Madagascar (TyMA) vaccination campaign in August 2023. Credit: IVI

There is a high burden of typhoid fever in sub-Saharan African countries, according to a new study [published](#) in *The Lancet Global Health*. This high burden combined with the threat of typhoid strains resistant to antibiotic treatment calls for stronger prevention strategies, including the use and implementation of typhoid conjugate vaccines (TCVs) in endemic settings along with improvements in access to safe water, sanitation, and hygiene.

The findings from this four-year study, the Severe Typhoid in Africa (SETA) program, offers new typhoid fever burden estimates from six countries: Burkina Faso, Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Madagascar, and Nigeria, with four countries recording more than 100 cases for every 100,000 person-years of observation, which is considered a high burden. The highest incidence of typhoid was found in DRC, with 315 cases per 100,000 people, while children between 2-14 years of age were shown to be at highest risk across all 25 study sites.

There are an estimated [12.5 to 16.3 million cases of typhoid every year with 140,000 deaths](#). However, with generic symptoms such as fever, fatigue, and [abdominal pain](#), and the need for blood culture sampling to make a [definitive diagnosis](#), it is difficult for governments to capture the true burden of typhoid in their countries.

"Our goal through SETA was to address these gaps in typhoid disease burden data," said lead author Dr. Florian Marks, Deputy Director General of the International Vaccine Institute (IVI). "Our estimates indicate that introduction of TCV in endemic settings would go to lengths in protecting communities, especially [school-aged children](#), against this potentially deadly—but preventable—disease."

In addition to disease incidence, this study also showed that the emergence of antimicrobial resistance (AMR) in *Salmonella typhi*, the bacteria that causes typhoid fever, has led to more reliance beyond the traditional first line of antibiotic treatment. If left untreated, severe cases of the disease can lead to intestinal perforation and even death. This suggests that prevention through vaccination may play a critical role in not only protecting against typhoid fever but also reducing the spread of drug-resistant strains of the bacteria.

There are two TCVs prequalified by the World Health Organization (WHO) and available through Gavi, the Vaccine Alliance. In February 2024, IVI and SK bioscience announced that a third TCV, SKYTyphoid, had also achieved WHO PQ, paving the way for public procurement and increasing the global supply.

Alongside the SETA disease burden study, IVI has been working with colleagues in three African countries to show the real-world impact of TCV vaccination. These studies include a cluster-randomized trial in Agogo, Ghana and two effectiveness studies following mass vaccination in Kisantu, DRC and Imerintsiatosika, Madagascar.

Dr. Birkneh Tilahun Tadesse, Associate Director General at IVI and Head of the Real-World Evidence Department, explains, "Through these vaccine effectiveness studies, we aim to show the full public health value of TCV in settings that are directly impacted by a high burden of [typhoid fever](#). Our final objective of course is to eliminate typhoid or to at least reduce the burden to low incidence levels, and that's what we are attempting in Fiji with an island-wide vaccination campaign."

As more countries in typhoid endemic countries, namely in sub-Saharan Africa and South Asia, consider TCV in national immunization programs, these data will help inform evidence-based policy decisions around typhoid prevention and control.

**More information:** Incidence of typhoid fever in Burkina Faso, Democratic Republic of the Congo, Ethiopia, Ghana, Madagascar, and Nigeria (the Severe Typhoid in Africa programme): a population-based study, *The Lancet Global Health* (2024). [www.thelancet.com/journals/lan... \(24\)00007-X/fulltext](https://www.thelancet.com/journals/lan... (24)00007-X/fulltext)

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