

Proposed Recommendations on Typhoid Vaccines (2.0)

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Recommendations for vaccination

1. In typhoid endemic countries, SAGE recommends introduction of TCV for infants and children over 6 months of age as a single dose. Routine programmatic administration of TCV might be most feasible at the same time as other vaccine visits at 9 months or in the second year of life.
2. In typhoid endemic countries, catch up vaccination up to 15 years of age is recommended wherever feasible. The benefit of routine plus catch up vaccination is greatest where more cohorts are immunized in the initial campaign, and this has the potential to maximize indirect protection. The youngest age groups should be prioritized for catch up where catch up to adulthood is not feasible.

3. Introduction of TCVs should first be prioritized to countries with the highest burden of disease and/or growing burden of antimicrobial resistant *S. Typhi*.
4. In endemic settings where disease burden data suggest that vaccination below 2 years of age is not a priority, countries should consider the routine use of TCV or ViPS vaccine, but TCV is preferred in view of its improved immunological properties. Alternatively, Ty21a vaccine could be considered for individuals aged 5 years and above. Decisions on use of typhoid vaccines should, take into account vaccine supply, cost and other programmatic considerations.

5. Typhoid vaccination is recommended **in response to confirmed outbreaks of typhoid fever**. Important considerations for the use of vaccine in outbreak control include vaccine availability, logistics, and costs as well as the characteristics of the outbreak (such as the confirmation of antimicrobial resistant *S. Typhi* strains, outbreak size, duration and age group affected).

Typhoid vaccination may be considered in humanitarian emergencies depending on the risk assessment in the local setting.

6. Typhoid vaccination is recommended for the following **specific groups of epidemiological relevance, by virtue of being at high risk or important for transmission**, in line with the above age-appropriate recommendations. When ViPS or Ty21a is used, the current recommendations for revaccination with ViPS every 3 years or with Ty21a every 3 to 7 years remain.
- **Professional food handlers:** in typhoid endemic areas, professional food handlers should be vaccinated against typhoid with one of the available products. If available, preference for use of a Vi negative vaccine, such as Ty21a should be considered in order to protect the possibility for serological identification of a chronic carrier status among vaccinated persons. However, professional food handlers should not go unvaccinated due to lack of Ty21a vaccine.

- **Travellers from non-endemic to endemic areas:**
Typhoid vaccination should be offered to travellers to destinations where the risk of typhoid fever is high, using one of the available products including TCV, Vi-PS or Ty21a. Where available, licensed combination typhoid-hepatitis A vaccines may be used for travellers.
- **Clinical microbiology laboratory staff with a recognized risk of occupational exposure to S. Typhi** should be offered protection against typhoid fever.

General recommendations

- Introduction of TCV should include post-licensure monitoring of effectiveness (including serological and clinical endpoints) and robust monitoring of vaccine safety in line with the GACVS recommendations.
- Cost-effectiveness analyses should be part of the country decision-making and planning process to initiate programmatic use of typhoid vaccines.

- SAGE recommends that countries strengthen the surveillance of typhoid fever, and monitor the occurrence of antimicrobial resistant strains of *S. Typhi* in endemic and epidemic disease, before and after programmatic use of TCV.
- All typhoid vaccination programmes should be implemented in the context of other efforts to control the disease, including health education, water quality and sanitation improvements, and training of health professionals in diagnosis and treatment.