Country Decision-Making on TCV Introduction: **Potential Role of Environmental Surveillance**

11th International Conference on Typhoid & Other Invasive Salmonelloses

26-28 March, 2019 | Hanoi, Viet Nam

Adwoa Bentsi-Enchill, Helen Matzger
WHO HQ, Immunization, Vaccines and Biologicals

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Global policy and financing for TCV evolved rapidly

2017

Gavi Board approves $85M for TCV in 2019-2020

2018

Revised WHO recommendation for typhoid vaccines

October | November | December | January | February | March

WHO SAGE recommendation for TCV

Typbar-TCV™ receives WHO PQ

Gavi The Vaccine Alliance

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WHO position paper on typhoid vaccines (2018) Highlights of TCV recommendation*

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Organisation mondiale de la Santé

Weekly epidemiological record
Relevé épidémiologique hebdomadaire

Typhoid vaccines: WHO position paper – March 2018

Vaccins antityphoïdiques: note de synthèse de l'OMS – mars 2018

http://apps.who.int/iris/bitstream/handle/10665/272272/WER9313.pdf

- **Single IM dose** for infants and children **from 6 mths of age** and adults up to 45 yrs in typhoid endemic regions.
- Routine programmatic use **at 9 mths of age, or in the 2nd yr of life**.
- **Catch up to 15 yrs of age**.
- … recommended in **response to confirmed outbreaks**

* ViPS and Ty21a still recommended for eligible age groups

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TCV– What does Gavi support?

Single dose routine

*Co-financed

*Vaccine introduction grant

*Gavi recommends to link to MCV1 or MCV2

One time single dose catch-up

*Fully financed by Gavi

*Operational cost support

*up to 15 years

National vs risk-based, or a phased approach may be used

What epidemiological data are available for country decisions on TCV introduction and vaccination strategies?

(immediate need of guidance for Gavi application reviews)

National decisions on the preferred vaccination strategy (universal, risk-based, or phased) should be based on an analysis of the disease burden and risk factors for transmission, availability and quality of surveillance data, cost-effectiveness, affordability, and operational feasibility. The experiences and impact of different vaccination strategies, as well as integration with WASH or other interventions, should be monitored and documented in order to support further improvement in typhoid control. --- WHO Position Paper (2018)

Assessing the epidemiological evidence

- **Gavi TCV application guidance**
  - Initial guide developed by WHO and Gavi (2018)
  - Expert inputs sought from multiple stakeholders and partners

- **Ongoing work** led by CDC and WHO to develop a risk assessment framework (similar to Hib rapid assessment tool):
  - Phase 1: assess available data (ref next slide)
  - Phase 2: establish low-cost, sustainable mechanisms for surveillance
    - ✓ blood culture/minimal WHO standards, **environmental surveillance**, sero-epidemiology

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Gavi TCV application guidance

Step 1 – Assess Evidence of Past or Current Typhoid Disease

Countries should attempt to review all **sources of credible evidence of past typhoid disease** from the previous five years if available, including:

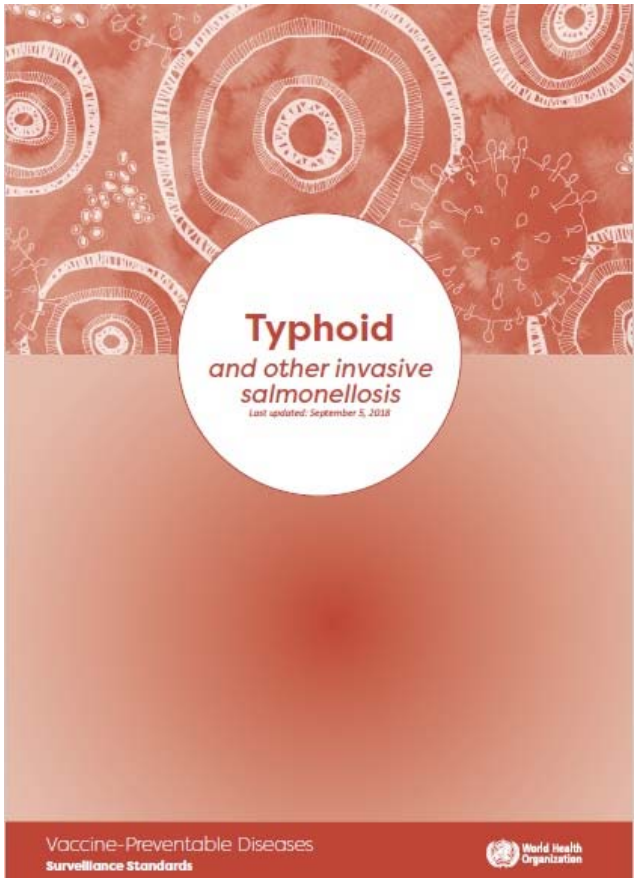
- Records of **laboratory-confirmed typhoid**
  - ✓ **individual cases (positive blood cultures)**, including any antimicrobial resistance testing results
  - ✓ **outbreaks**, including blood culture confirmed typhoid cases and non-traumatic terminal ileal perforations
  - ✓ **through other laboratory methods**, such as molecular testing, using a known or validated protocol such as in a research study

Step 2: Assess Evidence Which Indicates a Likely Risk of Typhoid Disease

Countries should attempt to review all **sources of credible information predictive of future risks,** including:

- **Modelled burden or prediction of typhoid disease** (country-specific data, data from global models, comparable neighbouring countries)
- **Surveillance data from neighbouring or similar countries** on **laboratory-confirmed** typhoid cases and outbreaks
- **Laboratory-confirmed *S.* Typhi from environmental sampling**
- Data on **risk factors for typhoid disease**, such as lack of access to improved water and adequate sanitation

WHO surveillance standards (2018)



"… there is **not enough evidence to currently recommend environmental sampling of water on a routine basis** to test for *S.* Typhi and *S.* Paratyphi (over and above routine water tests, which may already be taking place to ensure basic water standards and requirements are met). "

"In an outbreak, environmental surveillance may be useful to identify potential environmental sources of infection."

https://www.who.int/immunization/monitoring_surveillance/burden/vpd/standards/

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What is the potential role for ES in country decision making on TCV use?

- Correlation between positive ES samples and clinical disease/disease burden?
  - granularity of data interpretation?
  - e.g. do multiple +ves = multiple cases vs a chronic carrier shedding?
- Extrapolation of data beyond ES catchment area?
- Policymakers' confidence in ES methodology and data?
  - supplement other data (risk factors, intestinal perforation, limited/weak BC surveillance …….) vs the primary data

- Selection of sites and methods: will be informed by validation of current initiatives.
- Lessons from other WHO programmes
  - **Polio ES:** longstanding experience
    - ✓ complements a strong AFP surveillance program
    - ✓ Specific roles such as detection of PV importations into polio free areas
  - New or emerging experience e.g., foodborne & zoonotic disease surveillance?
- Added value for monitoring AMR?
- Technical oversight/Expert working group

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What is the potential role of environmental surveillance for the future of typhoid control?

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