

BILL & MELINDA
GATES *foundation*

Looking ahead – What do we need for successful enteric fever control?

13th International Conference on Typhoid and other invasive Salmonellosis.

Kigali, Rwanda. December 5-7, 2023

THANK YOU

Thank you to Denise and the Sabin team for another wonderful conference in a fantastic location.

Thank you to Adwoa for over 20 years of service to global public health and for your leadership and guidance for the typhoid community.



DECEMBER 2023 – WHERE ARE WE?

So much exciting data since the last in-person meeting

- Significant improvements in disease burden estimates
- Evidence of the novel technologies for disease burden awareness
- Greater understanding of the public health impact of TCV effectiveness
- Improved understanding of immunity and duration of protection of the TCVs
- Recognizing the complexities of country introduction needs



LOOKING TO THE FUTURE OF TYPHOID CONTROL

Issue

Details

Current efforts

Understanding the disease burden

- Global requirements
- National / regional needs

- Novel technologies
- AMR and genomics
- Novel low-cost technologies

Understanding the vaccine

- Vaccine effectiveness in public health use
- Duration of protection and need for a booster?

- Ongoing effectiveness and observational studies

Meeting country needs

- Competing priorities for countries
- Financial implications for transitioning countries

- Partner coordination in support of MoH

WE NEED TO UNDERSTAND THE BURDEN OF DISEASE

Global data is required

- Global data is critical for Gavi → vaccine demand forecast and funding
- Global data is important for WHO → global recommendations
- Data is important for the funders

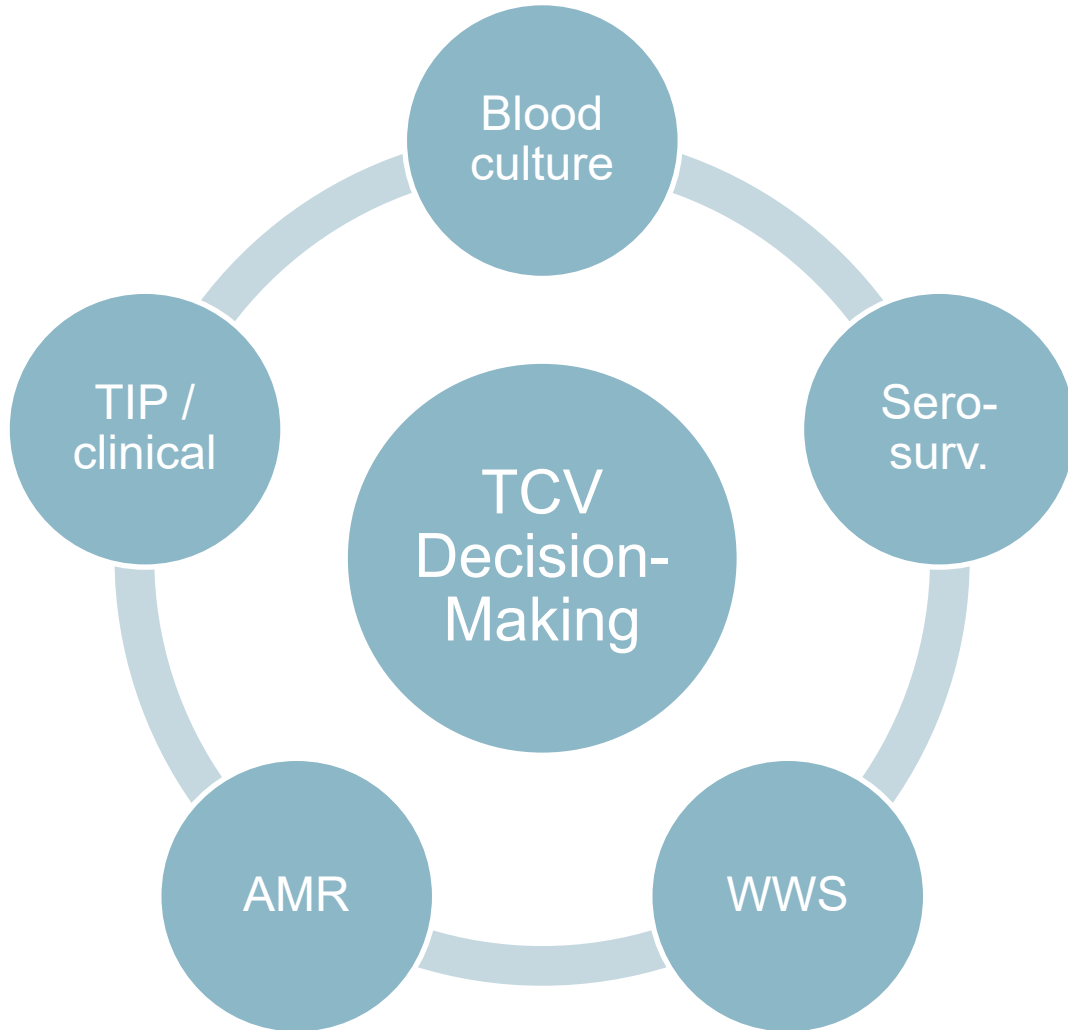
Regional data

- Prioritization of vaccines – RITAGs and WHO ROs
- There are other vaccines to consider (e.g. malaria, HPV, hexavalent)
- Current EPI coverage is too low (e.g. Madagascar, Myanmar) → implications for health systems strengthening / immunization schedules

National data

- Local (regional data) is important for countries
- Prioritization of new vaccines and interventions in pipeline
- Cost effectiveness and future financial implications
- Routine use and catch-up campaigns involve different strategies, human resources and funding

INNOVATIVE TOOLS ARE EMERGING



- Novel techniques are demonstrating
- Strengthen integrated disease surveillance
- Increase geographic representation of data
- Inform value of vaccination
 - Antibiotic resistant expanding
 - Clinical (eg. typhoid-associated intestinal perforation)
- Multiple opportunities to measure impact

- Genomics advancing our understanding
- Other 'omics and biomarkers studies ongoing
- Gavi TyDRep – RDTs panels and guidance

UNDERSTANDING VACCINE EFFECTIVENESS AND USE

Effectiveness in public health use

- Robust and consistent effectiveness observed in field studies
- Duration of protection – early data now emerging
- Some questions on breakthrough cases that we need to understand better

Effectiveness in <2 and <5 yr olds

- Poorer immune responses observed
- Faster decline in antibody titres in young children
- Current EPI coverage is too low (e.g. Madagascar, Myanmar)

Utility in outbreak settings

- Need for evaluation and guidance of use in outbreak settings
- Cost effectiveness of outbreak TCV responses

New vaccine development

- Bivalent vaccine development ongoing
- iNTS vaccine development ongoing

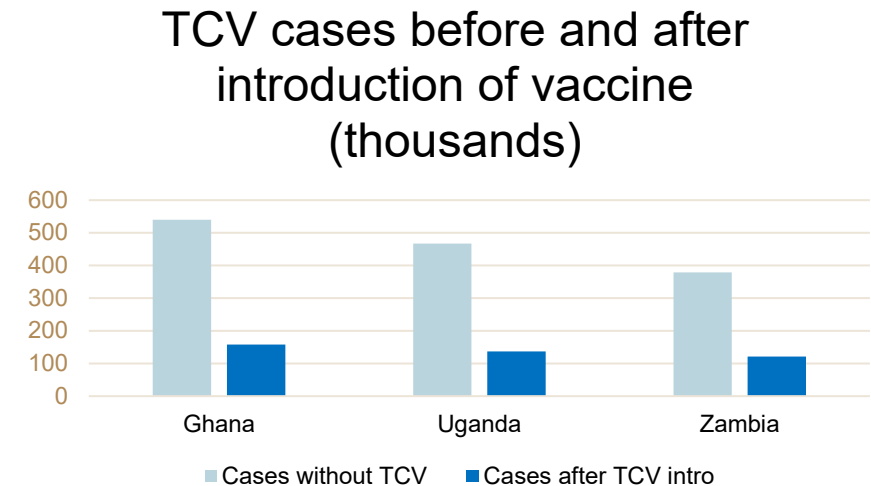
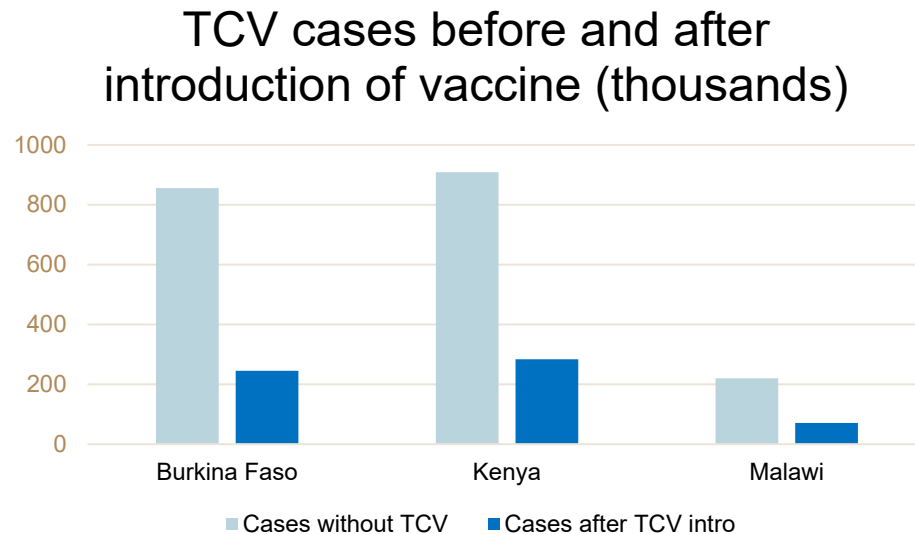
PUBLIC HEALTH IMPACT IS THE ULTIMATE GOAL



NOT INTRODUCING TCV COSTS LIVES AND RESOURCES

Using Blicke et al. estimates of disease burden and vaccine impact, PATH HE team calculated the cost of not introducing TCV.

- Kenya approved by Gavi and planned to introduce TCV in 2024; delayed to 2025.
- TCV introduction in Kenya, Burkina Faso, Ghana, Uganda, and Zambia could reduce typhoid burden by 68-71%.
- TCV introduction could avert \$46 million in treatment costs and save lives in these countries.



RECOGNIZING THE COMPLEXITY OF COUNTRY INTRODUCTIONS

NITAGs

- Relatively new NITAGs or reconstituted membership
- Local data collation and interpretation; use of regional data
- Considerations of routine and catch-up campaigns (planning, finances)

Ministries of Health & Finance

- Other priority vaccines (e.g. HPV, malaria, dengue, etc.)
- Financial implications (e.g. Gavi-transitioning countries)
- Need for national alignment on priorities and finances

National barriers

- National elections and changes in key decision makers
- cMYP and micro-planning; complicated by other priorities, human resources, immunization systems

Vaccine choices

- Multiple PQ-ed vaccines
- Immunization schedule (9mo or later)

EFFECTIVE PREVENTION AND CONTROL WILL REQUIRE INVESTMENTS BEYOND VACCINE INTRODUCTION



Improvement of WASH services including municipal sanitation services and chlorinated drinking water



Development and use of low-infrastructure diagnostic tests



Modification of prescribing practices to minimize spread of drug resistance



Expansion of surveillance systems to address various aspects, including vaccine impact, strain replacement, and clinical and economic implications of increasing drug resistance



Determination of durability of TCV protection and the need for booster doses

INVASIVE NON-TYPHOIDAL SALMONELLOSIS

Rewarding to see the increasing evidence of the burden and epidemiology of invasive non-typhoidal Salmonella

Impressive progress with vaccines against iNTS

The banner features a blue background with a geometric pattern of triangles and wavy lines. On the left, the text '13th INTERNATIONAL CONFERENCE' is displayed in white. A vertical orange line separates this from the main title 'TYPHOID & OTHER INVASIVE SALMONELLOSES' on the right, which is in large, bold, white capital letters. At the bottom, an orange rounded rectangle contains the text 'December 5-7, 2023 | Kigali, Rwanda' in white.

iNTS research and development funded centrally by Wellcome

RUTH BISHOP FELLOWSHIP IN VACCINOLOGY

The Ruth Bishop Research Fellowship has been established to honor Ruth's remarkable scientific legacy as an Australian female pioneer in enteric disease and vaccine research.

This fellowship will support and promote the career of a future female leader in enteric disease and/or vaccine research.

Fellowship summary

- 5-year Research Fellow position at Murdoch Children's Research Institute (MCRI)
- Lead the development of a research stream in Vaccinology, preferably related to enteric diseases
- Collaborate on vaccine research at MCRI, mentor junior researchers, and build connections with Bill & Melinda Gates Foundation teams
- Includes laboratory and technical support, as well as professional development and team-building opportunities

Eligibility

- PhD/Doctoral qualification with a passion in enteric diseases and at least 3 years postdoctoral experience
- Relevant expertise to vaccinology research, including (but not exclusively) in the domains of laboratory science or clinical studies
- Track record in research leadership and/or knowledge translation

To apply, please visit the [MCRI careers page](#). Applications accepted through January 14, 2024

