

Prevalence of antimicrobial resistance and impact of vaccination on typhoid fever cases identified through the FIEBRE Study

Mutsawashe Chisenga

Laboratory methods



- 1x blood culture collected per patient
- Automated blood culture system (BacT/ALERT, Biomerieux)
- Identification of isolates using biochemical tests (API 20E, Biomerieux)
- Suspected S. Typhi isolates confirmed by serotyping at the National Microbiology Reference Laboratory
- Drug susceptibility testing: EUCAST standards
 - Disc-diffusion for ampicillin, chloramphenicol, co-trimoxazole, ceftriaxone
 - Pefloxacin discs were used to screen for fluoroquinolone resistance.
 - E-Tests were used for azithromycin and ciprofloxacin.

Results



Salmonella Typhi cases:

Inpatients: 13

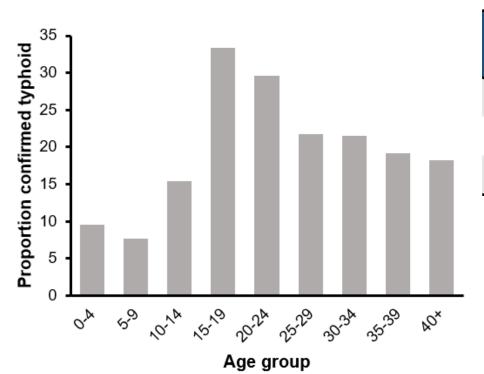
Outpatients: 197 (most cases from Budiriro & Glen View)

Non-typhoid Salmonella: 8

OUTPATIENTS	Children (<15 years) N=525	Adults (≥15 years) N=605	Total N=1130
Positive blood culture for <i>S.</i> Typhi among outpatients	50 (9.5%)	147 (24.3%)	197 (17.4%)

Participant characteristics





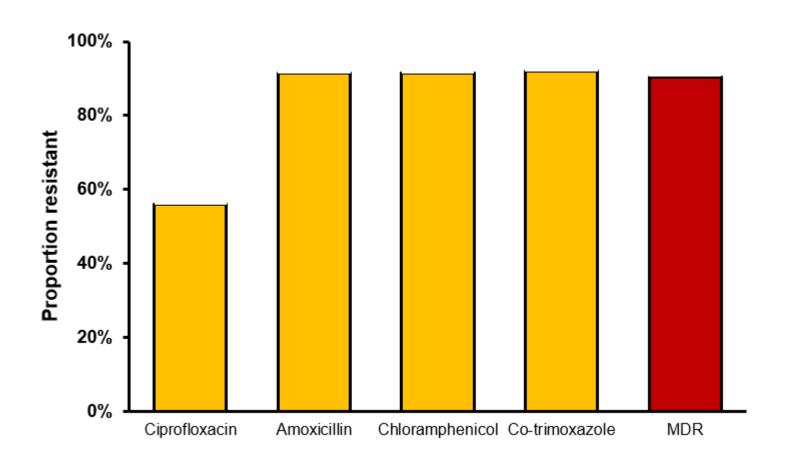
	Typhoid	Blood culture negative
Male	47%	47%
Age (median)	21	18
HIV+	3%	6%

Symptoms

Headache 94% Abdominal pain 73% Vomiting 13%

Drug susceptibility testing





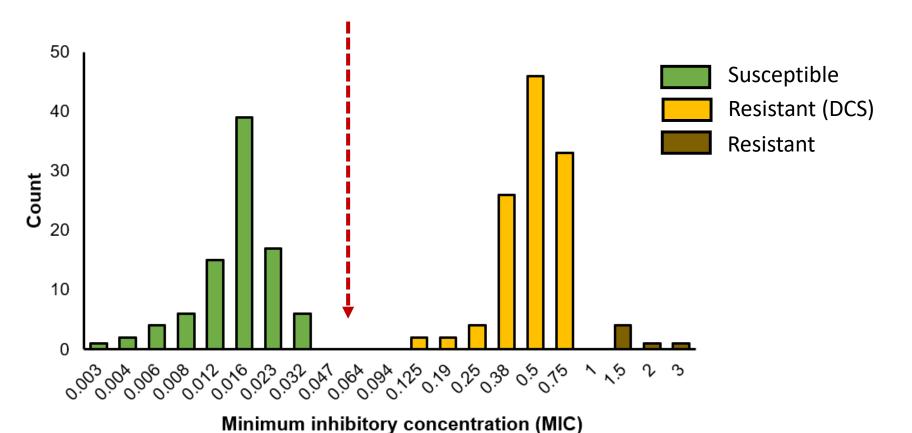
No S. Typhi isolates were resistant to ceftriaxone or azithromycin

MIC distribution for ciprofloxacin



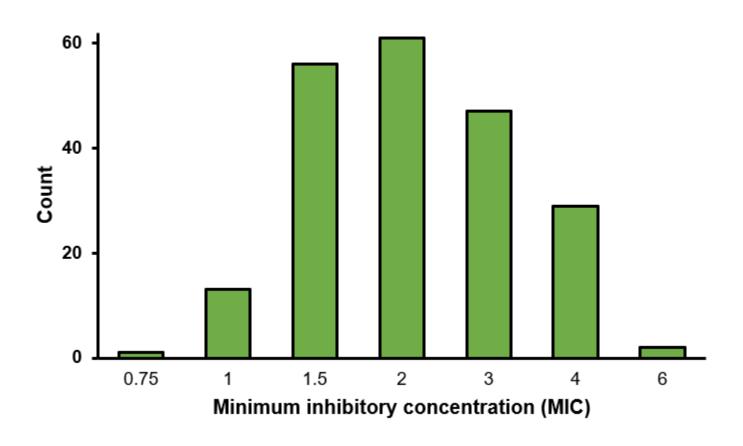
Decreased susceptibility to ciprofloxacin (DCS) if MIC >0.06 (poor treatment response)





MIC distribution for azithromycin





Typhoid fever cases according to age





- Muguta reHarare, chirwere chetyphoid chapararira munzvimbo dzakasiyana siyana kubvira musi wa 01 September 2018 uye chichiri kuenderera mberi.
- Bazi rezvehutano nekuchengetedzwa kwakanaka kwevana (MoHCC) nekanzuru yeguta reHarare vakabatana neWHO neUNICEF varikupa mushonga (vaccine) wekudzivirira typhoid munharaunda dzakaonekwa kuti dziripanjodzi yakakura,kubvira musi weMuvhuro 25 Kukadzi kusvika musi weMuvhuro 04 Kurume 2019.
- Kunzvimbo dzakaita se Budiriro, Glenview, Mufakose, Kuwadzana, Hopley, Glen Norah, Glen View, Dzivarasekwa ne Hatcliffe, mushonga uyu uchange uchibaiwa kubva pavana vane mwedzi mitanhatu (6 months) kusvika pamakore gumi ne mashanu (15 years) ekuberekwa.
- Nekuda kwekukura kwenjodzi iyi muMbare mushonga uyu uchange uchipihwa kubva pavana vane mwedzi mitanhatu (6 months) kusvika pane vane makore makumi mana nemashanu (45 years) ekuberekwa.

Mass vaccination campaign of children <15 years with the typhoid conjugate vaccine (TCV) in March 2019

Vaccination coverage:

- 72% in pre-school children
- 97% in school going children







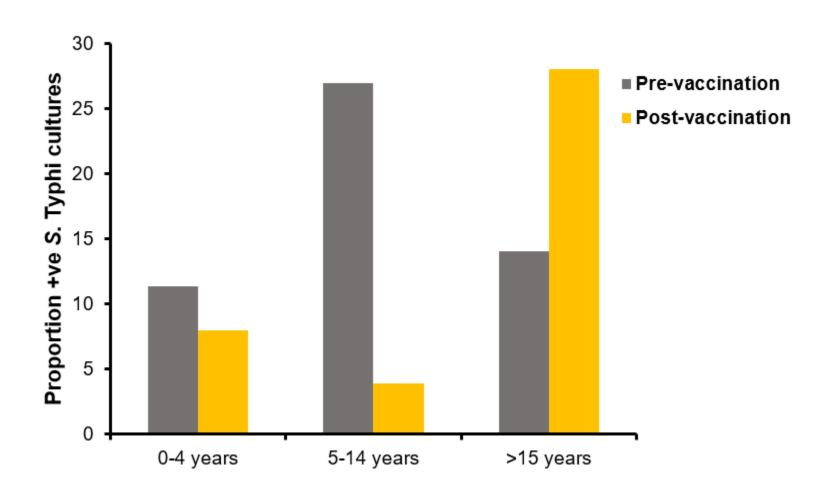






Impact of vaccination with TCV on typhoid cases





Conclusion



- High prevalence of resistance to multiple drugs including ciprofloxacin
- No resistance to azithromycin and ceftriaxone
- Vaccination led to a reduction of typhoid fever cases among children presenting to primary healthcare
- High number of cases identified post-vaccination campaign (mostly adults)

Acknowledgements



BRTI laboratory Janice Martin Forget Makoga Beauty Makamure





FIEBRE Field team
The study participants



Harare City Health

Prosper Chonzi

The doctors and nurses from the clinics

National Microbiology Reference Laboratory





Harare Central Hospital
Parirenyatwa General Hospital
Chitungwiza General Hospital





