RES-358

APCCMI2025 BANGKOK

High Seroprevalence of Antibodies to Salmonella typhi Protein Antigens HlyE and CdtB in Chandigarh, India: Evidence of Ongoing Community Transmission

Nidhi Kamboj[1], Stephen Baker[2], Neelam Taneja[1],[1] PGIMER Chandigarh, India [2] A*STAR IDL, Singapore

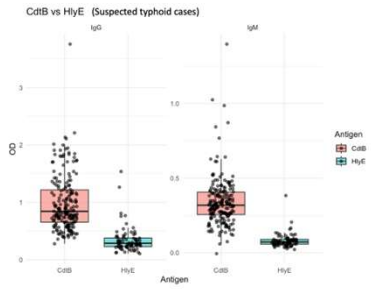
Background:

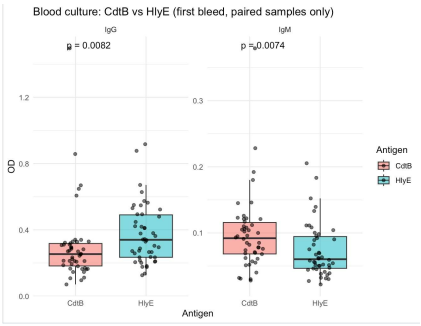
Typhoid fever caused by *Salmonella enterica* serovar Typhi continues to impose a significant disease burden in South Asia. Conventional diagnostics such as Widal test and blood culture have limited sensitivity. Serological assays targeting Hemolysin E (HlyE) and Cytolethal Distending Toxin subunit B (CdtB) offer a robust alternative for capturing both recent and cumulative exposure.

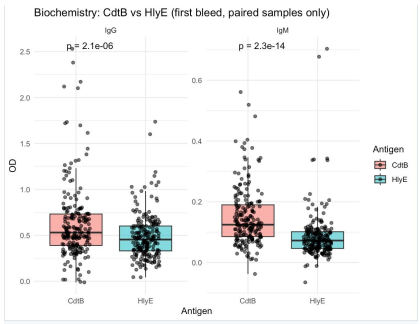
Methods:

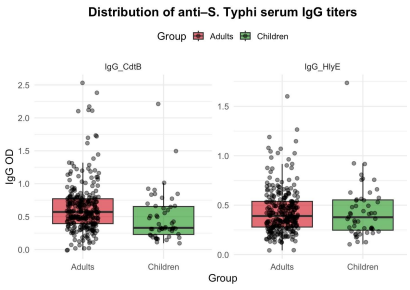
We performed an age-stratified, cross-sectional serosurvey in Chandigarh, India, analyzing 1,138 serum samples: 199 from Suspected typhoid cases, 770 from routine biochemistry submissions, and 169 from blood culture-confirmed typhoid patients. Serial follow-up samples were collected from culture-positive individuals to assess antibody persistence. IgG and IgM responses against purified HlyE and CdtB were quantified using in-house ELISAs. Seropositivity thresholds were established from negative controls, and age-related trends were evaluated.

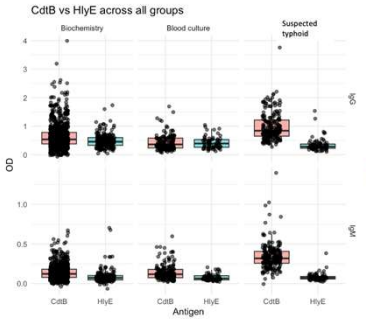
Results:











Cross-group comparison summary

Observation	Biochemistry	Blood Culture	Suspected Typhoid
IgG pattern	High and broad, especially CdtB	Moderate, balanced CdtB/HlyE	High again, resembling culture-positive cases
IgM pattern	Minimal	Elevated (acute infection)	Variable (mixture of acute and past)
CdtB vs HlyE	CdtB consistently stronger	HlyE also elevated (acute)	Both elevated, but CdtB dominant
Interpretation	Cumulative, background exposure	Acute infection validation	Likely true infections despite culture-negative status

🔑 Key Findings:

- **High seroprevalence of both anti-HlyE and anti-CdtB antibodies** was detected across all groups (suspected typhoid, biochemistry, and blood culture-confirmed).
- **IgG responses were consistently higher and more sustained** than IgM, reflecting cumulative exposure in the population.
- **Suspected typhoid and culture-confirmed patients showed significantly higher antibody titers** compared to biochemistry controls.
- **Strong correlation observed between anti-HlyE and anti-CdtB IgG levels**, supporting their combined diagnostic potential.
- **Age-stratified analysis revealed high seropositivity in both children and adults**, indicating ongoing community transmission of *S. Typhi* in Chandigarh.

Email: drneelampgi@mail.com
Nidhikamboj111@gmail.com

Conclusion:

High seroprevalence to HlyE and CdtB across multiple cohorts and persistence in follow-up samples demonstrate ongoing *S. Typhi* circulation in Chandigarh. These antigens provide superior resolution of exposure dynamics and support the integration of serosurveillance with typhoid conjugate vaccine strategies in endemic urban regions.

Acknowledgement:

We gratefully acknowledge the **PGIMER, Chandigarh**, and **Civil Hospital, Manimajra** for their support in patient recruitment and sample collection. We sincerely thank all the **patients and their families** for their participation in this study. We also acknowledge the valuable collaboration and guidance of **Dr. Stephen Baker** . **DST (Department of Science and Technology, Government of India)** is acknowledged for providing funding