TB-Speed

www.tb-speed.com

A RESEARCH PROJECT TO STRENGTHEN PAEDIATRIC TUBERCULOSIS SERVICES FOR ENHANCED EARLY DETECTION

KEY NUMBERS

In 2020

1 090 000
new TB cases in children worldwide

400 000
TB cases in children were notified to WHO and received treatment

226 000
children died because of TB

PROBLEM STATEMENT

- A majority of children with TB are not diagnosed/not reported and do not benefit from appropriate treatment.

- This is due to the paucibacillary nature of TB and the difficulty in sample collection in children, and the poor access to childhood TB diagnosis in many health centres, especially at district and primary healthcare level in most high-burden countries.

- Effective, affordable and easy-to-use diagnostic and sample collection tools are still lacking.

- Qualified human resources are insufficient.

- There is no systematic detection of TB in highly vulnerable children (severely malnourished, HIV-infected, and children with severe pneumonia).

université de BORDEAUX   Inserm   Unitaid — Innovation in Global Health   L'INITIATIVE — sida, tuberculose, paludisme

THE PROJECT

- The TB-Speed project carries out research activities aiming at reducing childhood mortality from TB by evaluating innovative and cost-effective TB diagnostic approaches for resource-limited settings.

- It is implemented in 7 high TB incidence countries in Africa and South East Asia: **Cambodia, Cameroon, Côte d'Ivoire, Mozambique, Sierra Leone, Uganda, and Zambia.**

- Its mustidisciplinary consortium under the leadership of the University of Bordeaux associates researchers, technical experts, health professionals, public health program managers and NON-Governmental Organizations from both high-income countries and low- and middle-income countries.

2 MAJOR AXES

DECENTRALISATION OF TB DIAGNOSIS AT DISTRICT LEVEL

SYSTEMATIC TB DETECTION IN VULNERABLE CHILDREN

- **Local capacity building for clinical diagnosis of paediatric TB**
- **Enhancement of early detection of paediatric TB**
- **Increase in the number of reported cases**
- **Generation of relevant evidence on public health impact of the strategies**

The TB-Speed diagnostic approach is based on symptom screening at triage, enhanced microbiological TB diagnosis using child friendly specimen collection methods (nasopharyngeal aspirate (NPA) and stool samples) and Xpert Ultra testing on battery-operated platforms, optimized clinical diagnosis using algorithms, and chest X-ray reading.

TB–SPEED DECENTRALIZATION

Study assessing the efficiency, feasibility and acceptability of two decentralization strategies of the TB-Speed diagnostic approach at district hospital and primary health care levels in Cambodia, Cameroon, Cote d'Ivoire, Mozambique, Sierra Leone and Uganda.

TB–SPEED PNEUMONIA

Cluster randomized trial evaluating the impact on 12-week mortality of systematic early TB detection with Ultra on 1 NPA and 1 stool sample, added to the WHO standard of care in children <5 years admitted with severe pneumonia in 15 tertiary hospitals in Cambodia, Cameroon, Cote d'Ivoire, Mozambique, Uganda and Zambia.

TB–SPEED HIV

Diagnostic study to validate the TB treatment decision algorithm in HIV-infected children with presumptive TB (PAANTHER score) in Cote d'Ivoire, Mozambique, Uganda and Zambia.

TB–SPEED SAM (Severe Acute Malnutrition)

Diagnostic study to develop a diagnostic prediction score for TB in hospitalized children with severe acute malnutrition in Uganda and Zambia.

TB–SPEED PK

Impact of malnutrition on pharmacokinetic of rifampicin, isoniazid, pyrazinamide and ethambutol in TB-HIV co-infected children in Uganda and Zambia.

OPTIMIZATION OF SPECIMEN PROCESSING AND COLLECTION METHOD

TB-Speed stool processing study to compare the accuracy of Xpert Ultra from stool using three different centrifuge-free stool processing methods in children with presumptive TB in Uganda and Zambia.

Optimisation of the NPA through the review of the existing market for battery-operated aspirators and development of a prototype of Manually Operating Aspirator Pump.

HEALTH ECONOMICS ANALYSES

Evaluation of the cost-effectiveness and budget impact of proposed diagnostic approaches

CONSORTIUM MEMBERS

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COUNTRY PARTNERS

Ministries of health of Cambodia, Cameroon, Côte d'Ivoire, Mozambique, Sierra Leone, Uganda, Zambia.

National TB programs and national research institutions.

National hospitals