

Pooled sputum testing for molecular TB diagnosis – Lessons from the Start4All multi-country experience

LabCoP Extended ECHO Session
16th April 2026



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Objectives of the webinar

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Objectives



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- Describe the **concept of pooled sputum testing** for molecular TB diagnosis, including when it may be appropriate for routine laboratory practice.
- Summarize **key findings from the Start4All 7-country study** on diagnostic performance, cartridge efficiency, and operational feasibility.
- Identify **practical laboratory considerations** for implementation, including workflow adaptation, use of existing equipment and personnel, and quality-assured testing in routine settings.
- Discuss how pooled testing may **support laboratory network efficiency**, decentralization of TB diagnosis, and future implementation priorities.



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Overview of Start4All

The Start4All Partnership



Start4All: Start taking action for TB diagnosis

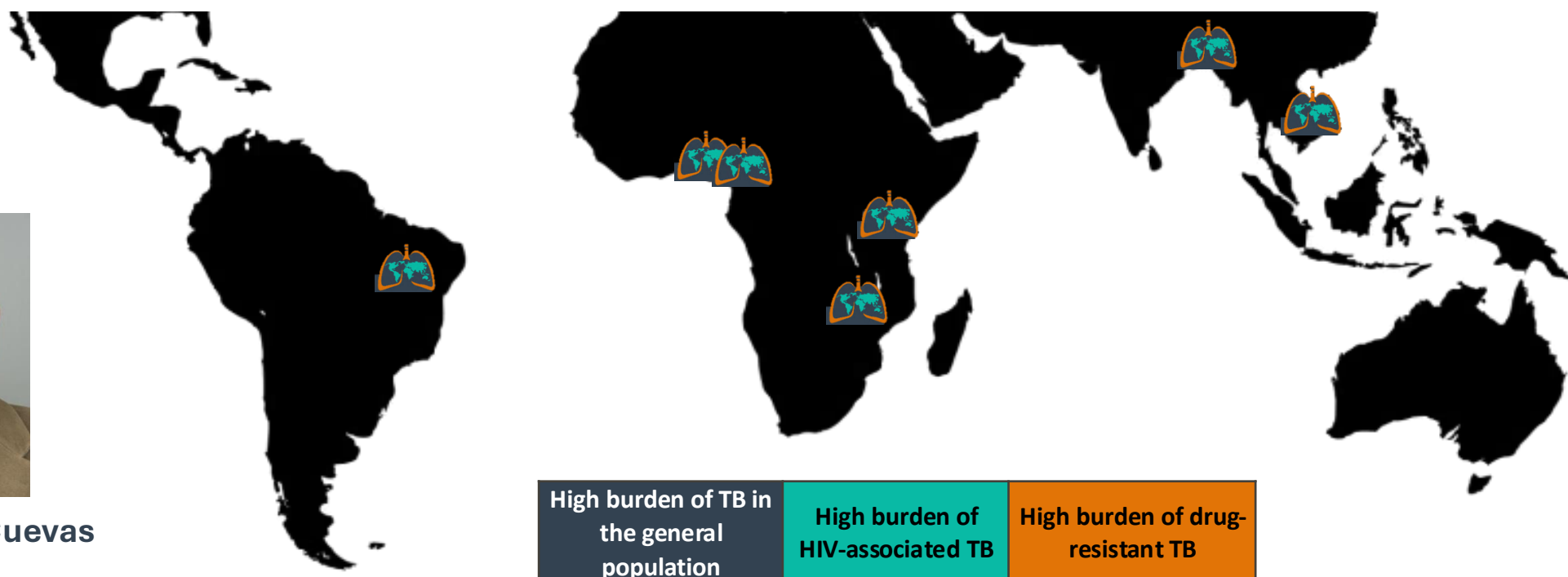


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A global project evaluating screening and diagnostic algorithms for TB



Professor Luis Cuevas





Phase 1

Evaluate the performance, costs, feasibility, and acceptability of *selected* TB screening & diagnostic tests and test algorithms at:

- the lowest levels of health care (primary healthcare and district hospitals)
- amongst key and underserved populations in community settings.



2024 -
2025

Participants



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14 741 participants were recruited during Phase 1

Facility-based case finding (**9349**)

Bangladesh, Brazil, Cameroon, Kenya, Malawi, Nigeria, Viet Nam



Primary Healthcare Centres (PHC) 4409



District Hospital outpatient clinics (DH) 4134

Community-based case finding (**5392**)



Nomads
Nigeria



IDP, informal settlements, rural and urban vulnerable
Bangladesh, Cameroon, Nigeria, & Viet Nam

Children (**806**)



Predominantly facility-based
Cameroon and Viet Nam

Tests and approaches evaluated



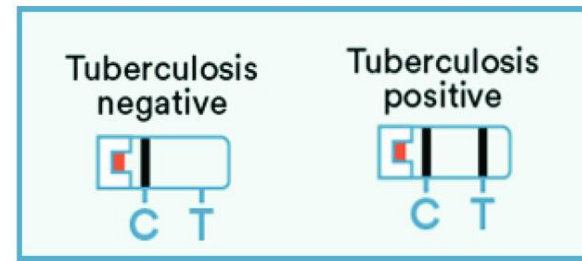
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Xpert Ultra pooled testing on sputum (1:4 but allow 1:2 & 1:3)



CRP



FujiLAM assay



CAD CXR



Individual Xpert Ultra



Culture (MGIT / LJ)

Reference standard

Start4All Phase 1 Take Aways



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- Strong performance of CAD-CXR & Pooled Xpert Ultra algorithms
- Pooled testing showed significant cartridge and cost savings but with some decrease in detection (~3% lower sensitivity)
- Pooled TB testing could enhance equitable access (if savings redistributed)



**World Health
Organization**

Recommendation

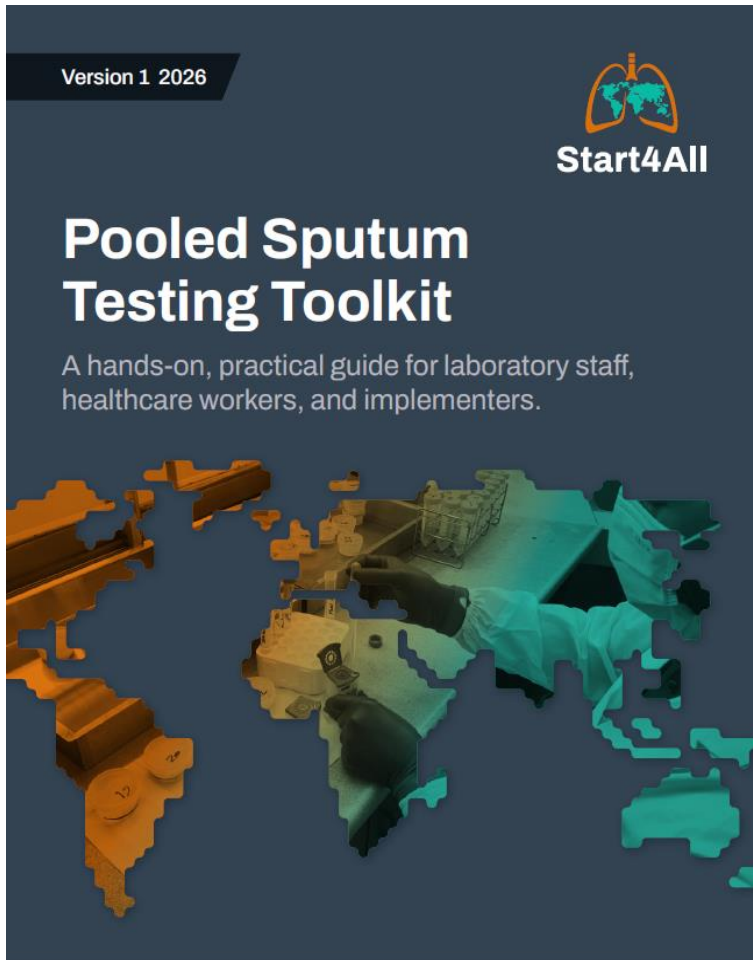
When resource constraints do not allow for the testing of individual samples: In adults and adolescents with signs and symptoms for pulmonary TB or who screen positive for pulmonary TB, LC-aNAATs on (up to 4) pooled sputa may be used as the initial diagnostic strategy for diagnosing TB rather than LC-aNAATs on individual samples (*conditional recommendation, high certainty of evidence*).

- Start4All team implementing & evaluating best algorithms in Phase 2

Start4All Pooled Testing Toolkit



Start4All



A practical toolkit to support safe, efficient pooled sputum testing.

Who it's for: National TB programmes, laboratories, clinicians, and implementation teams.

What's included:

- Standard operating procedures (SOPs)
- FAQs and site readiness checklist
- Two case studies
- Laboratory poster
- Training presentation
- Multilingual videos



Available **free** online now at <https://lstmed.ac.uk/start4all/toolkits>