FEDERAL MINISTRY OF HEALTH AND SOCIAL WELFARE

DEPARTMENT OF PUBLIC HEALTH

NATIONAL TUBERCULOSIS, LEPROSY & BURULI ULCER CONTROL PROGRAMME

Country Experiences Providing a National Perspective on Implementation of Treatment Decision Algorithms

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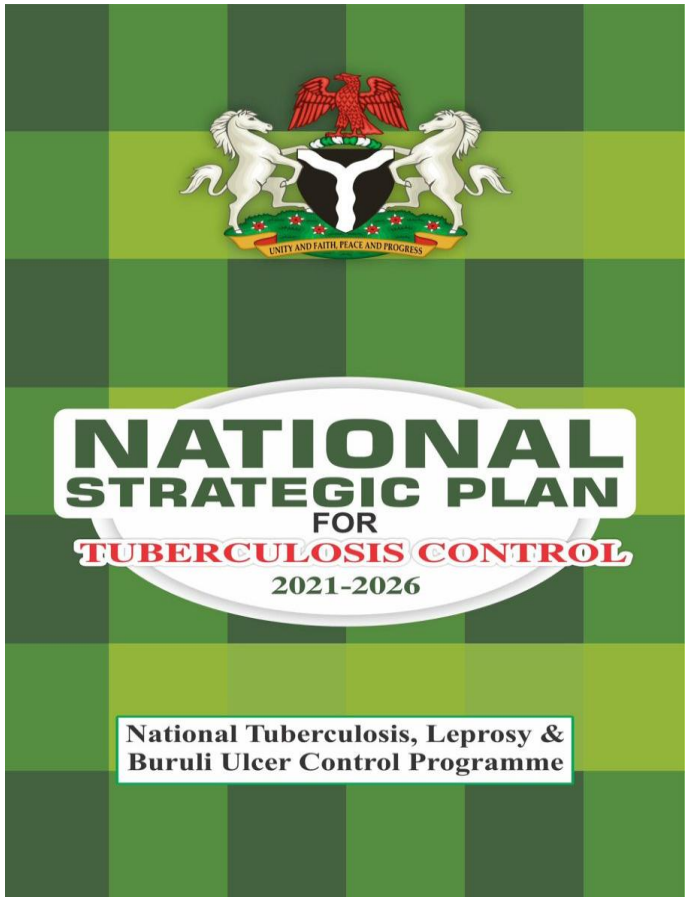
Outline

- Background
- Treatment Decision Algorithms Adaptation Process
- Operational Research Component - VEDUTA Study
- National TB Notification Trend
- Lessons Learned
- Next Steps

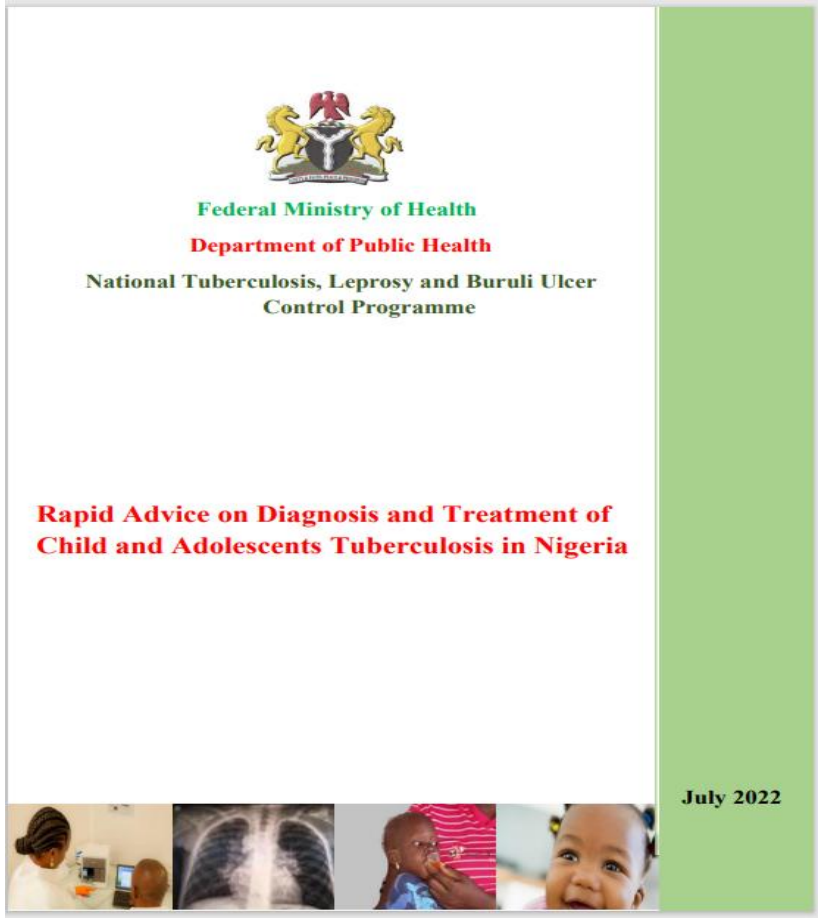
Background

- Low child TB notification - a major challenge in Nigeria
- In 2022, only 35% of the estimated 58,000 children with TB notified
- Objective 3 of TB National Strategic Plan - enhance child TB detection and treatment
- Limited success with interventions to improve TB detection in children



Treatment Decision Algorithms Adaptation Process

- New paediatric TB guidelines/operational handbook by WHO in February 2022
- National paediatric TB technical working group meeting in March 2022
  - Adapted the use of the Treatment Decision Algorithms (TDAs) A and B for pulmonary TB diagnosis
- Rapid advice on new WHO recommendations on paediatric TB published in July 2022
- Dissemination of rapid advice to States/partners



Operational Research Component - VEDUTA Study

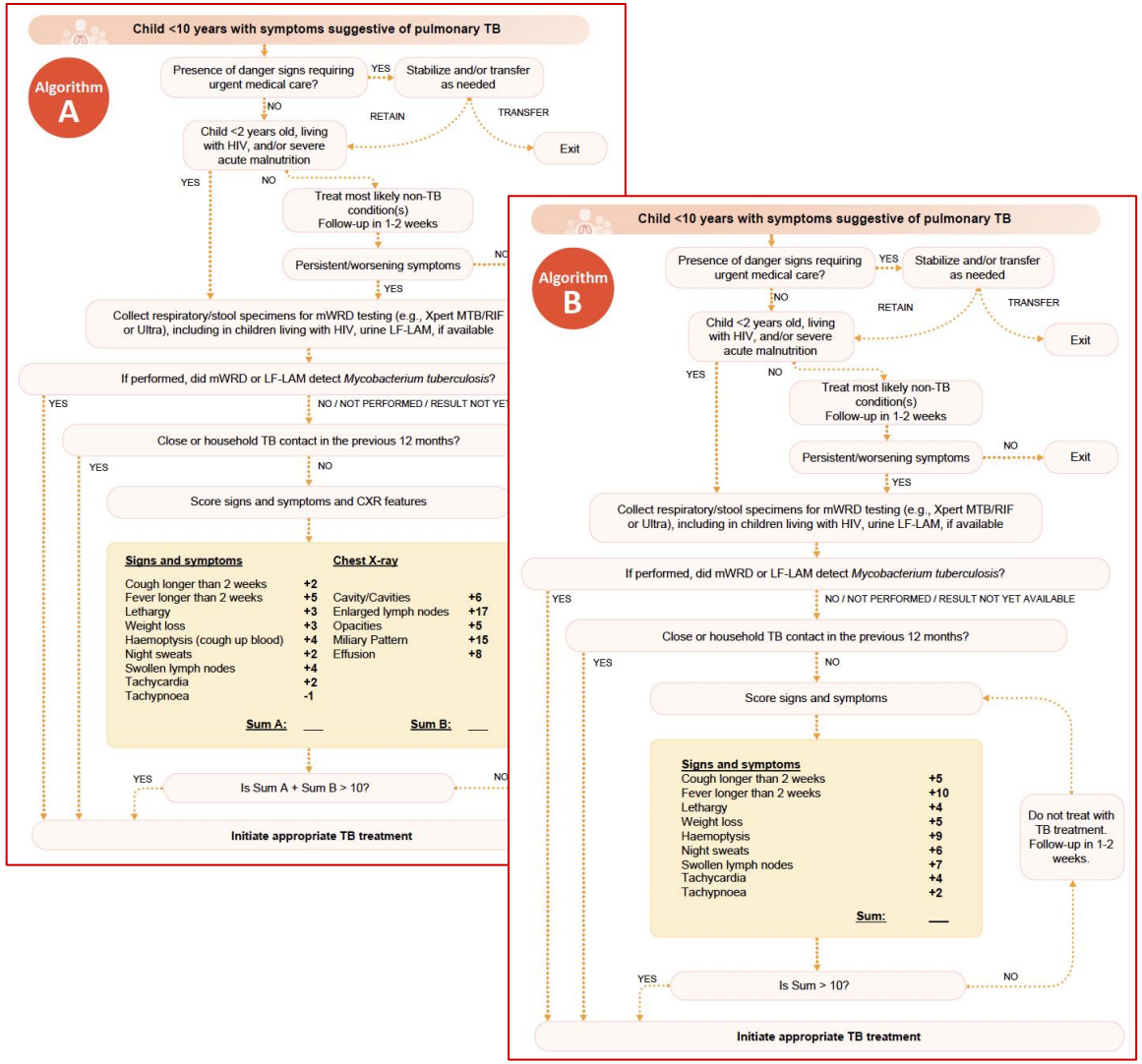
- WHO's call for external validation of TDAs → VEDUTA study

Primary objective:

- Evaluate performance of the TDAs against 'standard definition'

Secondary objectives:

- Determine feasibility, acceptability and impact of TDAs use on TB notification



Methodology

Study design: A mixed multi-centre interventional single-arm diagnostic evaluation study

Population:
- Children < 10 years old with presumptive TB visiting healthcare facilities
- Healthcare workers (HCWs) in sites who used the TDAs more than 10 times

Settings and study sites:
- 5 States (Kaduna, Oyo, Borno, Enugu, Cross River and Federal Capital Territory (FCT)
- 24 sites with 12 secondary/tertiary and 12 primary healthcare facilities

Sample size: 1,037 children

Enrollment period: November 2023 - April 2024

Methodology ….. 2

- The TDAs (A–with and B–without CXR) were evaluated in 12 tertiary/secondary and 12 primary healthcare facilities, across 5 States and FCT

- A two-month follow-up period allowed for classification of cases against a standard definition (derived from Graham *et al*., CID 2015).

- HCWs survey to determine acceptability and feasibility of TDAs use

- A before/after comparison of TB notification was reported in 19 VEDUTA research sites. Data were extracted from the programmatic reports.

Specificity and Sensitivity of the TDAs

Sensitivity (Se), specificity (Sp), positive/negative predictive value (PPV/NPV) of the WHO TDA A and TDA B in the VEDUTA study; N=1,037

	TDA A				TDA B			
	Clinician initial decision	Modified Standard definition		Total	Clinician initial decision	Modified Standard definition		Total
		TB	Not TB			TB	Not TB	
MITT (N=1,037)	TB	186	0	186	TB	150	1	151
	Not TB	29	291	320	Not TB	20	360	380
	Total	215	291	506	Total	170	361	531
	Se= 86.5%; $CI_{95\%}$ [81.2; 90.8]				**Se**= 88.2%; $CI_{95\%}$ [82.4; 92.7]			
	Sp= 100.0%; $CI_{95\%}$ [98.7; 100.0]				**Sp**= 99.7%; $CI_{95\%}$ [98.5; 100.0]			
	PPV= 100.0%; $CI_{95\%}$ [98.0; 100.0]				**PPV**= 99.3%; $CI_{95\%}$ [96.4; 100.0]			
	NPV= 90.9%; $CI_{95\%}$ [87.2; 93.8]				**NPV**= 94.7%; $CI_{95\%}$ [92.0; 96.8]			

Clinician decision: clinician initial decision to treat or not for TB based on TDAs as per protocol

Standard definition for this preliminary analysis: derived from Graham et al. J Infect Dis. 2012 & CID. 2015, reviewed with health outcomes and treatment reported at month 2, and by independent national experts for lost-to-follow-up and deceased cases

MITT: " Modified Intention to Treat Study Population " analysis: Confirmed TB + (unconfirmed TB + unclassifiable) (= TB) versus unlikely (= not TB)

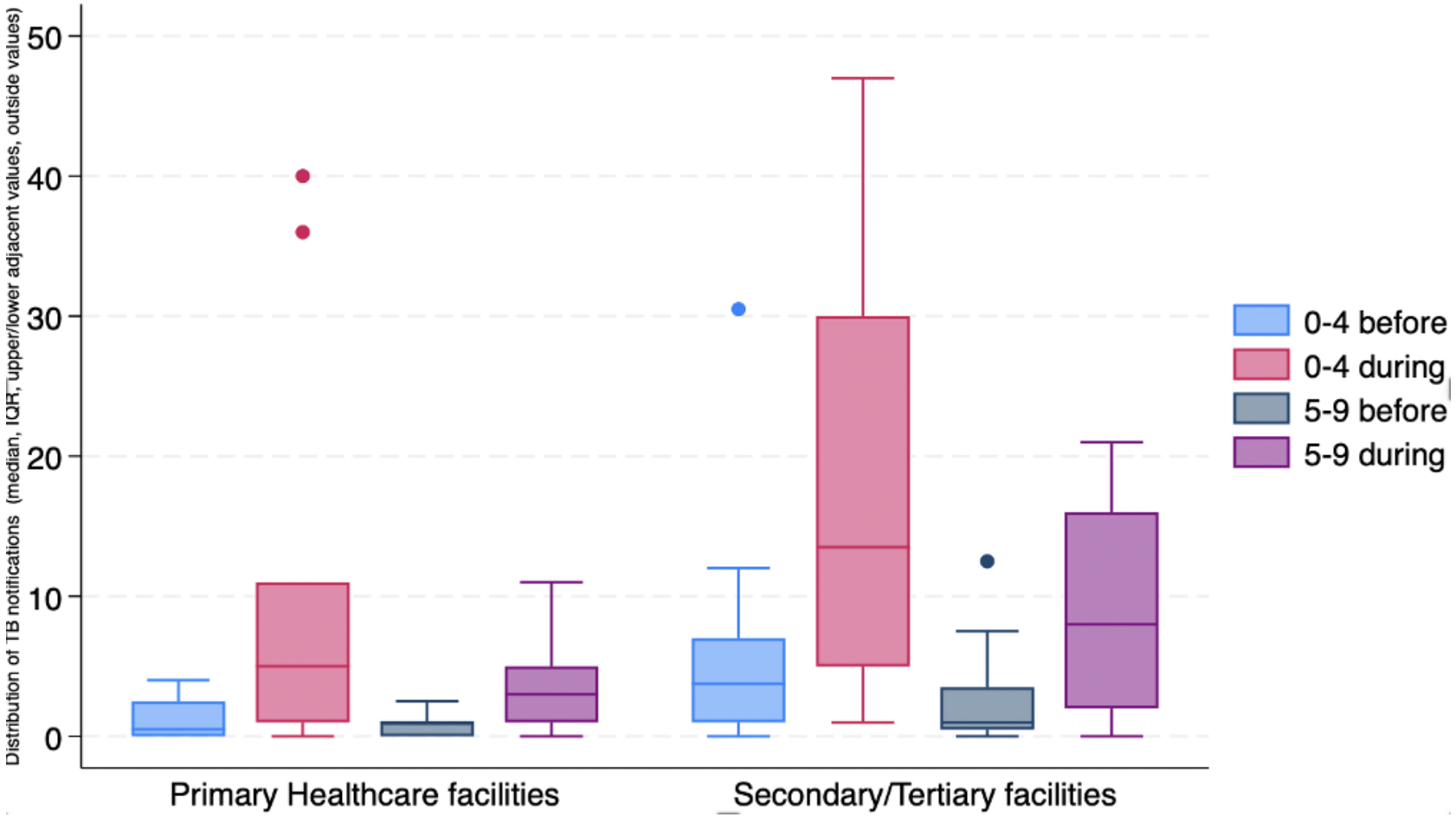
Both A & B TDAs had a **specificity of 99.9%** and **sensitivity of 87.4%** in our first overall analysis

Feasibility and Acceptability by HCWs

- 34 respondents: 21 were female and 19 were ≥ 45 years old
- Mainly doctors (9/34), nurses (7/34) and community health workers (12/34)
- 12/34 worked in primary healthcare facilities
- All respondents agreed the TDAs provided **timely guidance**
- Four out of five respondents would **strongly recommend** TDAs use to other colleagues and facilities

Impact of TDA Utilization on TB Notification

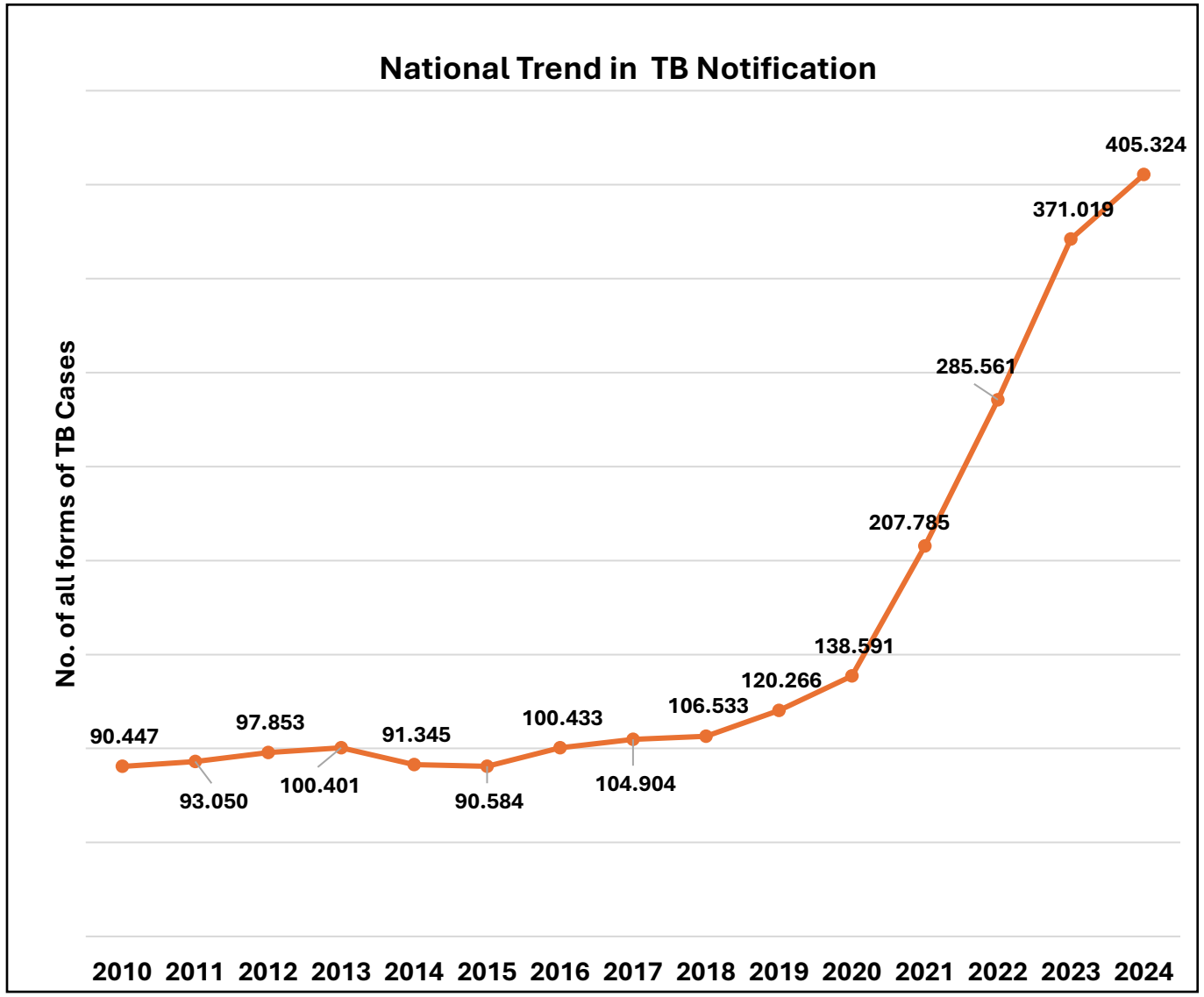
Average TB notifications across 19 research sites before (November 2021/2 – April 2022/3) and during (November 2023 – April 2024) recruitment period for the VEDUTA study

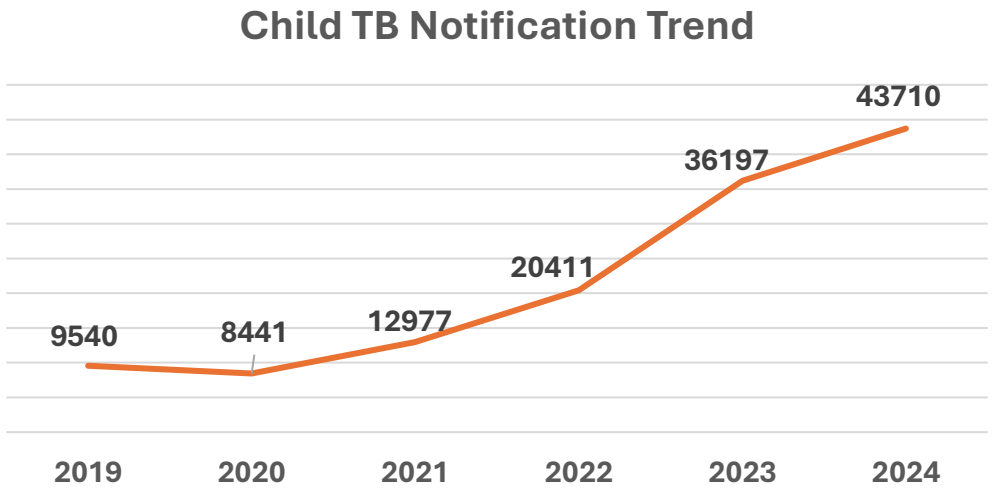


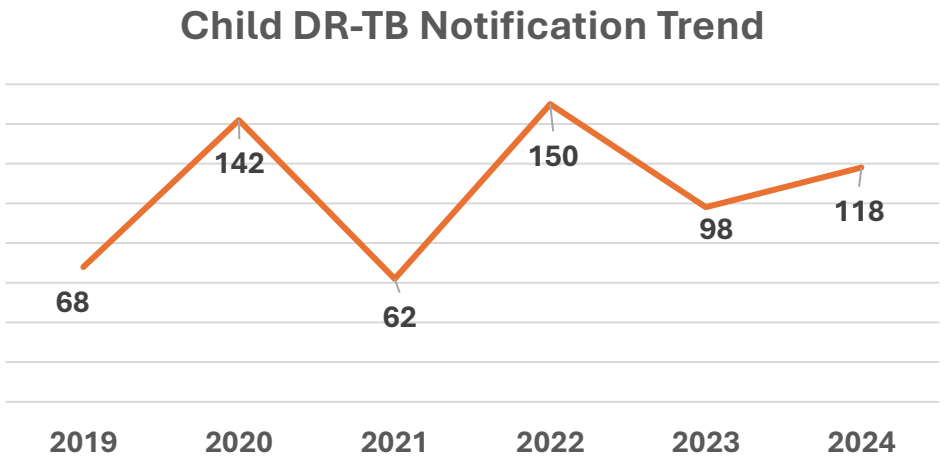
No of **TB notifications increased**:

- From **113** childhood TB notified on average over a 6-month period to **405** (during same length intervention period) in the **0-9 years** old category
- Slightly increased for the other age categories

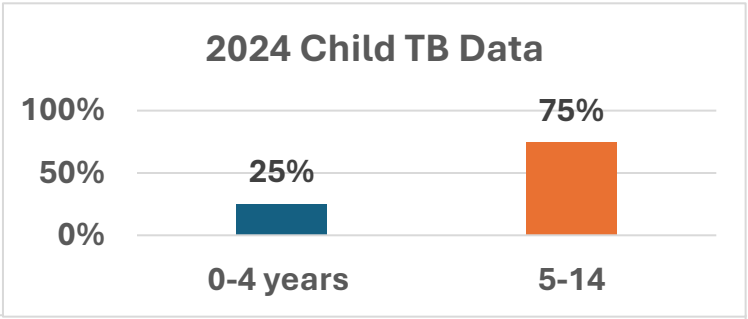
National TB Notification Trend

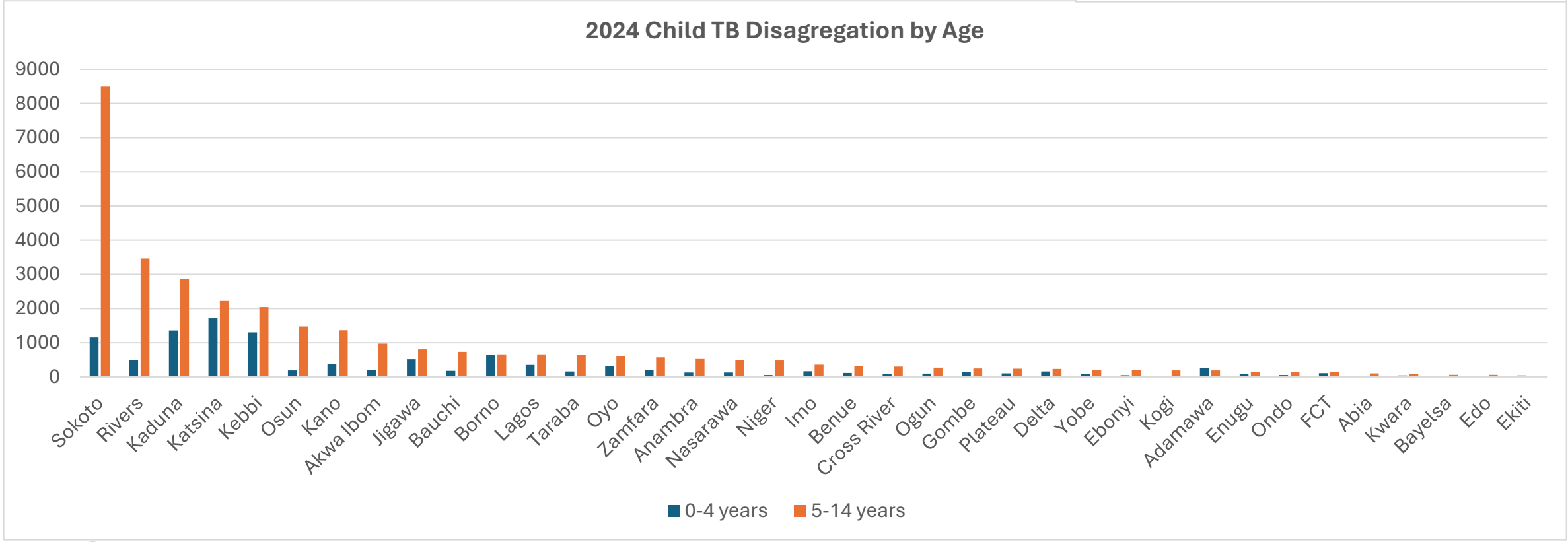






2024 Child TB Disaggregation by States





Lessons Learned

- TDAs can bridge TB case detection gap in children
- Task shifting of paediatric TB diagnosis to nurses/community health extension workers feasible
- HCWs training and re-training is key
- Regular sensitization of stakeholders on use of TDAs
- Provision of Standard operating procedures on the TDAs
- Need to simplify some terminologies on TDAs e.g., tachypnoea, tachycardia

Next Steps

- Two manuscripts on VEDUTA study in progress
- Full adoption of the TDAs
- Scale up nation-wide use of TDAs
  - Printing of SOPs for TDAs use
  - Training of HCWs on TDAs use
  - Continuous sensitization of TB partners
- Implementation research on digitizing the algorithms.

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Thank you

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