# Use of the WHO Treatment Decision Algorithms in Sierra Leone

Annual Meeting of the Child and Adolescent TB Working Group

Tuesday 14 November 2023

# Background

- Population:  8.3 million
- The country is divided into four administrative regions: North, East, Southern and Western Area provinces
- These regions are subdivided into 16 districts, (two new – Falaba & Kerene)
- PHUs: 1284 (MOHS)
- Number of DOTS: 187 (14.6%)
- Sierra Leone has >1,500 health facilities, 1,284 PHUs, 186 DOTS centers (14%), 1 NRL, and 3 MDR-TB treatment facilities
- Gene  Xpert sites: 14 Health Facilities
- MDR-TB Management Centers: 3
- National TB Reference lab: 1

# Background

- Sierra Leone is one of the 30 High TB burden countries in the world

- Estimated TB cases: 25,000 (Notified: 19,400 (2022))

- Incidence: 286/100K population

- Estimated deaths: 2,500

- Drug resistant TB cases: 370 (1.5%)

- HIV positive TB incidence: 3,300 (15.8% of the estimated TB cases)

- Estimated number of Children with TB (0 – 14 years): 2,400, 9.6% (Notified: 8 %) of the total TB cases, in 2022
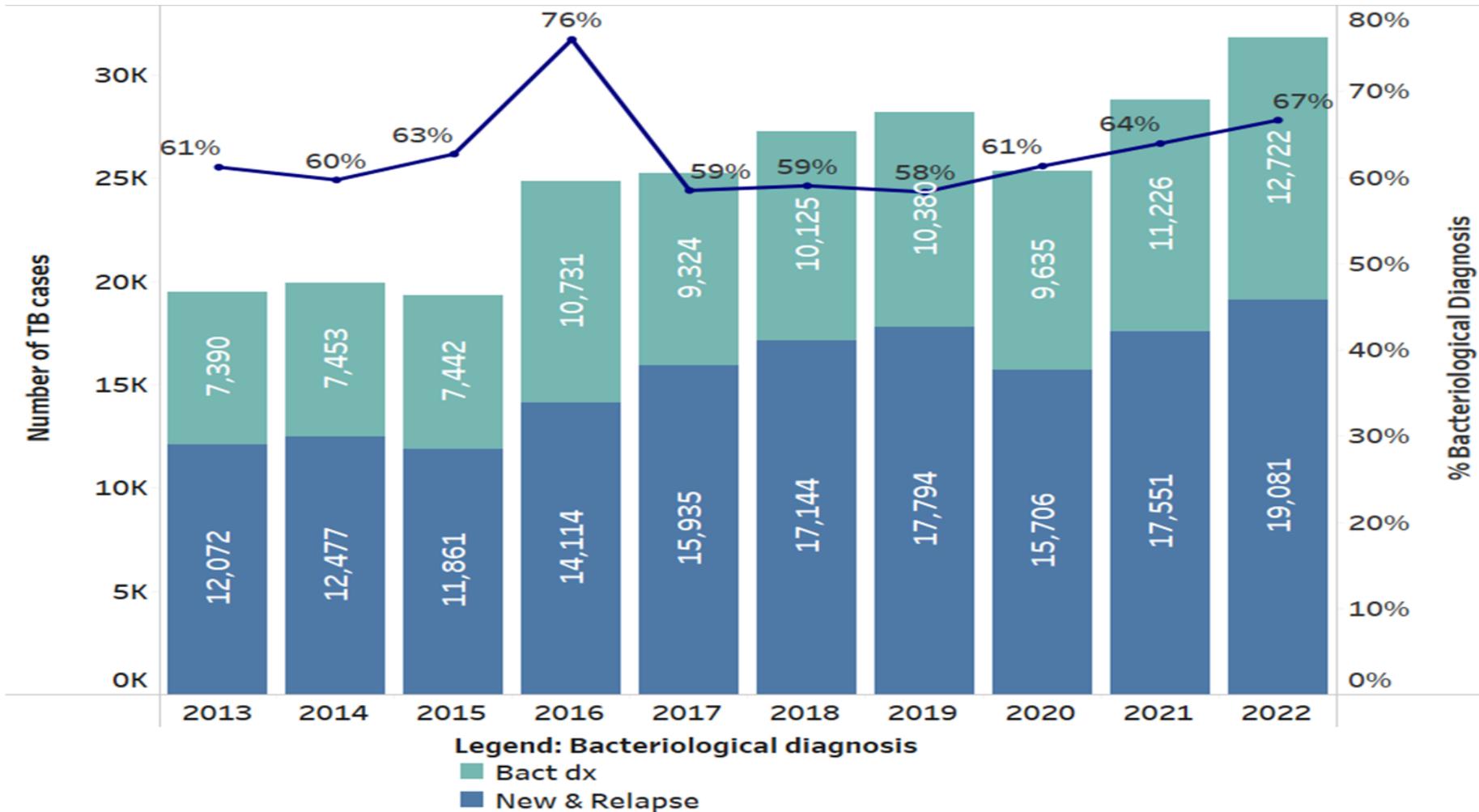
# Trend of TB Incidence Rate and Notification Rate
## New & Relapse Cases, 2013-2022
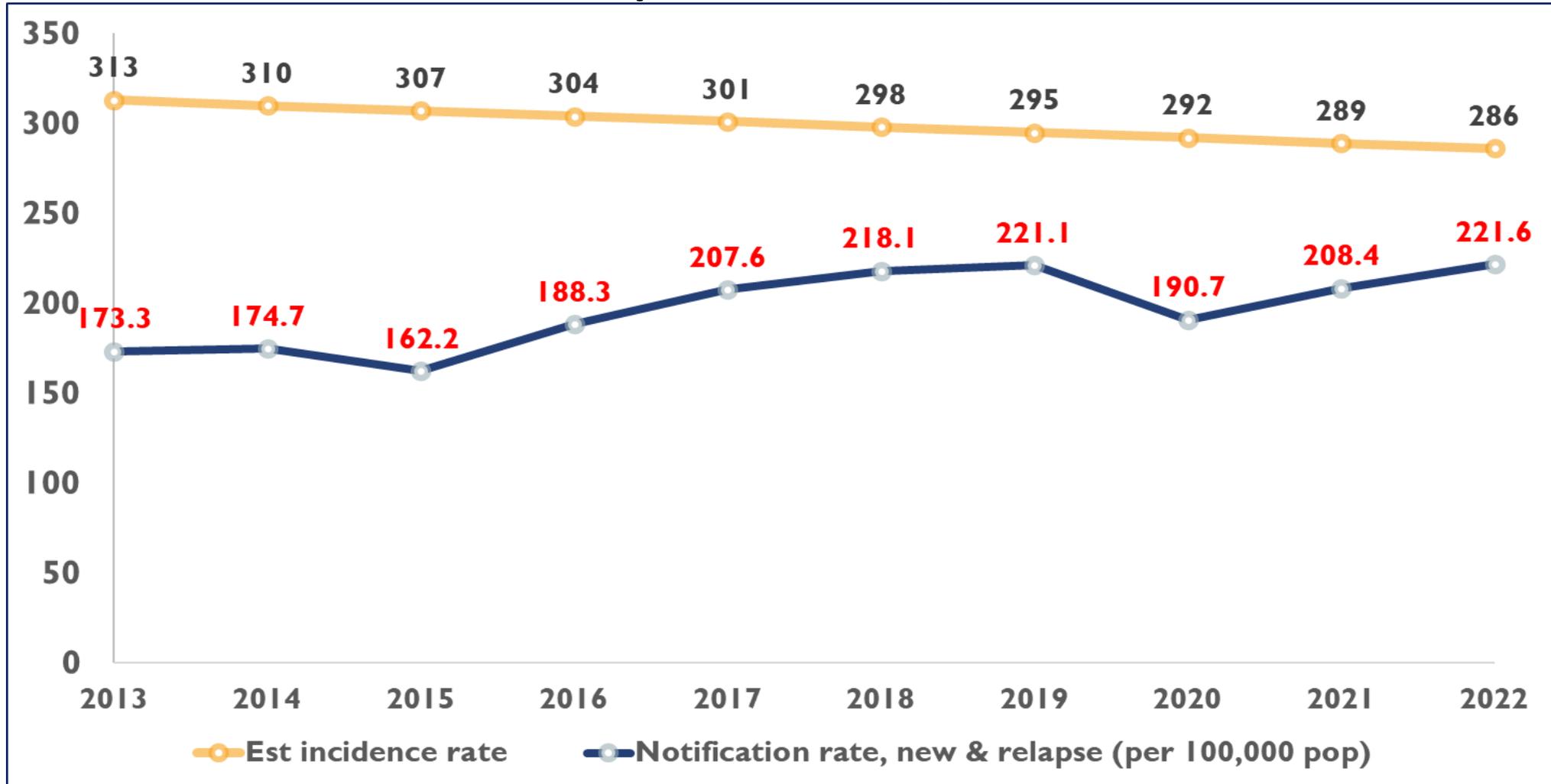
Trend of TB mortality Rate, 2000-2021
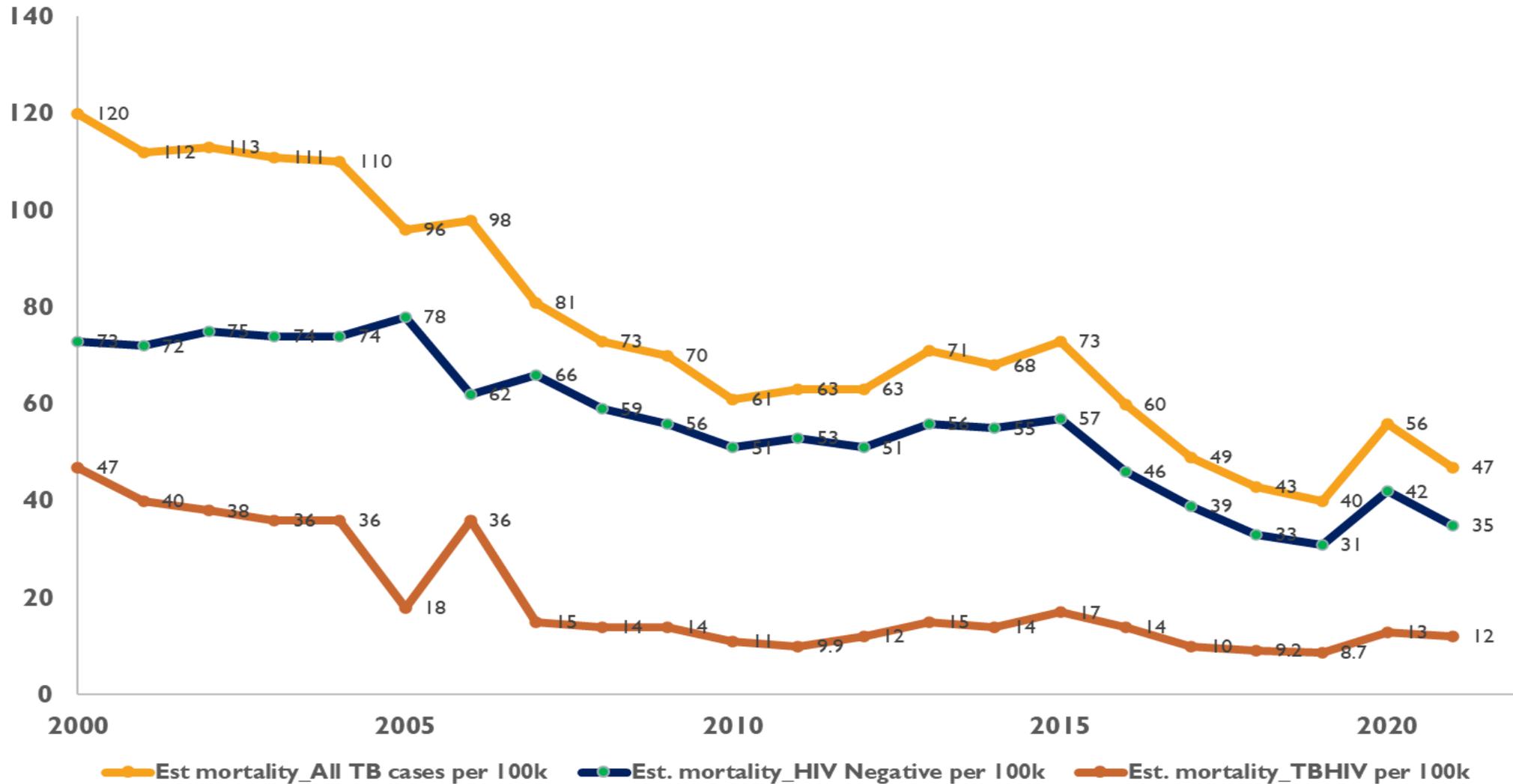
# Trend of new and relapse pulmonary TB cases by Bacteriological confirmation 2013-2022

# Trend of % child TB cases new and relapse, 2016-2022
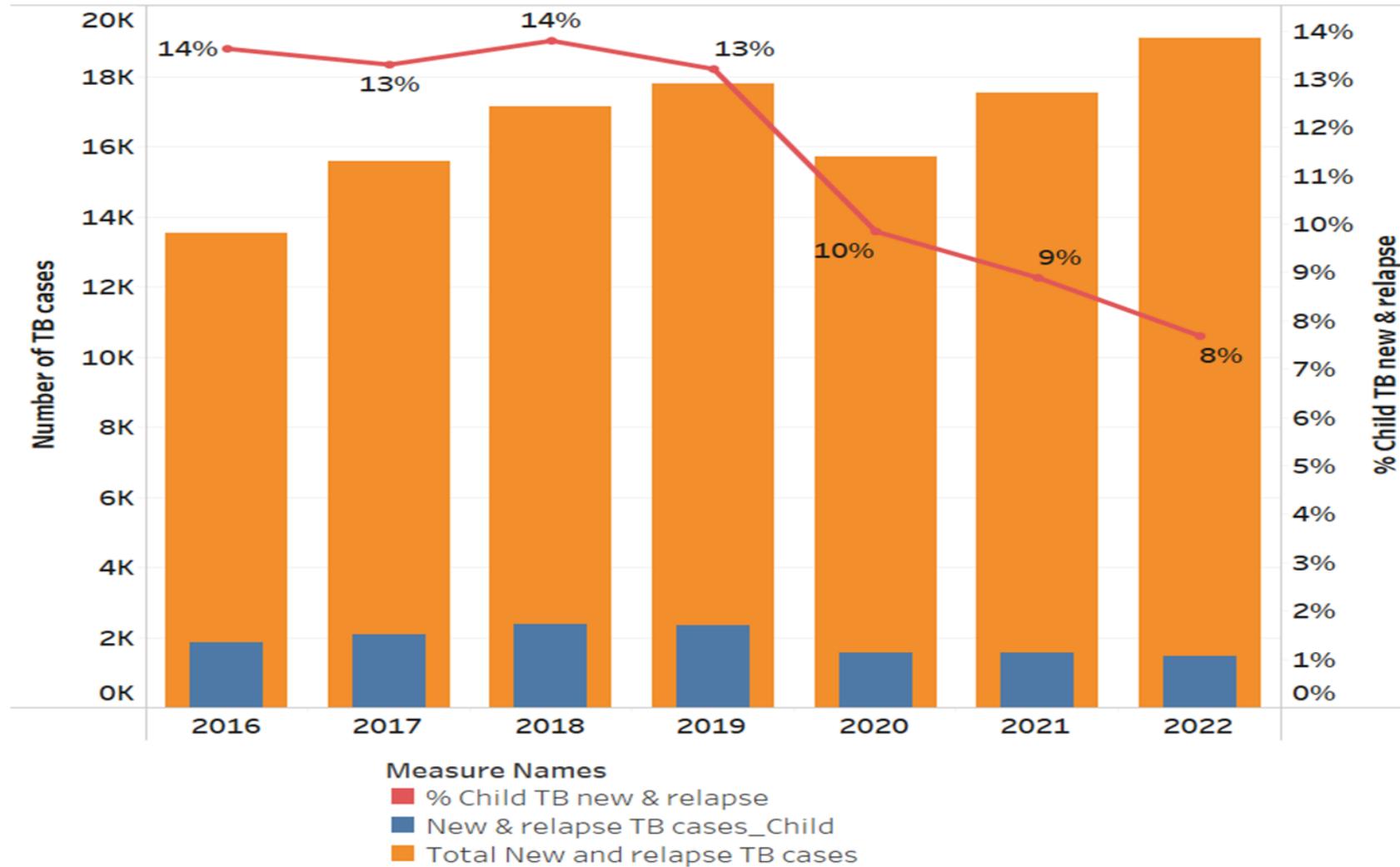
# TB Treatment Outcome by Districts
# All forms TB cases Notified in 2022
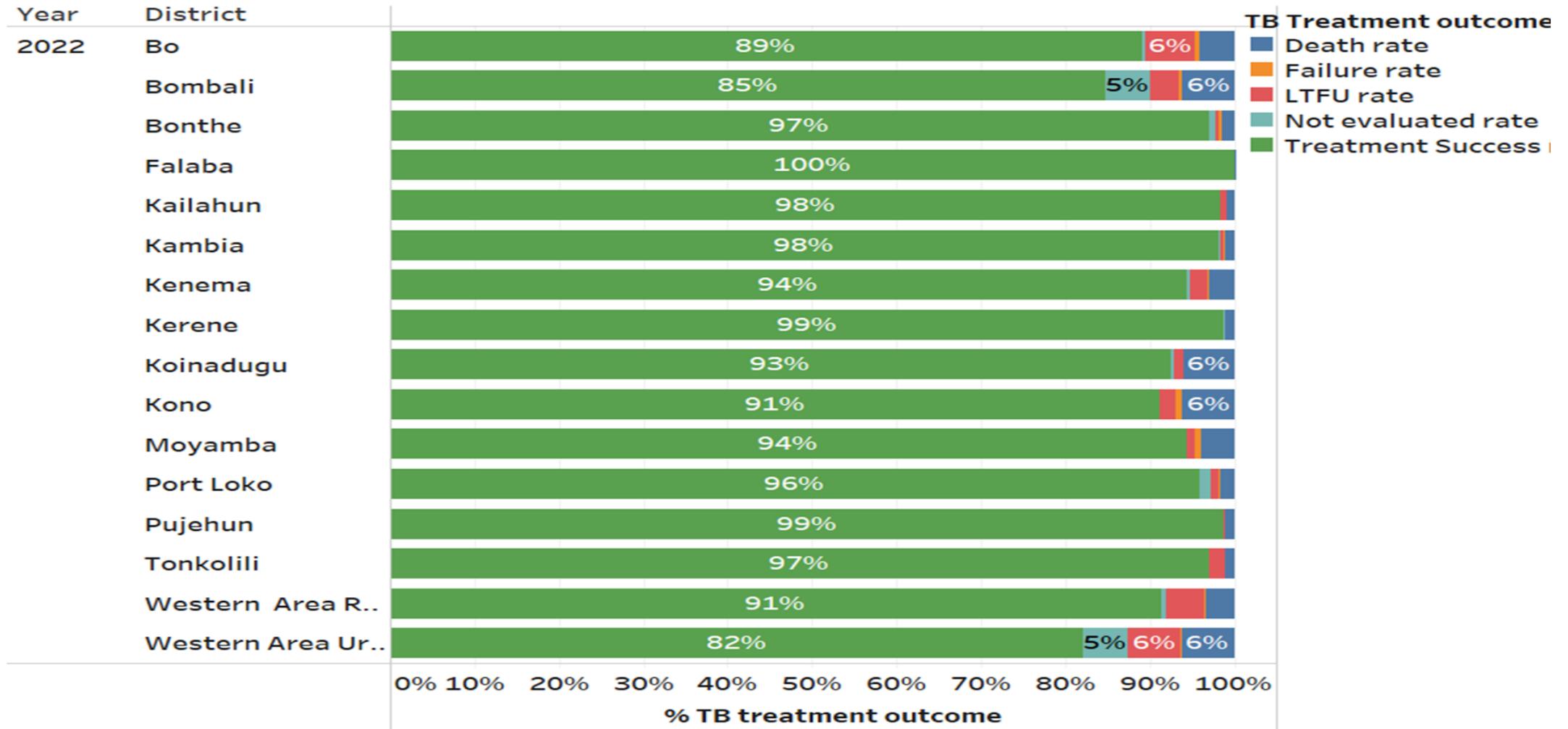
# Diagnostic Treatment Algorithms

- Several drafts of the National Tb Guideline made since 2018 with different Treatment Decision Algorithms
- Different Districts attempt to increase case finding by developing different Algorithms
- This has greatly improved Child and Adolescent TB Case Finding in some Districts

% Child TB cases New and Relapse by Districts 2021-2022

# 2018/2019 Algorithm

**Presumptive TB Cases:**

**Collect one sputum sample\* for TB testing**

**Gene Xpert testing performed on sample**

**Unable to perform gene Xpert**

**Perform sputum microscopy**

**MTB detected**

**MTB detected and RR**

**Invalid/Error /No result**

**MTB Not Detected**

**AFB Negative**

**AFB positive**

**Treat with First Line**

**Treat with 2nd line or refer**

**Repeat Gene Xpert test**

➢ Re-evaluate the patient clinically
➢ Perform chest x ray
➢ Perform urine LF-Lam??
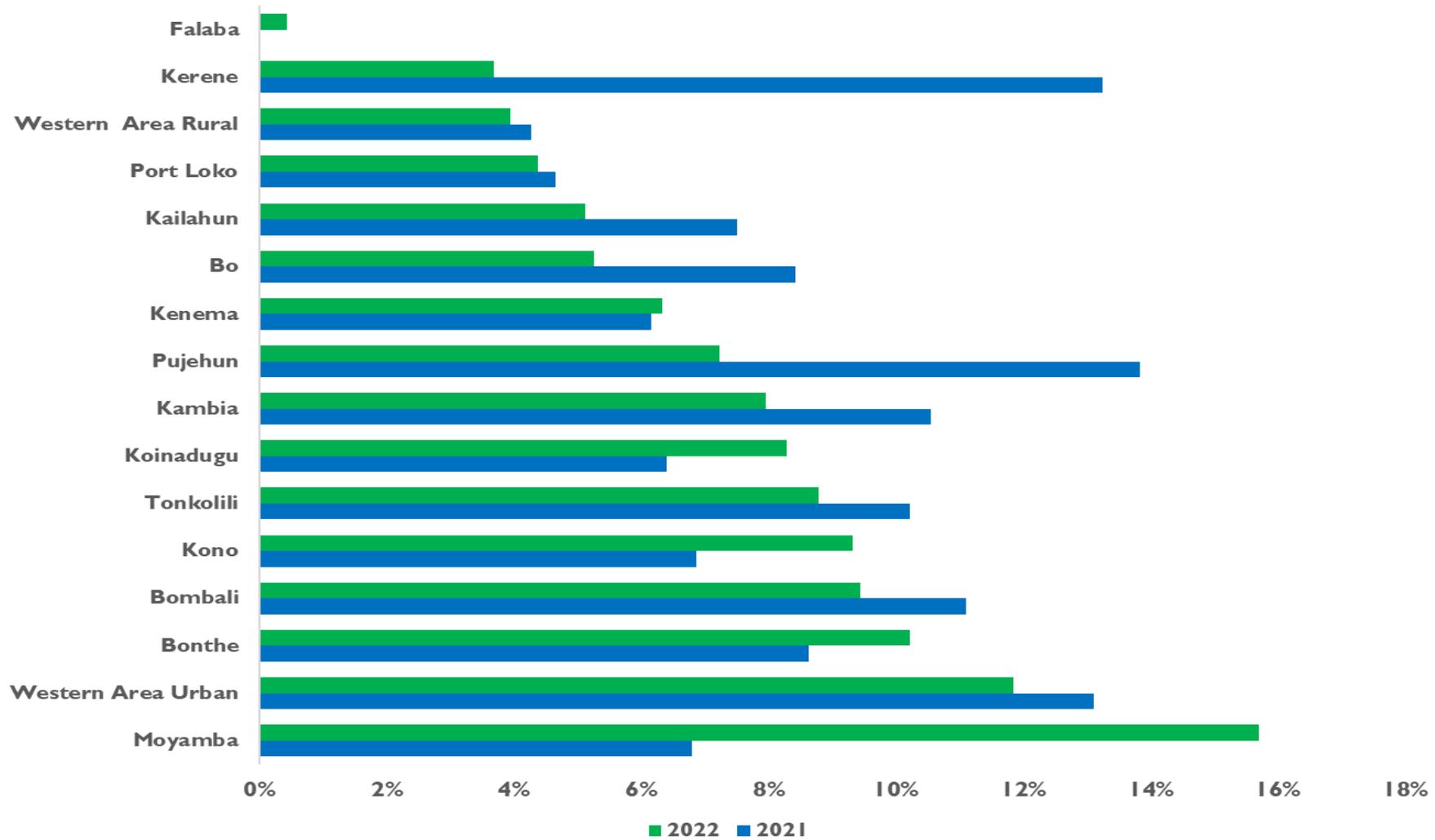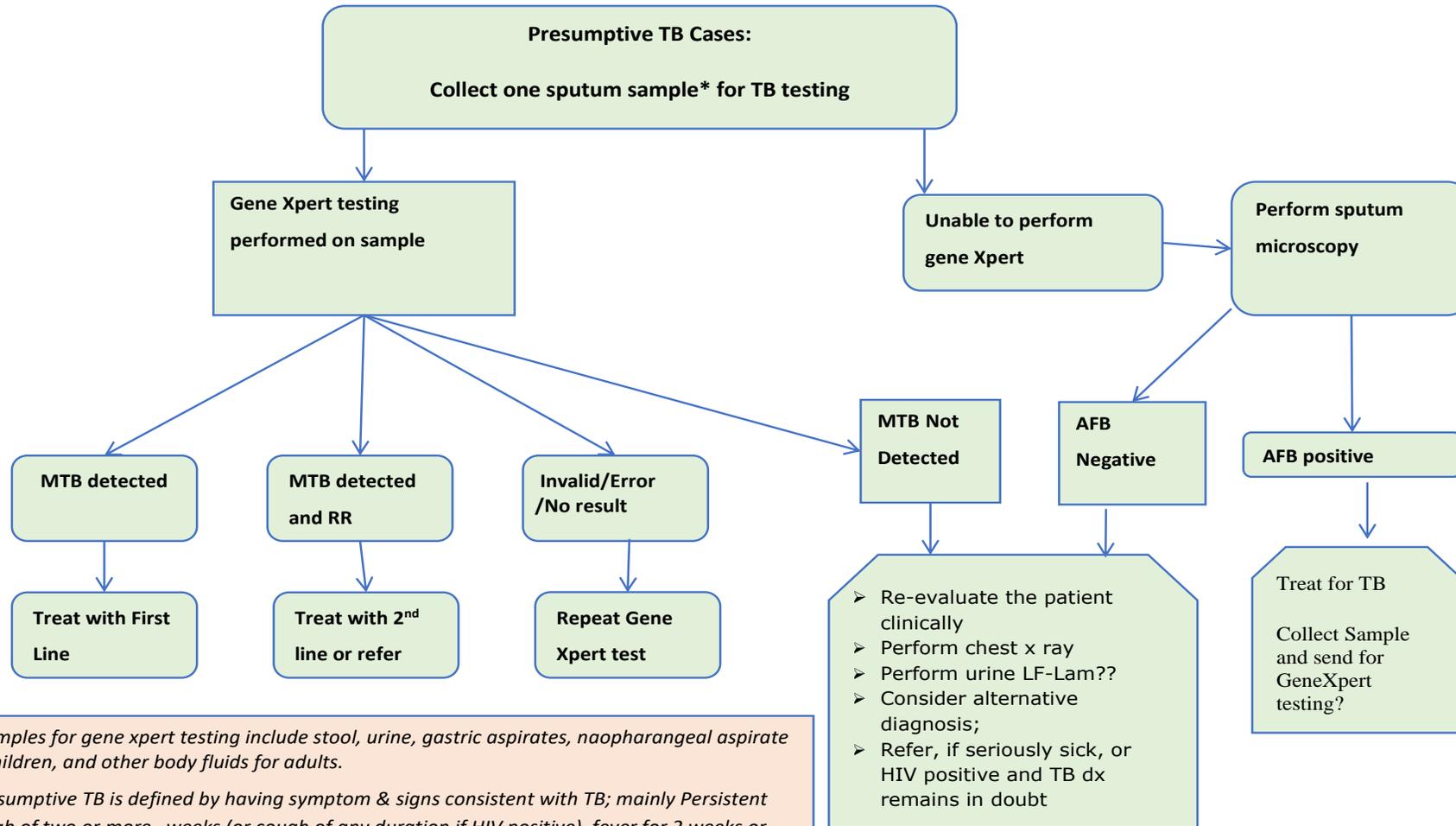➢ Consider alternative diagnosis;
➢ Refer, if seriously sick, or HIV positive and TB dx remains in doubt

Treat for TB

Collect Sample and send for GeneXpert testing?

*\* Samples for gene xpert testing include stool, urine, gastric aspirates, naopharangeal aspirate in children, and other body fluids for adults.*

*[2]Presumptive TB is defined by having symptom & signs consistent with TB; mainly Persistent cough of two or more weeks (or cough of any duration if HIV positive), fever for 2 weeks or more with or without night sweats, weight loss or failure to thrive, and a History of TB Contact among children*

# Approach to TB diagnosis in HIV- Uninfected Child



TB is suspected on basis of typical and persistent symptoms

Sputum smear/ Xpert negative

Sputum smear/ Xpert positive

- Positive contact history
- Physical signs and symptoms suggestive of PTB

If only one or none of the features are present

Make a diagnosis of TB if two or more of these features are

IF CHILD SICK, FURTHER INVESTIGATION & APPROPRIATE MANAGEMENT

IF CHILD WELL, REVIEW AFTER 2-4 WEEKS

TREAT FOR TB

# Approach to TB diagnosis in HIV-Infected Child
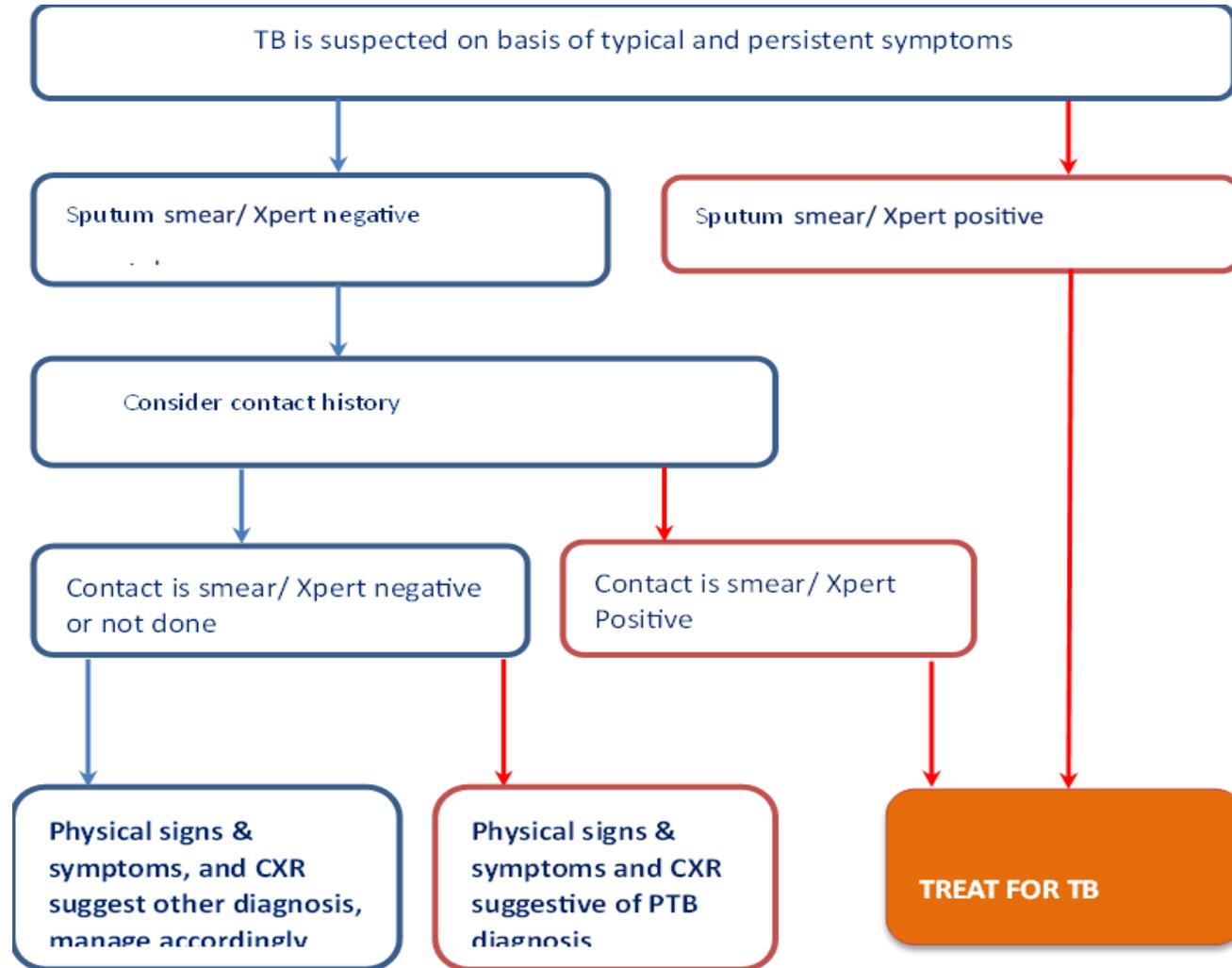
# TB SPEED Treatment Decision Algorithm used in Bo and Port Loko Districts HIV Negative Children
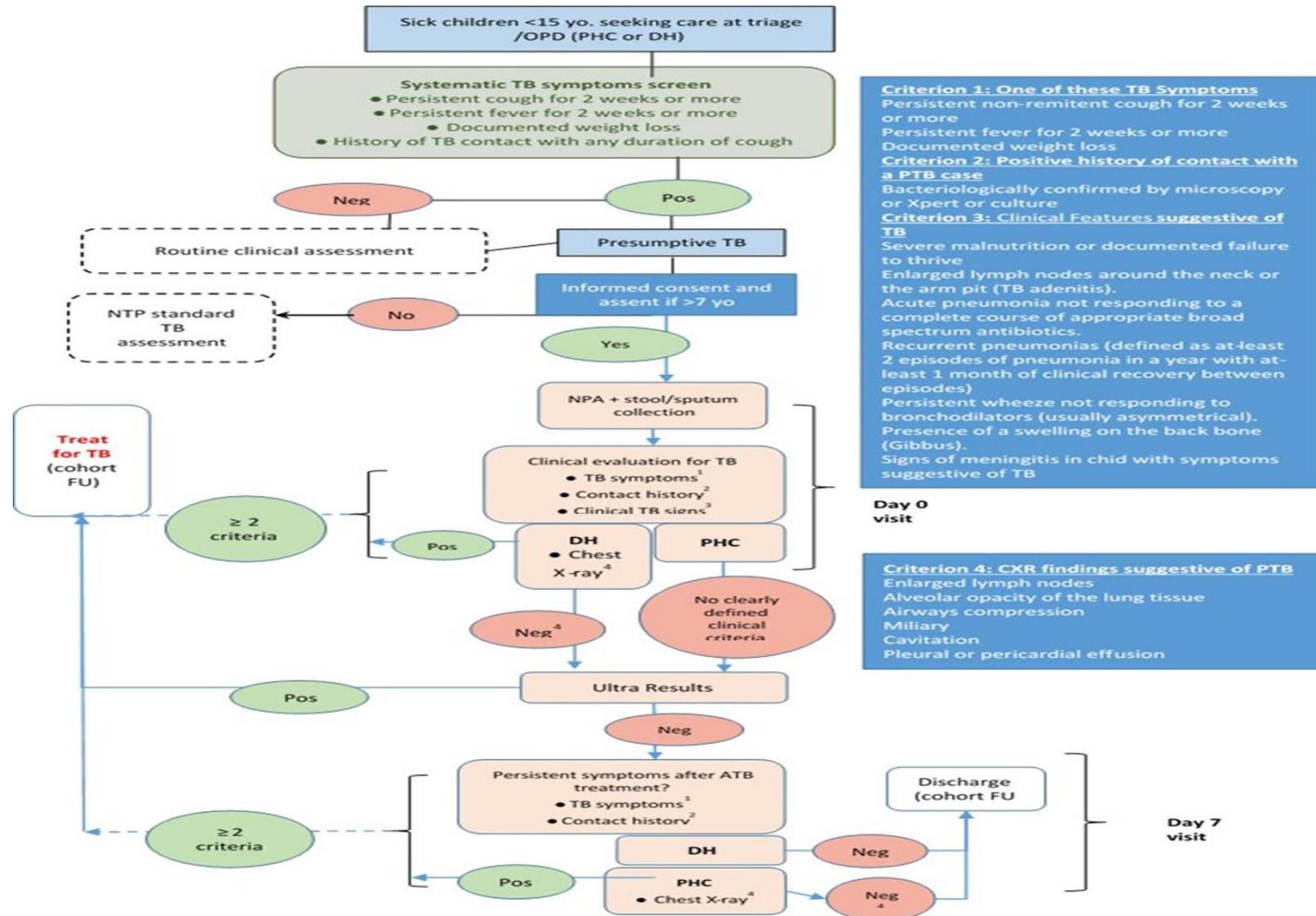
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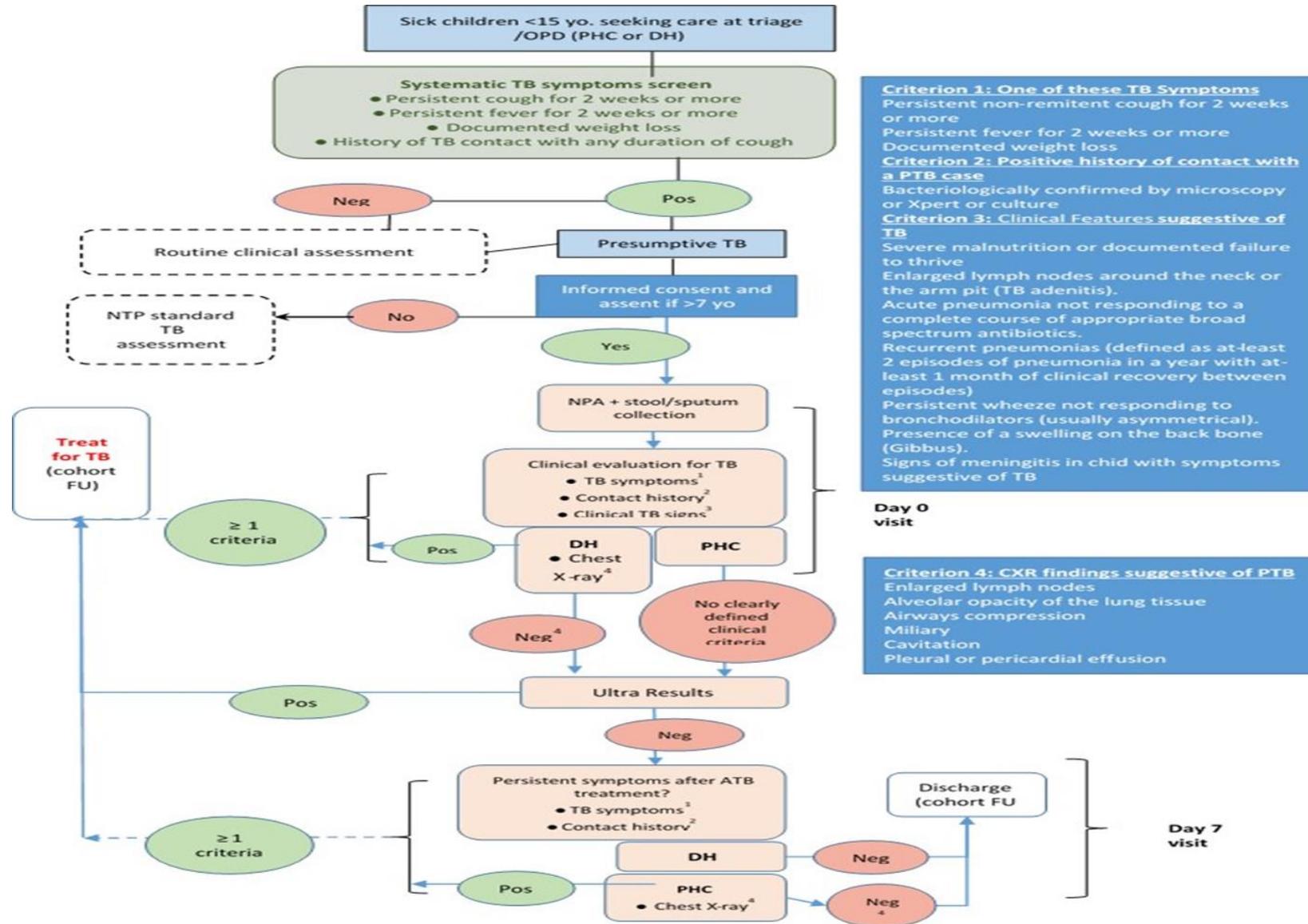
# Kono District

1. Contact tracing using CHWs
2. Chest Xray with Artificial intelligence for all child contacts.
3. Use of Screening Tool
4. Use of Stool and nasopharyngeal aspirate for diagnosis of TB
5. Training HCWs at PHU level on how to screen children for TB
6. Giving TPT to all eligible children using shorter regimens.
7. Actively screening all children admitted at the hospital for TB.
8. Screening children in Under 5 units for TB actively
9. Designing an algorithm  and training PHU staff on screening and diagnosing TB in children

# Kono Treatment Decision Algorithm
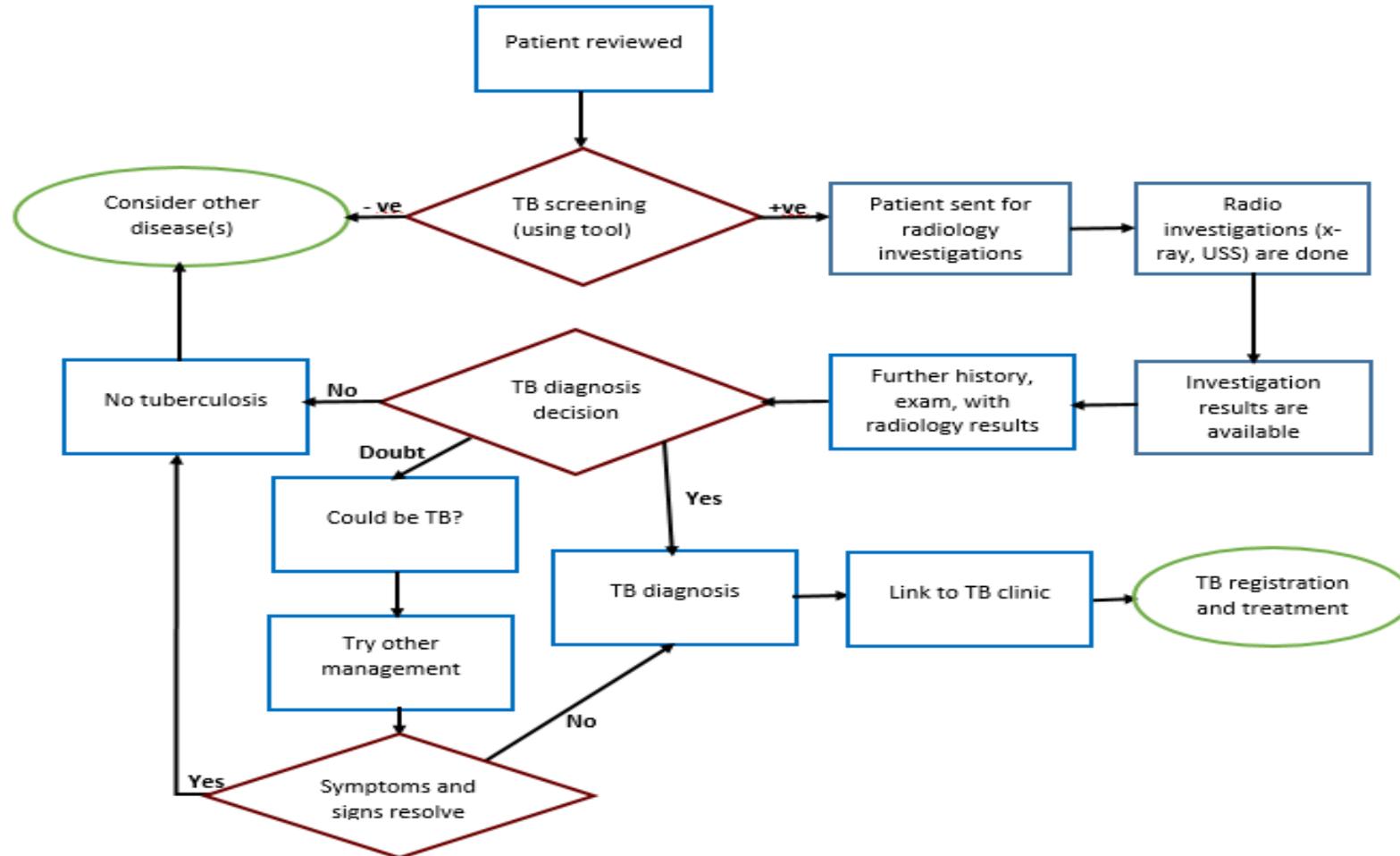
# Bombali District

**New Diagnostic Tools**

- Stool GeneXpert for presumptive children (3-5% positivity)
- TB LAM in HIV cohort (20-30% positivity)
- Genexpert for all TB presumptive cases ( 20% test positivity)
- Sputum induction for children

**New Implementation**

- WHO Peads algorithm with Xray and without Xray implemented in health care facilities
- Proactive contact tracing of close contacts
- Screening of all children in Paediatric and Nutrition Wards
- Screening of children in 12 DOTs sites Community Health Centres (CHC)
- CHW referring cases to CHC

# Ola During Children's Hospital: WAU

- Using both NG Aspirate and Stool Specimen in younger children
- Sputum for older children
- Using the new WHO Treatment Decision Algorithm for Children

# Treatment decision algorithms and operational guidance

Figure A5.1. Algorithm A (for settings with chest X-ray) and Algorithm B (for settings without chest X-ray)

**Child <10 years with symptoms suggestive of pulmonary TB**

**Algorithm A**

Presence of danger signs requiring urgent medical care? — YES → Stabilize and/or transfer as needed

NO

RETAIN / TRANSFER → Exit

Child <2 years old, living with HIV, and/or severe acute malnutrition

YES / NO

Treat most likely non-TB condition(s)
Follow-up in 1–2 weeks

Persistent/worsening symptoms — NO → Exit

YES

Collect respiratory/stool specimens for mWRD testing (e.g., Xpert MTB/RIF or Ultra), including in children living with HIV, urine LF–LAM, if available

If performed, did mWRD or LF–LAM detect *Mycobacterium tuberculosis*?

YES / NO / NOT PERFORMED / RESULT NOT YET AVAILABLE

Close or household TB contact in the previous 12 months?

YES / NO

Score signs and symptoms and CXR features

| Signs and symptoms | | Chest X-ray | |
|---|---|---|---|
| Cough longer than 2 weeks | +2 | | |
| Fever longer than 2 weeks | +5 | Cavity/Cavities | +6 |
| Lethargy | +3 | Enlarged lymph nodes | +17 |
| Weight loss | +3 | Opacities | +5 |
| Haemoptysis (cough up blood) | +4 | Miliary Pattern | +15 |
| Night sweats | +2 | Effusion | +8 |
| Swollen lymph nodes | +4 | | |
| Tachycardia | +2 | | |
| Tachypnoea | -1 | | |
| **Sum A:** ___ | | **Sum B:** ___ | |

Do not treat with TB treatment, Follow-up in 1–2 weeks.

Is Sum A + Sum B > 10?

YES / NO

**Initiate appropriate TB treatment**

**Child <10 years with symptoms suggestive of pulmonary TB**

**Algorithm B**

Presence of danger signs requiring urgent medical care? —YES→ Stabilize and/or transfer as needed

NO

RETAIN | TRANSFER

Child <2 years old, living with HIV, and/or severe acute malnutrition

→ Exit (TRANSFER)

YES | NO

Treat most likely non-TB condition(s) Follow-up in 1–2 weeks

Persistent/worsening symptoms —NO→ Exit

YES

Collect respiratory/stool specimens for mWRD testing (e.g., Xpert MTB/RIF or Ultra), including in children living with HIV, urine LF-LAM, if available

If performed, did mWRD or LF-LAM detect *Mycobacterium tuberculosis*?

YES | NO / NOT PERFORMED / RESULT NOT YET AVAILABLE

Close or household TB contact in the previous 12 months?

YES | NO

Score signs and symptoms

**Signs and symptoms**
| | |
|---|---|
| Cough longer than 2 weeks | +5 |
| Fever longer than 2 weeks | +10 |
| Lethargy | +4 |
| Weight loss | +5 |
| Haemoptysis | +9 |
| Night sweats | +6 |
| Swollen lymph nodes | +7 |
| Tachycardia | +4 |
| Tachypnoea | +2 |
| **Sum:** | ___ |

Do not treat with TB treatment. Follow-up in 1–2 weeks.

Is Sum > 10? —YES→ ... | NO→ (Do not treat)

**Initiate appropriate TB treatment**

# Next Steps

- Child and adolescent TB are part of the general TB and DR-TB guidelines
- The National Guideline for management of tuberculosis in Sierra Leone was revised in June 2022 and again this year and is at its final stage of editing.
- This guideline includes the management of tuberculosis in children & adolescents and has the recent WHO Treatment Decision Algorithm for Children included
- National Guidelines for the Management of Drug-resistant Tuberculosis in Sierra Leone which also includes management of DR-TB in children and adolescents, is also in its final Draft stage
- Printing and dissemination of the new guidelines and monitoring Tools is in process
- A comprehensive training program for 102 healthcare workers which aligned with WHO guidelines and covered various aspects of childhood TB diagnosis and management was conducted across the country.

# Thank you

# Merci

# Obrigado