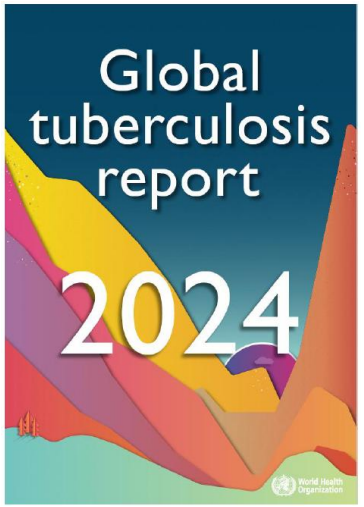
Topical issues and forthcoming updates to TB screening recommendations and implementation guidance

Cecily Miller

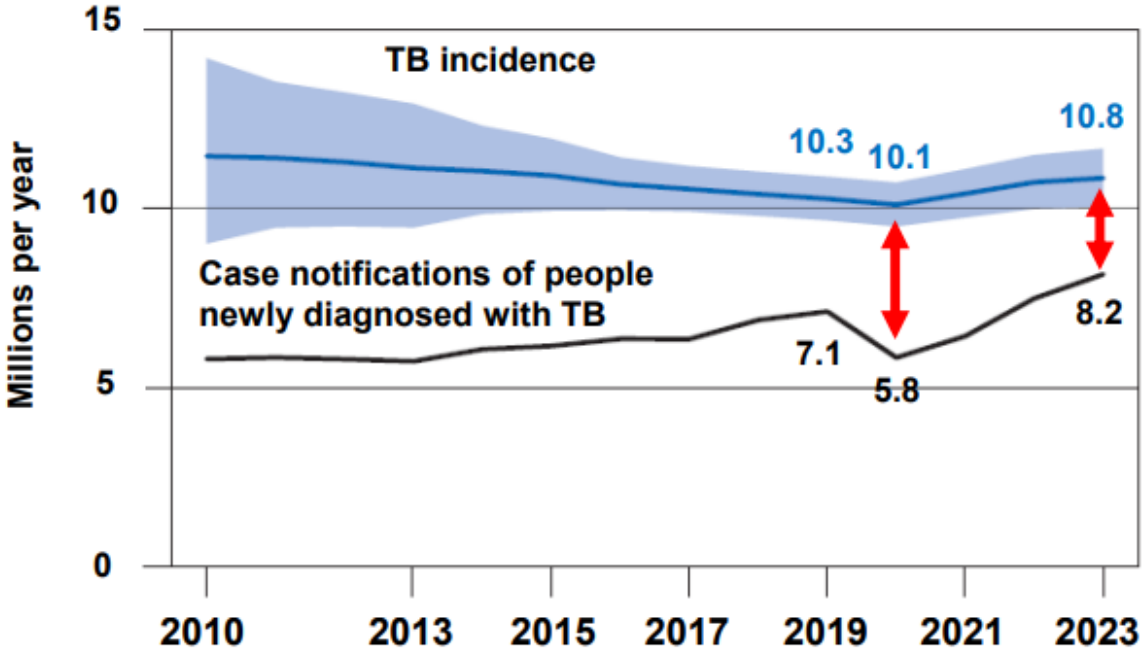
WHO Global Programme on Tuberculosis & Lung Health, Geneva, Switzerland

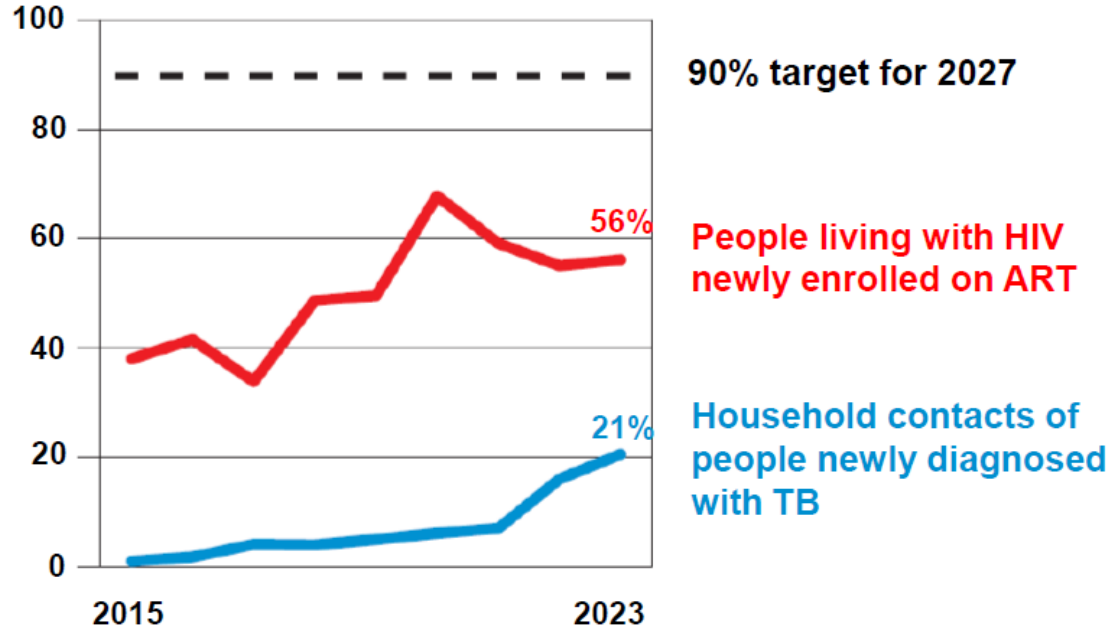
Global progress towards the Ending TB



We are **far off** our targets for the End TB Strategy and the 2023 UN High-Level Meeting

- Progress in reducing global incidence is stalled in much of the world
- Case detection is higher than ever but still short of our targets
- TPT coverage is improving but still very far from targets
- Almost one half of all people with TB face catastrophic costs





World Health Organization

One challenge – Asymptomatic TB

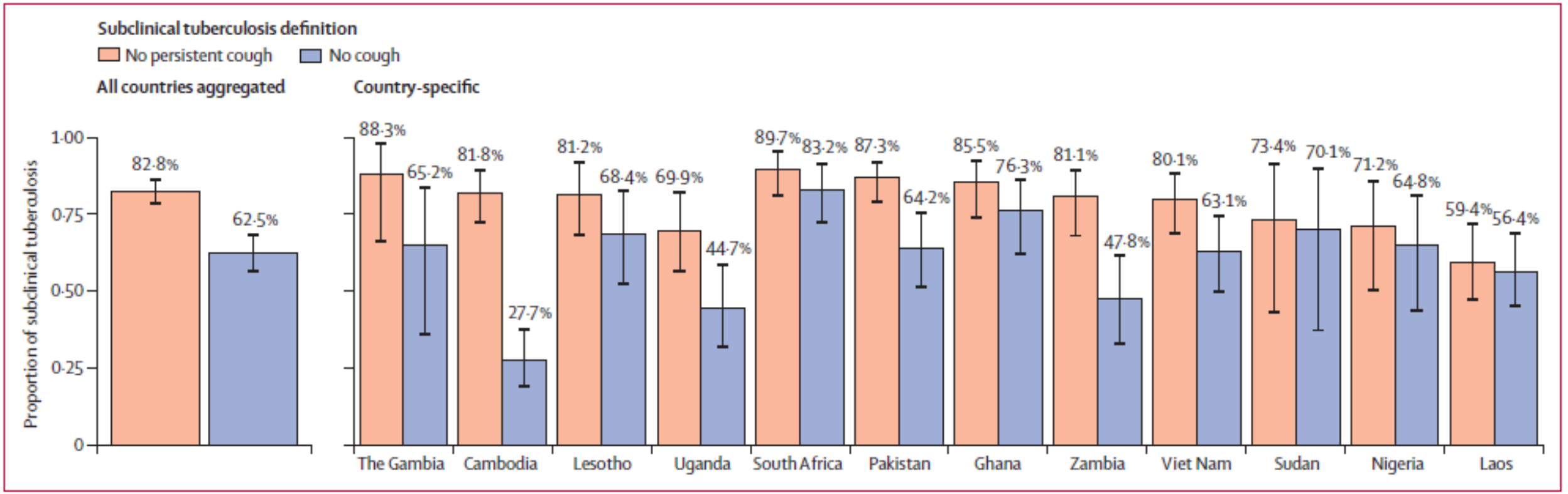


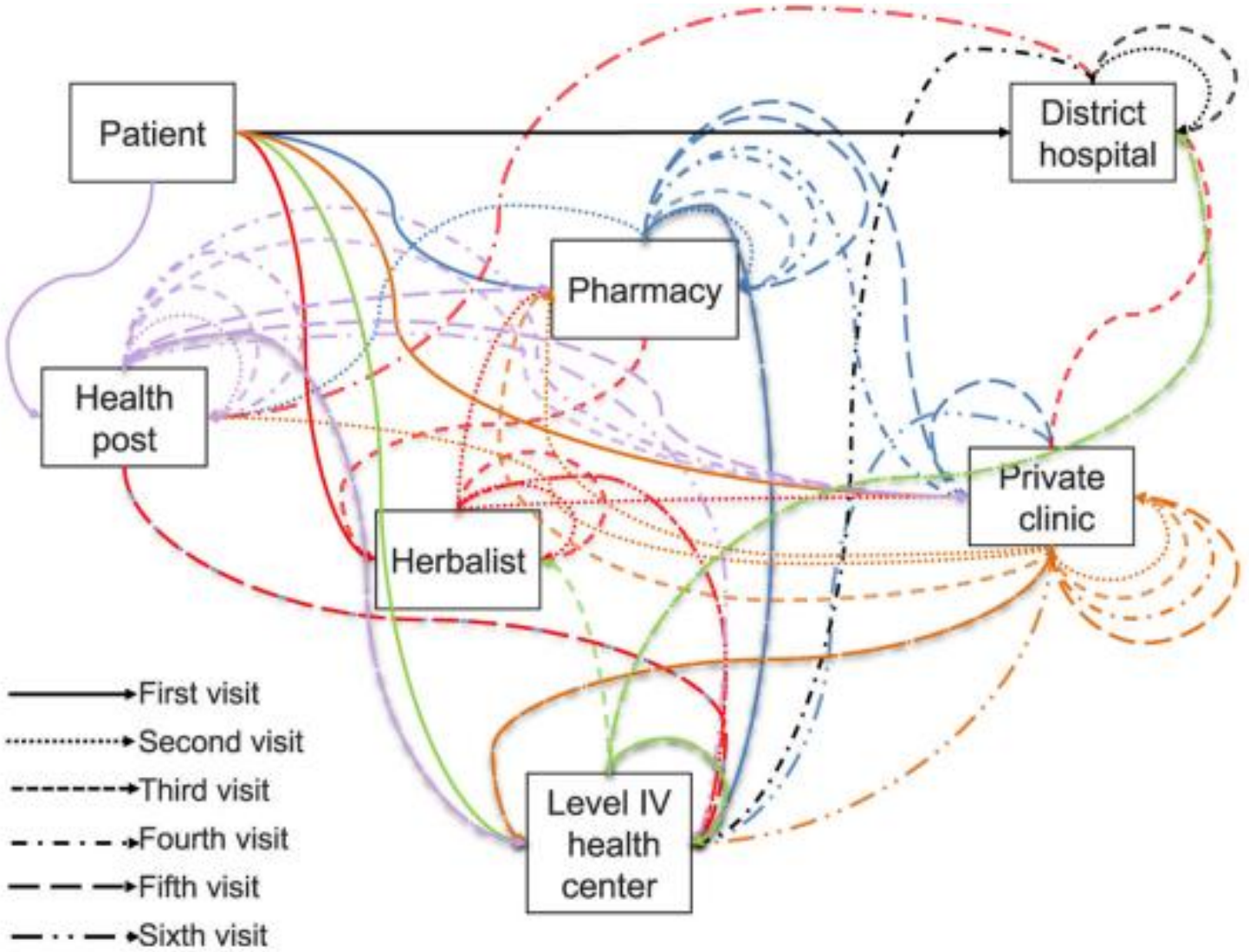
***Figure 3*: Proportion of tuberculosis disease that is subclinical by two definitions, and by country**
The left panel is aggregated over the full 12-country dataset. The right panel is disaggregated by country.

Stuck et al Lancet Infect Dis 2024

World Health Organization

END TB

Another challenge – barriers to reaching care



Shete et al IJTLD 2015

Systematic screening for TB

Systematic TB Screening can improve global TB care by:

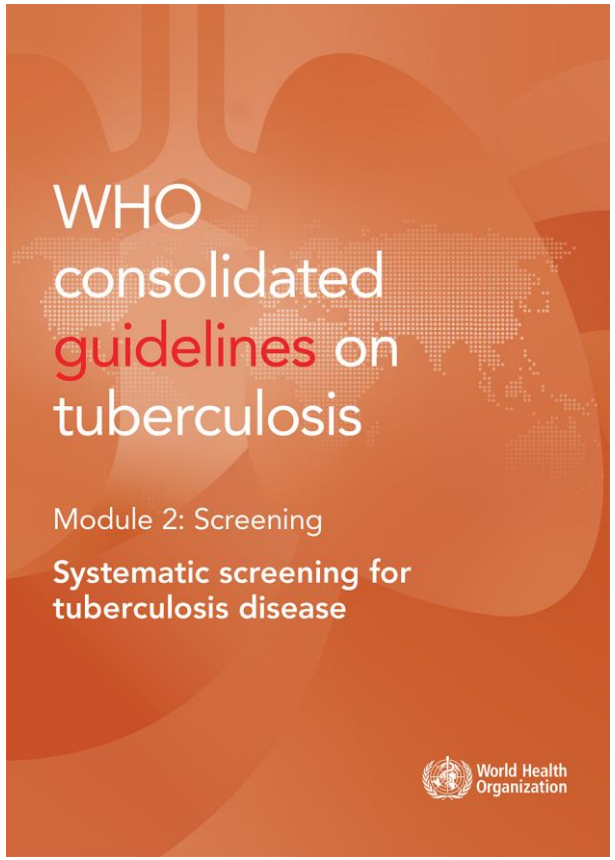
- **Protecting individuals at high risk**
  - Reduces delays in diagnosis
  - Improves treatment outcomes
  - Reduces costs for patients, families
- **Improving TB epidemiology of the community**
  - Increases detection of TB
  - Reduces transmission of TB
  - Reduces TB prevalence and incidence
- **Preventing TB entirely**
  - Enables initiation of TB preventive therapy

Overview of guidelines

- Released **March 2021**, composed of 17 recommendations
- Two main types of recommendations
  - **Who to screen –** risk groups, settings
  - **How to screen –** recommended tools
- Same intervention, two distinct objectives

Screening done for **individual protection** – to ensu\re people at high risk of TB get early detection and care, or preventive therapy, to avoid advanced disease and death

Screening done for **community benefit** – to reduce prevalence, transmission, incidence of TB



https://tbksp.who.int/en/node/1274

Recommendations: populations to be screened

TB screening is strongly recommended for:

Household and close contacts

People living with HIV

Miners exposed to silica dust

Prisoners

These populations should always be screened in all global settings.

Recommendations: populations to be screened

TB screening is strongly recommended for:

Child contacts of people with TB

Children living with HIV

- Very high risk of TB
- Higher risk of rapid progression from infection to disease

Recommendations: populations to be screened

TB screening is conditionally recommended for:

Facility-based screening/ intensified case finding (ICF):

People with risk factors for TB seeking health-care service in settings with ≥0.1% TB prevalence

- ✓ Malnourishment
- ✓ Diabetes
- ✓ History of previous TB
- ✓ Chronic lung disease
- ✓ Health care workers
- ✓ Those with other risk factors for TB

People with untreated fibrotic lesions on chest X-ray

Community-based screening/ active case finding (ACF):

People with structural risk factors for TB and limited access to health care

- ✓ Urban poor
- ✓ Homeless
- ✓ Refugees
- ✓ Migrants
- ✓ Other vulnerable, marginalized groups

People in settings with 0.5% TB prevalence

Prioritization is needed depending on the setting, context.

Recommendations: tools for screening (>15 years)

- **Chest X-ray**
- **Computer-aided detection (CAD)**

- Highly sensitive for TB disease
- Can detect TB before onset of symptoms
- CAD approved in place of human reading of CXR for adults (>15 y)

Symptom screening:
- **Cough**
- **Multiple symptom**

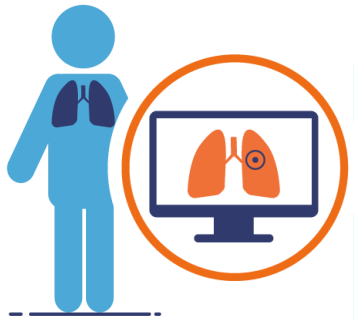
- Feasible and easy to implement
- Low resource requirements
- Not highly accurate
- Does not detect everyone with TB

Rapid molecular tests

- Less sensitive as screening tool but highly specific
- Still requires a follow-up test

Recommendations: tools for screening people with HIV

For adults & adolescents (>10 years) living with HIV:



Chest X-ray & CAD

- Improves the sensitivity of screening, particularly among those in regular ART care
- CAD only recommended for those 15 years & older

C-Reactive Protein

- A general marker of inflammation, can be used as a point-of-care test
- Increases specificity of screening, particularly among those not yet on ART

WHO 4-symptom screen (W4SS)

- Any one of cough, fever, night sweats, weight loss
- Recommended to be done at every health visit

Rapid molecular tests

- Can be used for screening all people living with HIV
- Strongly recommended for acutely ill and hospitalized patients in a “test and treat” strategy directly to guide treatment

Recommendations: tools for screening children

For child contacts of TB patients (≤ 15 years)

- Symptom screening (cough, fever, weight loss/lack of weight gain, reduced playfulness)
- Chest X-ray

For childen living with HIV (≤ 10 years)

- Symptom screening (cough, fever, weight loss/lack of weight gain, reduced playfulness)
- Contact with TB patient

Screening guidelines– updates coming soon

- January 2025 – Technical Advisory Group meeting on CAD
  - Evaluation of CAD products as a stopgap measure while WHO PQ in development
  - Evaluated 8 currently available CAD products for diagnostic accuracy
  - Results available April 2025

- Updated Target Product Profiles for new TB screening tools
  - Expert consultation and public commentary held 2024
  - Update available 2025

- Future guideline updates for TB screening
  - Pediatric CAD software, other screening tools
  - Expanding the WHO evaluation of CAD beyond TB
  - Updates to screening tools and interventions to address asymptomatic TB

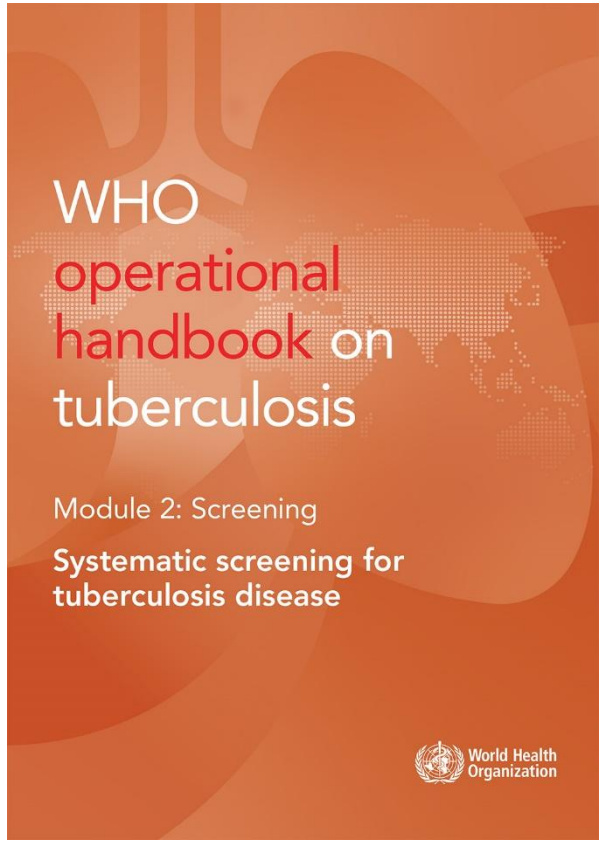
Operational handbook

The handbook provides

- Support on developing context-specific screening approaches
- A sound basis for national guidelines based on TB epidemiology in different risk groups and the health care system in the country

Target audience:

- Staff in national TB programmes and national HIV/AIDS programmes
- Other health programmes involved in screening in public and private sectors
- Communities and implementing partners



https://tbksp.who.int/en/node/1275

What are the principles of implementing high-quality, ethical screening practices?

Provide high-quality TB diagnostic and treatment services

Maximize coverage and frequency of screening

Target people at greatest risk

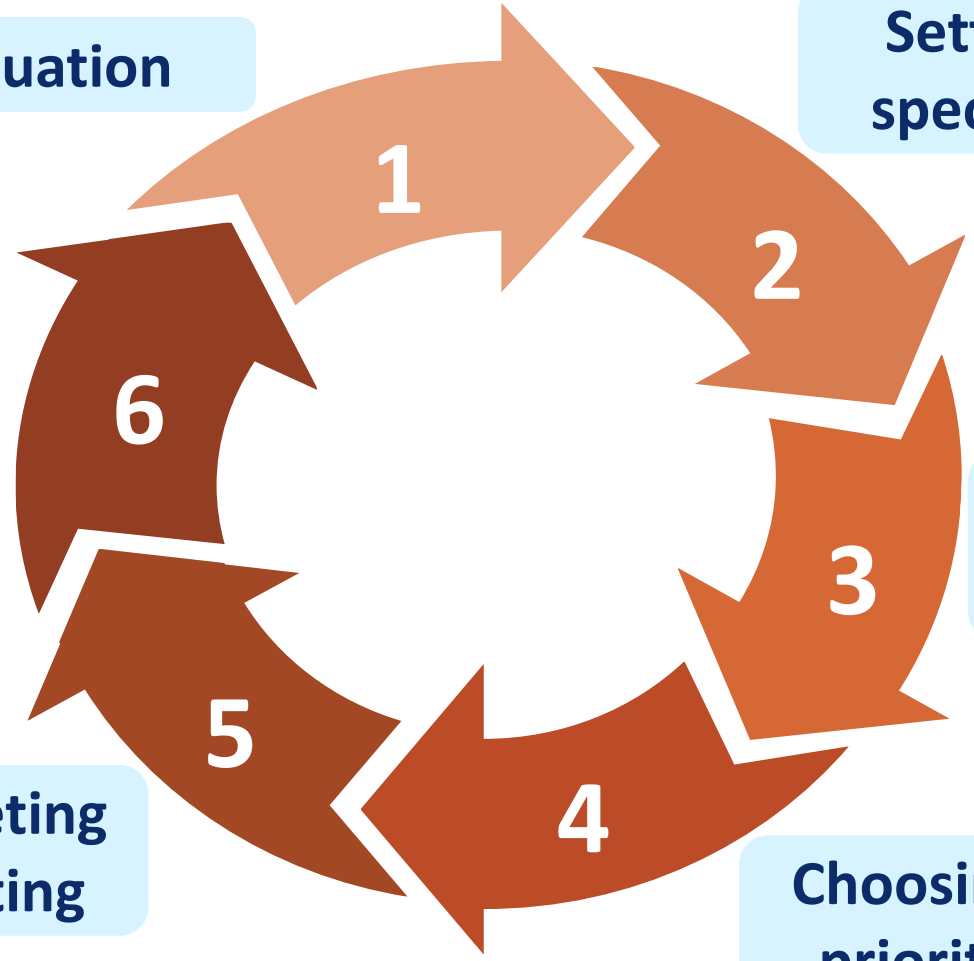
Synergize with other health and social services

Follow established ethical principles

Choose screening and diagnostic algorithms carefully

Operational handbook

How to create, implement, and update a national TB screening strategy?



1. Assessing the situation
2. Setting goals and specific objectives
3. Identifying and prioritizing risk groups
4. Choosing algorithms for prioritized risk groups
5. Planning, budgeting and implementing
6. Monitoring, evaluation, and modifying the programme

What are different screening models, and what are the pros and cons of them?

Health facilities

Residential, occupational, penitentiary settings

Community events and gatherings

Mobile outreach screening campaign

Home

Institution-based screening approaches

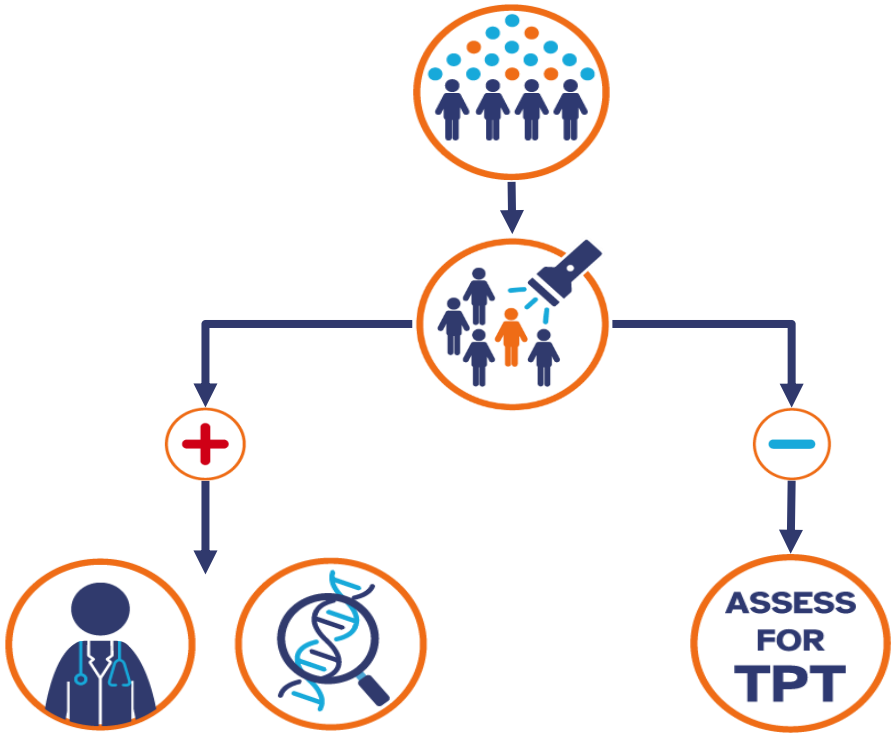
- Can increase efficiency
- Will note reach remote or isolated populations

Community-based screening approaches

- Can increase reach and coverage
- Higher resource requirements

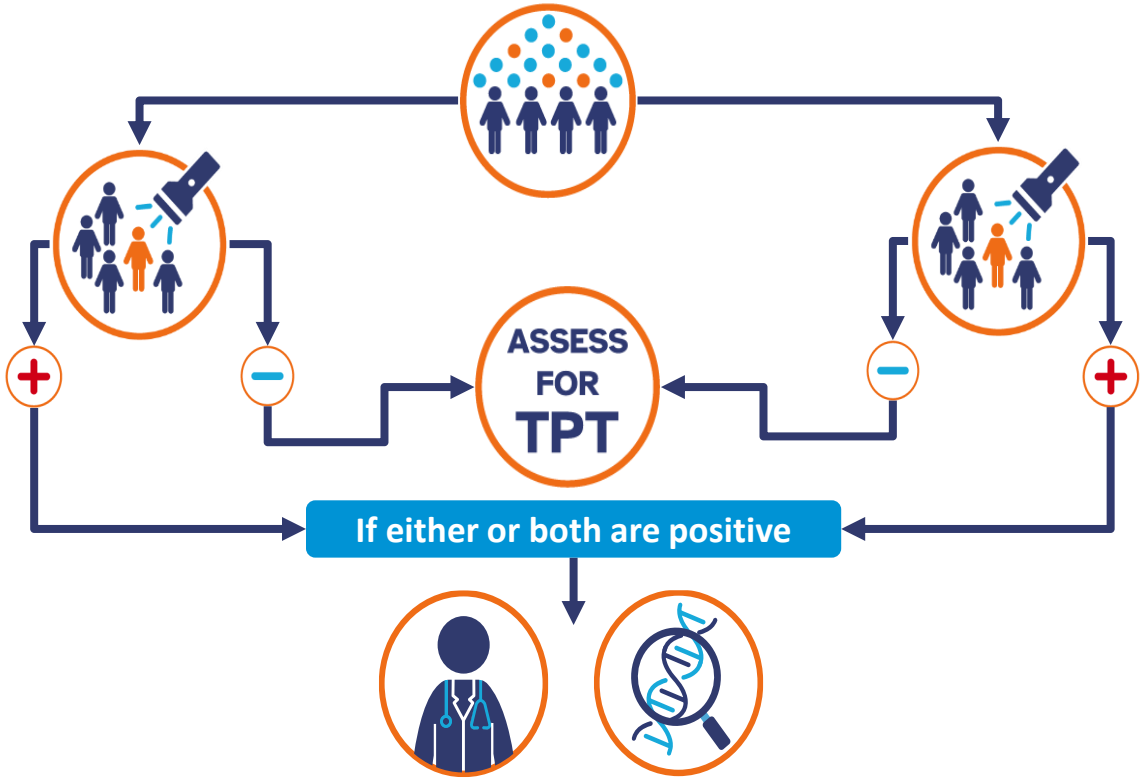
Operational handbook - algorithms

Single screening test algorithm



Utilizes one screening test to distinguish between people who possibly have TB and are referred for TB diagnostic evaluation, and people who most likely don't have TB and can be assessed for TPT

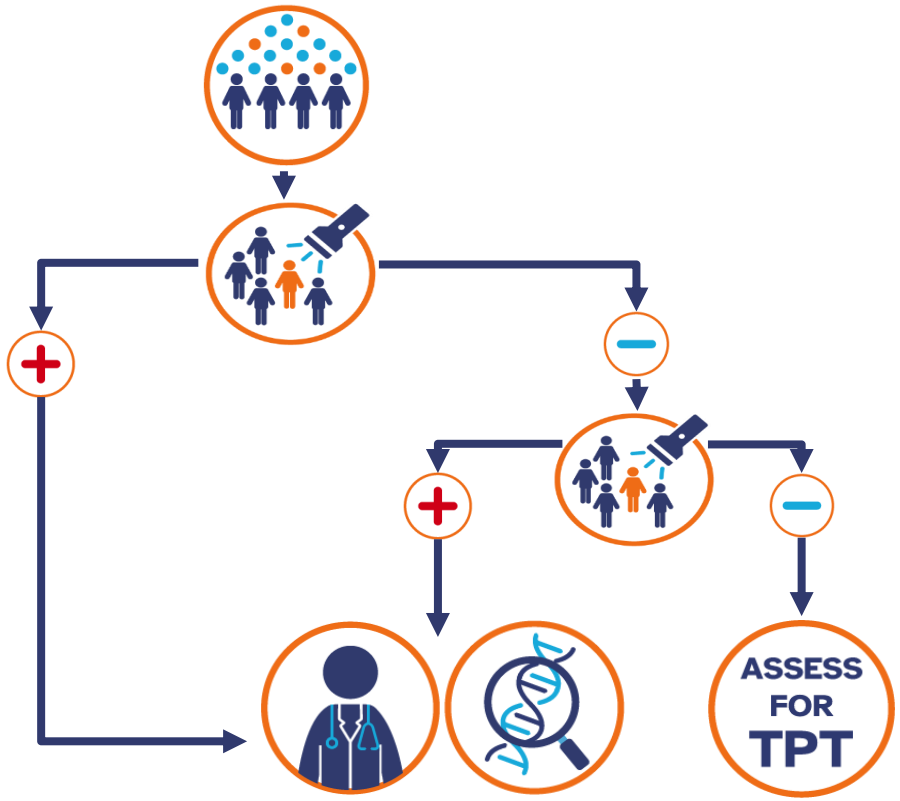
Parallel screening algorithm



Utilizes two screening tests together – a positive or abnormal on either or both test is an indication for diagnostic evaluation

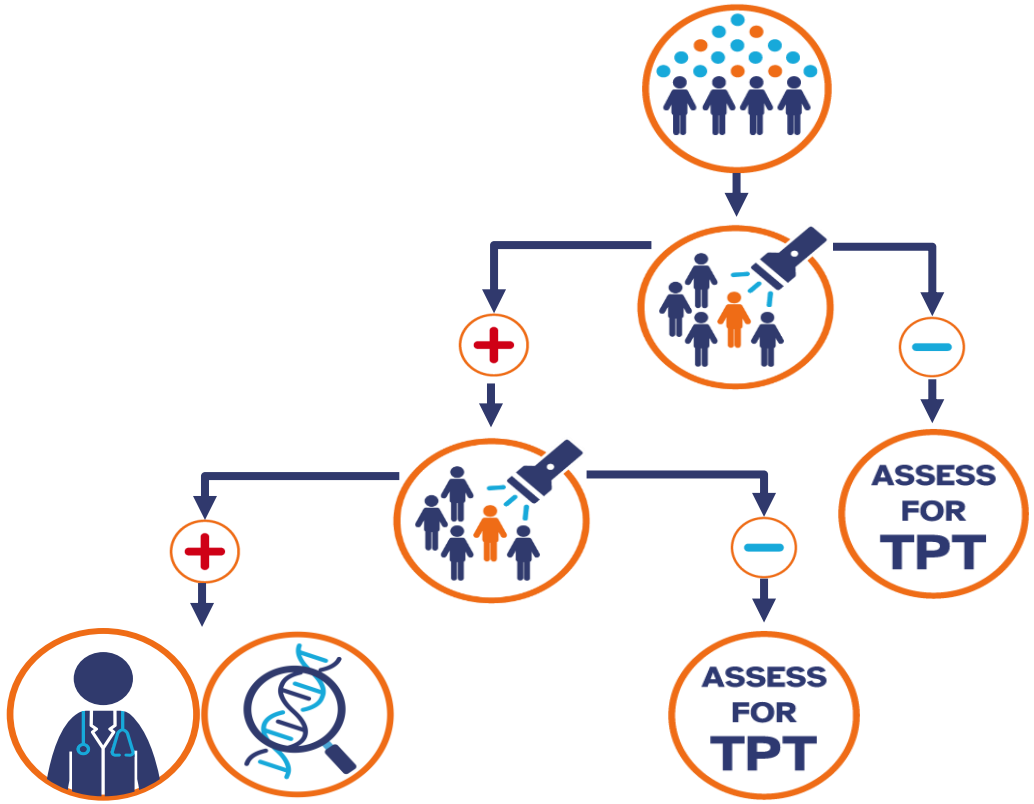
Operational handbook - algorithms

Positive sequential screening algorithm



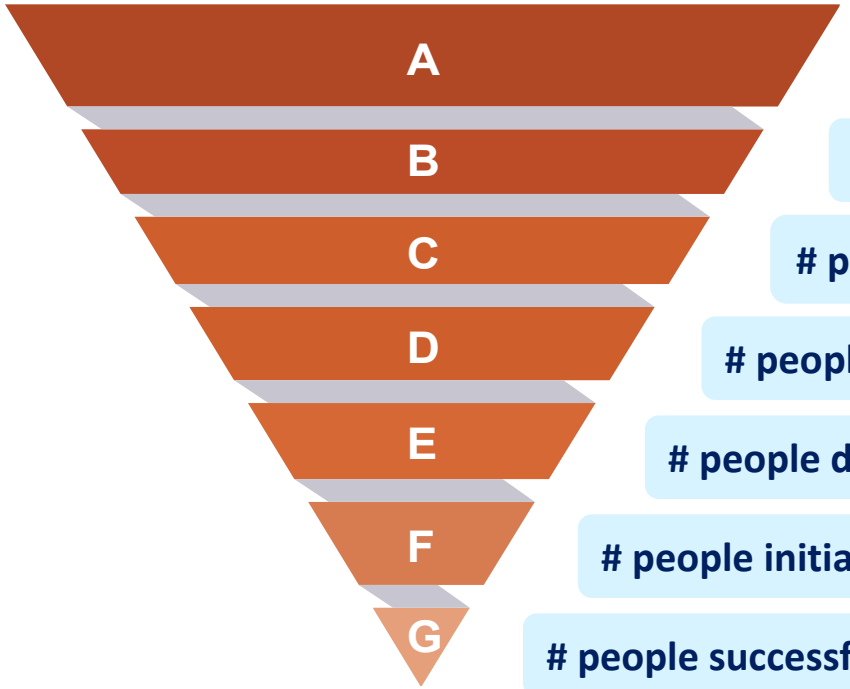
Uses two screening tests - only those positive on the first test going on to a second screen, and only those positive on both screens go on for diagnosis

Negative sequential screening algorithm



Uses two screening tests - those positive on the first test go straight to diagnostic evaluation, those negative on the first test go on to a second screen – thus those positive on both or either screens go on for diagnosis

How to monitor and evaluate TB screening?

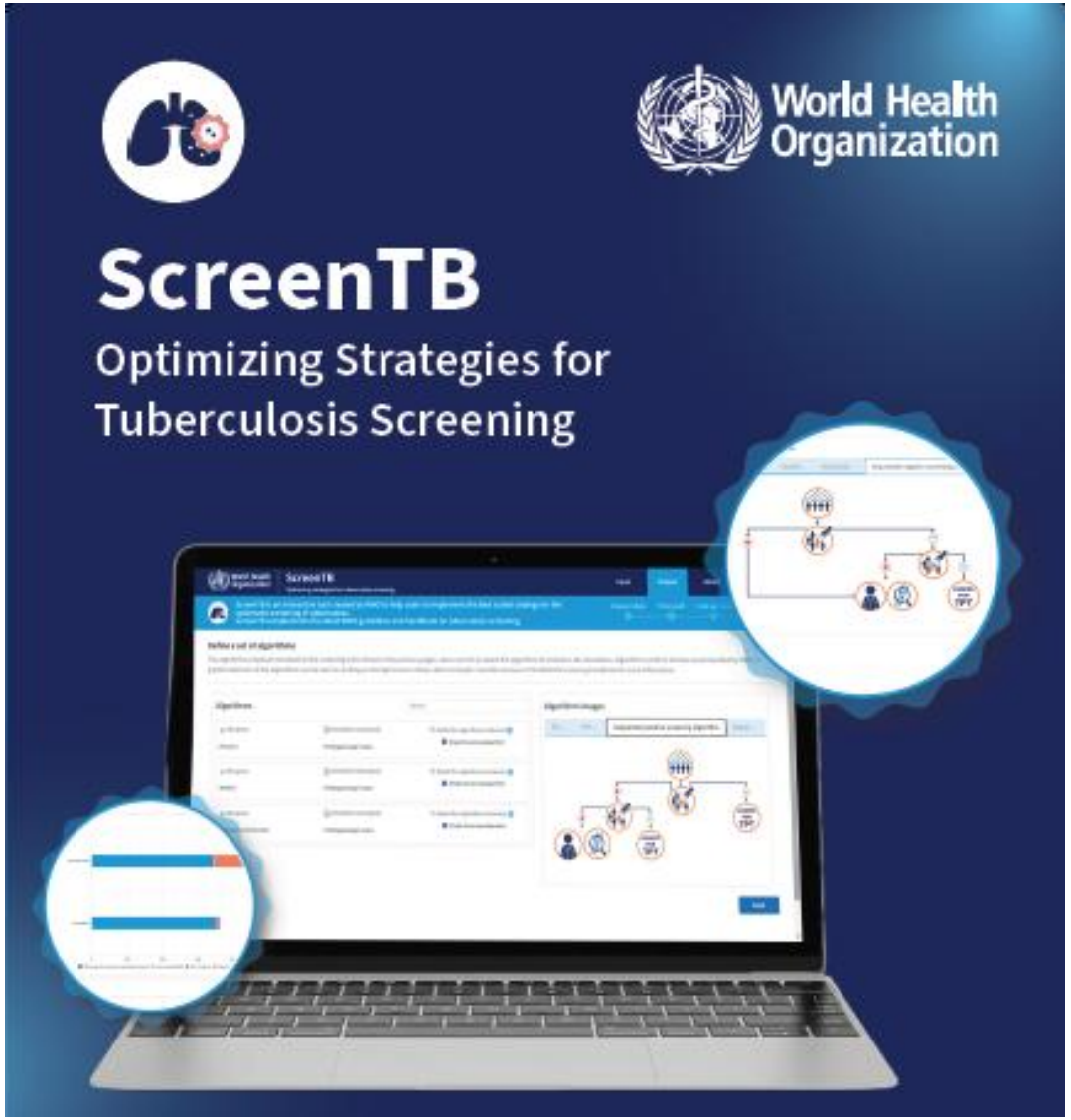


- A: # people eligible for TB screening
- B: # people screened for TB
- C: # people with presumptive TB identified
- D: # people evaluated for TB disease
- E: # people diagnosed with TB
- F: # people initiated on TB treatment
- G: # people successfully completing TB treatment

Implementation indicators	
Acceptability or Reach/coverage	B / A
Screening positivity rate	C / B
Screening retention in care	D / C
Testing positivity rate	E / D
Yield	E / A
Linkage to care	F / E
Treatment success	G / F
NNS	B / E

Population-level impact indicators
Incidence (~reduction in notified cases despite activities)
Prevalence (if being measured by intervention)
TB Mortality

Useful tools - *ScreenTB*



ScreenTB

- **Web-based tool to assist countries with prioritization of risk groups for screening and selection of screening tools and algorithms**
- **Harnesses data from a variety of sources – WHO Global TB Report, UN HIV data, published literature**
- **Produces estimates of yield and cost of screening, allowing for comparison between risk groups and across algorithm options within groups**
- **Creates figures to allow for easy visual analysis**

ScreenTB.org

Operational handbook – updates coming soon

- CAD – a pragmatic approach to threshold selection
  - Being developed with colleagues from MSF, based on implementation experience
  - A programmatic alternative to conducting a CAD calibration study
  - Feasible to implement rapidly, to enable CAD use when data or resources not available for full CAD calibration study

- Further implementation guidance for specific screening approaches
  - Facility-based screening
  - Community-based screening – a roadmap for scaling up TB screening
  - Risk group-specific screening (e.g. prisoners, miners, PLHIV, contacts)
  - “Best bet” algorithms for specific risk groups, settings

Acknowledgements

Dennis Falzon, Saskia den Boon, other WHO staff at HQ, Regional, Country Offices
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Other experts and funding agencies

World Health Organization

END TB