



# Finding the missing TB cases

Optimizing strategies to  
enhance case detection in  
high HIV burden settings

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Organization**

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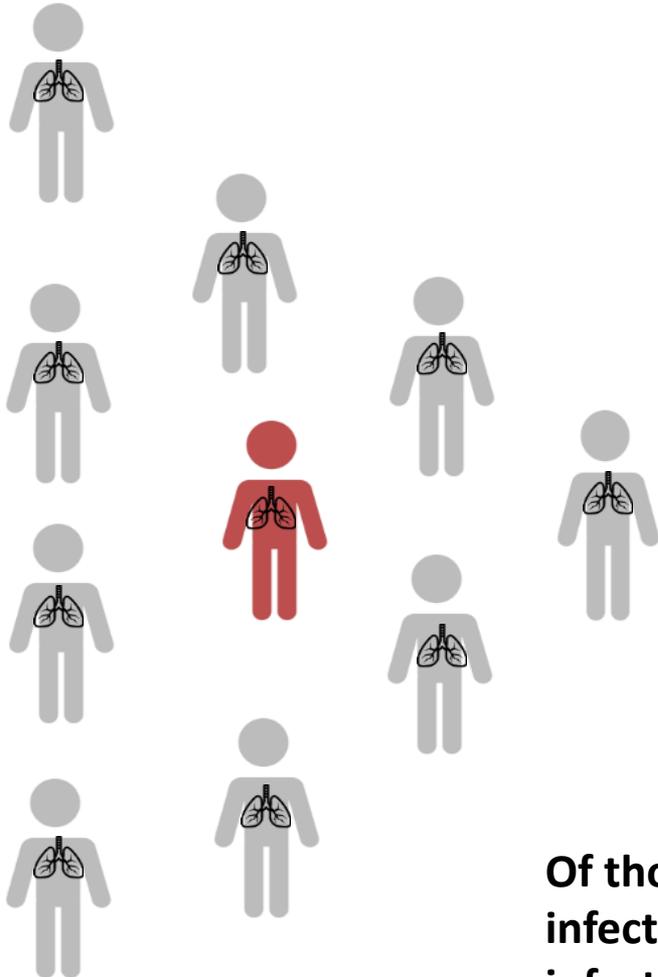


# Content

- Missing TB cases: Background data
- Who is being missed?
- Where are the missing TB cases?
- Why are the cases being missed?
- How can the missing cases be found?



**TB is transmitted via aerosolized particles from an infectious patient to those sharing the same air**



**Of those exposed, some (e.g., 10-15 in 1 year) will get infected (1/3 of global population) and of those infected up to 10% will develop TB**

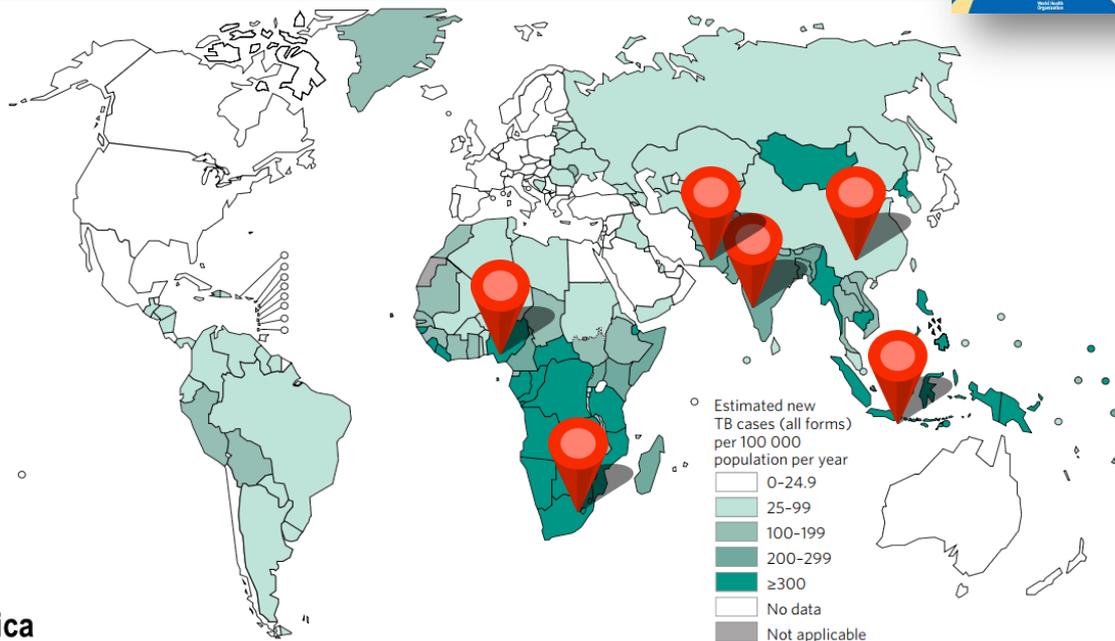
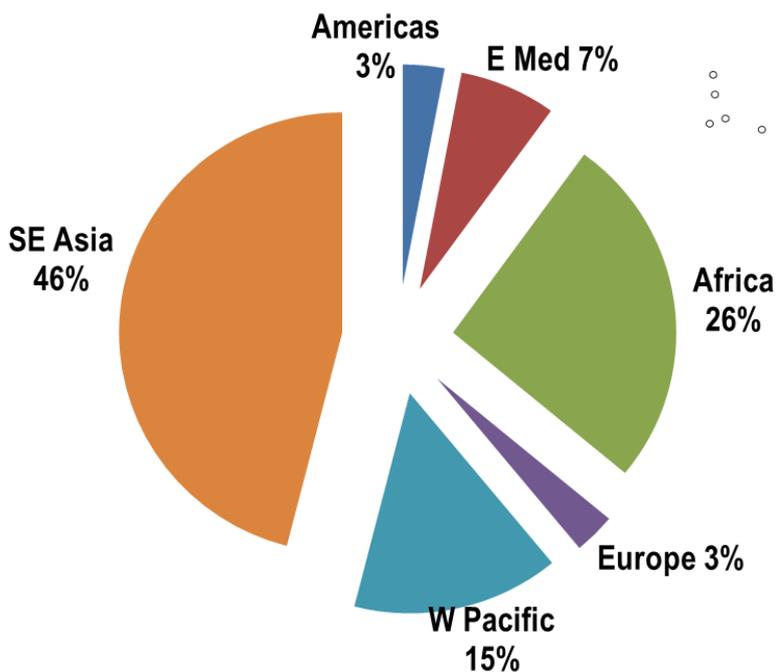


# 2015 TB incidence: countries and regions



## In 2015

- 10.4 million got TB
- 6.1 million cases notified
- 4.3 million cases missed (incl 600,000 Children)



## Missed cases:

- 27% in India
- 9-10% each: Indonesia & China
- 5 % each: Nigeria, Pakistan & South Africa



# Missing cases: why is it important?

## Vision:

**A world free of TB**

*Zero TB deaths, Zero TB disease, and Zero TB suffering*

## Goal:

**End the Global TB epidemic**



|   | MILESTONES |      | TARGETS      |                |
|---|------------|------|--------------|----------------|
|   | 2020       | 2025 | SDG*<br>2030 | END TB<br>2035 |
| <i>Reduction in number of TB deaths compared with 2015 (%)</i>      | 35%        | 75%  | <b>90%</b>   | <b>95%</b>     |
| <i>Reduction in TB incidence rate compared with 2015 (%)</i>        | 20%        | 50%  | <b>80%</b>   | <b>90%</b>     |
| <i>TB-affected families facing catastrophic costs due to TB (%)</i> | 0%         | 0%   | <b>0%</b>    | <b>0%</b>      |

*Reduction in number of TB deaths compared with 2015 (%)*

35%

75%

**90%**

**95%**

*Reduction in TB incidence rate compared with 2015 (%)*

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50%

**80%**

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*TB-affected families facing catastrophic costs due to TB (%)*

0%

0%

**0%**

**0%**

- Consistent with the SDG UHC agenda
- Key to the attainment of the End TB Strategy targets
- Minimize individual suffering and death
- In the interest of public health (interrupt transmission)



# The End TB Strategy

## PILLAR 1

### INTEGRATED, PATIENT- CENTERED TB CARE AND PREVENTION

- A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high risk groups
- B. Treatment of all people with TB including drug-resistant TB, and patient support
- C. Collaborative TB/HIV activities, and management of co-morbidities
- D. Preventive treatment of persons at high risk, and vaccination against TB

## PILLAR 2

### BOLD POLICIES AND SUPPORTIVE SYSTEMS

- A. Political commitment with adequate resources for TB care and prevention
- B. Engagement of communities, civil society organizations, and public and private care providers
- C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control
- D. Social protection, poverty alleviation and actions on other determinants of TB

## PILLAR 3

### INTENSIFIED RESEARCH AND INNOVATION

- A. Discovery, development and rapid uptake of new tools, interventions and strategies
- B. Research to optimize implementation and impact, and promote innovations

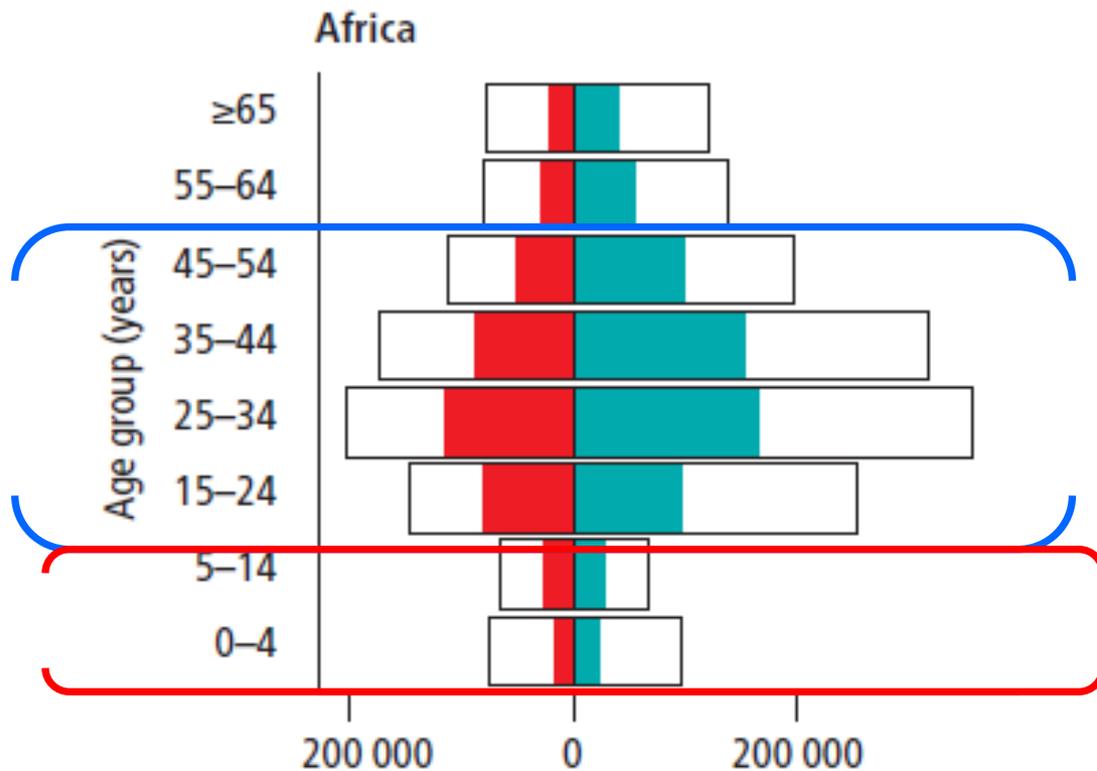
**A. Early diagnosis of TB including universal drug susceptibility testing, and systematic screening of contacts and high risk groups**





# Who is being missed?

Regional estimates of TB incidence (black line) and case notifications disaggregated by age and sex (female in red; male in turquoise), 2016



- Missing cases in all age groups
- Most missed cases within age group 15-44
- Considerable missing child cases and elderly;
- Preponderance of males



## Reasons for missing TB cases

- **Under-diagnosis** especially in countries with major geographic or financial barriers;
- **Under-reporting** of detected cases especially in countries with large private sector;
- **Inadequate access** to health services especially among vulnerable populations,
- Health systems and surveillance **gaps and weaknesses**;
- **Inadequate linkages** with private practitioners, hospitals, laboratories, or NGO services; and
- Absence of **mandatory case notification**, or lack of its enforcement.

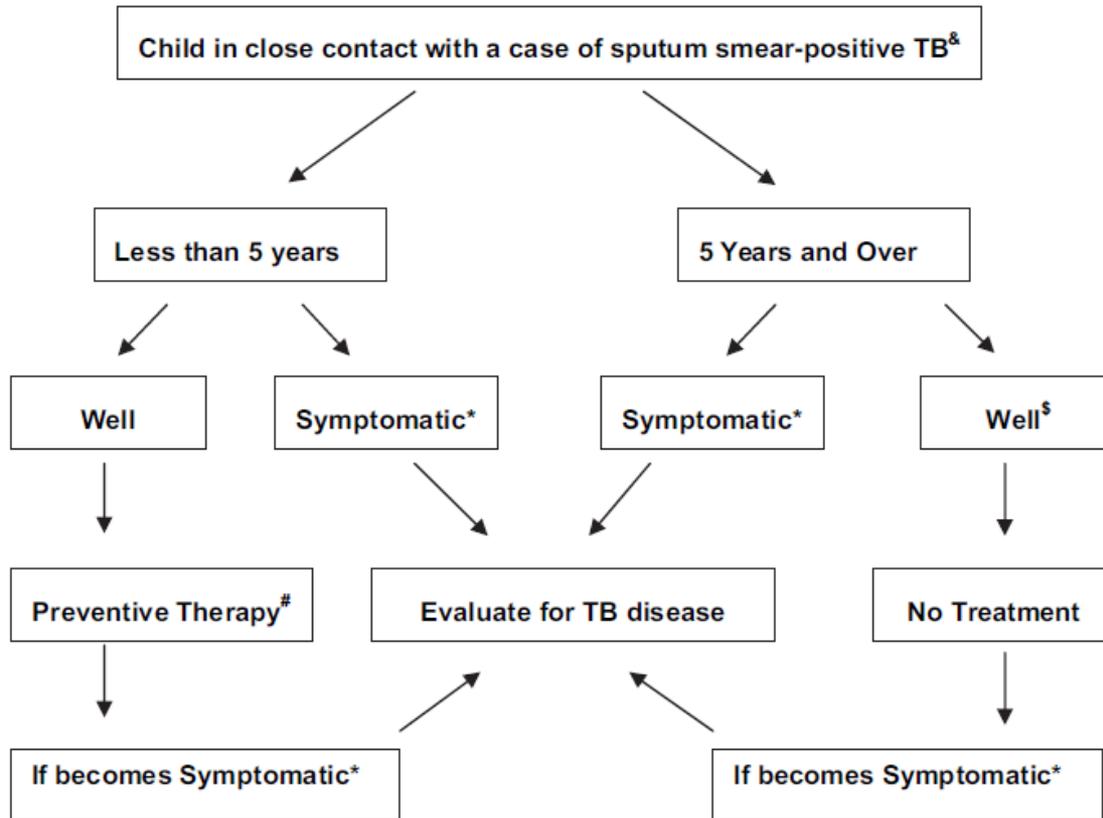


# Hypothesizing about missing cases

- **Children:**

- Missed due to inadequate HCWs capacity to suspect and diagnose child TB cases
- Limited access to diagnostic services (children mostly seen in hospitals)
- Lack of sensitive diagnostic tools for children; often TB is missed or diagnosed very late
- **Contacts tracing not routinely implemented**
- Inadequate integration or linkages with other programmes (Maternal and Child Health service platforms, HIV, nutrition, etc).

# Symptom-based screening



<sup>&</sup> Also consider if the mother or primary caregiver has sputum smear-negative pulmonary TB

<sup>\*</sup> Symptomatic: If TB is suspected, refer to local guidelines on diagnosis of childhood TB

<sup>#</sup> Isoniazid 10/mg/kg daily for 6 months

<sup>§</sup> Unless the child is HIV-infected (in which case isoniazid 10/mg/kg daily for 6 months is indicated)



## Enhancing case detection in high HIV burden settings

- TB accounts for approximately **40%** of HIV/AIDS-related adult deaths. Almost half of this disease remains undiagnosed at the time of death <sup>1</sup>;
- From 2015 global estimates, close to **60%** of estimated TB cases living with HIV worldwide, did not reach TB care.
- In 2015, almost 239,000 children died from TB worldwide, 80% in children younger than 5 years. About 39,000 paediatric TB deaths were children with HIV infections, of which 31,000 (80%) in Africa. **More than 96% of all TB deaths occurred in children not receiving TB treatment<sup>2</sup> .**

<sup>1</sup> Rishi K. Gupta et al. *AIDS*. 2015 Sep 24; 29(15): 1987–2002. Published online 2015 Sep 24. doi: [10.1097/QAD.0000000000000802](https://doi.org/10.1097/QAD.0000000000000802)

Peter J. Dodd et al. *Lancet Glob Health* 2017, doi: [http://dx.doi.org/10.1016/S2214-109X\(17\)30289-9](http://dx.doi.org/10.1016/S2214-109X(17)30289-9) |



# Enhancing case detection in high HIV burden settings

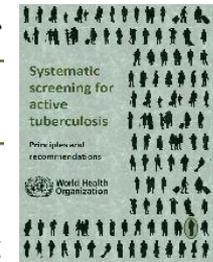
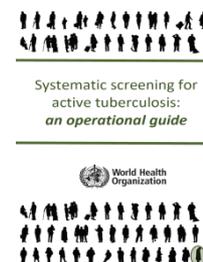
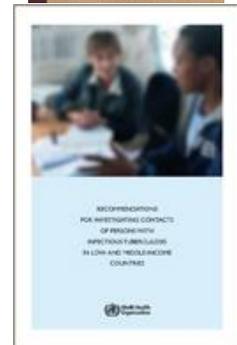
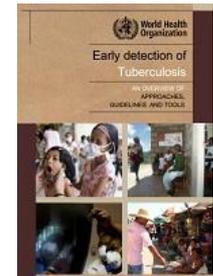
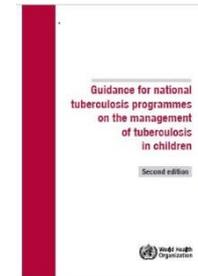
- Main gaps and barriers need to be addressed to find missing cases in HIV settings:
  - Poor implementation and reporting of TB screening among people attending HIV care, **including children**;
  - A mismatch between ART and TB diagnostic services using Xpert MTB/RIF;
  - Outdated algorithms for the diagnosis and management of HIV-associated TB;
  - Lack of data on the diagnostic pathway from TB screening to diagnosis among people newly enrolled in HIV care;

<sup>1</sup> Rishi K. Gupta et al. *AIDS*. 2015 Sep 24; 29(15): 1987–2002. Published online 2015 Sep 24. doi: [10.1097/QAD.0000000000000802](https://doi.org/10.1097/QAD.0000000000000802)



# How can the missing TB cases be found?

- **Know your epidemic**
  - Who is being missed and where?
  - Patient-pathway analysis can provide valuable information
- **Robust case finding strategy**
  - Appropriate screening strategy (selection of relevant screening/diagnostic algorithm) – WHO Web based tool
  - Appropriate screening tools (symptom-based, radiology for triaging, screening and aiding clinical diagnosis)
  - Active case finding (Specific risk groups, **contact tracing**, door-to-door)
  - Intensified case finding (child care services, HIV clinics, nutrition clinics,
  - Community engagement (ENGAGE-TB approach)
- **Greater engagement of private sector**
  - Screening, diagnosis and reporting





# How can the missing TB cases be found?

- **Address health services barriers**
  - Reaching vulnerable populations
  - Intensifying childhood TB detection in general health care services
- **Address recording and reporting gaps**
  - M&E strengthening (Standards and benchmarks)
  - Inventory studies
  - Mandatory notification
- **Adequate planning for finding missing cases**
  - Adequate targeting of population to be screened



# Opportunities to boost efforts to find missing TB cases

## The Global Fund Catalytic Investment

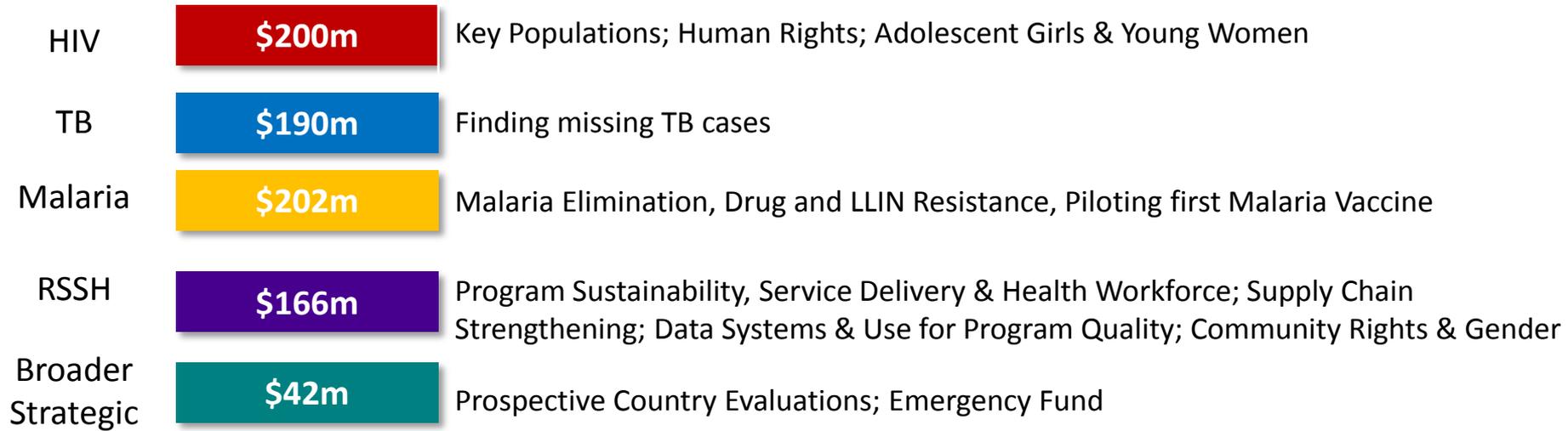
Slides borrowed from

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# Overview of Board-approved Catalytic Investments 2017-2019



| Illustrative Modality  | Total Funding (US\$ m) | % of Funding |
|------------------------|------------------------|--------------|
| Matching Funds         | 356                    | 44.5%        |
| Multi-County Proposals | 272                    | 34.0%        |
| Strategic Initiatives  | 172                    | 21.5%        |
| <b>Total</b>           | <b>800</b>             |              |

~ 80%  
directly to  
country  
programs

# TB Catalytic Investments 2017-2019

| Modality               | Total Funding (US\$ m) | % of Funding |
|------------------------|------------------------|--------------|
| Matching Funds         | 115                    | 60.5%        |
| Multi-County Proposals | 65                     | 34.2%        |
| Strategic Initiatives  | 10                     | 5.3%         |
| <b>Total</b>           | <b>190</b>             |              |

- The main objective is to **find missing cases** of both DS- and DR-TB
- Funding **earmarked** to support innovative strategies/approaches to find missing cases
- Funding matched to submission of **ambitious plan and targets** to detect and treat **additional number** of TB and MDR-TB patients
- **Foster collaboration** with other partner's initiatives focusing on improving case detection and finding missing cases

# Matching Fund Priority Countries

| Country                   | Missed TB cases (total) | Missed childhood TB cases              | Missed MDR-TB cases | Missed TB/HIV cases |
|---------------------------|-------------------------|--|---------------------|---------------------|
| Bangladesh                | 155,214                 | 28,927                                 | 8,700               | 500                 |
| <b>DRC</b>                | <b>131,069</b>          | <b>29,938</b>                          | <b>9,500</b>        | <b>31,400</b>       |
| Indonesia                 | 688,124                 | 46,588                                 | 30,000              | 74,700              |
| India                     | 1,099,565               |  | 101,000             |                     |
| Myanmar                   | 58,347                  | 20,930 *                               | 11,000              | 9,500               |
| <b>Nigeria</b>            | <b>498,935</b>          | <b>62,227</b>                          | <b>28,000</b>       | <b>84,800</b>       |
| Pakistan                  | 186,400                 | 11,630 **                              | 23,000              | 8,700               |
| Philippines               | 47,744                  | 1,813                                  | 13,000              | 4,000               |
| <b>South Africa</b>       | <b>167,017</b>          | <b>3,863</b>                           | <b>400</b>          | <b>100,000</b>      |
| <b>Tanzania</b>           | <b>102,809</b>          | <b>12,297</b>                          | <b>2,400</b>        | <b>37,200</b>       |
| Ukraine                   | 10,544                  | 1,932                                  | 13,000              | 2,300               |
| <b>Kenya</b>              | <b>25,885</b>           | <b>6,241</b>                           | <b>1,600</b>        | <b>9,500</b>        |
| <b>Mozambique</b>         | <b>95,787</b>           | <b>15,000</b>                          | <b>6,700</b>        | <b>49,600</b>       |
| <b>Total missed cases</b> | <b>3,267,440</b>        | <b>195,900 (nearly 130,000 in AFR)</b> | <b>248,300</b>      | <b>412,200</b>      |

# Special Initiative to find missing people

- WHO and Stop TB Partnership to support countries during planning, implementation and monitoring of their plans to find missed people.
- Collaboration with other partners
- Targeted interventions to **catalyze country efforts** to find missing people with TB, TB/HIV and DR-TB (Adults and children)



# Strategic initiative to find missing cases – Key interventions

- **Assist countries** baseline assessment/ mapping to identify bottlenecks and opportunities in finding missing TB cases
- Support development of **national action plans** (which would incorporate a package of targeted interventions to find missing cases and disseminate tools to support implementation)
- Build and **strengthen country capacity** to effectively implement developed action plans
- Support countries to accelerate **scale up** of and access to new diagnostic tools and approaches to increase case finding
- Support strengthening of **monitoring and evaluation systems**, including introduction and expansion of digital health technologies and innovative mechanisms for data collection and reporting
- Assess and **document progress** in reaching missed cases, promoting successes and lessons learned to support scale up and replication



# Acknowledgements

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**Thank you!**