

# Tuberculosis Inventory Study 2023-2024 in Indonesia

National TB Program Manager  
Ministry of Health of the Republic of Indonesia

# Outline

1. Background and Objectives
2. Methodology
3. Stages of Activities
4. Results
5. Documentation

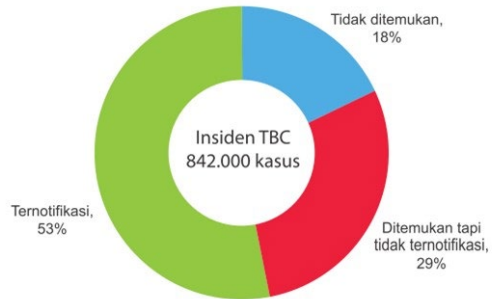
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# BACKGROUND AND OBJECTIVES

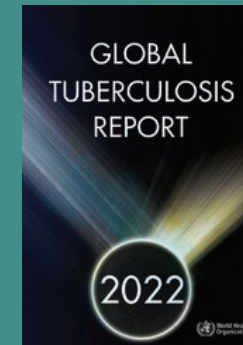
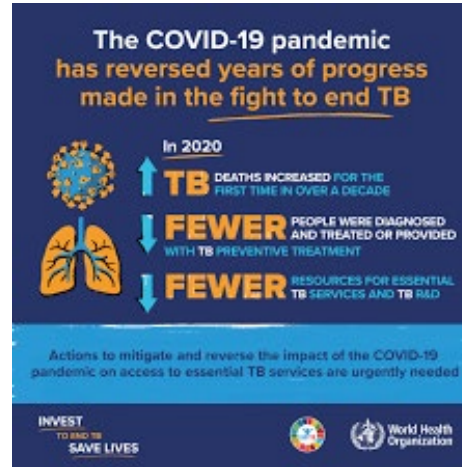
## TB Inventory Study 2017

- **Underreporting 41% (national)**
- **Incident 842.000 cases**



**UNDERREPORTING  
UNDERDIAGNOSIS**

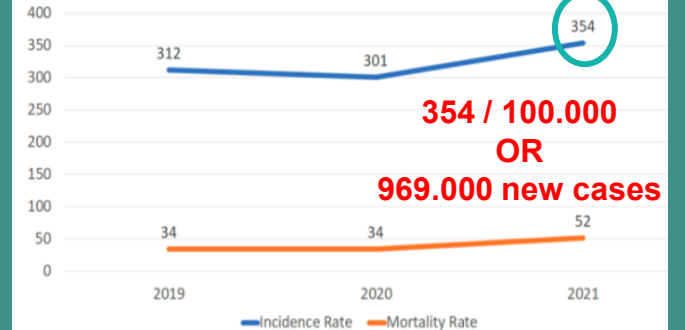
## TB INVENTORY STUDY 2023-2024



2nd country with the highest TB burden

**Graph 1. Trend of Estimated Burden of TB in Indonesia 2019-2021**

(Source: Global TB Report 2020-2022)



## Main Objective

To evaluate the underreporting of tuberculosis cases in the National Tuberculosis Surveillance System and to estimate the national tuberculosis incidence

## Specific Objectives

- To evaluate the underreporting of TB cases in the National TB Surveillance System based on the type of healthcare facilities, ownership status of healthcare facilities, age, gender, region, and TB type
- To capture the management of TB in healthcare facilities not connected to the National TB Program.



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# Inventory Study (IVS) to assess **estimated incidence** & **underreporting** of TB cases

*Study Period: March 2023 – June 2024*

## ASSESSING **tuberculosis** UNDER-REPORTING THROUGH inventory studies

### Design Study:

- **Cross-sectional survey**
- **31 selected districts/cities**

### Data Collection:

- Data recorded **prospectively**
- All TB cases **diagnosed and/or treated** during **1 Sep to 30 Nov 2023**

### Health Facilities Coverage:

- **The entire of Health Facilities** (Public and Private)
- **Criteria: diagnosed and/or treated all TB cases**

### Data Analysis:

- **Deterministic** and **probabilistic** record linkage of **MS data** with **SITB data**
- **Capture-Recapture** (CRC) Method
- **Poisson Regression Model**

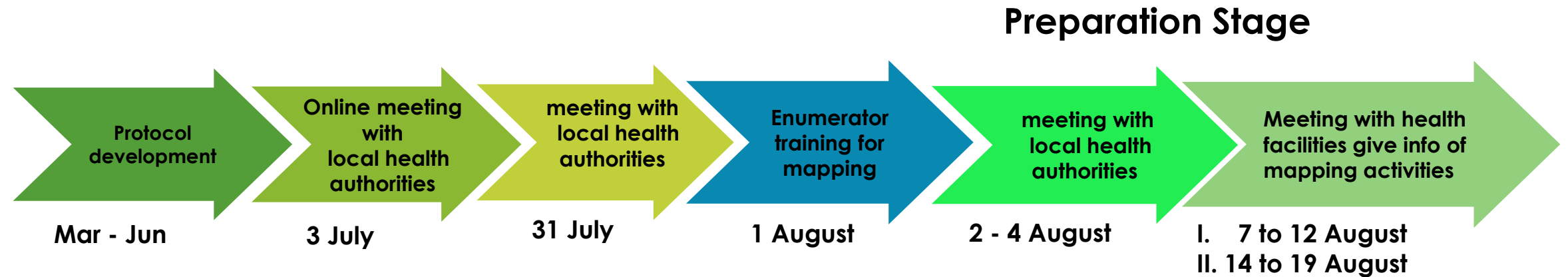


*"A guide to describe and **implement TB inventory study** to measure under reporting" – WHO, 2012*

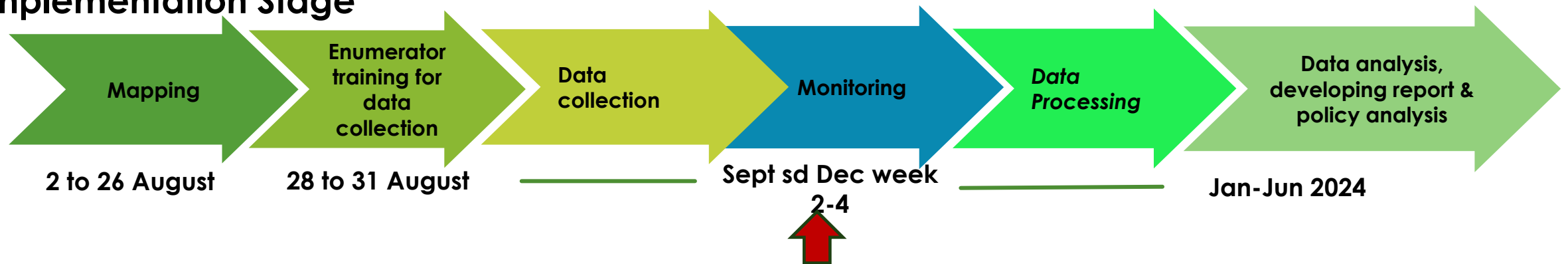
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# »» STAGES OF ACTIVITIES



## Implementation Stage



### Regular monitoring by:

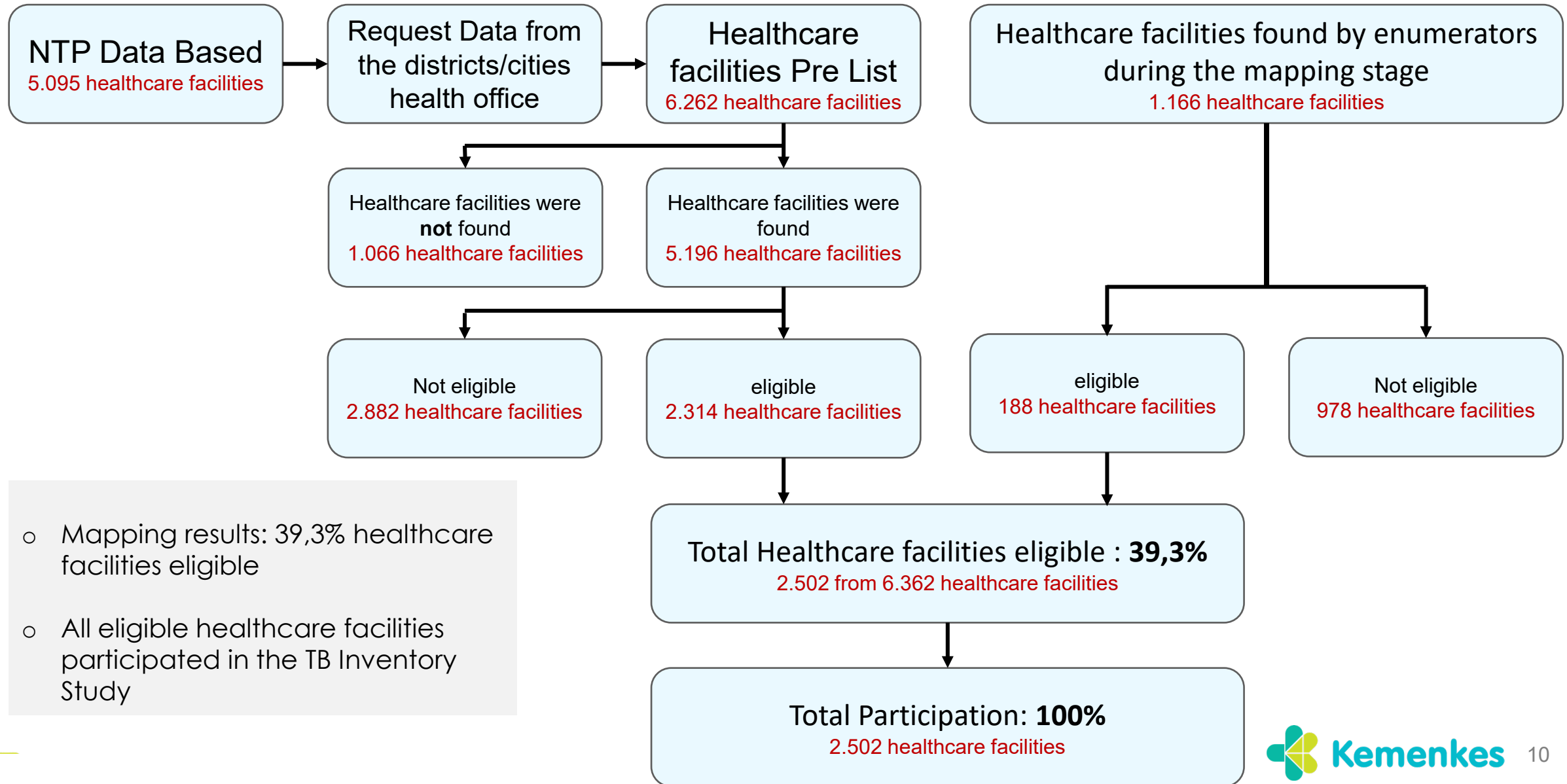
- Core Team : Technical supervisor, National TB programme, Expert, WHO
- Local Team : District Health Authority



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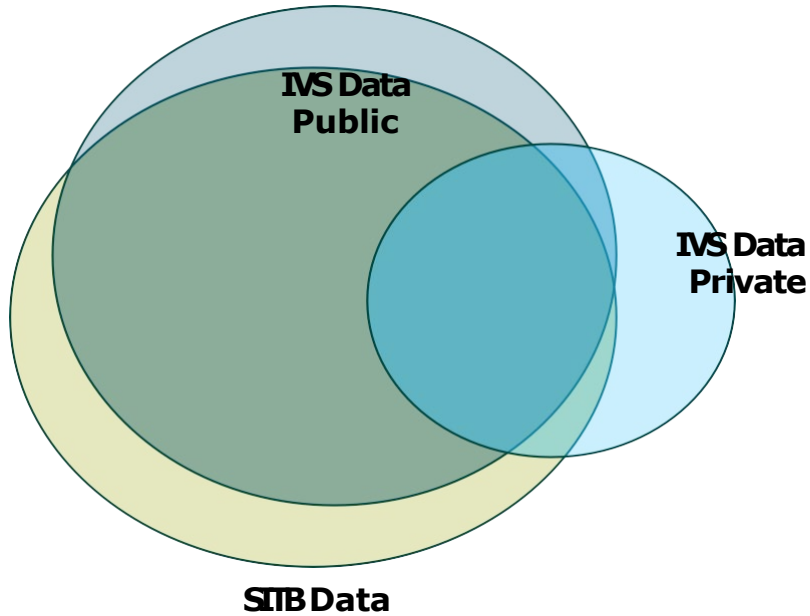
## 39.3% of healthcare facilities from 31 districts/cities participated in the TB Inventory Study



# 25.7% point (pp) reduction in under-reporting of TB Cases by 2023

Compared to 2017 (41.3%), 2023 (15.6%)

Overview of Total TB Cases Detected

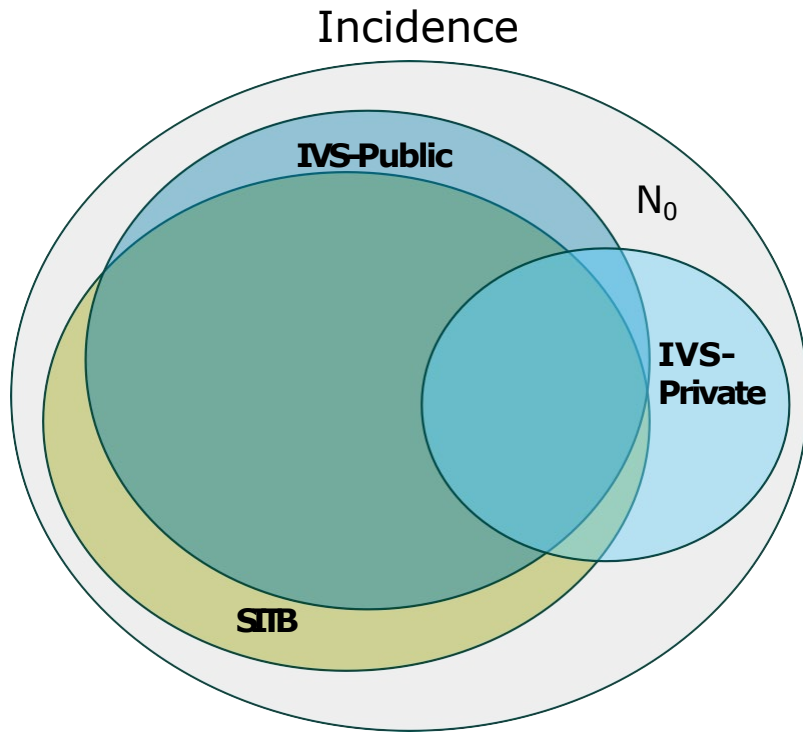


Proportion of **under-reporting TB Cases**:  
*"Number of TB Cases detected but non reported in the national surveillance system (SITB data)"*

Under-reporting	2017	2023	
Total	41.3%	15.6%	↓4.4 pp/yr
By Health Facilities Ownership			
Public	31.0%	10.7%	↓ 3.4 pp/yr
Private	63.7%	27.5%	6.0 pp/yr
By Age group			
Child (<15)	54.2%	23.5%	↓ 5.1 pp/yr
Adult (15+)	39.3%	14.0%	↓ 4.2 pp/yr
By Types of Health Facilities			
Community Health Center	15.0%	8.1%	↓ 1.2 pp/yr
Non-community Health Center	70.7%	19.6%	8.6 pp/yr
Hospital	62.2%	16.9%	↓ 7.5 pp/yr
Clinic, Private Practitioner, Lab	95.9%	37.6%	↓ 9.7 pp/yr
By Anatomical Sites			
Pulmonary	38.3%	14.7%	↓ 3.9 pp/yr
Extrapulmonary	58.1%	20.3%	↓ 6.3 pp/yr
By Diagnosis Types			
Bacteriological Confirmation	20.6%	7.7%	↓ 2.2 pp/yr
Clinical Diagnosis	55.3%	20.6%	↓ 5.7 pp/yr

# Estimated TB Cases in 2023 are 1.082.000 Cases

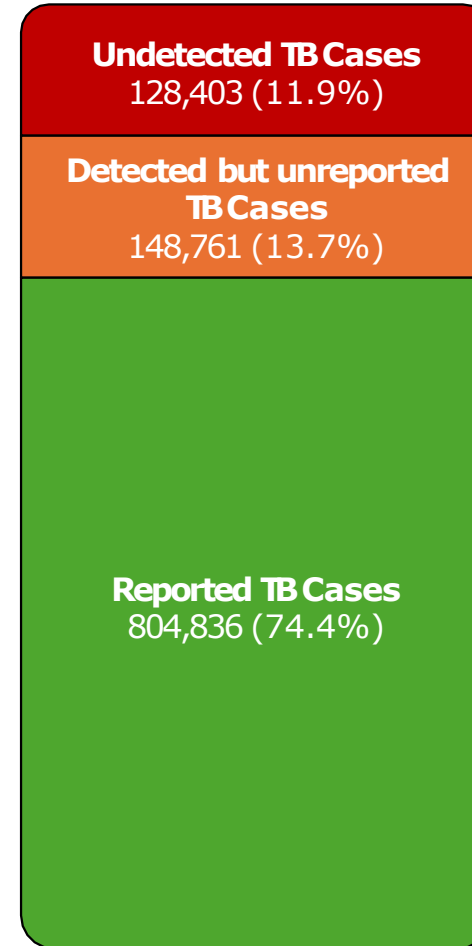
## Incidence of TB Cases in 2023



- For estimating the incidence, **an estimated of undetected TB Cases ( $N_0$ )** is required
- Proportion of undetected TB Cases ( $Pr(N_0)$ ) is calculated using **the 3SCRC method and Regression Poisson Model**

## Incidence Estimation: 1,082,000

95% CI: 996,000 - 1,171,000

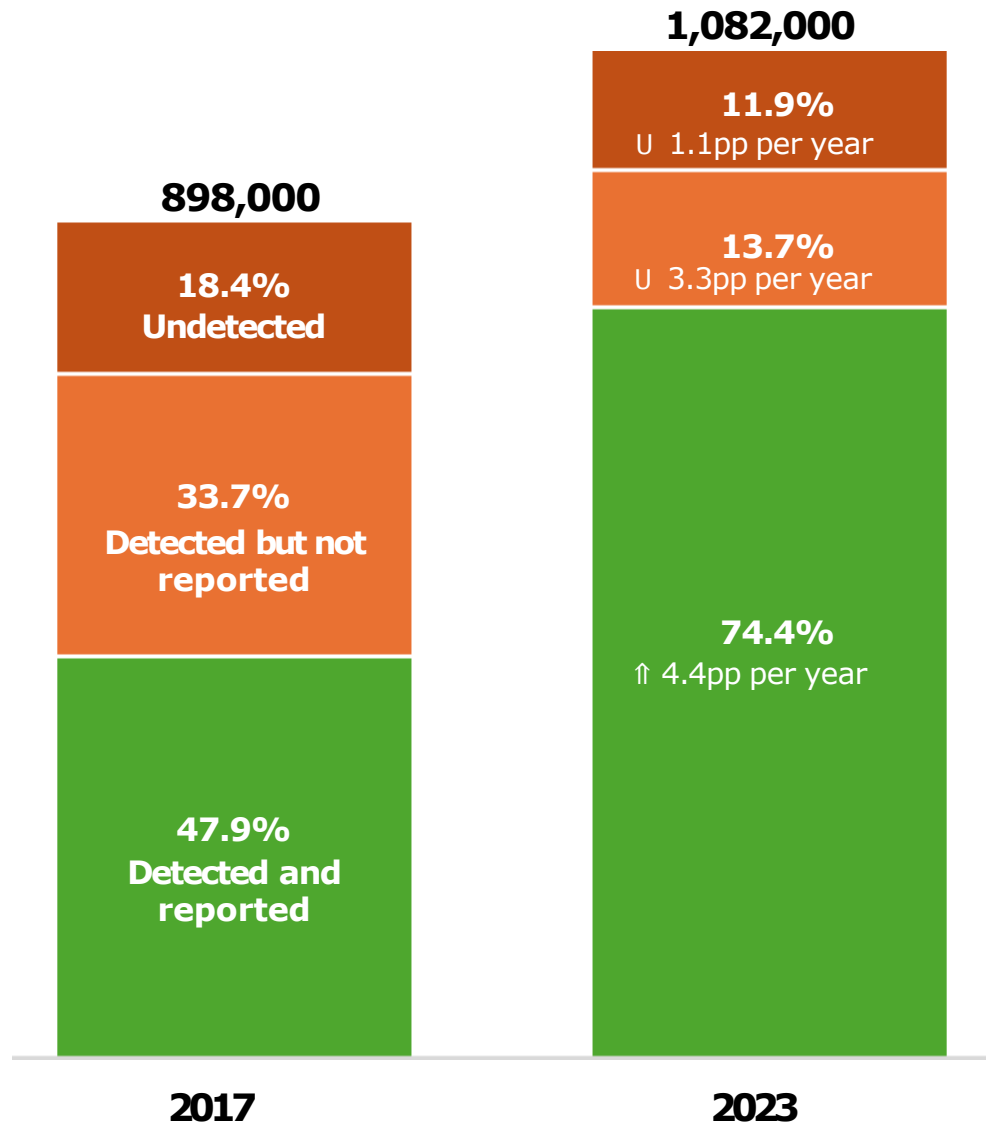


### Recommendation:

- **Active TB case finding**, especially in areas at risk of TB transmission
- **Screening and diagnosis TB cases** with more advanced tools/methods
- **Expanded involvement of private facilities** in reporting cases detected
- **Simplification system** of recording and reporting TB cases

**Conclusion:**  
**Under-reporting** of TB Cases has decreased and **Incidence** has not decreased in 2023

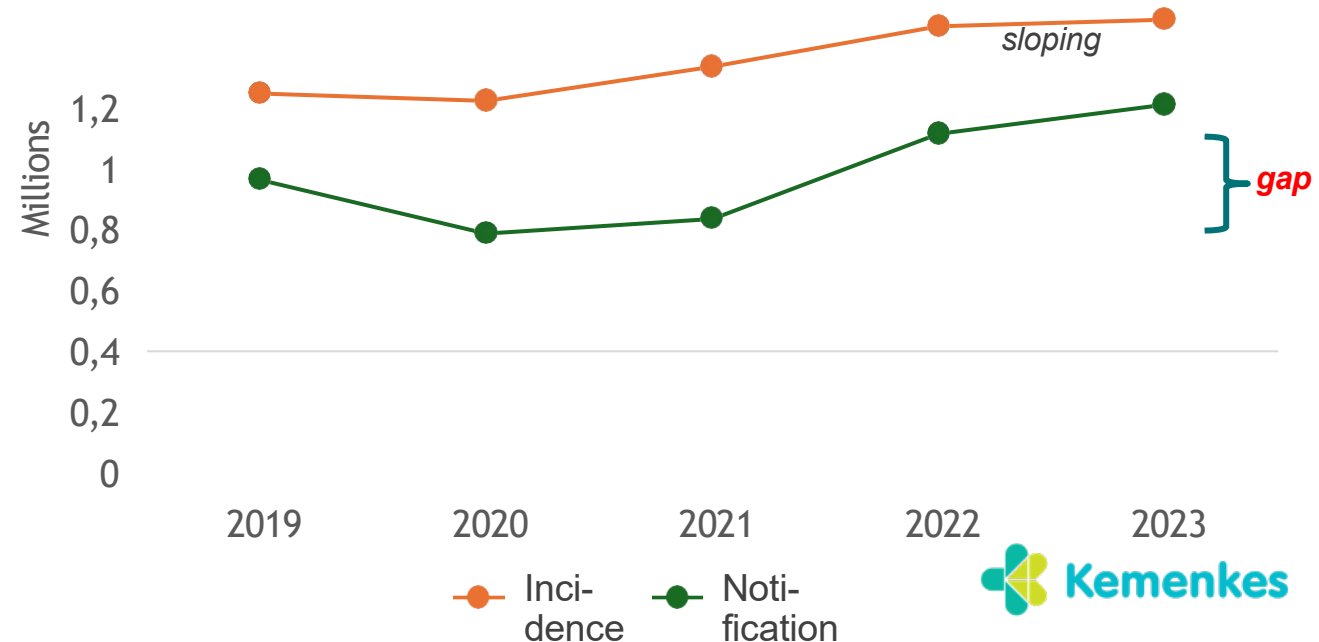
**Changes in Composition of TB Cases**



**Incidence Estimation and Notification Gap in 2023**

Statistic	Point Estimation	Interval Estimation
Proportion of <b>under-reporting</b>	<b>15.6%</b>	13.4% - 18.2%
Proportion of <b>under-diagnosed</b>	<b>13.8%</b>	7.2% - 20.3%
<b>Incidence</b> (cases)	<b>1,082,000</b>	996,000 - 1,171,000
<b>Incidence</b> (per 100,000 population)	<b>388.1</b>	357.4 - 420.2

**Incidence dan Notification of TB Cases**



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# Preparation





# Data Collection





# Data Collection



# Data Analysis





