



Recent Review Tuberculosis in Indonesia: Burden and the Challenge of Under-Reporting

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Dear Editor-in-Chief

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is one of the deadliest infectious diseases globally. Before the COVID-19 pandemic, TB surpassed HIV/AIDS as a leading cause of death. In 2021, TB caused approximately 1.6 million deaths, an increase from the previous year, with Indonesia ranking second worldwide in TB incidence after India. According to the World Health Organization (WHO), about 10.6 million people contracted TB in 2021, marking a 4.5% rise compared to 2020. Untreated TB has a mortality rate of roughly 50% within the first year (1).

Despite ongoing efforts to combat TB, its incidence continues to rise, largely due to underreporting, which hinders effective control measures. The gap between diagnosed and reported cases complicates monitoring of TB transmission. Without accurate reporting, it becomes challenging to identify where active TB cases are occurring, thus increasing the risk of transmission. Individuals with smear-positive TB can infect 10-15 people annually if left untreated, and their average lifespan post-infection is under eight years (2,3).

Indonesia is among the 30 countries classified by the WHO as having a high TB burden. In 2018, the estimated TB incidence in Indonesia was 316

per 100,000 people, translating to around 845,000 cases, with a mortality rate of approximately 35 per 100,000, resulting in about 93,000 deaths. Contributing factors to this high TB burden include smoking, malnutrition, and diabetes mellitus (DM). Smoking is linked to 152,000 TB cases, malnutrition to 120,000, and DM to 25,000 cases. The 2013–2014 Tuberculosis Prevalence Survey (SPTB) indicates that individuals with these risk factors are at greater risk of contracting TB. Those with a history of TB are also seven times more likely to experience recurrence (1,4).

The rising prevalence of HIV presents another challenge. Individuals living with HIV are 20 times more likely to develop TB, as their compromised immune systems can reactivate latent infections. Co-infection with TB and HIV complicates treatment and raises the risk of multi-drug-resistant tuberculosis (MDR-TB) to 50%, compared to a 5-10% risk among HIV-negative individuals. TB remains the leading cause of death among HIV-infected persons, accounting for 30-50% of fatalities in this group (5,6).

In addition to health impacts, TB poses significant economic burdens. The disease disproportionately affects individuals aged 25-34, with a prevalence of 753 per 100,000 in this demographic.



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ic. The SPTB survey revealed that TB prevalence is higher among men (1,083 per 100,000) than women (461 per 100,000). Treatment costs for drug-sensitive TB average USD 133, while MDR-TB treatment can exceed USD 2,800. About 36% of TB-affected households in Indonesia experience catastrophic costs, rising to 83% for MDR-TB patients (1,7).

Accurate notification of TB cases to health authorities, particularly Indonesia's National Tuberculosis Program (NTP), is vital for effective control. Accurate reporting enables public health interventions, timely treatment, and reduced transmission. However, underreporting remains a significant issue. According to the WHO's 2022 report, Indonesia ranks second globally in the gap between reported and estimated TB cases. The 2016–2017 Indonesia Inventory Study found that 41% of TB cases went unreported, with private healthcare facilities showing the highest underreporting rate at 96%. In comparison, public primary health centers had a 15% underreporting rate, and hospitals had a 62% rate (1,4).

The Indonesian government has implemented several initiatives to address underreporting, including mandatory TB case reporting across all healthcare settings, proactive case detection, and technological solutions such as the Integrated Tuberculosis Information System (SITT) and the WIFI TB mobile application. Special emphasis is placed on high-risk populations, including individuals with HIV, diabetes, malnutrition, and contacts of TB patients (4).

Despite these efforts, challenges persist. Not all healthcare providers consistently utilize the SITT system, and heavy workloads in community health centers often hinder real-time reporting. Additional obstacles include incomplete data, inaccurate patient records, and poor internet connectivity. Research in Semarang and Yogyakarta identifies barriers such as private-sector doctors' unfamiliarity with the WIFI TB app, concerns about patient confidentiality, and a lack of incentives for compliance with reporting protocols (9). In conclusion, while significant progress has been made, underreporting of TB in Indonesia re-

mains a critical barrier to effective control. Addressing this issue, particularly in the private sector, is essential to reduce TB transmission, improve patient outcomes, and prevent the spread of MDR-TB. Strengthening notification systems, ensuring consistent use of technological solutions, and fostering collaboration between public and private healthcare providers are crucial steps toward improving health outcomes and reducing the TB burden in Indonesia.

Conflict of interest

Authors declare no conflict of interest.

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