

Addressing barriers in paediatric tuberculosis reporting: A qualitative study of private healthcare providers' perspectives

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ABSTRACT

Introduction: Tuberculosis (TB) in children poses a global health challenge, contributing to high morbidity and mortality rates. In 2020, approximately 208,000 TB-related deaths occurred in children under 15 years, many due to under-reporting, particularly in the private healthcare sector. Barriers to TB notification include hesitancy and misconceptions, lack of awareness and training, technological challenges, stigma, and regulatory issues.

Method: This qualitative study examined primary care physicians' perspectives on the under-reporting of TB cases through in-depth semi-structured interviews with 15 physicians from private practices and clinics in Indonesia. Data collection was between May and July 2024. Thematic analysis, supported by NVivo 12 software, was used to identify key themes, and findings were reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ).

Results: The analysis revealed two primary themes: Barriers to Tuberculosis Notification and Social and Policy Impacts on Tuberculosis Notification. Under the first theme, five sub-themes were identified: Hesitancy and Misconceptions, Lack of Awareness and Training, Technological and Logistical Barriers, Stigma and Confidentiality Concerns, and Regulatory and Enforcement Issues. These findings highlight the complex factors influencing TB notification practices in the private sector.

Conclusion: Addressing these barriers through targeted interventions is essential for improving paediatric TB notification rates. This study underscores the need for enhanced training, better regulatory frameworks, and improved collaboration between private practitioners and public health authorities to ensure timely diagnosis and treatment of paediatric TB.

Keywords: tuberculosis; paediatric; reporting; barriers; private healthcare providers, Indonesia

Introduction

Paediatric tuberculosis (TB) remains a major global health issue, contributing to high morbidity and mortality among children. In 2020, an estimated 1.3 million deaths were attributed to TB, with 208,000 of these fatalities occurring in children under 15 years, and more than 80% among those under five years. This emphasises the critical role of early diagnosis and timely intervention in preventing paediatric TB deaths. Treatment, once started, reduces the mortality rate to below 1%.^[1,2]

The unique nature of paediatric TB presents particular challenges, especially among young children who are susceptible to severe, often extra-pulmonary, forms of the disease. Such presentations are frequently harder to diagnose due to their nonspecific symptoms, especially in resource-limited settings.^[3,4] Unfortunately, TB in children has historically received far less attention than adult TB, despite its disproportionate impact. The World Health Organization (WHO) estimates that approximately 54% of paediatric TB cases globally go unreported, creating a substantial gap in disease control efforts.^[2]

In many countries, the private healthcare sector—comprising independent practitioners, clinics, and private hospitals—serves as a primary point of contact for families seeking care. Although valued for its perceived higher quality, shorter waiting times, and patient confidentiality, the private sector often operates outside formal public health reporting systems. This disconnect has led to significant under-reporting, particularly in paediatric TB cases, where the private sector's role in TB management is often under-prioritized.^[2,5,6,7]

This study aimed to explore the factors influencing the under-reporting of paediatric TB in the private healthcare sector in Semarang, which has one of the highest incidences of TB in Indonesia.^[8] By identifying and understanding these barriers, we propose targeted interventions to improve reporting rates, ensure timely diagnosis and treatment for at-risk children, and contribute to more effective TB control efforts.

Method

This qualitative study employed in-depth interviews to explore primary healthcare providers' perspectives on the under-reporting of paediatric TB cases. Fifteen physicians practicing in private clinics and independent practices were selected based on their willingness to participate and their direct involvement in diagnosing and managing TB cases.

A semi-structured interview guide allowed for in-depth exploration of key issues while maintaining consistency across interviews. Each session lasted 45 to 60 minutes and was conducted either in person or via virtual platforms, depending on participant preference. The interview guidelines probed challenges, facilitators, and experiences related to TB reporting practices.

Data collection was carried out from May to July 2024. With participants' consent, all interviews were recorded verbatim. To ensure confidentiality, identifying information was not linked to the data. Both the research assistant and the principal investigator reviewed the transcripts alongside the recordings to ensure accuracy.

Thematic analysis was used for data analysis, incorporating both inductive and deductive coding. Codes were documented in a codebook, grouped into subthemes, and further consolidated into main themes. This iterative process involved two research team members who reviewed the codebook and themes for consistency. Discrepancies were resolved during team discussions. NVivo 12 software facilitated the qualitative analysis, and this study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ).

Results

Fifteen healthcare providers from ten facilities were invited to participate in the interviews but two were unavailable from one facility. The facilities served a total of approximately 300 paediatric TB cases annually.

Factors related to under-reporting of paediatric tuberculosis in the private sector

The interview data revealed two main themes capturing healthcare providers' views on factors related to the under-reporting of paediatric TB. A summary of these themes and their subthemes is presented in Table 1.

Barriers to Tuberculosis Notification

Interviews with general practitioners and paediatricians in the private sector revealed several critical barriers to notifying paediatric TB cases. These barriers were grouped into three subthemes: hesitancy and misconceptions, lack of awareness and training, and technological and logistical obstacles.

- **Hesitancy and Misconceptions:** Twelve of 15 physicians expressed uncertainty and misconceptions regarding the notification requirements for paediatric TB. Practitioners were

Table 1. Themes and subthemes emerging from interviews with private healthcare practitioners

Themes	Subthemes
Barriers to Tuberculosis Notification	Hesitancy and Misconceptions
	Lack of Awareness and Training
	Technological and Logistical Barriers
Social and Policy Impacts	Stigma and Confidentiality Concerns
	Regulatory and Enforcement Issues

often hesitant to report cases due to concerns about losing patients to the public sector

- **Lack of Awareness and Training:** Fourteen of 15 private practitioners were not fully informed about paediatric TB notification mandatory requirements, and they expressed a need for more targeted training, particularly on using digital systems like the Wi-Fi TB App. This lack of awareness contributed to confusion about notification procedures.
- **Technological and Logistical Obstacles:** Technical and logistical challenges, such as limited Internet access and outdated systems, further hindered TB case notification. Twelve of 15 practitioners reported that the notification system was not user-friendly, especially in clinics with high patient volumes.

Social and Policy Impacts on Tuberculosis Notification

- Interviews highlighted two social and policy-related barriers significantly impacting TB notification: stigma and confidentiality concerns, and regulatory and enforcement issues.
- **Stigma and Confidentiality Concerns:** Eleven of 15 practitioners expressed concerns about the stigma associated with TB, particularly in paediatric cases. Providers feared that notifying authorities might breach patient confidentiality, which is highly valued in close-knit communities.
- **Regulatory and Enforcement Issues:** Eleven of 15 physicians noted a lack of strict regulatory enforcement and the absence of penalties for non-compliance in TB notification. Without strong enforcement mechanisms, notification was often viewed as optional rather than obligatory.

Discussion

This study highlights significant barriers to paediatric TB

notification by private practitioners, posing substantial obstacles to effective TB control. The primary barriers identified can be grouped into three categories: hesitancy and misconceptions, lack of awareness and training, and technological and logistical obstacles.

Hesitancy and Misconceptions. A pervasive finding in this study was the widespread uncertainty and misconceptions among healthcare providers regarding notification requirements for paediatric TB cases. Many practitioners expressed reluctance to report cases due to concerns about patient retention if referrals to government facilities were required. This hesitancy underscores the need for building trust between private healthcare providers and public health systems to ensure continuity of care. [7,9,10]

Lack of Awareness and Training. Lack of awareness and training about mandatory notification procedures emerged as another significant barrier. Comprehensive training on digital notification platforms and the notification process itself is crucial. Previous studies confirm that targeted, ongoing training correlates positively with compliance in reporting protocols among healthcare providers. [12-17]

Technological and Logistical Obstacles. Limited connectivity, outdated notification platforms, and time constraints due to high patient loads emerged as practical barriers in paediatric TB reporting. Addressing these challenges requires investing in robust technology infrastructure and providing technical support to streamline the reporting process. [14-17]

Social and Policy Impacts on Tuberculosis Notification

Stigma and Confidentiality Concerns. Social issues like stigma and confidentiality concerns further contribute to under-reporting. Campaigns aimed at reducing TB stigma and fostering trust between providers and the community are essential to mitigating these concerns.

Regulatory and Enforcement Issues. Weak enforcement of notification policies compounds the challenge of under-

reporting. Implementing clearer regulatory guidelines, regular audits, and enforcing penalties for non-compliance may help improve notification practices in the private sector.

Discussion

This study identifies key social and policy-related barriers hindering the private practitioners' notification of paediatric TB cases by private practitioners. Addressing these barriers requires a multifaceted approach, including reducing stigma, strengthening regulatory frameworks, and ensuring privacy while reinforcing the importance of mandatory notification. Comprehensive training and robust technological infrastructure are also essential to support private practitioners in fulfilling their reporting obligations effectively.

By enhancing collaboration between the private and public sectors and creating an environment that encourages accurate reporting, significant progress can be made in paediatric TB control efforts. Future research should evaluate the effectiveness of targeted interventions and promote partnerships between private practitioners and public health authorities to optimize TB case reporting and safeguard child health.

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