

ENHANCING TUBERCULOSIS DETECTION THROUGH COMMUNITY-BASED INTERVENTIONS: INSIGHTS FROM AN INDIGENOUS COMMUNITY IN SOUTHERN MALAYSIA

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Introduction

Tuberculosis (TB) remains a significant global health challenge, particularly among marginalized populations such as Malaysia's Orang Asli communities, who face numerous barriers to healthcare access. This study presents the outcomes of a mass TB screening initiative program conducted on November 11, 2024, in an indigenous community in southern Malaysia.

Methods

This cross-sectional community-based study involved voluntary TB screening of indigenous adults in Kampung Bumiputera Dalam, Batu Pahat, Johor. Data on demographics, anthropometric measurements were collected, and TB screening using Mantoux test, Interferon-Gamma Release Assay, sputum collections for sputum acid-fast bacilli examination and chest X-ray were conducted. Descriptive analysis was performed, and community engagement strategies such as house-to-house visits and phone follow-ups were implemented to improve participation.

Results

Among 294 individuals screened, four active pulmonary TB cases were detected which all started on anti TB treatment. Additionally, 17 cases of latent TB infection (LTBI) were identified, of which five initiated preventive therapy, while 12 were lost to follow-up. 74 incomplete Mantoux test readings contributed to an estimated 572 individuals remained unscreened. Barriers included manpower shortages, inadequate facilities, and refusal of diagnostics despite transportation support.

Table 1. Descriptive analysis of screening outcome among screened population (n=294)

Screening Modalities	Findings	n (%) n=294
Mantoux test	Normal	203 (69.0)
	Abnormal	17 (5.7)
	Defaulted	74 (25.1)
CXR	Normal CXR	1 (5.9)
	Abnormal CXR	9 (52.9)
	Refused CXR	7 (41.1)
	Not Indicated	277 (94.2)
IGRA	Negative	18 (64.2)
	Positive	10 (35.7)
	Not Indicated	266 (90.4)
TB detection	Positive TB	4 (1.4)
	Latent TB	17 (5.8)
	Non-TB	273 (92.8)
TB Prophylaxis (for latent TB, n=17)	Started	5 (29.4)
	Defaulted	12 (70.6)

Discussion

Community-driven tuberculosis (TB) screening offers an important opportunity to improve case detection, yet its effectiveness is often hindered by cultural barriers, limited resources, and incomplete follow-up. Optimizing such programs requires strengthening interagency collaboration, expanding manpower, improving clinic infrastructure, and adopting real-time surveillance systems alongside targeted health education. The integration of risk-based models with proactive community engagement is especially critical in underserved areas where traditional health systems may be less accessible.

Among indigenous populations, TB control is complicated by community resistance, stigma, communication barriers, and psychosocial factors, all of which contribute to delays in diagnosis and treatment. Addressing these challenges is essential for curbing disease transmission. Reducing stigma and building trust through culturally sensitive approaches can enhance participation and adherence, thereby increasing the overall impact of community-based strategies.

In resource-limited settings, the Mantoux test remains a widely used and cost-effective screening tool. However, the requirement for result interpretation within 72 hours often leads to high default rates. Interferon-gamma release assays (IGRAs) provide higher specificity and require only a single visit, but their cost remains prohibitive. When IGRA results are positive, chest radiography is necessary to rule out active disease, and if no radiographic changes are detected, latent TB treatment should be initiated. Balancing affordability with feasibility remains a central challenge in ensuring program sustainability. To ensure sustainability, a second phase of mass TB screening should target the remaining unscreened population for broader coverage.

As conclusion, through culturally sensitive engagement, strengthened surveillance, community empowerment, and interagency collaboration, TB programs can achieve greater effectiveness, resilience, and long-term impact in reducing the TB burden among indigenous communities.

Keywords: Tuberculosis, indigenous, community-screening, orang asli, communicable disease