



Health Management Challenges in Tuberculosis Control in Archipelagic and Culturally Complex Settings: Evidence from Baumata Timur Village, Eastern Indonesia

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ABSTRACT

Tuberculosis (TB) remains a persistent public health challenge in Indonesia, particularly in archipelagic and remote regions where geographic fragmentation, limited access to health services, and strong socio-cultural practices intersect. This article aims to analyze TB control through a health management perspective by integrating cultural determinants, access barriers, and service delivery systems in Baumata Timur Village, East Nusa Tenggara Province. Using a qualitative secondary analysis of a master's thesis complemented by national and international literature, this study applies health management frameworks, including Planning–Organizing–Actuating–Controlling (POAC) and access to care models. The findings reveal that TB transmission risks are amplified by communal cultural practices, while health service management remains largely biomedical, centralized, and administratively driven. Weak contextual planning, limited community integration, rigid service delivery, and performance monitoring focused on numerical indicators undermine treatment adherence and equity. The study concludes that TB elimination in archipelagic settings requires adaptive, decentralized, and culturally responsive health management models that prioritize community engagement and continuity of care.

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ABSTRACT

Tuberkulosis (TB) masih menjadi tantangan kesehatan masyarakat di Indonesia, terutama di daerah kepulauan dan terpencil di mana fragmentasi geografis, akses terbatas ke layanan kesehatan, dan praktik sosial budaya yang kuat saling bersinggungan. Artikel ini bertujuan untuk menganalisis pengendalian TB melalui perspektif manajemen kesehatan dengan mengintegrasikan faktor penentu budaya, hambatan akses, dan sistem penyediaan layanan di Desa Baumata Timur, Provinsi Nusa Tenggara Timur. Dengan menggunakan analisis sekunder kualitatif dari tesis master yang dilengkapi dengan literatur nasional dan internasional, penelitian ini menerapkan kerangka kerja manajemen kesehatan, termasuk Perencanaan- Pengorganisasian- Pelaksanaan- Pengendalian (POAC) dan model akses terhadap layanan kesehatan. Temuan menunjukkan bahwa risiko penularan TB diperkuat oleh praktik-

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praktik budaya komunal, sementara manajemen layanan kesehatan sebagian besar masih bersifat biomedis, terpusat, dan berbasis administrasi. Perencanaan kontekstual yang lemah, integrasi komunitas yang terbatas, pemberian layanan yang kaku, dan pemantauan kinerja yang terfokus pada indikator numerik melemahkan kepatuhan dan pemerataan pengobatan. Studi ini menyimpulkan bahwa eliminasi TB di wilayah kepulauan membutuhkan model manajemen kesehatan yang adaptif, terdesentralisasi, dan responsif terhadap budaya yang memprioritaskan pelibatan masyarakat dan kesinambungan layanan.

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INTRODUCTION

Indonesia is among the countries with the highest tuberculosis (TB) burden globally, accounting for a significant proportion of incident TB cases worldwide (WHO, 2023). Despite sustained national efforts and the adoption of globally recommended strategies such as the Directly Observed Treatment Shortcourse (DOTS), TB control outcomes remain uneven across regions. These disparities are particularly pronounced in eastern Indonesia, where geographic isolation, limited infrastructure, and socio-cultural complexity shape health behaviors and service utilization.

As an archipelagic country composed of more than 17,000 islands, Indonesia faces structural challenges in delivering equitable health services. Standardized national TB programs, although effective in urban and accessible settings, often fail to adapt to the realities of remote and island communities. In such contexts, TB is not merely a biomedical problem but a manifestation of systemic weaknesses in health service management, governance, and social integration.

Baumata Timur Village in East Nusa Tenggara (NTT) represents a typical rural and culturally cohesive community where communal traditions, including shared betel nut (sirih pinang) practices, play a central role in daily life. These practices, while socially significant, create conditions that facilitate TB transmission when combined with delayed diagnosis and fragmented health services. This study argues that TB persistence in such settings reflects management failures rather than individual non-compliance.

This article seeks to critically examine TB control in Baumata Timur through a health management lens, addressing how planning, organization, implementation, and control of health services interact with cultural and geographic realities. By doing so, it contributes to the growing discourse on equity-oriented and context-sensitive health system management in low-resource and archipelagic settings.

METHODS

This study employs a secondary qualitative analysis based on empirical findings from a Master of Public Health thesis conducted in Baumata Timur Village. Primary qualitative



data in the thesis were collected through in-depth interviews, observation, and document review involving community members, TB patients, health workers, and local stakeholders.

For this article, the data were re-analyzed using an integrated analytical framework combining:

1. Health management functions (POAC)
2. Access to care framework (availability, accessibility, affordability, accommodation, acceptability) (Penchansky & Thomas, 1981)
3. Social and cultural determinants of health, including Health Belief Model and social norm theory (Rosenstock et al., 1988)

This approach allows a critical examination of TB control not only as a clinical intervention but as a managed health system embedded within social and cultural structures.

RESULTS

1. Socio-Cultural Context and TB Transmission

The findings indicate that TB transmission risk in Baumata Timur is closely linked to communal cultural practices. The tradition of sirih pinang consumption involves shared utensils, close interpersonal interaction, and habitual spitting in communal spaces. These behaviors are socially reinforced and perceived as symbols of respect, solidarity, and identity.

Importantly, awareness of TB as an infectious disease does not necessarily translate into behavioral change. Cultural conformity and fear of social exclusion outweigh biomedical risk perceptions. This highlights the limitation of health education approaches that rely solely on individual knowledge without addressing collective norms.

2. Access Barriers and Service Delivery Constraints

Using the access to care framework, several systemic barriers were identified:

- a) Availability: Limited diagnostic services and irregular outreach activities
- b) Accessibility: Long distances to health facilities and poor transportation infrastructure
- c) Affordability: Indirect costs, including transportation and lost income
- d) Accommodation: Service hours and delivery models misaligned with community routines
- e) Acceptability: Limited cultural sensitivity in health communication

These barriers collectively contribute to delayed diagnosis, interrupted treatment, and weak follow-up.

3. Health Management Analysis (POAC Framework)

Planning

TB program planning remains highly centralized, relying on standardized targets and indicators that do not reflect local geographic and cultural constraints. Health facilities are expected to meet national benchmarks without corresponding flexibility or resource adjustment.

Organizing

Organizational structures are characterized by limited human resources and weak integration of community actors. Traditional leaders and informal community networks are



largely excluded from formal TB control mechanisms, reducing program legitimacy and reach.

Actuating

Implementation of TB services is inconsistent due to staff shortages, competing administrative demands, and logistical constraints. Treatment supervision is often irregular, undermining adherence and increasing the risk of treatment default.

Controlling

Monitoring and evaluation focus predominantly on administrative reporting rather than service quality, continuity of care, or patient experience. This obscures systemic weaknesses and shifts responsibility toward patients rather than institutions.

DISCUSSION

The persistence of TB in Baumata Timur illustrates a broader structural issue in Indonesia's health system: the dominance of uniform, biomedical, and administratively driven management models in contexts that require flexibility and cultural responsiveness. TB control efforts often assume rational individual behavior, overlooking the collective nature of decision-making in rural communities.

From a management perspective, the failure lies not in policy absence but in contextual misalignment. Planning processes inadequately incorporate local realities, organizational arrangements neglect community capital, implementation lacks adaptive delivery models, and control mechanisms prioritize numbers over equity.

Global evidence increasingly emphasizes the importance of community-based and decentralized TB management, particularly in hard-to-reach settings (WHO, 2023; Uplekar et al., 2015). Without such approaches, TB elimination targets risk remaining aspirational.

Management Implications

To strengthen TB control in archipelagic and culturally complex settings, this study recommends:

1. Decentralized and flexible planning authority at district and facility levels
2. Formal integration of community and traditional leaders into TB management
3. Adaptive service delivery models, including mobile clinics and community treatment supervisors
4. Equity-oriented performance indicators emphasizing continuity and acceptability

These strategies align with health systems strengthening and people-centered care principles.

CONCLUSION

TB control in Indonesia's archipelagic regions is fundamentally a health management challenge. Biomedical interventions alone are insufficient without adaptive governance, culturally informed strategies, and equitable service delivery. Reframing TB control as a management and systems issue is essential for achieving sustainable elimination in geographically and socially complex settings.

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