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**境外学者发表的结核病英文文章摘要**

**（105篇）**

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**(tuberculosis[Title/Abstract]) AND (English[Language])**

**1. J Glob Health. 2025 Jul 25;15:04192. doi: 10.7189/jogh.15.04192.**

Artificial intelligence for tuberculosis control: a scoping review of

applications in public health.

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**BACKGROUND:** Artificial intelligence (AI) has become an important tool in global

health, improving disease diagnosis and management. Despite advancements,

tuberculosis (TB) remains a public health challenge, particularly in low- and

middle-income countries where diagnostic methods are limited. In this scoping

review, we aim to examine the potential role of AI in TB control.

**METHODS:** We conducted a search on 25 August 2024 for the past five years, in the

PubMed database using keywords related to AI and TB. We included

laboratory-based and observational studies focussing on AI applications in TB,

excluding non-original research.

**RESULTS:** There were 34 eligible studies, identifying eight overarching aspects

associated with TB control, including active case finding (ACF), triage, pleural

effusion diagnosis, multidrug-resistant (MDR) TB and extensively drug-resistant

(XDR) TB, differential diagnosis distinguishing active TB from TB infection and

other pulmonary communicable diseases, TB and other pulmonary communicable and

non-communicable diseases (NCDs), treatment outcome prediction, pleural

effusion, and predictions of regional and national trends. AI may transform TB

control through enhanced ACF methods and triage, improving detection rates in

high-burden regions. With high accuracy, AI may diagnose pleural diagnosis,

differentiate TB active and TB infection, TB and non-tuberculous mycobacterial

lung disease, COVID-19, and pulmonary NCDs. AI applications may facilitate the

prediction of treatment success and adverse effects. Furthermore, AI-driven

hotspot mapping may identify undiagnosed TB cases at rates surpassing

traditional notification methods. Lastly, predictive modelling and clinical

decision support systems may improve the management of MDR-TB.

**CONCLUSIONS:** This scoping review highlights the potential of AI-driven

predictions in national TB programmes to enhance diagnostics, track trends, and

strengthen public health surveillance. While promising for reducing transmission

and supporting TB care in low-resource settings, these models require

large-scale validation to ensure real-world applicability, especially for

high-risk groups.

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**2. J Health Popul Nutr. 2025 Jul 24;44(1):267. doi: 10.1186/s41043-025-01021-y.**

Assessing the determinants of drug-resistant tuberculosis in selected hospitals

in Tigray region, Northern Ethiopia: a case-control study.

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**BACKGROUND:** Drug-resistant tuberculosis (DR-TB) is a significant challenge to

the national tuberculosis (TB) control program in Ethiopia. The Tigray region in

northern Ethiopia has shown a surge in the incidence of DR-TB cases. However,

the determinants of DR-TB in the region are not studied. This study is aimed at

identifying the factors associated with the development of DR-TB in the Tigray

region of northern Ethiopia.

**METHODS:** The study used an unmatched case-control design to identify

determinants of DR-TB in the Tigray region, northern Ethiopia, whereby 86

patients and 86 controls who registered for TB treatment follow-up in selected

hospitals were recruited. Trained nurses collected both primary and secondary

data, which were analyzed using descriptive statistics and binary logistic

regression. The test statistics was conducted with a 95% confidence level, and a

p-value of less than 0.05 was considered significant.

**RESULTS:** The study included 86 patients with DR-TB (cases) and an equal number

of patients with drug-susceptible (controls). The case and control groups had 38

(44.2%) and 47 (54.7%) males, respectively. The study revealed the study

participants with male gender (adjusted odds ratio [AOR] = 4.9, 95% confidence

interval [CI: 1.2-19.9), single marital status (AOR = 13.6, 95% CI: 2.3-81.2),

history of TB treatment (AOR = 58.2, 95% CI: 11.2-302.1), experienced a delay of

more than 60 days before TB diagnosis (AOR = 4.8, 95% CI: 1.2-19.3), interrupted

treatment at least once (AOR = 4.9, 95% CI: 1.02-23.9), and unsuccessful

treatment outcome at first treatment (AOR = 7.6, 95% CI: 1.8-35.9) had a higher

risk of DR-TB.

**CONCLUSIONS:** The study highlights determinants of DR-TB in the region, including

gender, marital status, delayed diagnosis (over 60 days), previous treatment

history, interrupted treatment, and unsuccessful treatment outcomes during

initial treatment. It is recommended that healthcare providers focus on targeted

interventions, such as supporting males and unmarried individuals, ensuring

early diagnosis and prompt initiation of treatment, improving treatment

adherence, and providing tailored support for patients with histories of

incomplete treatment and unsuccessful initial treatment outcomes.

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**3. Arch Public Health. 2025 Jul 24;83(1):193. doi: 10.1186/s13690-025-01672-7.**

The effects of decentralisation on patient and service outcomes: a case of the

2018 decentralisation of multidrug-resistant tuberculosis in Zambia.

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**INTRODUCTION:** The Zambian government decentralised tuberculosis control programs

by transferring responsibility for the care and treatment of multidrug-resistant

tuberculosis (MDR-TB) patients from a two-national hospital model to provincial

hospitals and other lower-level healthcare structures. Limited evidence exists

on the effects of decentralisation on the quality of TB care provided through

public sector decentralisation. In this paper, we explored the impact of

decentralising MDR-TB on patient and service outcomes.

**METHODS:** This study used a mixed-methods approach. Quantitative data were

collected through a survey of 244 MDR-TB patients, while qualitative data was

collected through interviews with TB coordinators, healthcare providers,

patients, and caregivers. Participants were drawn from health facilities and the

Ministry of Health. Quantitative data was analysed in STATA version 16.0, while

thematic analysis was used for the qualitative data.

**RESULTS:** Decentralisation has improved patient care and management by increasing

access to essential commodities such as medication and diagnostic testing. It

has led to more equitable distribution of MDR-TB healthcare services and

resources across different population groups, regardless of social, economic, or

demographic factors. Furthermore, the quality of life for MDR-TB patients has

improved, with better adherence to medication resulting from increased family

support. Due to decentralisation, tailored community and patient-centred

services have been integrated resulting in reduced congestion at facilities. The

study also identified challenges, including heavy workload for healthcare staff,

fragmented coordination of supervisory responsibilities, and confusion over

roles in patient management, which negatively impacted the decentralisation

process.

**CONCLUSION:** The decentralisation of MDR TB services offers significant benefits

but is not a guaranteed solution, as poor planning or implementation can lead to

challenges in service delivery.

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**4. J Glob Antimicrob Resist. 2025 Jul 22:S2213-7165(25)00172-9. doi:**

**10.1016/j.jgar.2025.07.017. Online ahead of print.**

Whole genome sequencing reveals novel resistance-conferring mutations and large

genome deletions in drug-resistant Mycobacterium tuberculosis isolates from

Indonesia.

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**OBJECTIVE:** This study evaluated drug resistance profiles of Mycobacterium

tuberculosis (Mtb) isolates in West Java, Indonesia through phenotypic and

genomic approaches.

**METHODS:** We performed phenotypic drug-susceptibility testing (DST), coupled with

whole-genome sequencing (WGS) of 142 Mtb isolates identified as RIF-R

(Rifampicin resistant) using the Xpert MTB/RIF platform.

**RESULTS:** We found 107/142 (75%) isolates had high-level isoniazid resistance

(INH-R) and rifampicin resistance (RIF-R). Of 107 isolates, we found two had

novel katG mutations and three had large genome deletions encompassing the katG

gene conferring INH-R. We also did not detect pre-existing mutations resistant

to new and repurposed oral drugs bedaquiline (BDQ), pretomanid (Pa) and

linezolid (LZD).

**CONCLUSIONS:** Known drug-resistance conferring mutations reported in this study

can be detected by the newly launched Xpert MTB/XDR together with Xpert MTB/RIF,

providing clinicians with an expanded drug-susceptibility report without the

need for culturing and WGS. On the other hand, the novel mutations and deletions

found in this study are escaping routine diagnostics and could drive outbreaks

of MDR-TB in Indonesia. The mass rollout of new and repurposed drugs for the

treatment of drug-resistant TB in Indonesia is reassured by the absence of

pre-existing mutations in this study. However, tools for rapid detection of

resistance to these new drugs are urgently required to circumvent

treatment-emergent resistance.

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**5. Infect Genet Evol. 2025 Jul 22:105802. doi: 10.1016/j.meegid.2025.105802. Online ahead of print.**

Global genetic diversity of Mycobacterium tuberculosis L2.1 based on pe-ppe gene

family.

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There are four major lineages of Mycobacterium tuberculosis (Mtb) whose

geographic ranges vary considerably. Mtb lineage 2 (L2) or the East Asia lineage

is particularly common in East and Southeast Asia, and also reported worldwide.

Most L2 isolates belong to a sublineage L2.2 while L2.1 is more restricted to

the Southern part of East Asia. It was reported that the L2.1 isolates in

Thailand usually resisted isoniazid, rifampin and fluoroquinolones, i.e., being

pre-XDR strains. It is, therefore, of particular public health concern. Our

previous study in a limited number of available complete genomes of L2.1

suggested unique structural variations of some pe-ppe genes. The gene family

plays roles in immune evasion and host-pathogen interactions and, hence, is

integral to the bacterium's virulence. Here we examine the identified structural

variations of the pe-ppe gene family among all 180 L2.1 samples from eight

countries, whose WGS data with high-quality are available in GenBank. We

identified the deletion of the esxR-esxS gene segment in 26 L2.1 genomes, 19 of

which, primarily restricted to Vietnam, Thailand, and China, belonged to a

single clade. Additionally, we confirmed the deletions of four pe-ppe genes,

wag22, ppe38, ppe50 and ppe66, in all L2.1 samples. These genetic deletions may

contribute to the virulence, pathogenesis, and evolutionary dynamics of the L2.1

strains, with significant implications for understanding the molecular

mechanisms underlying the persistence and spread of this lineage.

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**6. Clin Infect Dis. 2025 Jul 24:ciaf389. doi: 10.1093/cid/ciaf389. Online ahead of print.**

Sputum and tongue swab molecular testing for the in-home diagnosis of

tuberculosis in unselected household contacts: a cost and cost-effectiveness

analysis.

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**BACKGROUND:** Delayed and missed diagnosis are a persistent barrier to

tuberculosis control, partly driven by difficulties collecting sputum and an

unmet need for decentralized testing. Household contact investigation with

point-of-care testing of non-invasive specimens are hitherto undescribed and may

offer a cost-effective solution to strengthen active case finding.

**METHODS:** In-home molecular point-of-care testing was conducted using sputum and

tongue specimens collected from household contacts of people with confirmed

tuberculosis residing in South Africa. A health economic assessment was executed

to estimate and compare the cost and cost-effectiveness of different in-home

point-of-care testing strategies, against centralized sputum testing (standard

of care) from a provider's perspective. The primary cost-effectiveness outcome

was measured as the incremental cost per additional household contact with TB

detected and linked to treatment. Decision analytic modeling was used to

estimate and compare incremental cost effectiveness ratios across strategies.

**RESULTS:** The total implementation cost of delivering the standard of care to 300

households over a 2-year period was $85 188. Strategies integrating in-home

point-of-care testing ranged between $88 672 - $97 271. The cost-per-test for

in-home point-of-care sputum testing was the highest at $20.08. Two strategies,

Point-of-Care Sputum Testing and Point-of-Care Combined Sputum and Individual

Tongue Swab Testing were the most cost-effective with ICERs of $641 and $775

respectively, both below a $2 760 willingness-to-pay threshold.

**CONCLUSION:** In-home point-of-care molecular TB testing strategies utilizing

combination testing of tongue swabs and sputum specimens can meaningfully

improve the number of people tested, diagnosed, and notified during household

contact investigation, while being cost-effective.

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PMID: 40705837

**7. PLoS One. 2025 Jul 24;20(7):e0326492. doi: 10.1371/journal.pone.0326492.**

**eCollection 2025.**

Enhancing tuberculosis treatment support: A thematic analysis of interactive

messages in a digital adherence technology trial to identify needs, challenges,

and strategies for improvement.

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**BACKGROUND:** Digital adherence technologies (DATs) offer promising solutions for

monitoring and supporting adherence to complex treatment regimens, including

tuberculosis (TB) treatment. However, better understanding is needed of how

users engage with DATs and how engagement influences their effectiveness,

particularly in real-world settings and among underserved populations.

**OBJECTIVE:** Assess user engagement with the Companion app within the Tuberculosis

Treatment Support Tools (TB-TST) intervention and explore the types of

interactions that promote treatment adherence and address patients' needs.

**METHODS:** Secure message threads (N = 255) were analyzed as part of a four-site

pragmatic clinical trial evaluating the effectiveness of the TB-TST

intervention. Pragmatic thematic analysis was applied to chat logs between

patients and treatment supporters (TSs) to identify key themes related to

application utilization, treatment adherence, technical challenges, and

communication patterns.

**RESULTS:** Key themes that emerged included: experiences of living with TB;

COVID-19 pandemic impact; symptom guidance, healthcare coordination, and

treatment and intervention adherence and technical issues. Patients frequently

sought advice on how to integrate TB treatment into their daily lives, manage

side effects, and cope with emotional distress. The communication styles of TSs

varied, with personalized and empathetic interactions leading to better patient

acceptance. Technical issues and difficulties accessing phone credit and

connectivity challenges were barriers to intervention adherence. Recommendations

from this analysis emphasize the need for personalized communication,

streamlined adherence reporting, timely symptom guidance, expanded mental health

support, and improved healthcare coordination to strengthen the intervention.

**CONCLUSION:** This study highlights the importance of personalized, empathetic

communication, and reliable technology to enhance the effectiveness of DATs.

Future DAT solutions should prioritize technological reliability and the human

elements of care. Interventions must be adaptable, user-friendly, and capable of

addressing diverse patient needs, including offering emotional support and

empowering individuals with limited digital literacy.

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PMID: 40705794 [Indexed for MEDLINE]

**8. J Acquir Immune Defic Syndr. 2025 Jul 24. doi: 10.1097/QAI.0000000000003729.**

**Online ahead of print.**

Characterization of the targeted universal tuberculosis testing care cascade

among people with HIV in PEPFAR-supported districts in South Africa.

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DOI: 10.1097/QAI.0000000000003729

PMID: 40705314

**9. Health Sci Rep. 2025 Jul 23;8(7):e71108. doi: 10.1002/hsr2.71108. eCollection**

**2025 Jul.**

Epidemiology and Clinical Characteristics of Musculoskeletal Extrapulmonary

Tuberculosis in Lagos, Nigeria.

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DOI: 10.1002/hsr2.71108

PMCID: PMC12284420

PMID: 40704325

**10. Nat Commun. 2025 Jul 23;16(1):6794. doi: 10.1038/s41467-025-61826-7.**

Macrophage-T cell interactions promote SLAMF1 expression for enhanced TB

defense.

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CD4+ T cells are crucial for protective immunity to intracellular pathogens. In

addition to secreting cytokines, CD4+ T cells promote control of Mycobacterium

tuberculosis infection through cognate interactions with macrophages, but the

mechanism has been unclear. Here, we show that SLAMF1/CD150 is highly and

uniquely induced in macrophages by antigen-specific interactions with CD4+ T

cells. In macrophages, SLAMF1 enhances the generation of reactive oxygen species

and restricts Mtb replication. Mtb-infection of mice promotes SLAMF1 expression

specifically on infected macrophages, not uninfected bystanders. SLAMF1

expression depends on adaptive immunity and also autophagy. Moreover, Slamf1-/-

mice have higher Mtb burden and more rapid disease progression than wild type

mice. Using Slamf1fl/fl conditional knock-out mice, we show that in vivo Slamf1

is specifically required in macrophages to restrict mycobacterial growth and

limit IL-1β production. In macaques, macrophage SLAMFI expression also

correlates with T cell responses and protection. Combined, these data

demonstrate that SLAMF1 is a marker of macrophage-T cells interactions, and it

promotes protection against Mtb.

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**11. Ann Lab Med. 2025 Jul 24. doi: 10.3343/alm.2025.0066. Online ahead of print.**

Effect of Variability on Interferon-Gamma Release Assay Performance: A

Quantitative Analysis.

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Interferon-gamma release assays (IGRAs) are widely used to identify latent

tuberculosis infection (LTBI); however, inherent test variability affects their

diagnostic interpretation. We evaluated false-positive and false-negative rates,

as well as conversion and reversion rates across CVs of 20%, 40%, 60%, 80%, and

100%, using statistical modeling. At a diagnostic cutoff of 0.35 IU/mL,

false-negative rates increased from 1.61% to 33.41% with increasing CVs, whereas

false-positive rates ranged from 0.00% to 15.87% within the 0.20-0.70 IU/mL

borderline range. Expanding the borderline to 0.20-1.00 IU/mL reduced

false-positive rates to a maximum of 3.16%, without affecting false-negative

rates. Within the 0.20-0.70 IU/mL borderline zone, correct reversion and false

conversion rates at 0.20 and 0.35 IU/mL ranged from 0.01% to 25.00% and 0.00% to

24.20%, respectively. At 0.35, 0.70, and 1.00 IU/mL, correct conversion and

false reversion rates ranged from 0.05% to 24.20% and 0.00% to 25.00%,

respectively. These results highlight the importance of adopting borderline

zones in IGRA interpretation to reduce misclassification, although variability

from manufacturing, pre-analytical processing, and analytical procedures remains

a significant challenge. Reducing such variability through improved production

consistency, standardized sample handling, and automated analysis platforms is

essential to enhance the diagnostic reliability of IGRAs for LTBI.

DOI: 10.3343/alm.2025.0066

PMID: 40701945

**12. BMJ Glob Health. 2025 Jul 22;10(7):e019133. doi: 10.1136/bmjgh-2025-019133.**

Detection of pulmonary tuberculosis through mobile X-ray based active

case-finding in Pakistan: a retrospective analysis from programmatic screening

of1 214 289 individuals from 2017 to 2021.

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Recent evidence suggests that community-wide active case finding (ACF) can

reduce tuberculosis (TB) incidence and prevalence. Mass-screening at the

community level, supported by mobile digital chest X-ray units, is now being

scaled up by programmes across high burden countries. However, there is limited

evidence of case-detection yields from programmes conducting ACF at scale in

low-resource settings. We retrospectively analysed aggregate data from mobile

X-ray screening events (called 'camps') in Pakistan from Q3 2017 to Q2 2021. A

total of 11 327 camps were conducted that screened 1 214 289 individuals and

detected 7625 cases of All-Forms TB (AF-TB), among whom 3500 (45.9%) were

bacteriologically confirmed (B+) and the remaining were treated empirically. The

yield for B+ and AF-TB per 100 000 population screened nationally was 289 (95%

CI: 279 to 298) and 631 (95% CI: 617 to 646), respectively. Yield of TB detected

from screening was highly variable between regions of Pakistan, ranging from 70

to 678 per 100 000 B+ and 76 to 1136 per 100 000 for AF-TB. Our findings have

two major lessons for TB programmes. First, there was significant geographical

variation in yields of both B+ and AF-TB, supporting targeting of interventions

in areas of high prevalence to maximise the intervention's effectiveness.

Second, more than half of TB cases were treated empirically, and approaches to

improve sample collection, linkage to diagnostics, non-sputum based tests and

standardisation of treatment for bacteriologically unconfirmed TB need to be

concurrently prioritised by programmes considering scale-up of mobile

X-ray-based ACF.

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**13. BMJ Open. 2025 Jul 22;15(7):e093858. doi: 10.1136/bmjopen-2024-093858.**

Geographical patterns of tuberculosis notification rates and their association

with socioeconomic factors in Nepal: a spatial cross-sectional study

(2020-2023).

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**OBJECTIVES:** To identify the patterns of tuberculosis (TB) notification rates and

examine their relationship with social and economic determinants in Nepal

between 2020 and 2023.

**DESIGN:** Cross-sectional study.

**SETTING:** Nepal.

**PARTICIPANTS:** All TB cases across all ages.

**PRIMARY OUTCOME:** Prevalence of TB cases.

**METHODS:** This cross-sectional spatial analysis used the data set of the National

Tuberculosis Control Centre, Nepal, covering the Fiscal Year (FY) 2020-2021 to

2022-2023. Moran's I and Local Indicators of Spatial Association were employed

to detect the spatial autocorrelation between the prevalence of TB and

associated social and demographic factors.

**RESULTS:** The overall prevalence rate for TB in FY 2020-2021 was 98.08 per

100 000 population. This increased to 129.82 per 100 000 population in FY

2021-2022, followed by a slight decrease to 128.39 per 100 000 population in FY

2022-2023. The highest TB prevalence was observed in Kathmandu, with 146 cases

per 100 000 population in 2020-2021, and in Dang district, the rate decreased

from 215-191 per 100 000 population. We investigated the spatial patterns of TB

prevalence and highlighted the geographic areas in each district in Nepal from

2021 to 2023 with Moran's I of 0.558, 0.614 and 0.596, respectively. The

consistent identification of High-High clusters in specific districts like

Banke, Kapilbastu and Parsa across all 3 years periods highlighted persistent

high-risk areas for TB transmission in Nepal.

**CONCLUSIONS:** This study emphasised the strong spatial associations and the

complex, diverse aspects of TB transmission shaped by demographic and

socioeconomic factors. Our results highlighted the need for tailored public

health approaches that account for specific social determinants to address TB

effectively.

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commercial re-use. See rights and permissions. Published by BMJ Group.

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**14. Int J Biol Macromol. 2025 Jul 21;321(Pt 1):146198. doi:**

**10.1016/j.ijbiomac.2025.146198. Online ahead of print.**

Mycobacterium tuberculosis methyltransferases as alternative strategies to

combat drug resistant tuberculosis.

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Tuberculosis (TB) is a health concern resulting in 10.8 million cases every

year. In 2024, TB had the highest fatalities second only to COVID-19. Global TB

management has become difficult due to rise of multi-drug resistant (MDR) and

extensively drug-resistant (XDR) TB. Therefore, novel approaches must be

developed to fight with M.tb infection. Studies on many strategies like

pathogen-centric, host-directed therapeutics, antimicrobial peptides, nano-based

drug delivery, and more are still being explored to develop novel therapeutics.

One such important target i.e., pathogen associated Methyltransferases (Mtases)

used along above-mentioned strategies can be advantageous as targeting Mtases

are involved in various cellular processes like mycolic acid synthesis, lipid

metabolism, immune evasion, and DNA repair. Mtases are a class of enzymes that

transfer the methyl group to their substrate. There are 121 Mtases that are

encoded by the genome of M.tb are essential for both the occurrence of

drug-resistant tuberculosis and bacterial survival. This review has covered

various approaches in treating drug-resistant tuberculosis, with a particular

emphasis on Mtases for the creation of innovative treatments for drug

development. Thus, Targeting Mtases could give more effective treatments against

MDR and XDR-TB.

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PMID: 40701476

**15. Hand Surg Rehabil. 2025 Jul 21:102224. doi: 10.1016/j.hansur.2025.102224. Online ahead of print.**

TUBERCULOUS FLEXOR TENOSYNOVITIS OF THE WRIST: A CASE MIMICKING CARPAL TUNNEL

SYNDROME.

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DOI: 10.1016/j.hansur.2025.102224

PMID: 40701302

**16. N Engl J Med. 2025 Jul 24;393(4):413. doi: 10.1056/NEJMc2507859.**

BCG Revaccination to Prevent Tuberculosis. Reply.

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Comment on

 N Engl J Med. 2025 May 8;392(18):1789-1800. doi: 10.1056/NEJMoa2412381.

DOI: 10.1056/NEJMc2507859

PMID: 40700704

**17. N Engl J Med. 2025 Jul 24;393(4):412-413. doi: 10.1056/NEJMc2507859.**

BCG Revaccination to Prevent Tuberculosis.

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Comment on

 N Engl J Med. 2025 May 8;392(18):1789-1800. doi: 10.1056/NEJMoa2412381.

DOI: 10.1056/NEJMc2507859

PMID: 40700703

**18. N Engl J Med. 2025 Jul 24;393(4):412. doi: 10.1056/NEJMc2507859.**

BCG Revaccination to Prevent Tuberculosis.

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Comment on

 N Engl J Med. 2025 May 8;392(18):1789-1800. doi: 10.1056/NEJMoa2412381.

DOI: 10.1056/NEJMc2507859

PMID: 40700702

**19. PLOS Glob Public Health. 2025 Jul 23;5(7):e0004935. doi:**

**10.1371/journal.pgph.0004935. eCollection 2025.**

Assessment of comorbidities, risk factors, and post tuberculosis lung disease in

National Tuberculosis Guidelines: A scoping review.

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Tuberculosis (TB) remains a major public health issue across the world and

national TB guidelines are an important resource for diagnosis and treatment.

This scoping review aimed to analyze how countries with the highest TB burdens

approach the integration of comorbidity and risk factor screening, diagnosis and

treatment, TB recurrence, and post-TB lung disease (PTLD) diagnosis and

management, within their TB guidelines. We used the Arksey and O'Malley

methodological framework to conduct a scoping review of TB guidelines among the

WHO list of highest-TB burden countries. We identified drug-susceptible,

drug-resistant, and consolidated guidelines through web searches and personal

contacts within TB programs. We translated guidelines into English as needed and

systematically extracted, recorded, and reviewed the guidelines to aggregate and

describe our findings. Among the 49 countries with the highest TB burden, we

successfully identified, translated, and analyzed 43 guidelines (24

drug-sensitive, 9 drug-resistance, and 10 consolidated) from 34 countries.

Recommendations for screening varied by comorbidity or risk factor with the four

most recommended being HIV/AIDS (100%), pregnancy (73%) and liver disease (59%)

and mental health (59%). Recommendations for linkage to care were more

infrequent and also varied with the top four being HIV (88%), liver disease

(47%), diabetes (44%), and mental health (44%). Only 27 (79%) countries

specified diagnostic tests to assess for TB recurrence among individuals

presenting with symptoms post-TB treatment, with 25 recommending GeneXpert

MTB/RIF. Notably, only 7 (21%) countries mentioned PTLD in their guidelines,

with wide variations in their specific recommendations regarding screening,

diagnosis, and management. Our findings highlight the lack of detailed guidance

on how to properly diagnose and refer patients to appropriate care for various

comorbidities or risk factors which may significantly impact microbiological and

clinical TB treatment outcomes, including PTLD and ultimately point to an

important opportunity for improvement in future guidelines.

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PMID: 40700421

**20. PLoS One. 2025 Jul 23;20(7):e0328484. doi: 10.1371/journal.pone.0328484.**

**eCollection 2025.**

Health related quality of life of tuberculosis patients in South India: A

longitudinal assessment study.

Mahalingam V(1), Malaisamy M(2), Daniel BD(3), Bhaskar A(1), Jayabal L(4),

Murali L(5), Palani B(1), Mathiyazhagan K(2), Yadla SM(1), Srinivasan P(1),

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India.

**BACKGROUND:** In India, there is no information on health related quality of life

(HRQoL) of patients with drug sensitive tuberculosis (TB) using a longitudinal

design that includes post- treatment period. This study is the first of its kind

in India to assess HRQoL of TB patients from a longitudinal prospective and to

identify the factors associated with changes in HRQoL.

**METHODS:** The study participants were 180 newly diagnosed drug-sensitive

smear-positive pulmonary TB patients who were initiated on treatment under the

National TB Elimination Programme (NTEP) in Chennai and Tiruvallur districts of

Tamil Nadu, South India. The patients were interviewed at four different time

points between 2020 and 2023 using validated questionnaires assessing general

health (European Quality of Life-5 Dimensions-5 Level (EQ-5D-5L), Short Form

health survey (SF-20)), disease specific (St. George's Respiratory Questionnaire

(SGRQ)) and mental health including depression and anxiety (Patient Health

Questionnaire (PHQ-9), Generalized Anxiety Disorder (GAD-7)). The Friedman test

was used to identify changes in HRQoL scores over time and generalised

estimating equation (GEE) were applied to identify factors associated with

HRQoL.

**RESULTS:** HRQoL scores of TB patients, as measured by different scales showed

significant improvement from treatment initiation to treatment completion. The

GEE analysis showed that the EQ-5D-5L scores over follow-up visits were

significantly lower in females (-0.038, p < 0.005) and higher in those who did

not skip their main meal in a day (0.077, p < 0.001). The PHQ-9 and GAD-7 scores

were significantly higher among females (0.609, p < 0.05; 0.531, p < 0.05).

Additionally, PHQ-9 scores were also higher among patients from rural district

(0.392, p < 0.05). The SF-20 scores were significantly lower in patients aged

>45 years (-1.675, p < 0.05), female (-3.809, p < 0.001) and unemployed (-2.277,

p < 0.005). The SGRQ scores were higher in patients aged >45 years (3.043,

p < 0.01), females (4.256, p < 0.05) and those from rural district (2.219,

p < 0.05). The HRQoL scores were significantly higher in patients who did not

skip their main meal and lower in females irrespective of the scales used.

**CONCLUSION:** The HRQoL of TB patients improved significantly over a period of

treatment. Gender, age, skipping main meals, region and employment status were

the key factors influencing HRQoL. Focusing on HRQoL assessment in the care of

TB patients could help to minimize physical, mental and social challenges and

enable them to lead a normal life.

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unrestricted use, distribution, and reproduction in any medium, provided the

original author and source are credited.

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PMID: 40700367 [Indexed for MEDLINE]

**21. Ann Afr Med. 2025 Jul 23. doi: 10.4103/aam.aam\_89\_25. Online ahead of print.**

Tuberculosis and HIV Coinfection Admissions and Outcome in Children at a

Nigerian Tertiary Hospital.

[Article in English, French; Abstract available in French from the publisher]

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Nigeria.

**BACKGROUND:** Tuberculosis and HIV are significant contributors to morbidity and

mortality in children living in developing countries. Factors associated with

morbidity in tuberculosis and HIV coinfections have not been sufficiently

exhaustively studied.

**AIM:** The aim of this study was to study the pattern of presentation and outcome

of tuberculosis in HIV infected children and identify factors associated with

outcome of management.

**METHODOLOGY:** Consecutive children diagnosed with tuberculosis and HIV

coinfections at the pediatric unit of UNIOSUN teaching hospitals were studied.

Necessary data were obtained and analyzed.

**RESULTS:** A total of 36 children with HIV and tuberculosis coinfection were

studied, with age ranging from 3 months to 17 years (mean 6.7 ± 4.3 years). The

36 children consisted of 21 boys (58.3%) boys and 15 (53.6%) girls. The forms of

tuberculosis diagnosed were pulmonary 23 (63.9%). Disseminated and abdominal

tuberculosis were diagnosed in 6 (16.7%) and 4 (11.1%) children, respectively.

Miliary, meningeal forms of tuberculosis with tuberculoma were diagnosed in 1

(2.7%) child each. Twelve (33.3%) children exhibited treatment failure to

Category I antituberculous (Anti-Tb) drugs. The majority 8 (66.7%) of the 12

with Category 1 treatment failure had underlying AIDS. Category I Anti-Tb

therapy treatment failure was significantly associated with immunological

suppression, (CD4 <200 cells/ml, poor viral load suppression (viral load

>1000copies/mL, disseminated disease and AIDS (P < 0.01). Six deaths (16.7%)

were recorded in the course of the study, whereas 30 (83.3%) survived.

**CONCLUSION:** Pediatric tuberculosis HIV coinfection should not be managed with

Category 1 (Short course) Anti-Tb therapy in HIV tuberculosis coinfected

children with associated immunosuppression or unsuppressed viral loads or with

disseminated tuberculosis or AIDS.

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PMID: 40699987

**22. Emerg Microbes Infect. 2025 Jul 23:2539192. doi: 10.1080/22221751.2025.2539192. Online ahead of print.**

Endogenous hepcidin plays an essential role in Mycobacterium tuberculosis Rv1876

antigen-induced antimicrobial activity in macrophages.

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Disease Control and Prevention Agency, Cheongju, Republic of Korea.

Tuberculosis (TB) is one of the most prevalent infectious diseases worldwide.

However, few molecules related to bacterial killing within T cell-induced

macrophages are known; therefore, elucidating host responses against bacterial

components is critical for developing strategies to treat TB. This study

investigated the anti-mycobacterial responses induced by Mycobacterium

tuberculosis (Mtb) Rv1876 (bacterioferritin A). Rv1876 effectively activated

macrophages; however, the protein itself did not elicit bacterial killing. When

co-cultured with T cells (Rv1876-T cell), Mtb growth was substantially inhibited

in Rv1876-activated macrophages. Rv1876-T cells enhanced endogenous hepcidin

expression, an antimicrobial peptide, in Mtb-infected macrophages, which was

co-localized adjacent to bacteria-containing phagosomes and directly interacted

with them. Other major mycobacterial proteins and bacterioferritin B (Rv3841)

did not induce hepcidin in Mtb-infected macrophages, irrespective of T cell

involvement. These findings suggest that endogenous hepcidin induced by Rv1876-T

cells may be a host bactericidal response and a promising target for

host-directed therapies.

DOI: 10.1080/22221751.2025.2539192

PMID: 40698526

**23. Geohealth. 2025 Jul 22;9(7):e2024GH001235. doi: 10.1029/2024GH001235.**

**eCollection 2025 Jul.**

Comprehensive Spatial Investigation of Tuberculosis Dynamics and Affecting

Factors in Şanlıurfa, Türkiye (2016-2023).

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Tuberculosis (TB) remains a critical public health issue, particularly in

regions with significant socio-economic disparities. This study provides a

comprehensive spatial analysis of TB dynamics in Şanlıurfa, Türkiye, covering

the period from 2016 to 2023. Utilizing Geographic Information Systems,

epidemiological data, and advanced statistical techniques, the research examines

the spatial distribution and temporal trends of TB cases within this region. By

integrating patient data with demographic, environmental, and socio-economic

variables, the study assesses the complex factors influencing TB incidence and

prevalence. The results indicate significant spatial clustering of TB cases,

with the highest concentrations in areas characterized by high population

density, lower socio-economic status, limited healthcare accessibility, and poor

environmental conditions. Temporal trends reveal a gradual decline in TB

incidence over the study period; however, certain hotspots persist, underscoring

the need for sustained and targeted interventions. Furthermore, the study

identifies a correlation between TB prevalence and inadequate living conditions,

emphasizing the role of socio-economic improvement in disease control. These

findings provide crucial insights for policymakers and public health officials,

facilitating the development of more effective, evidence-based TB control

strategies tailored to the unique socio-economic and geographical landscape of

Şanlıurfa.

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PMID: 40697563

**24. Infect Dis (Lond). 2025 Jul 23:1-10. doi: 10.1080/23744235.2025.2534166. Online ahead of print.**

Post-screening risk of tuberculosis progression: a three-year retrospective

cohort study of asylum seekers in Sweden.

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**INTRODUCTION:** Strategies for tuberculosis (TB) elimination in low-incidence

countries involve screening recent migrants from TB-endemic regions for TB

infection (TBI) and providing TB preventive treatment (TPT) to individuals with

an increased risk of reactivation. This study aimed to determine TB incidence

and identify reactivation risk markers in a cohort of asylum seekers in Sweden

after screening.

**METHOD:** We conducted a registry-based retrospective cohort study with a

three-year follow-up of asylum seekers receiving post-arrival Interferon Gamma

Release Assay (IGRA) screening in three Swedish regions 2015-2019. Medical

records, health-examination records, and the national TB disease registry were

linked using identification numbers or probabilistic methods. The primary

outcome was TB disease more than 90 days post-screening. Explanatory variables

included age, sex, IGRA-result (positive/negative), TPT-initiation, and TB

incidence in the country of origin. Poisson and Cox regression addressed

incidence rates (IR), incidence rate ratios (IRR), and hazard ratios over a

three-year follow-up.

**RESULTS:** The cohort included 21 739 individuals and 70 467 person-years.

Incident TB disease was recorded in 41 cases (IR 58.2/100 000 person-years). The

IR for those with a positive IGRA was 321.7/100 000 person-years (n = 34). The

highest risk was in persons aged under 20 with no TPT (1 279.0/100 000

person-years). Positive IGRA result, age under 20 years, and origin from

TB-endemic country predicted incident TB.

**DISCUSSION:** Risk markers for incident TB were similar to findings previously

reported. However, the observed 0.3% annual reactivation risk found among all

IGRA-positive individuals in this study was considerably lower compared to

earlier findings.

DOI: 10.1080/23744235.2025.2534166

PMID: 40696904

**25. Curr Med Chem. 2025 Jul 21. doi: 10.2174/0109298673375085250704061619. Online**

**ahead of print.**

Transfer Learning for Automated Two-class Classification of Pulmonary

Tuberculosis in Chest X-Ray Images.

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**AIM:** Early and precise diagnosis is essential for effectively treating and

managing pulmonary tuberculosis. The purpose of this research is to leverage

artificial intelligence (AI), specifically convolutional neural networks (CNNs),

to expedite the diagnosis of tuberculosis (TB) using chest X-ray (CXR) images.

**BACKGROUND:** Mycobacterium tuberculosis, an aerobic bacterium, is the causative

agent of TB. The disease remains a global health challenge, particularly in

densely populated countries. Early detection via chest X-rays is crucial, but

limited medical expertise hampers timely diagnosis.

**OBJECTIVE:** This study explores the application of CNNs, a highly efficient

method, for automated TB detection, especially in areas with limited medical

expertise.

**METHODS:** Previously trained models, specifically VGG-16, VGG-19, ResNet 50, and

Inception v3, were used to validate the data. Effective feature extraction and

classification in medical image analysis, especially in TB diagnosis, is

facilitated by the distinct design and capabilities that each model offers.

VGG-16 and VGG-19 are very good at identifying minute distinctions and

hierarchical characteristics from CXR images; on the other hand, ResNet 50

avoids overfitting while retaining both low and high-level features. The

inception v3 model is quite useful for examining various complex patterns in a

CXR image with its capacity to extract multi-scale features.

**RESULTS:** Inception v3 outperformed other models, attaining 97.60% accuracy

without pre-processing and 98.78% with pre-processing.

**CONCLUSION:** The proposed model shows promising results as a tool for improving

TB diagnosis, and reducing the global impact of the disease, but further

validation with larger and more diverse datasets is needed.

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epub@benthamscience.net.

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PMID: 40696547

**26. J Med Case Rep. 2025 Jul 22;19(1):358. doi: 10.1186/s13256-025-05405-w.**

Concurrent brain infection of herpes simplex virus and tuberculous meningitis

complicated by tuberculous abscess: a case report.

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**BACKGROUND:** Herpes simplex encephalitis is the most common form of encephalitis,

while tuberculous meningitis is a rare condition accounting for less than 1% of

all tuberculosis cases. Since the symptoms are similar in both diseases,

differentiating between them is a clinical challenge, even after performing

cerebrospinal fluid analysis, as the final diagnosis remains based on the

specific investigations that were unusually positive for both diseases in our

patient, which have not been reported previously, making this case the first in

medical literature on this subject.

**CASE PRESENTATION:** A 45-year-old Syrian male patient presented with fever,

headache, and generalized seizures with decreased cognitive function. He was

referred to the emergency department, where radiological investigations and

other tests revealed concurrent infection with herpes simplex encephalitis and

tuberculous meningitis with tuberculous brain abscesses confirming involvement

of the brain parenchyma by both infections. The patient was treated with

intravenous acyclovir, antituberculosis regimen, and anticonvulsants, resulting

in notable clinical improvement. However, he experienced a tonic-clonic seizure,

complicated by aspiration pneumonia, and later developed acute respiratory

failure and succumbed to his condition on the 21st day of hospitalization.

**CONCLUSION:** Although the presentations of herpes simplex encephalitis and

tuberculous meningitis are similar, clinicians should not exclude one diagnosis

when the other is confirmed, as both conditions can coexist in the same patient,

as our case report demonstrates.

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DOI: 10.1186/s13256-025-05405-w

PMID: 40696400 [Indexed for MEDLINE]

**27. NPJ Vaccines. 2025 Jul 22;10(1):161. doi: 10.1038/s41541-025-01225-7.**

A vaccine targeting lung resident-memory CD4(+) T cell phenotype protects

against Mycobacterium tuberculosis in mice.

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Lung-resident memory T (TRM) cells respond rapidly and effectively to

respiratory pathogen invasion, suppressing pathogen proliferation. Previously,

we identified a defined TLR3 agonist called Nexavant (NVT) and developed a

vaccine platform that utilizes it to induce lung TRM. In this study, we aimed to

determine whether the protective effect of TRM cells is observed in tuberculosis

(TB), a chronic bacterial respiratory disease. We synthesized a peptide vaccine

by elongating the CD4+ T cell epitopes from Mycobacterium tuberculosis antigens

ESAT-6, CFP-10, and HspX, adjuvanted it with NVT and administered the vaccine

intranasally or intramuscularly to mice. We demonstrated that intranasal

administration of an NVT-formulated peptide vaccine induced the generation of

CD4+ TRM cells in the lungs, and that our vaccine platform, containing a limited

number of CD4 epitopes, provided protective efficacy comparable to that of the

BCG vaccine, which contains multiple T cell epitopes. Furthermore, the peptides

used in the vaccine were reactive in 23 out of 24 (95.8%) human PBMCs,

indicating that they contain promiscuous epitopes. Our results suggest a

straightforward approach to controlling pulmonary TB more effectively through

the induction of lung CD4+ TRM cells, even when using the same target antigen.

Additionally, this study supports a theoretical basis for developing an

inhalable TB vaccine using synthetic peptides.

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DOI: 10.1038/s41541-025-01225-7

PMID: 40695843

**28. Biochemistry. 2025 Jul 22. doi: 10.1021/acs.biochem.5c00089. Online ahead of**

**print.**

Mechanistic Insights into Homoserine O-Acetyltransferase from Mycobacterium

tuberculosis.

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The enzyme MetX is a homoserine O-acetyltransferase that catalyzes the first

step in methionine biosynthesis and is essential for survival and virulence of

various pathogens. It is an attractive target for antifungal and antibacterial

drug development. MetX catalyzes the acetyl transfer from acetyl-CoA (AcCoA) to

homoserine via a ping-pong mechanism involving an acyl-enzyme intermediate. The

active site contains a Ser-His-Asp catalytic triad, which constitutes its core

catalytic machinery. Here we investigated the mechanistic details of MetX from

Mycobacterium tuberculosis (MtbMetX) using a combination of quantum

mechanics/molecular mechanics (QM/MM) calculations, mutagenesis, and mass

spectrometry. QM/MM calculations suggest that D320 of the catalytic triad

participates in the proton transfer during homoserine acetylation, but not

during acyl-enzyme formation. Experiments showed that a D320N substitution,

which removes the proton-accepting capability of D320 as well as the pKa

modulation of H350 by D320, still allowed acyl-enzyme formation at a markedly

reduced rate, but significantly impaired the production of acetyl-homoserine. To

isolate the effect of D320's participation in proton transfer from its pKa

modulation role, we used QM/MM calculations to simulate a system where D320

could modulate H350 pKa but not accept a proton. These calculations suggest that

while D320's proton-accepting role is not required for the AcCoA reaction, it

contributes thermodynamically in the homoserine reaction by lowering the energy

of the forward pathway. Elucidating the mechanistic details of MtbMetX reactions

offers valuable insights that will facilitate the development of mechanism-based

inhibitors, contributing to future therapeutic strategies.

DOI: 10.1021/acs.biochem.5c00089

PMID: 40695725

**29. BMJ Glob Health. 2025 Jul 22;10(7):e016000. doi: 10.1136/bmjgh-2024-016000.**

Policies, practices, opportunities and challenges for tuberculosis screening: a

global survey of national tuberculosis programmes.

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**INTRODUCTION**: There are limited published data on how countries carry out

screening for tuberculosis (TB) disease and what the perceived challenges are

for implementing screening from a country perspective. Understanding these

factors are important to enable better planning and support for the roll-out of

appropriate screening interventions.

**METHODS:** We conducted a cross-sectional survey of national TB programmes from

countries reporting >1000 TB cases annually.

**RESULTS:** Sixty of 123 countries responded, representing 82% of the global TB

burden. Only 35% of countries had a policy to screen for TB in all four key risk

groups identified by WHO, 66% carried out all six WHO-recommended steps to

implement screening and 39% collected all seven of the WHO-recommended data

points for monitoring activity. Although 68% of countries planned to increase

CXR-based screening, 90% reported at least one significant barrier to

implementing this, and 20% were not aware of computer-aided detection (CAD)

software technology.

**CONCLUSION:** Although chest X-ray and CAD use are expanding and hold promise as

tools to find people with TB, many programmes do not have adequate access to

them. While global policy is in place that recommends the use of these tools,

efforts should be made to support countries tackling these barriers.

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PMID: 40695545 [Indexed for MEDLINE]

**30. Vaccine. 2025 Jul 21;62:127490. doi: 10.1016/j.vaccine.2025.127490. Online ahead of print.**

New adult and adolescent tuberculosis vaccines and Indonesia: policy planning

and evidence, November 2024.

Alfaqeeh M(1), Ewart S(2), Tanoto R(3), Buenastuti W(4), Isturini IA(5),

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This report summarizes the proceedings of a policy and planning meeting convened

in Indonesia, by the Ministry of Health and the World Health Organization, on

potential new tuberculosis (TB) vaccines intended for adults and adolescents.

Given that Indonesia bears the second highest TB burden globally, and that it is

participating in the phase III efficacy study for one of the leading vaccine

candidates that could be approved for use by 2028, the meeting aimed to discuss

strategies and evidence needs that could accelerate vaccine introduction. The

meeting, held in November 2024, was attended by Indonesian policymakers,

researchers, health advocates and community representatives, alongside observers

from immunization and TB programmes working at the global level, as well as

donors. This report offers several key recommendations to ensure new TB vaccines

for adults and adolescents are available, accessible and acceptable in

Indonesia, as soon as possible after regulatory approval. The vaccine

implementation strategy is expected to be through a stratified, geographical

approach, initiating in provinces with the highest disease and socio-economic

burden. As such, improved data on disease, infection prevalence and

acceptability within different age cohorts and populations are needed to inform

national and sub-national (e.g., province or district level) health and economic

impact modelling. Early studies on knowledge, attitudes and practices of new TB

vaccines for adults and adolescents will help to engage community leaders and

advocates and ensure effective, culturally acceptable communication to improve

acceptability. Of greatest urgency, a national strategic plan for new TB vaccine

introduction, including a roadmap of critical activities, responsible entities

and a stakeholder engagement plan are needed.

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PMID: 40695091

**31. Microbiol Spectr. 2025 Jul 22:e0035625. doi: 10.1128/spectrum.00356-25. Online ahead of print.**

Performance of direct detection of Mycobacterium tuberculosis within

Mycobacterium tuberculosis complex by routine MALDI-TOF for diagnosis using

species-specific lipid fingerprint.

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Managing tuberculosis cases requires species and drug susceptibility

identification, which are limited by the time taken by testing procedures due to

slow bacterial growth. Lipid-based matrix-assisted laser

desorption/ionization-time-of-flight mass spectrometry (MALDI-TOF MS) is a

promising tool for identifying pathogenic mycobacterial species. This study aims

to define and use species-specific lipid profiles of members of the

Mycobacterium tuberculosis complex (MTBC) obtained by MALDI-TOF MS, to directly

discriminate M. tuberculosis from other members of the MTBC, such as

Mycobacterium africanum, Mycobacterium bovis, and M. bovis bacillus

Calmette-Guerin (BCG). Reference strains (M. tuberculosis H37Rv, M. africanum,

M. bovis, and M. bovis BCG) were grown in Middlebrook 7H11 media (supplemented

with 10% oleic acid-albumin-dextrose-catalase growth supplement) and incubated

for up to 6 weeks at 37°C to generate the large biomass (~109 bacteria) required

for optimization, to assess reproducibility of the assay, and to set the

reference lipid database. In clinical use, standard shorter culture periods

would be sufficient. A blinded study was then performed using a collection of 46

mycobacterial clinical isolate strains composed of 30 M. tuberculosis, 2 M.

africanum, 9 M. bovis BCG, and 5 M. bovis and grown under the same conditions.

Cultured mycobacteria were heat-inactivated and loaded onto the matrix-assisted

laser desorption target, followed by the addition of the matrix. Acquisition of

the data was done using the negative ion mode. Using the species-specific

glycolipid, sulfolipids, M. tuberculosis was discriminated within MTBC using the

MALDI-TOF process with a sensitivity and specificity of 86.7% (95% confidence

interval [CI] 69.3-96.2) and 93.7% (95% CI 69.8-99.8), respectively. Direct

detection of M. tuberculosis within the MTBC based on mycobacterial lipid

profiling provides a safe and accurate method, based on the detection of the

sulfolipids, as a species-specific lipid biomarker of M.

tuberculosis.IMPORTANCETuberculosis remains a major infectious disease in humans

and mammals, but one of the major challenges is to accurately discriminate M.

tuberculosis from the other mycobacterial species belonging to the MTBC. Here we

report on a novel assay that can detect M. tuberculosis directly within the

MTBC. This approach is simple and relies on the detection of species-specific

lipids by routine MALDI-TOF MS.

DOI: 10.1128/spectrum.00356-25

PMID: 40693793

**32. Open Forum Infect Dis. 2025 Jul 21;12(7):ofaf367. doi: 10.1093/ofid/ofaf367.**

**eCollection 2025 Jul.**

The Ethiopian Third National Tuberculosis Drug Resistance Survey Incorporating

Whole Genome Sequencing.

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Meaza A(1), Mollalign H(1), Dagne B(1), Tadesse M(1), Sinshaw W(1), Seid G(1),

Zerihun B(1), Getu M(1), Tadesse G(1), Abdella S(2), Tollera G(3), Admas A(4),

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Amsterdam, The Netherlands.

**BACKGROUND:** Drug-resistant tuberculosis (DR-TB) is a major challenge hindering

global tuberculosis control. Ethiopia conducted a third national

antituberculosis (TB) drug resistance survey, and this is the first survey to

report on drug resistance using whole genome sequencing (WGS) in addition to

genotypic and phenotypic test results. The aim of this study was to obtain

up-to-date information regarding the magnitude and pattern of drug resistance in

Ethiopia.

**METHODS:** A nationwide cross-sectional study was conducted in 217 health

facilities across all Ethiopian regional states from August 2017 to January

2019. Sputum specimens were collected from patients with bacteriologically

confirmed pulmonary TB to detect resistance to anti-TB drugs with Xpert MTB/RIF

assay, culture-based phenotypic drug susceptibility testing (DST), and WGS with

phylogenetic analysis.

**RESULTS:** The prevalence of rifampicin-resistant TB (RR-TB) was 1.07% (95%

confidence interval [CI], .65%-1.74%) among new cases and 6.89% (95% CI,

4.02%-11.57%) among previously treated cases. The prevalence of

isoniazid-resistant, rifampicin-susceptible TB was 4.15% (95% CI, 3.11%-5.53%)

among new cases and 4.41% (95% CI, 1.97%-9.57%) among previously treated cases.

While resistance to fluoroquinolones was detected in 1 RR-TB case, resistance to

bedaquiline and linezolid was not detected in RR-TB cases. Mycobacterium

tuberculosis lineage 4 was the most common, followed by lineage 3 and lineage 1,

with sublineage 4.2.2 being the most frequent.

**CONCLUSIONS:** The level of RR-TB remained low. Expanding baseline DST for

isoniazid may help further lower the burden of DR-TB in Ethiopia.

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Infectious Diseases Society of America.

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**33. PLoS One. 2025 Jul 21;20(7):e0322753. doi: 10.1371/journal.pone.0322753.**

**eCollection 2025.**

Methodologies for studying depression in persons living with tuberculosis:

Protocol for a scoping review.

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Tuberculosis (TB) and depression frequently co-occur, yet research has largely

focused on prevalence rather than diagnostic or treatment methodologies. Given

overlapping symptoms, robust research approaches are critical for improving

detection and treatment strategies in persons with TB (PWTB). This protocol

defines a scoping review that aims to map methodologies used to study depression

in individuals with TB, identifying gaps in research design, diagnosis, and

treatment that may hinder clinical and public health advancements. A search was

conducted in MEDLINE, Embase, PsycINFO, Global Health, Cochrane Library, and

Africa-Wide Information using controlled vocabulary related to TB and

depression. Studies examining the TB-depression relationship will be included.

We will use Covidence to facilitate screening, selection, and data extraction.

We will extract data on study design, diagnostic tools, treatment interventions,

and analytical approaches. Descriptive characteristics of included studies will

be presented using figures and tables. Using the

Reach-Effectiveness-Adoption-Implementation-Maintenance (RE-AIM) framework, we

will evaluate reach by assessing the extent to which studies explore both

directions of the TB-depression relationship and include diverse, high-risk

populations. Effectiveness will be examined by categorizing study designs to

assess methodological diversity and evaluating the diagnostic tools and

treatment interventions used, along with their reported efficacy. Adoption will

be analyzed by identifying where and by whom depression diagnosis and treatment

methodologies have been implemented and whether research findings have

influenced clinical guidelines or public health policies. Implementation will be

assessed by identifying barriers and facilitators reported in qualitative

studies or by researchers regarding the integration of depression care into TB

treatment settings. Finally, maintenance will be determined by examining whether

diagnostic and treatment methodologies were sustained within health systems,

including long-term patient outcomes and the persistence of interventions beyond

the research phase. By mapping existing methodologies and identifying research

gaps, this review will provide valuable insights to guide future research study

designs and improve diagnostic and treatment strategies for depression in PWTB.

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**34. PLoS One. 2025 Jul 21;20(7):e0320830. doi: 10.1371/journal.pone.0320830.**

**eCollection 2025.**

Bovine tuberculosis model validation against a field study of badger vaccination

with selective culling.

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Bovine tuberculosis (bTB) is a costly disease in Britain and Ireland shared by

cattle and badgers (Meles meles), and to reduce the infection in cattle to low

levels some form of badger management is considered necessary. We compare the

results of a badger field trial where test-positive badgers are culled, and

test-negative badgers vaccinated (a TVR approach) with the results of the

simulation model originally used to predict the effect of the trial in Northern

Ireland. Initial model results depended strongly on whether social perturbation

occurred in the badger population following culling, and the field study

demonstrated no evidence for such behavior. Here we re-run the model with the

initial conditions of the TVR study and with no social perturbation and predict

a similar outcome in terms of number of badgers caught, number testing positive,

and the substantial decline in prevalence. These results validate our model and

demonstrate the utility of such predictive modelling for this disease system.

This is particularly important as the UK government moves away from widespread

badger culling in England toward more vaccination, as this combined approach of

vaccination and selective culling based on test results may give a more robust

method of disease management than just vaccination on its own.

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PMID: 40690450 [Indexed for MEDLINE]

**35. Antimicrob Agents Chemother. 2025 Jul 21:e0035625. doi: 10.1128/aac.00356-25. Online ahead of print.**

Unpacking bedaquiline heteroresistance: the importance of intermediate profiles

for phenotypic drug susceptibility testing.

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Phenotypic drug susceptibility testing (pDST) remains a widely used standard for

determination of resistance for several drugs for the Mycobacterium tuberculosis

complex. Next-generation sequencing technologies can identify heteroresistant

populations at low frequencies, but little is known about the impact of

heteroresistance on bedaquiline (BDQ) pDST results. We simulated

heteroresistance using in vitro-generated MmpR5 mutants mixed with the

progenitor strain at various percentages (1%-20%) and performed pDST using the

BACTEC MGIT 960 platform (1 and 2 µg/mL BDQ concentrations) coupled with

EpiCenter TB-eXtended individual drug Susceptibility Testing software. Targeted

next-generation sequencing was used to quantify the mutant subpopulation in

growth control tubes, which were expected to maintain the mutant: wild-type

proportion throughout the assay. Growth units of these growth control tubes were

also comparable with minor differences in time to positivity between ratio

mixtures. Only when intermediate results were considered (i.e., when growth

units in a drug-containing tube reach the threshold for resistance but only

after a further week of incubation) could BDQ heteroresistance be detected at

frequencies of approximately 1% by pDST at a critical concentration of 1 µg/mL.

These intermediate results, commonly disregarded during routine testing, could

lead to earlier detection of BDQ resistance and may avert adverse clinical

outcomes. The ability of pDST, a widely available DST technique, to reveal the

presence of BDQ-resistant subpopulations at the phenotypic testing stage could

improve resistance determination and potentially reduce time to effective

treatment.

DOI: 10.1128/aac.00356-25

PMID: 40689761

**36. Ocul Immunol Inflamm. 2025 Jul 21:1-6. doi: 10.1080/09273948.2025.2532820.**

**Online ahead of print.**

Evaluation of Mycobacterium Tuberculosis Derived Cell-Free DNA-Based

Multi-Targeted Real-Time PCR from Vitreous Fluid (VF) Samples to Diagnose Ocular

Tuberculosis.

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Chandigarh, India.

(4)Department of Ophthalmology, Advanced Eye Centre, Postgraduate Institute of

Medical Education and Research, Chandigarh, India.

**BACKGROUND:** Ocular tuberculosis (OTB) is an important cause of vision loss in

India. Rapid and accurate diagnosis of OTB is paramount to decreasing morbidity

and saving the eyes from blindness. DNA present in cell-free form is expected to

give a higher detection yield. Therefore, the present study aimed to evaluate

the utility of Cell-free DNA (CF-DNA)-based Multi-targeted real-time PCR

(Mrt-PCR) for diagnosing OTB and compare it with Truenat MTB plus and GeneXpert

MTB/RIF Ultra (Xpert Ultra).

**METHODS:** CF-DNA-based Mrt-PCR (using IS6110, IS1081, and nrdZ genes), Truenat

MTB plus, and Xpert Ultra were carried out on 50 vitreous fluid (VF) samples [2

confirmed OTB, 22 clinically suspected of OTB, and 25 controls]. rpoB gene

sequencing was carried out in all the positive cases to detect Rifampicin

susceptibility.

**RESULTS:** CF-DNA-based Mrt-PCR, Truenat MTB plus, and Xpert Ultra were positive

in 19/25(76%), 16/25(64%), and 13/25(56%) patients of OTB, respectively, and

negative in all the 25 control group subjects. There were three cases detected

only by IS1081, two only by IS6110 and one only by nrdZ gene. Truenat MTB RIF

and Xpert Ultra detected RIF resistance in three cases, which were confirmed by

rpoB gene sequencing.

**CONCLUSION:** CF-DNA-based Mrt-PCR is a robust and promising technique for

diagnosing OTB, yielding a higher detection rate than contemporary platforms

-Truenat MTB plus and Xpert Ultra.

DOI: 10.1080/09273948.2025.2532820

PMID: 40689729

**37. Int J Technol Assess Health Care. 2025 Jul 21:1-24. doi:**

**10.1017/S0266462325100329. Online ahead of print.**

Comparing Cost-Effectiveness of Short Course Regimens for Drug-Resistant

Tuberculosis Treatment in India.

Muniyandi M, Ramraj B, Vadamalai S, Abdul Salam S, Devaleenal B, Jaju J,

Padmapriyadarsini C.

DOI: 10.1017/S0266462325100329

PMID: 40685613

**38. JAMA Netw Open. 2025 Jul 1;8(7):e2523268. doi:**

**10.1001/jamanetworkopen.2025.23268.**

Race and Ethnicity, Recent Transmission, and Tuberculosis Infection in a

Low-Incidence US State.

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(4)Department of Biostatistics, School of Public Health, University of Michigan,

Ann Arbor.

Plain Language Summary: This cross-sectional study examines racial and ethnic

disparities associated with recently transmitted tuberculosis and reactivation

of latent tuberculosis infection in Arkansas, which has low tuberculosis

incidence.

DOI: 10.1001/jamanetworkopen.2025.23268

PMID: 40711793

**39. Trop Med Infect Dis. 2025 Jul 15;10(7):198. doi: 10.3390/tropicalmed10070198.**

Impact of Nutritional Counselling and Support on Body Mass Index Recovery and

Treatment Outcomes Among Tuberculosis Patients in the Lao People's Democratic

Republic.

Inthavong D(1), Elsayed H(2), Keonakhone P(3), Seevisay V(4), Souksanh S(4),

Suthepmany S(1), Chanthavong M(1), Keodavong X(1), Kommanivanh P(1), Siphanthong

P(1), Sengmany P(3), Sisounon B(3), Sebert J(1), Yanagawa M(5), Morishita F(2),

Nishikiori N(6), Yamanaka T(6).

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(6)Global Tuberculosis Programme, World Health Organization, 1211 Geneva,

Switzerland.

Tuberculosis (TB) and undernutrition are intricately linked, significantly

impacting health outcomes. However, nutritional support for TB patients is not

systematically implemented in Lao People's Democratic Republic (Lao PDR). This

study evaluated the effects of nutritional counselling and support on

nutritional recovery and TB treatment outcomes. A longitudinal study involved

297 individuals with drug-susceptible TB, 39.4% of whom had a body mass index

(BMI) below 18.5 kg/m2. Participants were divided into an observation group and

an intervention group, the latter receiving nutritional support. Nutritional

support included ready-to-use therapeutic food and therapeutic milk products,

tailored to patients' nutritional status. Data collection was conducted at four

intervals during treatment. By the end of treatment, 84.3% of participants

improved their nutritional status to a BMI of 18.5 kg/m2 or higher. The

intervention group showed early nutritional recovery, particularly during the

intensive phase of TB treatment, although the p-value (p = 0.067) should be

interpreted with caution. The overall treatment success rate was high at 90.6%,

with no significant difference between groups. Factors associated with treatment

success included age under 45, HIV-negative status, a BMI of 18.5 kg/m2 or

higher, and clinically diagnosed pulmonary TB. Further assessment is required

for the operational feasibility to provide systematic nutritional assessment and

counselling for people with TB in Lao PDR.

DOI: 10.3390/tropicalmed10070198

PMID: 40711075

**40. Trop Med Infect Dis. 2025 Jul 10;10(7):194. doi: 10.3390/tropicalmed10070194.**

Series 2: Development of a Multiplex Amplicon Next Generation Sequencing Assay

for Rapid Assessment of Resistance-Associated Mutations in M. tuberculosis

Clinical Cases.

Cabrera A(1), Lee T(1), Kolehmainen K(1), Hird T(1), Jorgensen D(1), Lo CK(2),

Hamze H(2), O'Dwyer A(1), Fornika D(1), KhunKhun RK(1), Rodrigues M(1),

Prystajecky N(1)(2), Tyson J(1)(2), Zlosnik JEA(1)(2), Sekirov I(1)(2).

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(2)Department of Pathology and Laboratory Medicine, Faculty of Medicine,

University of British Columbia, Vancouver, BC V5Z 3N9, Canada.

Treatment of Mycobacterium tuberculosis requires multi-drug regimens, and

resistance to any individual antibiotic can compromise outcomes. For

slow-growing organisms like M. tuberculosis, rapid detection of

resistance-conferring mutations enables timely initiation of effective therapy.

Conversely, confirming wild-type status in resistance-associated genes supports

confidence in standard regimens. We developed an amplicon-based next generation

sequencing (amplicon tNGS) assay on the Illumina platform targeting eight genes

linked to resistance to isoniazid, rifampin, ethambutol, pyrazinamide, and

fluoroquinolones. Sequencing results were analyzed using a custom bioinformatics

pipeline. Forty-seven samples were used for assay development, and 37 additional

samples underwent post-implementation clinical validation. Compared to whole

genome sequencing (WGS), amplicon tNGS demonstrated 97.7% sensitivity, 98.9%

specificity, and 98.7% overall accuracy for variant detection in targeted

regions. Resistance prediction showed 79.3% concordance with WGS; discrepancies

were primarily due to mutations outside of target regions. Among

post-implementation samples, 27/37 passed quality metrics for all targets, with

95.7% concordance between amplicon tNGS results and final susceptibility

results. This assay is now in use in our laboratory and offers significantly

faster turnaround than both WGS and phenotypic methods on cultured isolates,

enabling more rapid, informed treatment decisions for tuberculosis patients.

DOI: 10.3390/tropicalmed10070194

PMID: 40711071

**41. Trop Med Infect Dis. 2025 Jul 9;10(7):192. doi: 10.3390/tropicalmed10070192.**

Series 1: The Use of hsp65- and erm(41)-Targeted Amplicon Sequencing in the

Diagnostic Workflow for Non-Tuberculous Mycobacteria.

Lee T(1), Cabrera A(1), Kolehmainen K(1), Hird T(1), Jorgensen D(1), O'Dwyer

A(1), Fornika D(1), KhunKhun RK(1), Rodrigues M(1), Prystajecky N(1)(2), Tyson

J(1)(2), Sekirov I(1)(2), Zlosnik JEA(1)(2).

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University of British Columbia, Vancouver, BC V6T 1Z4, Canada.

Evolving technologies available to clinical laboratories and laboratory-related

updates to clinical guidelines both drive the need for clinical laboratories to

keep their test menu updated and in line with current technological and clinical

developments. Our laboratory has developed a targeted Illumina-based amplicon

next-generation sequencing (NGS) assay to interrogate the hsp65 and erm(41)

genes of Mycobacterium spp. for the purposes of providing species-level ±

subspecies-level identification of Mycobacterium spp. organisms in clinical

samples and genotypic predictions for inducible macrolide resistance (in the

case of M. abscessus complex members). The developed assay demonstrated 100%

sensitivity and specificity for M. tuberculosis and M. abscessus complex

cultured organisms, 98% ID overall concordance relative to the available

reference identification, and a nearly 60% "rescue" rate for primary samples

that could not be identified using our previous method. There was 94.6%

concordance between genotypic and phenotypic results for inducible macrolide

resistance. The developed assay was successfully implemented in our clinical

laboratory and has been accredited for clinical use.

DOI: 10.3390/tropicalmed10070192

PMID: 40711069

**42. Trop Med Infect Dis. 2025 Jul 7;10(7):190. doi: 10.3390/tropicalmed10070190.**

Risk of Latent Tuberculosis Infection Reactivation in Patients Treated with

Tumor Necrosis Factor Antagonists: A Five-Year Retrospective Study.

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17020, Türkiye.

(3)Department of Public Health, Çanakkale Onsekiz Mart University, Çanakkale

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**BACKGROUND:** This study aims to reveal the demographic and clinical data of

patients receiving TNF-α blockers, to compare the characteristics of those who

received latent tuberculosis infection (LTBI) treatment and those who did not,

and to evaluate and determine potential risk factors for developing active TB

disease.

**METHODS:** A systematic retrospective study was conducted in a tertiary university

hospital examining all patients receiving at least one TNF-α blocker between

January 2019 and October 2024. The incidence of tuberculosis (TB) was analyzed

across various TNF-α blocker medications in patients, both with and without LTBI

treatment.

**RESULTS:** A total of 519 patients had TNF-α blockers: 452 (87.09%) underwent TST,

193 (37.1%) underwent booster TST, and 33 (6.3%) underwent IGRA/TST; 362 (69.7%)

were treated for LTBI, and 7 (1.3%) developed TB. Comparing all TNF-α blockers,

adalimumab showed a higher risk of TB. Patients with and without LTBI treatment

did not significantly differ in TB incidence after biologic therapy.

**CONCLUSIONS:** The incidence of TB in people taking TNF-α blockers was higher

compared to the incidence in the general population. LTBI screening, including

both TST and IGRA, should be performed with TST and IGRA tests, and

LTBI-positive individuals should be started on preventive treatment. However, it

should not be forgotten that active TB disease may also develop in LTBI-negative

individuals.

DOI: 10.3390/tropicalmed10070190

PMID: 40711067

**43. Trop Med Infect Dis. 2025 Jun 20;10(7):176. doi: 10.3390/tropicalmed10070176.**

Evaluation of Social and Clinical Factors Associated with Adverse Drug Reactions

Among Children with Drug-Resistant Tuberculosis in Pakistan.

Said MS(1), Fatima R(2), Ahmad R(1), Al Rawi MBA(1)(3), Jan F(2), Faisal S(2),

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Sciences West, Stillwater, OK 74078, USA.

**(1) Background:** The occurrence, intensity, and characteristics of adverse drug

reactions (ADRs) caused by anti-tuberculosis (TB) drugs have consistently been a

subject of worry. There is a lack of published research from Pakistan regarding

the negative effects of anti-TB treatment on children, specifically about ADRs.

In this study, we aimed to investigate the ADR associated with anti-DR-TB

treatment in children. **(2) Methods:** A prospective longitudinal study was

conducted in the multicenter setting of Khyber Pakhtunkhwa, Pakistan. A total of

450 TB children in multicenter hospitals under ATT were assessed for ADRs.

Naranjo Causality Assessment and Hartwig's Severity Assessment Scale were used

to evaluate the causality and severity. **(3) Results:** A total of 300 (66.66%)

ADRs were reported in 450 people with DRTB. Anemia was the most frequently

observed ADR (37.6%) followed by nausea and vomiting (18.6%). On multivariate

analysis, the independent variables that had a statistically significant

positive association with ADRs were participants aged, 5-14 years (AOR, 0.3

(0.1-0.5), p ≤ 0.001), normal weight (1.1 (2.0-1.9), p < 0.001), and children

having comorbidities (AOR, 0.5 (0.1-0.8), p ≤ 0.001). **(4) Conclusions:** Our

findings advocate for personalized treatment approaches, incorporating

nutritional support, comprehensive comorbidity management, and vigilant

monitoring to mitigate ADRs and improve treatment outcomes.

DOI: 10.3390/tropicalmed10070176

PMID: 40711054

**44. Mar Drugs. 2025 Jul 3;23(7):279. doi: 10.3390/md23070279.**

Insights into Natural Products from Marine-Derived Fungi with Antimycobacterial

Properties: Opportunities and Challenges.

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Tuberculosis (TB) poses a persistent global health threat exacerbated by the

emergence of drug-resistant strains; hence, there is a continuous quest for

novel antimicrobial agents. Despite efforts to develop effective therapies,

existing treatments require a relatively long duration of therapy to eradicate

the pathogen due to its virulence factors, pathogenesis patterns, and ability to

enter dormant states. This can lead to a higher risk of treatment failure due to

poor patient adherence to the complex regimen. As a result, considerable

research is necessary to identify alternative antituberculosis agents. The

marine environment, particularly marine-derived fungi, has recently gained

interest due to its potential as an abundant source of bioactive natural

products. This review covers 19 genera of marine-derived fungi and 139

metabolites, 131 of which exhibit antimycobacterial activity. The integrated

dataset pinpoints the fungal genera and chemical classes that most frequently

yield potent antimycobacterial hits while simultaneously exposing critical gaps,

such as the minimal evaluation of compounds against dormant bacilli and the

presence of underexplored ecological niches and fungal genera. Several compounds

exhibit potent activity through uncommon mechanisms, including the inhibition of

mycobacterial protein tyrosine phosphatases (MptpB/MptpA), protein kinase PknG,

ATP synthase and the disruption of mycobacterial DNA via G-quadruplex

stabilization. Structure-activity relationship (SAR) trends are highlighted for

the most potent agents, illuminating how specific functional groups underpin

target engagement and potency. This review also briefly proposes a dereplication

strategy and approaches for toxicity mitigation in the exploration of

marine-derived fungi's natural products. Through this analysis, we offer

insights into the potency and challenges of marine-derived fungi's natural

products as hit compounds or scaffolds for further antimycobacterial research.

DOI: 10.3390/md23070279

PMID: 40710504 [Indexed for MEDLINE]

**45. Front Immunol. 2025 Jul 10;16:1629466. doi: 10.3389/fimmu.2025.1629466.**

**eCollection 2025.**

CD1-restricted T cells: are unconventional allies the key to future TB vaccines?

Milton M(1), Mansour S(1)(2).

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Kingdom.

CD1-restricted T cells constitute an unconventional arm of immunity that

recognises lipid antigens, a feature particularly pertinent to Mycobacterium

tuberculosis (Mtb), a pathogen with a lipid-rich cell wall. Unlike classical

MHC-restricted responses, CD1-mediated lipid antigen presentation includes

donor-unrestricted T cell responses, offering a promising pathway for

universally protective tuberculosis (TB) vaccines. This review explores the

biology of CD1 isoforms, the functional diversity of CD1-restricted T cell

subsets, and their roles in TB immunity. We discuss Mtb's lipid antigens,

mechanisms of CD1 trafficking and antigen presentation, immune evasion

strategies, and emerging translational insights. By highlighting key knowledge

gaps and future directions, we argue that harnessing CD1-restricted T cells

could unlock novel vaccine strategies against the world's leading infectious

killer.

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DOI: 10.3389/fimmu.2025.1629466

PMCID: PMC12286804

PMID: 40709176 [Indexed for MEDLINE]

**46. Indian J Tuberc. 2025 Jul;72(3):451-452. doi: 10.1016/j.ijtb.2024.11.001. Epub 2024 Nov 5.**

Rare presentation of pulmonary tuberculosis as diffuse alveolar hemorrhage.

Malegaonkar SK(1).

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DOI: 10.1016/j.ijtb.2024.11.001

PMID: 40707104

**47. Indian J Tuberc. 2025 Jul;72(3):438-440. doi: 10.1016/j.ijtb.2024.09.003. Epub 2024 Sep 5.**

Primary tonsillar tuberculosis: A challenging clinical diagnosis a cases series.

Ayadi S(1), Ghorbel S(2), Ben Ayed M(2), Kharrat R(2), Sallami M(2), Kallel

S(2), Chaabouni A(2), Charfeddine I(2).

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Hospital, University of Sfax, Sfax, Tunisia.

Tonsillar tuberculosis, a rare observed presentation of Mycobacterium

tuberculosis affecting the palatine tonsils. Often secondary and associated with

concurrent pulmonary tuberculosis, it may clinically manifest as chronic or

recurrent tonsillitis, occasionally mimicking malignant conditions. Diagnosis of

this condition is often delayed and complex, frequently necessitating

histopathological examination for confirmation. Its management predominantly

hinges on antitubercular medications.We present two distinct cases of tonsillar

tuberculosis. The first case involves a 64-year-old male receiving anti-TNF

therapy for ulcerative colitis. He was hospitalized for lateral neck swelling

and persistent ulceronecrotic angina despite initial antibiotic treatments.

Tonsillar tuberculosis was suspected and confirmed by histopathological

analysis. The second case involves a 46-year-old female presenting with right

ulceronecrotic angina associated with ipsilateral jugulo-carotid adenopathy. The

diagnosis of caseous-follicular tonsillar tuberculosis was confirmed by biopsy.

The patient was initiated on antitubercular treatment for a period of 6 months,

resulting in a significant improvement in symptoms. Neither patient had

pulmonary tuberculosis.

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DOI: 10.1016/j.ijtb.2024.09.003

PMID: 40707101 [Indexed for MEDLINE]

**48. Indian J Tuberc. 2025 Jul;72(3):424-437. doi: 10.1016/j.ijtb.2025.01.001. Epub 2025 Jan 10.**

Structure and mechanism basis of β-lactam activity against Mycobacterium

tuberculosis: A review of literature.

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Tuberculosis (TB), caused by the infectious agent Mycobacterium tuberculosis

(Mtb), has resulted in the highest mortality rates, even surpassing HIV/AIDS.

The rise of Drug-resistant TB has worsened the health crisis and urgently

requires new treatment approaches. The WHO has approved the repurposing of

β-lactam in combination with β-lactamase (BlaC) inhibitor for treating

MDR/XDR-TB. Numerous targets of β lactams present in the Mtb's cell wall are

involved in its structural cytoskeleton, peptidoglycan (PG) biosynthesis.

Delving into the mechanistic basis of β-lactam activity against Mtb has become a holistic approach towards developing new kinds of β-lactams and

ß-lactamase-inhibitors against Mtb. This work comprehensively reviews the

literature-landscape of the structure and mechanism of β-lactams binding to

different PG enzymes and the β-lactamase inhibitors that can inhibit BlaC in

Mtb.

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DOI: 10.1016/j.ijtb.2025.01.001

PMID: 40707100 [Indexed for MEDLINE]

**49. Indian J Tuberc. 2025 Jul;72(3):418-423. doi: 10.1016/j.ijtb.2024.12.003. Epub 2024 Dec 27.**

A synthesis of qualitative evidences regarding the barriers, challenges, and

facilitators of self-care management among individuals with tuberculosis: A

narrative review.

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India.

Many people identify tuberculosis as a complex disease that requires a wide

range of restrictions, lifestyle changes, and behavioral changes. Well-managed

tuberculosis necessitates specific self-care management behaviors to not only

control the disease but also prevent drug resistance and future complications.

This narrative review summarizes barriers, challenges, and facilitators related

to self-care management among individuals with tuberculosis. We conducted a

literature search using keywords and MeSH terminologies from the databases

PubMed, Scopus, and CINAHL. We also performed a manual search of the references

listed in the articles selected for review. Several barriers, challenges, and

facilitators surround the self-care management of tuberculosis (TB). Barriers

such as psychological factors (social isolation, shame, discrimination),

treatment-related factors, healthcare system limitations, economic

confrontation, and a knowledge-awareness gap hinder self-care management among

TB patients. However, there are few facilitators to assist the individual in

adhering to self-care management of tuberculosis, such as patient-Centred

support, community and family engagement, technological and logistical

innovations, enhanced knowledge and advocacy, and government and policy

interventions. The efforts to remove obstacles are excellent, aiding individuals

in improving their quality of life and achieving positive outcomes.

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DOI: 10.1016/j.ijtb.2024.12.003

PMID: 40707099 [Indexed for MEDLINE]

**50. Indian J Tuberc. 2025 Jul;72(3):409-417. doi: 10.1016/j.ijtb.2024.10.004. Epub 2024 Oct 12.**

Single stage total hip replacement in active tuberculosis of hip: A systematic

review and meta-analysis.

Kumar V(1), Barik S(2), Prajapati S(3), Das LS(4), Raj V(5).

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India. Electronic address: drvikashraj@gmail.com.

Total hip replacement (THR) in the tuberculous (TB) hip joint can be done in the

same sitting or in a staged manner. The study aimed to analyse evidence within

the current literature on single-stage THR in active TB hip in terms of duration

and regimen of anti-tubercular treatment (ATT), timing of surgery, approach to

hip, additional surgical procedures done, implants used, complications and

outcomes. Articles were searched according to Preferred Items for Systematic

Reviews and Mata Analysis (PRISMA) format. The inclusion criteria for the

articles were 1) original articles reporting the outcomes of arthroplasty in

active TB hip joint, 2) reporting the timing of ATT with regards to the surgery

and 3) follow up more than 2 years. Post-operative ATT was continued in all the

studies for a period ranging from 9 to 18 months. The mean postoperative Harris

Hip Score (HHS) of all the studies was more than 80, signifying good functional

improvement. Earlier concern regarding the worsening of disease condition seems

misplaced with the current evidence. Ceramic implants are preferred for THR due

to their improved longevity. There is objective improvement in the function of

the joint, after surgery. Adequate ATT and debridement from an inalienable part

of one-stage THR in TB hip joint and post-operative ATT for at least 12 months

or more depending on the inflammatory signs and markers are advised for

successful outcomes.

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PMID: 40707098 [Indexed for MEDLINE]

**51. Indian J Tuberc. 2025 Jul;72(3):401-406. doi: 10.1016/j.ijtb.2024.09.004. Epub 2024 Sep 5.**

Drug resistant tuberculous meningitis: A neglected foe in ending tuberculosis

epidemic.

Inbaraj LR(1), Daniel BD(2), Padmapriyadarsini C(3).

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Treatment outcomes of tuberculous meningitis (TBM), a disease with high

mortality depends on early diagnosis and management. The global and regional

burden of TBM and drug resistant TBM (DRTBM) are largely unknown. DRTBM is

associated with poorer treatment outcomes. The wider use of latest rapid

diagnostic molecular tests including nucleic acid amplification tests paves way

for better management of TBM. There is limited knowledge on the efficacy of

antituberculous drugs in DRTBM, especially the newer drugs regarding their

ability to cross the blood brain barrier and its local bioavailability. Optimal

regimen and duration of treatment for DRTBM that is resistant to one or more

drugs is largely an unexplored area. Simpler point of care diagnostic tests for

Mycobacterium Tuberculosis detection and drug susceptibility testing,

concentration of drugs used for DRTBM in CSF, optimal regimen and duration of

treatment are some of the priority areas of research in DRTBM.

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**52. Indian J Tuberc. 2025 Jul;72(3):394-400. doi: 10.1016/j.ijtb.2024.08.011. Epub 2024 Aug 23.**

Tuberculosis infection prevention and control.

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Tuberculosis (TB) is the second leading infectious cause of death worldwide,

only surpassed by corona virus infection (COVID-19). It is mainly transmitted by

the airborne route via droplet nuclei of 1-5 μm in diameter. The four key

pillars of TB elimination are "Detect-Treat-Prevent-Build." There are enough

evidences of healthcare-associated transmission of TB. Prevention of TB

transmission in the healthcare settings is thus an important strategy. The goal

of TB infection prevention and control (IPC) is to reduce the likelihood that

populations may contract M.tuberculosis by using variety of strategies. The

strategies include three levels hierarchy of controls. These include

administrative controls, environmental controls, and respiratory protection.

This review will discuss the various strategies for TB infection prevention and

controls.

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**53. Indian J Tuberc. 2025 Jul;72(3):386-393. doi: 10.1016/j.ijtb.2024.10.010. Epub 2024 Oct 30.**

An observational study on the spectrum of cutaneous adverse reactions to

antitubercular drugs and their management.

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**INTRODUCTION:** Tuberculosis (TB) remains a significant global health issue,

ranking as the 13th leading cause of death worldwide. Management of tuberculosis

requires administration of multiple drugs for varied duration which increases

the risk of developing adverse reactions. Among various adverse reactions are

cutaneous adverse reactions (CARs) which can be immune mediated or non immune

mediated.

**AIM:** 1. To study the clinical, epidemiological, and morphological

characteristics of cutaneous adverse reactions resulting from antitubercular

treatment. 2. To study the outcomes of cutaneous adverse reactions to

antitubercular therapy using the Modified Hartwig and Seigel severity assessment

scale and rechallenge protocol, and assess the effectiveness of management

strategies.

**METHODOLOGY**: A longitudinal observational study was conducted over a period of

1 year at department of Pulmonology and Dermatology at tertiary care institute

to assess CARs in patients on antitubercular treatment. Rechallenge was done in

eligible patients.

**RESULTS:** Among 3164 TB patients on anti-tubercular treatment (ATT), 56 developed

CARs, yielding an incidence rate of 1.77% per year. The study found female

preponderance, with the most affected age groups being 21-30 and 41-50 years.

Most CARs occurred within the first 30 days of ATT initiation, predominantly

manifesting as maculopapular rash. Factors such as multiple medication use,

diabetes, elderly age, and positive HIV status were associated with CARs.

Ethambutol was identified as the most frequently implicated drug in the

occurrence of cutaneous adverse reactions (CARs) upon rechallenge.

**CONCLUSION:** Effective management of CARs involves appropriate treatment, careful

monitoring, and rechallenge protocols to identify culprit drugs while minimizing

the risk of severe reactions.Upon complete resolution of initial adverse

reaction, one must do rechallenge meticulously to pinpoint culprit drug and

ensuring effective tuberculosis treatment.

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**54. Indian J Tuberc. 2025 Jul;72(3):380-385. doi: 10.1016/j.ijtb.2024.10.005. Epub 2024 Oct 12.**

Cost-effective analysis of active case finding (ACF) strategy to detect

pulmonary tuberculosis (PTB) in selected public health care facilities of the

northern state, India.

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**BACKGROUND:** In addition to passive case finding (PCF), active case finding (ACF)

strategy under National Tuberculosis Elimination Program is a vital secondary

prevention intervention under National Strategic Plan (NSP). The present study

was conducted to assess ACF's cost-effectiveness compared to PCF in selected

public health facilities for the detection of presumptive TB cases under NTEP.

**MATERIAL AND METHODS:** A cross-sectional study was carried out in randomly

selected seven public health facilities of a health block of one district of

Himachal Pradesh. Bottom-up costing method was used with bootstrapping of

results to assess incremental cost-effectiveness ratio (CEAC) and

cost-effectiveness acceptability curve (CEAC).

**RESULTS:** Mean cost for ACF and PCF with US$ 3325.8 and 3006.0 respectively to

detect all presumptive PTB cases; and US$ 4121.2 and to US$ 3709.0 to confirm

all PTB cases. Below WTP threshold (per capita income US$ 2735), WTP 80.3% of

simulated ICER values were cost-effective. CEAC showed that saturation was

achieved around US$ 300 indicating a likely WTP threshold at which 79.5% of

simulated values were cost-effective. For both strategies, One way sensitivity

analysis showed the cost is influenced mostly by human resources.

**CONCLUSION:** Current study used bottom-up costing method in public health care

facilities observed ACF as a cost-effective strategy in reaching out for

presumptive PTB. The major cost driver in both strategies is human resource for

training, travelling, and administration.

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**55. Indian J Tuberc. 2025 Jul;72(3):375-379. doi: 10.1016/j.ijtb.2024.08.022. Epub 2024 Sep 2.**

Clinical spectrum of tuberculosis in adolescents (10-19 years) in a tertiary

care center of North India.

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**BACKGROUND\OBJECTIVES:** There is limited literature available to characterize

tuberculosis (TB) in adolescents despite them sharing a high burden of the

disease. Ours is the first prospective study in India and worldwide to study the

clinical profile of tuberculosis in adolescents aged 10-19 years.

**METHODS:** We enrolled 82 children and adolescents between March 2021 to March

2022. The diagnosis of TB was made on the basis of National Tuberculosis

Elimination Program (NTEP) guidelines 2020. Adolescents were divided into 3 age

groups: early (10-13 years), middle (14-17 years), and late adolescents (18-19

years)and the results were compared among the three groups. A two-sided p value

of <0.05 was considered statistically significant.

**RESULTS:** The middle age adolescents comprised majority of our study population

and females were more than males. The common presenting features were fever,

chest pain, breathing difficulty with majority belonging to lower socioeconomic

status. The pulmonary TB accounted for 56% and extrapulmonary constituted 44% of

the cases. The notable extrapulmonary cases were disseminated TB with secondary

lymphangiectasia, compressive myelopathy, sacroiliac joint arthropathy among

others. Infiltrates/consolidation were the most frequent radiological findings

in patients with pulmonary TB. The microbiological confirmation was available in

44% of the cases. The microbiological positivity was higher in histopathological

specimens and in late adolescents. Two patients were rifampicin resistant.

**CONCLUSION:** There was a varied clinical presentation of TB in this population.

The extrapulmonary cases as well as the microbiological yield increased with

increasing age of the cases.

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**56. Indian J Tuberc. 2025 Jul;72(3):367-374. doi: 10.1016/j.ijtb.2024.08.021. Epub 2024 Aug 31.**

"Intensified case finding of tuberculosis among diabetes mellitus patients

attending non-communicable disease clinic in a tertiary care hospital - An

implementation research".

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**BACKGROUND:** For ending the epidemic of TB by the year 2030, along in line with

Sustainable Development Goals, it is essential to address the TB associated

co-morbidities. Prevalence of diabetes influencing TB incidence and mortality is

higher when compared to other co-morbidities like HIV infection, smoking,

alcoholism and malnutrition. Therefore, this study was conducted with the

following objectives: 1.To evaluate the effectiveness of the intervention on

implementation of TB-DM collaborative activity using four symptom complex

strategy and to explore the patient and healthcare providers related factors

that contribute in implementation of the activity.

**MATERIAL AND METHODS:** The present study was undertaken by Department of

Community Medicine, Sri Manankula Vinayagar Medical College and Hospital,

Puducherry for a period of 18 months in the Out Patient Departments of General

Medicine, General Surgery, Obstetrics and Gynecology, Orthopedics, DOTS center

and Designated Microscopy Centre. It was an embedded sequential experimental

study, done among the health care professionals (CRRI, Postgraduates and staff

nurse) who were involved in process of 4s complex screening for DM patients and

the stakeholders who were involved in implementation of NTEP activity. The study

was conducted in three phases.

**PHASE I:** baseline survey and identification of intervention strategies, **Phase**

**II:** implementation of the intervention and **Phase III**: end line survey.

**DATA ENTRY AND ANALYSIS:** Manual content analysis was done for Qualitative data.

The Quantitative data were entered into Epi Info software (version 7.2.2.6) and

analyzed in SPSS software (version 24). Comparison of knowledge among the health

care professionals before and after sensitization was calculated using Mc nemar

test. It was considered statistically significant when the p value was <0.005.

The analysis of free list and pile sort data was undertaken using Anthropac

4.98.1/X software.

**RESULTS:** Challenges obtained from stakeholders in implementing the activity were

categorized as patient related factor, health care professional related factor

and screening and reporting related factor. Suggested solutions were generating

awareness at patient level, display of IEC tools, periodical sensitization for

the staff, inter-departmental co-ordination, monitoring and re-enforcing the

activity in core-committee meetings. After sensitization, the knowledge on joint

TB-DM collaborative activity was significantly improved among the health care

professionals. By implementing the four symptom complex screening activity in

NCD clinic, 6480 DM patients were screened and 176 (2.7%) presumptive TB cases

were identified. Of which, 136 of them reached DMC for sputum examination. Among

them 44 (35.4%) had active TB infection. The Number Needed to Screen to yield a

case of TB was 147.

**CONCLUSION AND RECOMMENDATIONS:** We found improvement in identification of TB

cases using ICF approach with minimal resources. Thus, we recommend a support

group to maintain and strengthen the ongoing activity. The challenges and

solutions identified may help in optimizing the screening process. Implementing

the activity in special clinics like oncology OPDs, nephrology OPDs, antenatal

clinics can be recommended.

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**57. Indian J Tuberc. 2025 Jul;72(3):362-366. doi: 10.1016/j.ijtb.2024.08.014. Epub 2024 Aug 22.**

Evaluation of treatment outcome in extrapulmonary tuberculosis: A mixed method

study from Puducherry.

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**BACKGROUND:** Extrapulmonary tuberculosis (EPTB) is also a public health problem

and involves other parts of the body other than lung. During the quarterly

review meeting of State Task Force (STF), Puducherry the members raised concern

about the outcome of patients referred from the medical colleges. Even though we

receive 60 % feedback of initiation of treatment from the PHI but the treatment

outcome of EPTB is not clear. Hence primary agenda of this research was to

identify the gap in adherence to diagnostic criteria and treatment.

**AIM:** To assess the methods adopted for diagnosis of EPTB and to find out the

compliance and outcome of the treatment and to identify the patient and health

providers related factors that contribute to the outcome of the treatment.

**MATERIAL AND METHOD:** Study design: An explanatory mixed method study.

**DATA COLLECTION:** The information on methods adopted for diagnosis and category

of treatment followed in EPTB was extracted from TB register and patient record

sheets from the Medical College. House visits was made to trace the patients and

the information related to duration of treatment and the outcome of treatment

was found. Free listing was conducted to explore the reasons (facilitating and

barriers) contributed to the outcome of the EPTB patients.

**DATA ANALYSIS:** Using EpiData (version 3.1, EpiData Association, Odense,

Denmark), data was entered and analysed. The qualitative data was entered and

analysed using Visual Anthropac (Ver\_1.0.1.36; Analytic Technologies, Inc., USA)

software package.

**RESULTS:** More than three-fourth (83.6%) of the patients completed extrapulmonary

tuberculosis treatment. The site of EPTB emerged as significant predictor for

disease outcome. The most salient facilitating factors and barriers contributed

to the outcome of treatment were "periodic reminders and care by the family

members" and Side effects such as giddiness, loss of sleep and appetite,

discolouration of urine, gastritis, difficulty in breathing and walking,

swelling of legs, weight and hair loss and myalgia" respectively.

**CONCLUSION:** The study found that there is good compliance and outcome in

treatment outcome. Efforts should be made to overcome the barriers to the

outcome of treatment.

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**58. Indian J Tuberc. 2025 Jul;72(3):358-361. doi: 10.1016/j.ijtb.2024.08.013. Epub 2024 Aug 22.**

Screening hemodialysis patients for tuberculosis in Sudan.

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Na Mohamed S(5), Ma Osman T(6), Aa Abdulla M(3), Mm Babiker S(3), Mah Abubaker

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**OBJECTIVES:** To estimate the prevalence of latent tuberculosis infection (LTBI)

and the need for TB preventive treatment (TPT) among hemodialysis (HD) patients

in Sudan.

**METHODS:** We screened patients in a single HD center by two-step tuberculin skin

test (TST), symptom survey, physical examination and chest radiography (CXR).

**RESULTS:** The survey included 204 patients, five of whom (2.5%) had history of

previously treated TB. The proportion of TST positive patients was 12.3% after

the first test and increased to 21.1% after the second test. Patients previously

treated for TB were more likely to have positive TST (80 vs 20.1%, p = 0.01). We screened 184 patients for TB disease; 16.3% were symptomatic, 15.8% had CXR

abnormality and 6.5% were symptomatic with CXR abnormality. Additionally, 13.6%

of patients had physical signs consistent with extra-pulmonary TB without

symptoms or CXR abnormality. Based on these findings, high probability of

pulmonary and extra-pulmonary TB was found in 38.6% and 13.6% of patients

respectively and they were referred for bacteriological confirmation. We

diagnosed LTBI and prescribed TPT to 9.2% of screened patients.

**CONCLUSION:** In this cohort of Sudanese HD patients, 21.1% were positive after

two-step TST and 52.2% were considered to have high probability of TB disease.

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**59. Indian J Tuberc. 2025 Jul;72(3):354-357. doi: 10.1016/j.ijtb.2024.08.012. Epub 2024 Aug 22.**

Catastrophic cost and coping strategies of tuberculosis patients in a block of

Purba Bardhaman District, West Bengal: A crossectional study.

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**BACKGROUND:** The elevated expenses associated with tuberculosis (TB), can hinder

access to treatment and adherence.

**OBJECTIVES:** This study was done to find out catastrophic cost (defined as 20% of

the total annual income) resulting from treatment and diagnosis of TB, factors

associated with it and delineated the coping mechanisms employed by the affected

individuals and their families.

**MATERIALS AND METHODS:** A cross sectional study was conducted for a period of 6

months, September 2023 to February 2024, among 146 patients registered in the

Tuberculosis Unit (TU) of Bhatar block, Purba Bardhaman District,West Bengal. A

pre validated questionnaire was used for interviewing the patients. Data was

analysed using the principles of descriptive statistics, organised and presented

in the form of tables.

**RESULTS:** Out of 146 tuberculosis (TB) patients, the study revealed mean total

cost incurred for TB-related services amounted to Rs 30,046 ± Rs 9406 with

direct cost of Rs 2964.26 ± Rs 990.3 and indirect cost of Rs 27,406 ± Rs

9,351.54(36.9%) of the study population reported that their families faced

catastrophic costs. Coping strategies like taking loan emerged as the most

prevalent means, with 45(30.8%) patients reporting it followed by selling

livestock which was prevalent among 14(9.6%) of them.

**CONCLUSIONS:** In spite of the implementation of Universal Health Coverage,

TB-affected households still faces the risk of catastrophic total costs. A

cost-mitigation policy and financial protection should be provided additionally

along with better health care facility to all patients.

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**60. Indian J Tuberc. 2025 Jul;72(3):347-353. doi: 10.1016/j.ijtb.2024.08.010. Epub 2024 Aug 17.**

Enhancing tuberculosis care in Madhya Pradesh through public-private

partnerships: An evaluation of the patient provider support agency (PPSA) model.

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**BACKGROUND:** The quality of care that patients receive in the private sector has

been reported to be poor. Madhya Pradesh began adopting the PPSA model in

September 2020, initially covering 44 districts. By April 2022, the state

achieved 100% coverage, becoming the first state in the country to implement

PPSA across all 52 districts. Although PPSA is now operational in every

district, health indicators in the private sector have shown little improvement,

and notifications from the private sector remain significantly below the annual

targets The patient provider support agency (PPSA) pilot program has

demonstrated newer strategies for private sector engagement to be able to

deliver significant outcomes. the study explores the strengths and limitations

of the private sector engagement model from the healthcare providers'

perspective.

**METHODS:** This was a mixed-methods study in which both quantitative and

qualitative data were simultaneously collected. Quantitative data collection

(using routinely collected programmatic data) is supported by qualitative data

collection (in-depth interviews). This study was conducted to study the impact

of the PPSA service implementation model on notification status, patient care

activities and outcomes through record review among all 52 districts of Madhya

Pradesh between October 2020-December 2022 as well as to explore the strengths

and limitations of the PPSA model from the healthcare providers' perspectives

using a mixed-methods approach.

**RESULT:** There was a increase in the number of TB patients notified in the

private sector (62%), number of patients receiving benefits of the Nikshay

Poshan Yojna through Direct Bank Transfer (91%), number of patients tested for

Human Immunodeficiency Virus (100%), Diabetes, and universal drug susceptibility

testing (25%), as well as successful treatment outcomes in the post-PPSA period

as compared to the pre-PPSA period. Seventeen in-depth interviews of health care

providers from the public (n = 8) and private sector (n = 9) highlighted the

operational challenges and solutions to implementation of the PPSA. Inadequate

Human resource, poor coordination with NTEP Staff, poor mapping of PP's, mobile

based counselling & limited home visit to TB patients were the perceived

challenges and regular support to the private health facilities and MIS data,

trainings and hand-holding, supportive supervision from the State, and strict

need based tendering policies were few of the suggestions to improve the PPSA

model were some of the solutions.

**CONCLUSION:** The implementation of the Patient Provider Support Agency (PPSA)

model in Madhya Pradesh has not only improved notification rates and successful

treatment outcomes but also strengthened the overall engagement of private

healthcare providers in TB management. Enhanced collaboration, regular facility

mapping, and sustained educational efforts have led to a more robust approach to

TB care that extends across both public and private sectors. While challenges

such as funding inconsistencies and service delivery fluctuations highlight

areas for further improvement, the overall success of the PPSA model in Madhya

Pradesh provides a promising framework for other regions aiming to enhance TB

care through public-private partnerships. Future efforts should focus on

addressing the identified gaps and scaling up these successful practices to

ensure high-quality care for all TB patients, irrespective of where they seek

treatment.

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**61. Indian J Tuberc. 2025 Jul;72(3):342-346. doi: 10.1016/j.ijtb.2024.08.008. Epub 2024 Aug 13.**

Sensitivity and specificity of Xpert MTB/RIF for extrapulmonary non-spinal

osteoarticular tuberculosis.

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**BACKGROUND:** Conventional diagnostics for Osteoarticular Tuberculosis (OATB) are

slow and prone to inaccuracy due to low bacterial load, delaying treatment.

Xpert MTB/RIF is WHO-recommended for TB cases, but there is a dearth of

literature for non-spinal OATB.

**METHODS:** In a 4-year study (Sept 2016-Feb 2020), non-spinal osteoarticular

infections were retrospectively analyzed. Xpert MTB/RIF sensitivity and

specificity were evaluated against tuberculosis defined by histology and culture

against patients having culture-isolated pyogenic infections as a reference

standard for negative tuberculosis.

**RESULTS:** Among 26 OATB patients, 2 were culture-positive, 4

histopathology-positive, and 2 positive for both. The overall results of Xpert

MTB/RIF were 86.9% negative predictive value (NPV), 100% specificity, 100%

positive predictive value (PPV), & 65.3% sensitivity.

**CONCLUSION:** The sensitivity & specificity of Xpert MTB/RIF in non-spinal OATB

are lower, despite its effectiveness in diagnosing pulmonary tuberculosis.

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PMID: 40707086 [Indexed for MEDLINE]

**62. Indian J Tuberc. 2025 Jul;72(3):337-341. doi: 10.1016/j.ijtb.2024.08.007. Epub 2024 Aug 13.**

Assessment of airborne infection control practices at health care facilities of

Tumkur District, Karnataka: A descriptive study.

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Tumkur,Karnataka, India.

**INTRODUCTION:** Tuberculosis (TB) is a major health hazard in India and is one of

the leading causes of death worldwide. Airborne transmission of infectious

disease is a major public health concern. Adherence to the airborne infection

control (AIC) is crucial to prevent spread of TB among patients who visit health

care facilities and among the health care staff.

**OBJECTIVES:** To assess the airborne infection control practices at health care

facilities of Tumkur.

**METHOD:** ology: This descriptive study was conducted in 85 public health

institutes in 5 TB units of Tumkur. Data was collected using pre-tested;

semi-structured questionnaire through personal interview, verification of

records and inspection using WHO check-list.

**RESULTS:** The present study showed infection control committee and infection

control plan were present in 97.65% and 90.59%, clinical staff underwent

periodic TBIC training in 91.76% of PHIs. Waiting area and sputum sample

collection area were well-ventilated in 97.65% & 97.65% of PHIs. Health workers

practiced hand hygiene in 90.59%, PPEs were available in 85.06% PHIs.

**CONCLUSION:** The study concludes that, airborne infection control measures which

includes administrative, environmental, and use of personal protective equipment

were satisfactory among the PHIs but still there is scope for improvement.

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PMID: 40707085 [Indexed for MEDLINE]

**63. Indian J Tuberc. 2025 Jul;72(3):332-336. doi: 10.1016/j.ijtb.2024.08.001. Epub 2024 Aug 8.**

Yield from active case finding of tuberculosis cases among tribal population.

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Sciences, Rajkot, Gujarat, India.

**BACKGROUND:** For underdeveloped nations like India, tuberculosis (TB) ranks high

among the top killers. The global death toll from tuberculosis is 1.5 million.

In addition to setting a goal of elimination by 2025, India has made

Tuberculosis (TB) a priority in its Sustainable Development Goals (SDG). The

government has initiated Active Case Finding (ACF) to conduct house-to-house

surveys and identify cases in order to reach the target. The purpose of this

research is to assess the results of ACF in tribal district.

**METHODS:** All tuberculosis (TB) cases reported through the ACF process within a

certain time period were included in the present cross-sectional analysis, which

comprised all villages of Chhota udepur district. In order to conduct the study

among the tribal community, the Health and Family Welfare Department provided

funding and approval.

**RESULTS:** Among all reported cases, 3828 presumptive TB cases were identified in

2019, 3033 in 2020, 3256 in 2021, 2956 in 2022 and 3047 in 2023. In 2019, 89

tuberculosis patients were diagnosed and enrolled in treatment. This increased

to 118 patients in 2020, 95 in 2021, 115 in 2022 and 103 in 2023 because of ACF

activity. Considering the number of people screened for each year, the ACF

screening yield of 760 per 1 lakh in 2019 slightly increased to 820 per lakh

population in 2020, 780 per lakh population in 2021, 1002 per lakh population in

2022 and 950 per lakh population in 2023. This increased the total case

reported.

**CONCLUSION:** As a result of the effects of Active Case Finding, the study found

that the reporting of tuberculosis cases in the tribal district increased.

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DOI: 10.1016/j.ijtb.2024.08.001

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**64. Indian J Tuberc. 2025 Jul;72(3):325-331. doi: 10.1016/j.ijtb.2024.06.002. Epub 2024 Jun 6.**

Tuberculosis preventive treatment among the household contacts of tuberculosis

patients - Coverage and correlates in a block of Murshidabad district, West

Bengal: A cross-sectional study.

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India. Electronic address: ritughoshchowdhury@gmail.com.

**BACKGROUND:** India started implementing tuberculosis preventive treatment (TPT)

among all household contacts of Tuberculosis (TB) cases, as a globally accepted

strategy for elimination of TB.

**OBJECTIVES:** We aimed to assess the extent of TPT coverage and adherence;

ascertain the reasons for non-initiation and non-adherence; and to determine the

correlates of coverage.

**METHODS:** We conducted a cross-sectional study in a block of Murshidabad

district, West Bengal during September-November'2023. A calculated sample of 301

eligible household contacts of 'index cases' (microbiologically-confirmed

drug-sensitive pulmonary TB) registered during October'22 to March'23 were

studied. We interviewed the participants/respondents with pre-designed schedule

and prior informed consent. Descriptive and inferential statistics were applied

through Statistical Package for Social Sciences (version 20).

**RESULTS:** Of 301 contacts, 179(59.5%) individually traced/counseled at the

household; 238 (79.1%) were screened for TB symptoms. TPT initiation was 74.8%

(225/301) with 47.1% within seven days of treatment initiation of index case;

TPT not offered by health personnel (59.2%) being major reason for

non-initiation. Completion rate with adherence to full course was 69.3%

(156/225); perceived lack of need (50.7%) and migration (21.7%) being major

reasons for non-adherence. Overall coverage of full course TPT among total

eligible contacts was only 51.8% (156/301). On multivariable logistic

regression; male gender (aOR = 1.982; 95% CI = 1.004-3.915), contacts with

individual tracing/counseling (aOR = 13.507; 95% CI = 6.781-26.906) and who had symptoms screening (aOR = 5.694; 95% CI = 2.223-14.587) predicted significantly higher TPT coverage.

**CONCLUSION:** Cascade of care indicators for TPT remains suboptimal in the area

and indicates need for further strengthening of programmatic aspects of its

implementation.

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PMID: 40707083 [Indexed for MEDLINE]

**65. Indian J Tuberc. 2025 Jul;72(3):319-324. doi: 10.1016/j.ijtb.2024.05.011. Epub 2024 May 31.**

Clinical characteristics, radiological pointers and outcomes of central nervous

system tuberculosis.

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**BACKGROUND:** Central nervous system tuberculosis (CNS-TB) is a severe and

aggressive form of tuberculosis with a high mortality. With early identification

and appropriate therapy, it carries a good outcome.

**AIM:** To identify the clinical characteristics, radiological pointers, and

outcomes of central nervous system tuberculosis.

**METHODS:** Single-center retrospective study was conducted from January 01, 2018

to December 31, 2022 on patients diagnosed with CNS-TB.Adult patients with at

least nine months of follow-up were included. Those seropositive for HIV or lost

to follow-up before treatment completion were excluded. Variables were expressed

as mean with standard deviation, median, and range. Chi-square and student's

t-test for qualitative and quantitative variables were used.

**RESULTS:** 158 records were reviewed, and 56 were excluded. 102 patients were

included with 90(88.23 %) cases of tubercular meningitis(TBM) and 12 (11.76 %)

cases of isolated tuberculoma. There were 22(24.44 %) and 63(70.00%) cases of

definite and probable tuberculous meningitis. Leptomeningeal enhancement

(79.41%)and hydrocephalus (42.22%)were noted commonly. All cases of TBM and

tuberculoma completed 9-12 months of anti-tubercular treatment. Dexamethasone

was given to all patients with TBM for 6-12 weeks. One patient with

biopsy-proven isolated tuberculoma received up to 24 months of ATT. Nine

patients with TBM died(9/102,8.82 %). Grade III TBM, age >60 years,

hydrocephalus,drug-induced hepatitis, and extra-neural tuberculosis were

significant in the expired versus survivors comparison (p < 0.05).

**CONCLUSIONS:** Early identification, appropriate ATT regimen, and duration of

treatment are associated with a good outcome in this fatal and disabling

disease.

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**66. Indian J Tuberc. 2025 Jul;72(3):312-318. doi: 10.1016/j.ijtb.2024.05.010. Epub 2024 May 31.**

Latent tuberculosis infection care cascade among the household contacts of

pulmonary tuberculosis patients - Findings from an urban feasibility study.

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**INTRODUCTION:** Latent Tuberculosis infection (LTBI) care cascade involves

identification of high-risk individuals, testing, identification of LTBI,

initiation of Tuberculosis Preventive therapy (TPT) and documentation of

outcomes. There is a dearth of such evidence in Indian setting which needs to be

further explored. Hence, this feasibility study with public private engagement

was conducted with the primary objective of estimating the prevalence of LTBI

among household contacts (HHCs) of pulmonary tuberculosis patients using

Interferon gamma release assay (IGRA). Secondary objective was to determine the

treatment outcomes among the patients of LTBI initiated on TPT.

**METHODS:** This longitudinal community-based study was conducted in wards 47-51 at

urban field practice area of our Tertiary Teaching Institute at Bhopal, Madhya

Pradesh. The household contacts of pulmonary tuberculosis patients diagnosed

from January-June 2022 and those who satisfied the study criteria were

recruited. Those who gave consent for IGRA testing and TPT initiation were

followed up for a period of 6 months to assess the treatment outcomes. Data was

analyzed using R software.

**RESULTS:** Of the 64 HHCs screened, 29 were the contacts of microbiologically

positive and 35 were the contacts of clinically diagnosed index Tb patients

including 4 under five children. Prevalence of LTBI using IGRA was 74.5%. The

Contact Investigation Coverage in the urban setting was 77.1% with TPT

completion of 72.4% and TPT Coverage of 55.7%. The median time for screening the

HHCs since the diagnosis of index case was 14 days while screening to diagnosis

was 2.5 days and that of TPT initiation from diagnosis was 22 days.

**CONCLUSION:** More than half of those who were tested using IGRA were positive for

LTBI. Th public private coordination helped in narrowing the time interval from

diagnosis of index tb case to contact tracing and improving the TPT adherence

among the HHCs. However, intensive efforts are required to narrow the screening

gap of HHCs and TPT initiation. Also, reasons for loss to follow up and missed

doses needs to be qualitatively explored.

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**67. Indian J Tuberc. 2025 Jul;72(3):304-311. doi: 10.1016/j.ijtb.2024.05.007. Epub 2024 May 17.**

Study of the results of tuberculosis interferon-gamma release assays before and

after the SARS CoV-2 pandemic.

Jerbi A(1), Feki S(2), Chtourou L(3), Hachicha H(2), Fourati H(4), Ben Amor

F(2), Ben Moallem W(2), Baklouti S(4), Tahri N(3), Masmoudi H(2).

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**BACKGROUND/OBJECTIVES:** Patients infected with SARS-COV-2 were observed to have a

significant occurrence of indeterminate results in interferon-gamma (IFN-ɣ)

release assays (IGRAs). However, the results of IGRAs in a post-COVID-19

pandemic context were not studied. We aimed to compare the results of the

QuantiFERON®(QFT)-TB Plus test before and after the SARS-CoV-2 pandemic.

**METHODS:** We conducted a comparative study at the Immunology department comparing

two groups of QFT-TB requests received for the screening of latent tuberculosis

infection (LTBI): (A) a control group: including QFT-TB tests received before

the COVID-19 pandemic (January 2018-December 2019), and (B) a "post-pandemic"

group including QFT-TB tests performed between January and December 2022.

**RESULTS:** The study included 122 patients, with an average age of 44 years

(standard deviation: 1.27) and a female-to-male ratio of 1.17. Of these, 12%

exhibited lymphopenia, and 41% were undergoing treatment with immunosuppressive

or corticosteroid medications. The control group (n = 60) and the post-pandemic

group (n = 62) had comparable rates of negative and positive QFT-TB results (67%

vs. 86%, and 5% vs. 6%, respectively). Indeterminate QFT-TB results were

significantly higher in the post-pandemic group (8%vs.28%, p = 0.002).

Lymphocyte count was significantly lower in the post-pandemic group (1540/μL

[400-3430] vs. 2035/μL, p = 0.004) but remained within the lower limit of

normal. There was an increased mitogen-induced IFN- ɣ production in the

post-pandemic group (6.89 UI/mL [0.1-10] vs. 3.08[0.12-10], p = 0.007). IFN- ɣ

production in Nil, Tb1, and Tb2 tubes, white blood cell count, and neutrophil

count did not differ between the groups.

**CONCLUSION: I**n a post-pandemic context, the specific response of T-cells to TB

antigens does not seem to be affected. The increased mitogen-induced IFN- ɣ

production contrasting with the decreased lymphocyte count is in favor of a

sustained cellular immune activation.

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PMID: 40707080 [Indexed for MEDLINE]

**68. Indian J Tuberc. 2025 Jul;72(3):298-303. doi: 10.1016/j.ijtb.2024.05.005. Epub 2024 May 10.**

Anti-TB treatment non-adherence predictors: A multi-center cross-sectional study

in Kandahar, Afghanistan.

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Education, Kandahar, Afghanistan.

**BACKGROUND:** Adherence to anti-TB treatment in low- and middle-income countries

(LMICs), including Afghanistan, is critical for global TB control.

**OBJECTIVES: W**e aimed to determine anti-TB treatment non-adherence prevalence and

its predictors in Kandahar, Afghanistan.

**METHODS:** We conducted a multi-center cross-sectional study of 579 TB patients in

Kandahar, using a systematic random sampling method, and collected their data on

sociodemographic attributes, clinical factors, and mental health. The eight-item

Tuberculosis Medication Adherence Questionnaire (TBMAQ) was used for labeling TB

patients as adherent or non-adherent. We assigned a score of ≤4 (the cut-off) as non-adherence. We performed the multivariable logistic regression to probe

significant predictors of non-adherence.

**RESULTS:** The non-adherence rate in this study was 66.8% (95% CI: 62.9-70.5).

Being uneducated (AOR = 1.66, 95 % CI: 1.09-2.53), having a comorbid medical

condition (AOR = 2.57, 95 % CI: 1.39-4.74), feeling stigmatized for having TB

(AOR = 9.25, 95 % CI: 4.72-18.1), and having a comorbid depression (AOR = 1.77,

95 % CI: 1.16-2.71) were associated with non-adherence.

**CONCLUSION:** Anti-TB treatment adherence needs to be prioritized among TB

patients overall, particularly in those with a low level of education,

comorbidity, perceived TB-related stigma, and comorbid depression with

consistent evidence of increased non-adherence.

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**69. Indian J Tuberc. 2025 Jul;72(3):283-289. doi: 10.1016/j.ijtb.2024.04.007. Epub 2024 Apr 19.**

"The validation of a multidimensional tool to test knowledge, barriers, and the

challenges in screening for Tuberculosis among patients with Diabetes Mellitus".

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**BACKGROUND:** The National Coordination Committee (NCC) for the National

Tuberculosis Elimination Programme (NTEP) has mandated bi-directional screening

for Tuberculosis(TB) and Diabetes Mellitus(DM). The study aims to validate a

multidimensional tool to assess the correct knowledge of TB and the barriers and

facilitators to TB screening in DM patients.

**AIM/OBJECTIVES:** To develop and validate a tool for assessing knowledge,

barriers, and challenges in TB screening among DM patients by figuring out the

Content Validity Ratios and Indices.

**METHODS AND MATERIALS:** A multidimensional scale using deductive methods was

designed. Between January 2023 and March 2023, ten subject matter experts were

contacted in person or by email to validate the tool. Item Impact Score (IIS,

Face Validity), Lawshe's Content Validity Ratio (CVR), and Scale Content

Validity Indices (CVI) for relevance were computed. For the final tool, only the

items with Item Impact Scores of ≥1.5, CVRs of ≥0.62, and CVIs of ≥0.62 (p-value <0.05) were taken into consideration.

**RESULTS:** The Item Impact Score (Face Validity) of all the items accepted as

knowledge, barriers, and challenges for TB among DM patients was ≥1.5. Content

Validity Ratios (CVR) for the usefulness of all items related to knowledge,

barriers, and challenges for TB was ≥0.62. The Scale Content Validity Indices

(for relevance), i.e., S-CVI (Average) and S-CVI (Proportional relevance), were

≥0.62 and all the items were accepted.

**CONCLUSIONS:** The score for Item Impact (IIS), Ratios for Content Validity (CVR),

and Indices measuring the content validity of a scale (CVI) in all domains of

the final tool were accepted, which contained 38 items.

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**70. Indian J Tuberc. 2025 Jul;72(3):275-281. doi: 10.1016/j.ijtb.2024.10.001. Epub 2024 Oct 5.**

Tuberculosis in India: Comprehensive SWOC analysis.

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Tuberculosis (TB) is one of the major public health problems which has cursed

humanity for centuries. 45 % of the global incidence of TB and 50% of global

mortality due to TB is contributed by the World Health Organisation (WHO)

South-East Asia (SEA) Region. India is the top contributor to TB burden in the

world. In order to combat TB, India has developed and revised its health program

regularly. India started its effort by launching the National Tuberculosis

Control Programme (NTP) in 1962, which was gradually revised into the Revised

National Tuberculosis Control Programme (RNTCP) in 1993 and now it is known as

the National Tuberculosis Elimination Programme (NTEP) in 2020. In spite of the

WHO's target of ending TB globally by 2035, the Indian government intends to

accomplish this by 2025. NTEP's National Strategic Plan (NSP) 2017-2025 aims to

eliminate TB, by focusing on reducing TB incidence, related deaths, and

out-of-pocket expenditure. NSP 2017-2025 has four pillars: Detect, Treat,

Prevent, and Build. These pillars emphasise the importance of early and accurate

diagnosis of TB; treatment of TB; control and spread of TB infection; and focus

on community participation. Unless the NSP's strengths are not strengthened

further, weaknesses are not addressed, and opportunities and challenges are not

fulfilled, the goal of eradicating tuberculosis will remain a pipe dream. Our

review has focussed on the Strength - Weakness - Opportunities - Challenges

(SWOC) of NTEP highlighting the efforts of the Indian Health System in combating

TB.

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**71. Neurol India. 2025 Jul 1;73(4):678-691. doi:**

**10.4103/neurol-india.Neurol-India-D-24-00443. Epub 2025 Jul 24.**

A Clinico-Immunological Perspective of Paradoxical Reaction in HIV-ve

Tuberculous Meningitis with Therapeutic Possibilities.

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Pradesh, India.

Tuberculous meningitis (TBM) is a critical form of tuberculosis with high

morbidity and mortality. Paradoxical reactions (PR) are frequently observed in

neurotuberculosis, with diverse manifestations. A selective immune

dys/upregulation leads to cytokine surge. The exact immune pathogenesis is not

known. This review explores the established literature-based knowledge in PR in

HIV-ve TBM to visualize the gray zone in neurotuberculosis and possible immune

therapeutic adventures. We undertook this systematic review as per the preferred

reporting items for systematic reviews and meta-analyses guidelines and searched

PubMed, Scopus, Embase, and Google Scholar database till July 25, 2024, to

identify eligible studies focusing on PR in TBM/neurotuberculosis. Quality

assessment followed the protocol of Murad MH et al. Data were synthesized

narratively and statistically analyzed using Microsoft Excel. The search yielded

112 records describing 617 patients. PR is an immune dys/upregulated state in

tuberculosis observed with a median age of 34 years (7-74 years), incidence of

12.7-64.7%, and 9.09-27.8% mortality. The spectrum involved clinical PR

(tuberculomas, hydrocephalus, infarcts, arachnoiditis), imaging PR,

cerebrospinal fluid PR, or in combinations. Treatment in the form of medical

[corticosteroid, thalidomide, intrathecal hyaluronidase, biological (anti-tumor

necrosis factor-alpha/TNF-α agents)], surgery (ventriculoperitoneal shunting)

has shown good clinical response. Immunological and genetic studies in

PR/neurotuberculosis are sparse. Immunological agents like corticosteroid,

thalidomide, biologicals like anti-TNF-α have proven benefit in treating

PR/neurotuberculosis. Research into the neuroimmunological and genetic aspects

of PR is lacking and needs further exploration via predictive models and

randomized therapy-based trials.

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PMID: 40705281 [Indexed for MEDLINE]

**72. Cureus. 2025 Jun 23;17(6):e86606. doi: 10.7759/cureus.86606. eCollection 2025**

**Jun.**

Esophageal Tuberculosis Mimicking Malignancy in an Immunocompetent Patient: A

Case Report.

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Esophageal tuberculosis is a rare manifestation of extrapulmonary tuberculosis,

often misdiagnosed due to its nonspecific clinical features and resemblance to

malignancy. We report the case of a 65-year-old immunocompetent woman with no

prior medical history who presented with an 8-kg weight loss over three months

and progressive dysphagia. Laboratory investigations revealed leukocytosis

without other abnormalities, and HIV serology was negative. Upper

gastrointestinal endoscopy showed an ulcerated and exophytic lesion in the

distal third of the esophagus. Histopathological examination revealed

granulomatous inflammation with caseating necrosis, and PCR

confirmed Mycobacterium tuberculosis. The patient was treated with standard

anti-tuberculosis therapy, an initial two-month quadruple drug regimen followed

by a four-month continuation phase with dual therapy. Marked clinical

improvement was observed after one month of treatment. This case underscores the

importance of considering tuberculosis in the differential diagnosis of

esophageal lesions, even in immunocompetent patients, and highlights the

critical role of systematic biopsy of any lesion during endoscopy, including

those with typical appearances such as ulcerations.

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**eCollection 2025.**

Clozapine and tuberculosis treatment: a case report and literature review.

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**INTRODUCTION:** To date, clozapine is the only antipsychotic approved by the

United States Food and Drug Administration (FDA) for the management of

treatment-resistant schizophrenia. People with serious mental illness are at

higher risk of developing tuberculosis and have worse tuberculosis recovery

outcomes compared to the general population. First-line regimens for acute

tuberculosis often include rifamycins and isoniazid, both of which impact

clozapine metabolism and levels through induction or inhibition of the hepatic

cytochrome P450 (CYP450) enzyme system. There is limited evidence, mostly from

case reports, to guide clinicians in managing clozapine alongside

anti-tuberculosis therapy (ATT).

**LITERATURE REVIEW:** We present 5 case reports of patients with schizophrenia or

schizoaffective disorder who continued clozapine while receiving ATT. In most of

the case reports (n = 3), the ATT regimen included both rifampicin, a CYP450

inducer, and isoniazid, a CYP450 inhibitor. We also review pharmacokinetic

properties of rifampicin and the potential impact of rifamycin-based regimens on

clozapine metabolism and levels.

**CASE PRESENTATION:** We present the case of a 35-year-old prescribed clozapine for

4 years prior to being diagnosed with pulmonary tuberculosis. The patient

continued clozapine and was closely followed in both the inpatient and

outpatient settings while completing a 6-month course of rifampicin, isoniazid,

pyrazinamide, and ethambutol. During ATT, the patient had clozapine and

norclozapine levels measured at least once monthly and maintained stability in

their psychiatric symptoms through adjustment of clozapine and adjunctive

antipsychotic dosages.

**CONCLUSION:** Our case supports previous reports that ATT can influence clozapine

levels. Clozapine dose adjustments will likely be required to maintain clinical

stability and prevent adverse effects, but the management appears to be

patient-specific. We recommend closely monitoring patients' clinical status and

clozapine levels during and after ATT to optimize outcomes.

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**eCollection 2025.**

Bilateral tuberculous psoas abscesses in an immunocompetent patient: a case

report and review of the literature.

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Psoas abscess is a rare infection historically associated with tuberculosis

(TB), although non-tuberculous bacterial causes, particularly Staphylococcus

aureus, have become increasingly common. This type of abscess can be either

primary or secondary, and its diagnosis remains challenging due to the

non-specific nature of clinical signs. Imaging and microbiological analyses are

essential for establishing the diagnosis. We report the case of a 22-year-old

patient with no significant medical history, who presented with persistent

mechanical low back pain for 18 months. Initial computed tomography revealed a

non-compressive disc protrusion, leading to treatment with non-steroidal

anti-inflammatory drugs, without improvement. Further investigations revealed an

extrapulmonary spinal localization of TB in an immunocompetent patient, with

bilateral psoas abscesses caused by Mycobacterium tuberculosis, confirmed by the

Ziehl-Neelsen staining, auramine staining, culture on Löwenstein-Jensen medium

and GeneXpert PCR. Anti-TB treatment was initiated, resulting in favourable

clinical evolution.

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**75. Access Microbiol. 2025 Jul 17;7(7):000960.v4. doi: 10.1099/acmi.0.000960.v4.**

**eCollection 2025.**

Tibial osteitis caused by Mycobacterium tuberculosis.

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Tuberculosis is a major scourge, posing a serious public health problem in

countries where it is endemic. Osteoarticular involvement accounts for 3-5% of

all tuberculosis cases and 10-15% of extrapulmonary tuberculosis cases. We

report a case of tibial osteitis caused by Mycobacterium tuberculosis in a

52-year-old female patient who presented to the trauma department at the

Mohammed V Military Teaching Hospital with a painful swelling of the lower part

of her left leg. Standard X-rays and computed tomography scans revealed bone

involvement, specifically in the tibia. Additional investigations revealed

pulmonary consolidation and splenic nodules. Microscopy (Ziehl-Neelsen

staining), GeneXpert MTB/RIF and histopathological examination all returned

positive results for M. tuberculosis. In an endemic context, any persistent and

atypical bone lesion should raise suspicion of osteoarticular tuberculosis to

enable rapid diagnosis and appropriate therapeutic management. In the absence of

malignant tumours and other differential diagnoses, the diagnosis of skeletal

tuberculosis must be considered, even in the absence of specific clinical signs.

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**76. Ewha Med J. 2025 Apr;48(2):e24. doi: 10.12771/emj.2025.00059. Epub 2025 Mar 19.**

Pathophysiology, clinical manifestation, and treatment of

tuberculosis-associated chronic obstructive pulmonary disease: a narrative

review.

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Chronic obstructive pulmonary disease (COPD) is a leading cause of respiratory

morbidity and mortality, most often linked to smoking. However, growing evidence

indicates that previous tuberculosis (TB) infection is also a critical risk

factor for COPD. This review aimed at providing a comprehensive perspective on

TB-COPD, covering its epidemiologic significance, pathogenesis, clinical

characteristics, and current management approaches. Tuberculosis-associated

chronic obstructive pulmonary disease (TB-COPD) is characterized by persistent

inflammatory responses, altered immune pathways, and extensive structural lung

damage-manifested as cavitation, fibrosis, and airway remodeling. Multiple

epidemiologic studies have shown that individuals with a history of TB have a

significantly higher likelihood of developing COPD and experiencing worse

outcomes, such as increased breathlessness and frequent exacerbations. Key

pathogenic mechanisms include elevated matrix metalloproteinase activity and

excessive neutrophil-driven inflammation, which lead to alveolar destruction,

fibrotic scarring, and the development of bronchiectasis. Treatment generally

follows current COPD guidelines, advocating the use of long-acting

bronchodilators and the selective application of inhaled corticosteroids.

Studies have demonstrated that indacaterol significantly improves lung function

and respiratory symptoms, while long-acting muscarinic antagonists have shown

survival benefits.

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**77. Ewha Med J. 2025 Apr;48(2):e16. doi: 10.12771/emj.2025.00395. Epub 2025 Apr 21.**

Recent advances in pulmonary tuberculosis, the application of deep learning to

medical topics, and highlights from this issue of Ewha Medical Journal.

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**78. Ewha Med J. 2025 Apr;48(2):e23. doi: 10.12771/emj.2025.00052. Epub 2025 Mar 26.**

Impact of pulmonary tuberculosis on lung cancer screening: a narrative review.

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Lung cancer remains a leading cause of cancer-related mortality worldwide.

Low-dose computed tomography (LDCT) screening has demonstrated efficacy in

reducing lung cancer mortality by enabling early detection. In several

countries, including Korea, LDCT-based screening for high-risk populations has

been incorporated into national healthcare policies. However, in regions with a

high tuberculosis (TB) burden, the effectiveness of LDCT screening for lung

cancer may be influenced by TB-related pulmonary changes. Studies indicate that

the screen-positive rate in TB-endemic areas differs from that in low-TB

prevalence regions. A critical challenge is the differentiation between lung

cancer lesions and TB-related abnormalities, which can contribute to

false-positive findings and increase the likelihood of unnecessary invasive

procedures. Additionally, structural lung damage from prior TB infections can

alter LDCT interpretation, potentially reducing diagnostic accuracy.

Nontuberculous mycobacterial infections further complicate this issue, as their

radiologic features frequently overlap with those of TB and lung cancer,

necessitating additional microbiologic confirmation. Future research

incorporating artificial intelligence and biomarkers may enhance diagnostic

precision and facilitate a more personalized approach to lung cancer screening

in TB-endemic settings.

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**79. Ewha Med J. 2025 Apr;48(2):e22. doi: 10.12771/emj.2025.00115. Epub 2025 Apr 2.**

Bridging science and policy in tuberculosis treatment through innovations in

precision medicine, drug development, and cohort research: a narrative review.

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Recent advancements in tuberculosis treatment research emphasize innovative

strategies that enhance treatment efficacy, reduce adverse effects, and adhere

to patient-centered care principles. As tuberculosis remains a significant

global health challenge, integrating new and repurposed drugs presents promising

avenues for more effective management, particularly against drug-resistant

strains. Recently, the spectrum concept in tuberculosis infection and disease

has emerged, underscoring the need for research aimed at developing treatment

plans specific to each stage of the disease. The application of precision

medicine to tailor treatments to individual patient profiles is crucial for

addressing the diverse and complex nature of tuberculosis infections. Such

personalized approaches are essential for optimizing therapeutic outcomes and

improving patient adherence-both of which are vital for global tuberculosis

eradication efforts. The role of tuberculosis cohort studies is also emphasized,

as they provide critical data to support the development of these tailored

treatment plans and deepen our understanding of disease progression and

treatment response. To advance these innovations, a robust tuberculosis policy

framework is required to foster the integration of research findings into

practice, ensuring that treatment innovations are effectively translated into

improved health outcomes worldwide.

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Current and emerging treatment strategies for Mycobacterium avium complex

pulmonary disease: a narrative review.

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The Mycobacterium avium complex (MAC), comprising M. avium and M.

intracellulare, constitutes the predominant cause of nontuberculous

mycobacterial pulmonary disease (NTM-PD) in Korea, followed by the M. abscessus

complex. Its global prevalence is increasing, as shown by a marked rise in Korea

from 11.4 to 56.7 per 100,000 individuals between 2010 and 2021, surpassing the

incidence of tuberculosis. Among the older adult population (aged ≥65 years),

the prevalence escalated from 41.9 to 163.1 per 100,000, accounting for 47.6% of

cases by 2021. Treatment should be individualized based on prognostic

indicators, including cavitary disease, low body mass index, and positive sputum

smears for acid-fast bacilli. Current therapeutic guidelines recommend a 3-drug

regimen-consisting of a macrolide, rifampin, and ethambutol-administered for a

minimum of 12 months following culture conversion. Nevertheless, treatment

success rates are only roughly 60%, and over 30% of patients experience

recurrence. This is often attributable to reinfection rather than relapse.

Antimicrobial susceptibility testing for clarithromycin and amikacin is

essential, as resistance significantly worsens prognosis. Ethambutol plays a

crucial role in preventing the development of macrolide resistance, whereas the

inclusion of rifampin remains a subject of ongoing debate. Emerging therapeutic

strategies suggest daily dosing for milder cases, increased azithromycin dosing,

and the substitution of rifampin with clofazimine in severe presentations.

Surgical resection achieves a notable sputum conversion rate of approximately

93% in eligible candidates. For refractory MAC-PD, adjunctive therapy with

amikacin is advised, coupled with strategies to reduce environmental exposure.

Despite advancements in therapeutic approaches, patient outcomes remain

suboptimal, highlighting the urgent need for novel interventions.

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**eCollection 2025.**

The influence of provider payment mechanisms on TB service provider behavior in

Indonesia: insights from National Health Insurance data and provider

perspectives.

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**BACKGROUND:** The impact of provider payment mechanisms under Indonesia's National

Health Insurance (NHI) scheme on healthcare providers' behavior-particularly in

tuberculosis (TB) service delivery- remains underexplored. This study examines

the consequences of provider payment incentives on TB service provider behavior.

**METHODS:** A mixed-methods study was conducted using quantitative analysis of NHI

claims data from 2015 to 2016 and qualitative data from focus group discussions

with healthcare providers-22 primary care facilities and 14 hospitals across

five provinces-. Quantitative analysis examined TB service utilization patterns,

assessed referral appropriateness based on case complexity, and claim of TB

services. Qualitative data were thematically analyzed to explore factors

influencing provider decision-making in the context of payment mechanisms and

service delivery under the NHI scheme.

**RESULTS:** Findings indicate that primary care facilities refer a high proportion

of TB cases to secondary-level care, even for uncomplicated cases (81% of 782

visits). Secondary care recorded significantly more TB visits than primary care

(5,249 vs. 1,094 visits), resulting in an estimated USD 14.1 million in

potentially avoidable costs for the NHI program. If these cases had been managed

at the primary level, potential cost savings could have been substantial.

Qualitative analysis revealed that provider referral decisions were influenced

by capitation-based payment structures, limited diagnostic tools, absence of

dedicated TB rooms, lack of provider capacity, patient preferences, financial

incentives favoring more profitable diseases, and providers' social ties. The

high rate of up-referrals may negatively impact service quality and TB treatment

outcomes.

**CONCLUSION:** Current provider payment mechanisms under NHI contribute to

inefficiencies in TB service delivery by incentivizing unnecessary referrals to

secondary care. Optimizing payment methods and strengthening implementation by

addressing weak provider capacity at the primary care level could enhance

incentives for primary-level management of TB cases, improving

cost-effectiveness and service quality.

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Afflazier and Pambudi.

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**82. Infect Dis Rep. 2025 Jul 11;17(4):82. doi: 10.3390/idr17040082.**

Mycobacterium bovis Infection Frequently Requires Surgical Intervention in

Individuals with HIV.

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**BACKGROUND**: Zoonotic infection with Mycobacterium bovis continues to occur,

particularly in regions lacking bovine tuberculosis surveillance and where the

consumption of unpasteurized dairy products, including artisanal cheeses, is

common. We describe the clinical and microbiological characteristics, diagnostic

procedures, and treatment outcomes of individuals with HIV with M. bovis

infection.

**METHODS**: We conducted a retrospective study analyzing sociodemographic,

clinical, microbiological, and computed tomography (CT) data, as well as

treatment outcomes, in 12 patients with HIV with confirmed M. bovis infection.

These findings were compared with those of 14 individuals with HIV diagnosed

with Mycobacterium tuberculosis infection during the same period.

**RESULTS:** Consumption of unpasteurized dairy products was significantly

associated with M. bovis. Patients with M. bovis infection had higher CD4+

T-cell counts compared to those with M. tuberculosis infection (p = 0.01, r =

0.45). All M. bovis cases presented with extrapulmonary disease. CT imaging in

M. bovis infection more frequently demonstrated retroperitoneal lymphadenopathy,

hepatosplenomegaly, and splenic abscesses compared to M. tuberculosis infection.

Microbiological identification was exclusively from extrapulmonary sites in all

M. bovis cases. Surgical interventions, including abscess drainage or

splenectomy, were significantly more common among M. bovis patients.

**CONCLUSIONS:** M. bovis infection in individuals with HIV is characterized by

consistent extrapulmonary, often abdominal, involvement. Surgical procedures are

frequently required for both diagnosis and management. Targeted efforts to

identify M. bovis are warranted, particularly in high-burden regions where

unpasteurized dairy consumption remains prevalent.

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PMID: 40700328

**83. Infect Dis Rep. 2025 Jul 8;17(4):81. doi: 10.3390/idr17040081.**

The Role of Type I Interferons in Tuberculosis and in

Tuberculosis-Risk-Associated Comorbidities.

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The identification of a type I interferon-induced transcriptomic signature in

active tuberculosis suggests a potential role for these interferons in the

pathogenesis of tuberculosis. Comorbidities such as human immunodeficiency

virus, diabetes, systemic lupus erythematosus, end-stage renal disease, and

coronavirus disease are epidemiologically linked to an increased risk for

reactivation of latent tuberculosis infection. Notably, type I interferons are

also implicated in the pathogenesis of these conditions, with a recognizable

type I interferon transcriptomic signature. The mechanisms by which type I

interferons in tuberculosis-risk-associated comorbidities may drive the

progression of tuberculosis or maintenance of latent infection however remain

largely unknown. This review summarizes the existing literature on the increased

association between type I interferons, focusing on interferon-α and -β, and the heightened risk of tuberculosis reactivation. It also underscores the

similarities in the immunopathogenesis of these comorbidities. A better

understanding of these mechanisms is essential to guide the development of

host-directed interferon therapies and improving diagnostic biomarkers in M.

tuberculosis infection.

DOI: 10.3390/idr17040081

PMID: 40700327

**84. Sarcoidosis Vasc Diffuse Lung Dis. 2025 Jun 25;42(2):16188. doi:**

**10.36141/svdld.v42i2.16188.**

Non-Invasive Procedure in Differential Diagnosis of Sarcoidosis and Tuberculosis

Lymph Nodes:  Radiomic Model of 18F-FDG PET-CT.

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**BACKGROUND AND AIM:** Clinical and pathological features of two granulomatous

diseases tuberculosis (TB) and sarcoidosis lymphadenopathy share similar

properties. 18-F FDG Positron-Emission Tomography-Computed Tomography (18F-FDG

PET-CT) is performed to discriminate two diseases. Even biopsy and culture via

Endobronchial Ultrasonography (EBUS) sometimes did not get definite diagnosis.

Radiomics can defined as high-throughput mining of radiological images. We aimed

to investigate the role of radiomic analysis of these 18F-FDG PET/CT images in

discrimination of TB and sarcoidosis **Methods:** All patients with mediastinal LAP

who underwent EBUS biopsy were screened for inclusion. Among these patients,

patients who were diagnosed with TB or sarcoidosis by pathological and

microbiological methods were included in the study. Radiomic model and

clinicoradiomic models were formed AUC, sensitivity and specificity values of

models obtained by logistic regression results were calculated.

**RESULTS:** 54 tuberculosis and 163 sarcoidosis lymph nodes were analyzed. Gender,

GLCM\_Correlation and GLCM\_Energy features were found to be important prognostic

factors in distinguishing between sarcoidosis and tuberculosis (p: 0.012, OR:

2.423 (1.215-4.830, 95% CI); p<0.001, OR: 5.400 (2.108-13.830, 95%) CI);

p<0.001, OR: 3.335 (1.693-6.571, 95% CI; respectively). The p, AUC, sensitivity,

and specificity values of the obtained clinicoradiomic model were calculated as

<0.001, 0.762 (0.651-0.798, 95% CI), 59.5% and 81.5%, respectively.

**CONCLUSIONS:** The model created with radiomics methods and clinical features gave

significant results in distinguishing tuberculosis and sarcoidosis. This is

promising for radiomic models that could replace invasive methods. It is

expected that radiomic models will be used more in daily life in the future.

DOI: 10.36141/svdld.v42i2.16188

PMID: 40699498

**85. J Pak Med Assoc. 2025 Jun;75(6):1030. doi: 10.47391/JPMA.21561.**

Tuberculosis in pregnancy: a growing concern.

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DOI: 10.47391/JPMA.21561

PMID: 40698497

**86. Cureus. 2025 Jun 22;17(6):e86550. doi: 10.7759/cureus.86550. eCollection 2025**

**Jun.**

Hematological Changes in Pulmonary Tuberculosis: Focus on Anemia, Disease

Severity, and Therapeutic Implications.

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**Background** Anemia is a common complication in patients with pulmonary

tuberculosis (TB), potentially affecting treatment outcomes and overall health.

This study aimed to evaluate the hematological changes associated with pulmonary

TB, focusing on the severity of anemia and its correlation with disease

severity. **Methods** This cross-sectional study was conducted at Rajendra Institute

of Medical Sciences (RIMS), Ranchi, involving 76 patients diagnosed with

pulmonary TB and a matched control group of 76 healthy individuals.

Hematological parameters, including hemoglobin levels, hematocrit, and anemia

classification, were assessed at admission and during follow-up at two and six

months. Correlations between anemia severity and TB severity were analyzed using

Pearson's correlation coefficient**. Results** The mean age of participants in the

pulmonary TB group was 36.2 ± 15.6 years. A significant prevalence of anemia was

observed in the pulmonary TB group, affecting 67 out of 76 participants (88%),

compared to 12 out of 76 participants (15.8%) in the control group, with a

p-value of <0.0001. Normocytic anemia was the most common type, affecting 45 out

of 76 TB patients (60%). Hemoglobin levels were significantly lower in the TB

group (10.10 ± 1.73 g/dL) compared to controls (13.07 ± 1.14 g/dL), with a

p-value of <0.0001. Correlation analysis showed a strong negative correlation

between hemoglobin levels and TB severity (r = -0.58, p < 0.0001) and duration

of symptoms (r = -0.49, p < 0.0001). **Conclusion** Anemia is prevalent among

patients with pulmonary TB and is significantly associated with disease severity

and duration of symptoms. These findings underscore the importance of regular

hematological monitoring and management of anemia in TB patients to improve

clinical outcomes.

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**87. Open Forum Infect Dis. 2025 Jul 1;12(7):ofaf398. doi: 10.1093/ofid/ofaf398.**

**eCollection 2025 Jul.**

Extensive, Multifocal Pott Disease in a United States-Born Veteran Without Human

Immunodeficiency Virus.

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Mycobacterium tuberculosis can infect the native vertebral body and nearby

structures to cause tuberculous spondylodiscitis, also known as Pott disease. We

present a case of extensive, multifocal Pott disease in a United States-born

veteran without human immunodeficiency virus. We briefly comment on when to

consider Pott disease in cases of vertebral osteomyelitis. We also discuss

treatment considerations for Pott disease with and without tuberculous

involvement of the central nervous system, the recognition of

tuberculosis-associated immune reconstitution inflammatory syndrome, and certain

indications for surgery in Pott disease.

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**eCollection 2025 Jul.**

Operational Feasibility of "TB Concentration & Transport" and "TB DNA

Extraction" Kits for Biosafe Dry Sputum Transport for Direct Detection of Drug

Resistance Using Line Probe Assay: A Field Study in India.

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R(3), Bhalla M(3), Myneedu VP(3), Khayyam KU(3), Shanmugam SK(4), Chelvi KS(4),

Chandrasekaran P(4), Giri S(5), Turuk J(5), Das D(5), Pati S(5), Goyal A(6),

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**BACKGROUND:** We recently described the utility of the "TB Concentration &

Transport" kit for biosafe, ambient temperature transport of dried sputum on

Trans-Filter, and the "TB DNA Extraction" kit for DNA extraction from

Trans-Filter for the early diagnosis of drug-resistant tuberculosis (TB). This

study aimed to assess the feasibility and compatibility of these kits with line

probe assay (LPA) under National Tuberculosis Elimination Programme (NTEP)

settings.

**METHODS:** Patients with presumptive pulmonary TB, multidrug-resistant (MDR) TB,

or extensively drug-resistant TB (N = 8491) who attended Designated Microscopy

Centers (DMCs, n = 13) under National Reference Laboratories (NRLs) at Bhopal,

New Delhi, Chennai, and Bhubaneswar were screened by smear microscopy. The

performance of Trans-Filter extracted DNA-based LPA (Kit-LPA) was assessed

against Direct-LPA on smear-positive sputum (n = 681), and feedback was obtained

from scientists (n = 10) and laboratory technicians (n = 42) regarding

logistics, kit usage, training, and troubleshooting. A scoring questionnaire was

used to assess (i) the TB Concentration & Transport kit versus conventional

sputum transport and (ii) the TB DNA Extraction kit versus Hain GenoLyse kit

(statistical significance of the scores was calculated using paired t test).

**RESULTS**: Kit-LPA showed a sensitivity and specificity in the range of 89%-96%

and 99%-100%, respectively, for rifampicin and isoniazid resistance detection

and was comparable to Direct-LPA (concordance = 99%-100%; κ = 0.94-0.97).

Overall scores indicated that (i) sputum transport on Trans-Filters was more

convenient as compared to conventional sputum transport (P < .0001) and (ii)

Trans-Filter extracted DNA was easily amalgamated with LPA testing for MDR-TB

detection.

**CONCLUSIONS:** These findings provide evidence for incorporation of these kits

into the NTEP. Their use can facilitate sputum transport from DMCs to NRLs and

provide universal drug susceptibility testing to people with TB residing in

remote areas.

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**eCollection 2025.**

Disseminated tuberculosis with rare coccygeal involvement: a case report.

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Tuberculosis (TB) is a preventable and usually curable disease but remains a

major health problem worldwide, particularly in developing countries. TB of the

lumbosacral junction is rare and occurs in only 1-2% of all cases of spinal TB.

Moreover, isolated sacrococcygeal TB is extremely rare. We present a case of a

64-year-old patient with a history of diabetes who presented with chronic back

pain and cough. Physical examinations revealed a perianal fistula and left elbow

joint arthritis. The patient is diagnosed with disseminated TB with coccygeal

involvement. Diagnosis was achieved non-invasively using Xpert MTB/RIF,

confirming Mycobacterium tuberculosis infection. The patient experienced

complete resolution of symptoms following the commencement of anti-TB therapy.

We highlight the importance of this case due to the rare coccygeal localization

of TB in an immunocompetent patient, diagnosed through non-invasive means.

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DOI: 10.1099/acmi.0.000924.v3

PMCID: PMC12281794

PMID: 40697988

**90. Access Microbiol. 2025 Jul 10;7(7):000982.v3. doi: 10.1099/acmi.0.000982.v3.**

**eCollection 2025.**

Unusual association of primary parotid and conjunctival tuberculosis in a young

immunocompetent patient: a case report.

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Extrapulmonary tuberculosis often presents as lymphadenitis. In the head and

neck area, tuberculous involvement of the parotid gland is rare and challenging

to diagnose due to non-specific symptoms, which can be confused with a tumour.

Tuberculous conjunctivitis, although uncommon, should be considered in cases of

chronic, treatment-resistant conjunctivitis. The association of primary parotid

and conjunctival tuberculosis is exceptional. They are difficult to diagnose due

to the non-specificity of their clinical, biological and radiological signs. We

report the case of a 24-year-old immunocompetent patient with no history of

tuberculosis, who presented with intermittent swelling of the left parotid

gland, accompanied by unilateral redness of the eye, which appeared 2 months

later, in a context of fever and night sweats. The patient also reported a

foreign body sensation in his eye, mild tearing and photophobia. Clinical

examination revealed painful, warm swelling of the left parotid gland, as well

as localized granulomatous conjunctivitis. Cervico-parotid CT and MRI revealed

two well-limited, oval, left parotid formations with a slightly thickened and

enhanced wall after injection of gadolinium, suggestive a priori of abscessed

collections. The diagnosis of primary parotid and conjunctival tuberculosis was

made on the basis of histological examination of the biopsies, as well as direct

examination, culture and GeneXpert. The patient progressed well on

anti-bacillary treatment. Our work underlines the great importance of GeneXpert,

which is a rapid and highly sensitive technique, effective in the diagnosis of

extrapulmonary tuberculosis.

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**91. J Clin Tuberc Other Mycobact Dis. 2025 Jul 14;40:100552. doi:**

**10.1016/j.jctube.2025.100552. eCollection 2025 Aug.**

OMNIgene.SPUTUM for transporting sputum in ambient temperature for tuberculosis

testing: Bangladesh experience.

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**BACKGROUND:** Performance of OMNIgene.SPUTUM (OM-S) for transporting sputum was

evaluated.

**METHODS:** This exploratory study was conducted during January-December 2019 at

four near and one distant healthcare-facilities of Dhaka. Smear-positive

pulmonary TB patients' sputa were collected, divided into 'OM-S untreated' and

'OM-S treated' portions, and transported to testing laboratory, Dhaka, on

same-day from near-sites, and through courier from distant-site for

smear-microscopy, culture, and Xpert MTB/RIF (Xpert) testing. Subset of 'OM-S

treated' sample was tested with Xpert without centrifugation. Test results of

all portions were compared in between.

**RESULTS:** Total 444 participants were enrolled (near-sites:198, distant-site:

246). All test results were comparable in both portions for near-sites. For

distant-site, smear-microscopy's positivity was reduced by 4.1 % in 'OM-S

treated', Xpert showed 100 % concordance in both portions, and culture was

higher in 'OM-S treated' than 'OM-S untreated' (92.3 % vs 89.4 %; p = 0.288).

Primary contamination rate in 'OM-S treated' was lower than 'OM-S untreated'

(2.0 % vs 9.8 %; p < 0.05). For all sites, median (IQR) time-to-culture

positivity was 35 (28, 42) days in both portions. Xpert positivity was 99 %

concordant in 'OM-S treated' regardless of centrifugation.

**CONCLUSIONS:** OM-S is safe for sputum transportation. OM-S mixed sputum can be

tested with Xpert and culture. Further studies can validate findings and assess

cost-effectiveness.

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**92. Front Vet Sci. 2025 Jul 8;12:1565066. doi: 10.3389/fvets.2025.1565066.**

**eCollection 2025.**

Non-tuberculous mycobacteria and other acid fast bacilli pathogens

identification by qPCR and MALDI-ToF MS in tuberculosis-like lesions of

slaughtered cattle from Ecuador.

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Alcívar F(5), Torres-Lasso P(6), Maza Valle WF(7), Vargas González ON(7),

Mora-Jaramillo N(1), León-Sosa A(1), Rivera A(1), Rodríguez-Pazmiño AS(8),

Castro-Rodriguez B(8), Franco Sotomayor G(1)(4), Uruchima-Campoverde S(1),

Gonzalez M(1), Benitez-Medina JM(9), Jimenez-Pizarro N(9), Hermoso de Mendoza

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**INTRODUCTION:** Mycobacterial infections are caused by the Mycobacterium

tuberculosis complex (MTBC) but also by non-tuberculous mycobacteria (NTM).

While the importance of NTM in opportunistic infections in humans has been

gaining attention, surveillance and control programs for cattle health and

production remain predominantly focused on bovine tuberculosis (BTB) that it is

caused exclusively by MTBC.

**METHODS:** In this study, we conducted a comprehensive inspection of 5,803 cattle

carcasses destined for human consumption across 22 abattoirs in five provinces

of Ecuador's coastal region, searching for lesions visually compatible with BTB

(BTB-like lesions).

**RESULTS:** A high prevalence of 13.4% (CI 95%: 12.8-14.6) for BTB-like lesions and

3.1% (CI 95%: 2.6-3.5) for acid-fast bacilli (AFB) presence in lesions was

observed. From these lesions, we isolated 48 AFB cultures, 44 of which tested

positive for NTM. Strikingly, MTBC was not found in any BTB-like lesion by qPCR.

Furthermore, Matrix Assisted Laser Desorption/Ionization Time of Flight Mass

Spectrometry (MALDI-ToF MS) identified six NTM species: M. neoaureum, M.

fortuitum, M. novocastrense, M. asiaticum, M. duvalii, and M. mucogenicum.

Additionally, other AFB opportunistic pathogenic species were identified,

including Tsukamurella paurometabola, Gordonia hongkongensis, and Nocardia spp.

**DISCUSSION:** Considering the potential misdiagnosis of NTM and other AFB species,

BTB surveillance and control programs for MTBC should be revised to consider

other opportunistic infections with similar clinical output to BTB.

Copyright © 2025 Orlando, Vera Loor, Calderón, Carvajal-Capa, Arcos Alcívar,

Torres-Lasso, Maza Valle, Vargas González, Mora-Jaramillo, León-Sosa, Rivera,

Rodríguez-Pazmiño, Castro-Rodriguez, Franco Sotomayor, Uruchima-Campoverde,

Gonzalez, Benitez-Medina, Jimenez-Pizarro, Hermoso de Mendoza, Parra-Vera and

Garcia-Bereguiain.

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**93. iScience. 2025 Jun 18;28(7):112915. doi: 10.1016/j.isci.2025.112915. eCollection 2025 Jul 18.**

A potent phenylalkylamine disrupts mycobacterial membrane bioenergetics and

augments bactericidal activity of bedaquiline.

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Clinically efficacious combination therapies capable of impeding resistance are

widely sought for the treatment of mycobacterial infections. Here, we described

structural modifications of the phenylalkylamine scaffold of verapamil to give

an analog with more than 10-fold greater growth inhibitory activity than

verapamil against Mycobacterium tuberculosis, M. bovis BCG, and M. abscessus

abscessus (Mab abscessus). The analog synergized with the F1Fo-ATP synthase

inhibitor bedaquiline in checkerboard assays and augmented the bactericidal

properties of bedaquiline against M. bovis BCG and Mab abscessus. Using live

cell bioorthogonal imaging techniques, in vitro biochemical and genetic assays,

the bactericidal activity of the analog is attributed to the perturbation of

membrane bioenergetics and disruption of mycobacterial respiration. Overall, its

promising activity profile, mode of action and synergistic interaction with

bedaquiline support further exploration of the phenylalkylamine scaffold as a

valued source of potential leads for antimycobacterial drug discovery.

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PMCID: PMC12281142

PMID: 40697410

**94. IDCases. 2025 Jul 9;41:e02319. doi: 10.1016/j.idcr.2025.e02319. eCollection**

**2025.**

Secondary adrenal insufficiency in a young man with HIV and pulmonary

tuberculosis, complicated by cerebral toxoplasmosis and seizure.

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Secondary adrenal insufficiency (SAI) presents with non-specific clinical

symptoms, which may overlap with those of HIV and tuberculosis, making diagnosis

challenging. We report a case of a 22-year-old Indonesian man, presented with

fatigue, intermittent dyspnea, intermittent nocturnal fever, and a significant

weight loss of 5 kg over one month. He also reported having unprotected sex with

a casual partner. Physically, he presented pale and weak with hypotension .

Laboratory examination showed cortisol levels of 28.46 nmol/L and

adrenocorticotropic hormone (ACTH) levels of 5.6 µg/dL. Chest x-ray and

GeneXpert confirmed pulmonary tuberculosis. Despite an initial negative HIV

examination, repeat testing was recommended due to the possibility of a

false-negative result. Therefore, the initial diagnosis was SAI due to HIV and

tuberculosis. He was treated with hydrocortisone and supportive therapy.

Following outpatient discharge, he was re-admitted due to severe headaches,

vomiting, and a generalized tonic-clonic seizure. Neuroimaging revealed

ring-enhancing lesions, and serology testing was positive for toxoplasmosis IgG

and IgM. Repeat testing of HIV was positive with very lowCD4 count. The final

diagnosis was cerebral toxoplasmosis, newly diagnosed HIV, and disseminated

tuberculosis infection. He responded well to the treatment for 20 days without

any complaints and was discharged with anti-retroviral (ARV) and

anti-tuberculosis drug (ATD) alongside toxoplasmosis treatment. He remained

clinically stable at a 5-months follow-up. Early recognition and treatment of

SAI to prevent life-threatening complications, particularly in patients with HIV

and tuberculosis co-infection. Thus, early recognition and management are

critical to minimize severe complications, particularly cerebral toxoplasmosis.

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**95. Lancet Reg Health Eur. 2025 Jul 15;56:101380. doi: 10.1016/j.lanepe.2025.101380. eCollection 2025 Sep.**

Treatment outcomes of extensively drug-resistant tuberculosis in Europe: a

retrospective cohort study.

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Konstantynovska O(16)(17)(18), Marigot-Outtandy D(19), Panciu TC(20), Poignon

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Eimer J, Vasiliauskaitè L, Kuska L, Guglielmetti L, Codecasa LR, Yeghiazaryan L,

Skowroński M, Fitzgibbon M, Revest M, Kiria N, Veziris N, Pedersen OS,

Konstantynovska O, Opota O, Viiklepp P, Coriu R, Tunesi S, Sasi S, Skogmar S,

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**BACKGROUND:** In 2021, World Health Organization revised of definition of

extensive drug-resistant tuberculosis. We aimed to determine treatment outcomes

of individuals affected by extensively drug-resistant tuberculosis in Europe.

**METHODS:** This observational, retrospective cohort study included patients

diagnosed with extensively drug-resistant tuberculosis in the World Health

Organization European Region from 2017 to 2023. Participating centres collected

consecutive, detailed individual data for extensively drug-resistant

tuberculosis patients. Data were analysed with meta- and regression methods,

accounting for between-country heterogeneity.

**FINDINGS:** Among 11,003 patients with multidrug-resistant/rifampicin-resistant

tuberculosis, 188 (1·7%) from 16 countries had extensively drug-resistant

tuberculosis. Of these, 48·4% harboured strains with resistance to bedaquiline

(n = 91/188), 34·0% to linezolid (n = 64/188), and 17·6% to both (n = 33/188).

The individual composition of anti-tuberculosis regimens was highly variable,

with 151 different drug combinations. Among the 156/188 (83·0%) patients with

available treatment outcomes, the pooled percentage of successful outcomes was

40·2% (95% confidence interval [95% CI] 28·4%-53·2%). In patients with

unsuccessful treatment outcomes (101/156), most experienced treatment failure (n

= 57/156 [pooled proportion 37·1%], 95% CI: 26·1%-49·7%) or death (n = 30/156

[pooled proportion 21·3%], 95% CI: 15·7%-28·2%). After adjustment for disease

severity, each additional likely effective drug decreased the odds of

unsuccessful outcomes (adjusted odds ratio: 0·65, 95% CI: 0·45-0·96) (p =

0·026), whereas being treated in an upper-middle-income country increased the

odds of unsuccessful outcomes compared with being treated in a high-income

country (adjusted odds ratio: 13·7, 95% CI: 3·7-50·2) (p < 0·001). Compared with other levels of drug resistance, treatment outcomes were significantly worse for extensively drug-resistant tuberculosis.

**INTERPRETATION:** Only four out of ten patients affected by extensively

drug-resistant tuberculosis achieved successful treatment outcomes. These

findings highlight the need for adequate, individualised treatment regimens and

optimised drug susceptibility testing.

FUNDING: None.

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**eCollection 2025.**

Primary iliac bone tuberculosis: a case report.

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Tuberculosis (TB) remains one of the world's leading causes of morbidity and

mortality. It occurs in both pulmonary and extra-pulmonary forms. Primary iliac

bone TB remains a rare clinical entity, even in endemic areas. The diagnosis of

the disease can be challenging due to its similarity to other bone diseases. We

report a rare case of primary iliac bone TB in a 63-year-old patient who was on

peritoneal dialysis and had a medical history of hypertension and type II

diabetes, which was complicated by diabetic retinopathy and diabetic kidney

disease. Magnetic resonance imaging revealed osteomyelitis in the iliac bone,

while real-time polymerase chain reaction using the GeneXpert® system on a

gluteal collection sample confirmed the diagnosis of TB. The integration of

advanced molecular tools, such as GeneXpert®, represents significant progress,

enabling rapid and accurate diagnosis of TB and facilitating early initiation of

treatment.

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**10.1097/MD.0000000000043158.**

Sunitinib and TB lymphadenitis: An unexpected link in oncological therapy: a

case report.

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**RATIONALE**: Gastrointestinal stromal tumors (GIST) are neoplasms that originate

from the interstitial cells of cajal located in the muscular layer of the

gastrointestinal tract. Surgery is the primary treatment options; however, if

resection is not feasible, or in cases of metastatic or recurrent GIST, systemic

chemotherapy can be considered as an alternative. Sunitinib, a multi-targeted

tyrosine kinase inhibitor, is indicated as an essential second-line treatment

for GIST following disease progression or intolerance to imatinib mesylate. It

works by slowing down or stopping the growth of tumor cells through the

inhibiting tyrosine kinases, including KIT and PDGFRα. Commonly reported side

effects of sunitinib include hypertension, fatigue, neutropenia, and

dermatologic reactions such as rash.

**PATIENT CONCERNS:** A patient diagnosed with relapsed malignant gastrointestinal

stromal tumors (GIST) was treated with sunitinib for 15 months following the

failure of imatinib treatment. The patient presented with neck pain and a fever

of up to 38.8°C.

**DIAGNOSES AND INTERVENTIONS:** Upon evaluation, a palpable lymph node was

biopsied, and pathology results confirmed tuberculosis (TB) lymphadenitis.

Subsequently, TB medication was initiated, and 2 months after starting the

treatment, significant improvement in lymphadenopathy was observed on the

computed tomography scan. However, the patient experienced side effects during

the treatment, including hepatotoxicity, visual disturbances, and a decreased

platelet count, which led to discontinuation and a change in medication.

**OUTCOMES:** The treatment lasted for a year, which was longer than that initially

planned. Despite switching to third-line therapy for GIST, the disease

progressed, and the patient eventually died.

**LESSONS:** Owing to the anti-angiogenic effect of sunitinb, infectious

complications are very rare, and cases of tuberculosis-related side effects

associated with sunitinib are almost unheard of. This case illustrates that TB

lymphadenitis can occur as a rare adverse effect of sunitinib treatment.

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**10.1097/MD.0000000000043415.**

Species diversity and clinical relevance of nontuberculous mycobacterium

isolated from pulmonary and extrapulmonary samples in southeastern Turkey, 2014

to 2023: A retrospective cross-sectional study.

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Infection with nontuberculous mycobacterium (NTM) has been on the rise

worldwide. Although the incidence rate of NTM infection has increased, little is

known about its species diversity and clinical significance. Investigating the

variety and load of NTM species in pulmonary and extrapulmonary clinical

isolates from a community in southeast Turkey is the goal of this study. The

prevalence of NTM and the clinical significance of pulmonary NTM (PNTM) are

evaluated in this cross-sectional study. Matrix-assisted laser desorption

ionization-time of flight mass spectrometry (MALDI-TOF MS) and multiplex PCR

were used to identify NTM species. Between 2014 and 2023, a total of 30,539

clinical samples from 14,586 tuberculosis (TB)-suspected patients were analyzed.

Among the 1159 mycobacterial isolates, 85.25% were identified as Mycobacterium

tuberculosis complex (MTBC), while 14.75% were identified as NTM. Of the NTM

isolates, 88.88% were pulmonary, while 11.11% were extrapulmonary. The majority

of NTM isolates consisted of slow-growing species (67.84%). MTBC rate has

decreased while the NTM rate has increased over the years. Of the 171 NTM

isolates, identification was performed for 66 isolates. Overall, 16 different

NTM species were identified. The most frequently isolated species were

Mycobacterium simiae 28.78% (19/66), Mycobacterium avium complex 21.21% (14/66),

and Mycobacterium abscessus complex 13.63% (9/66). Among the 66 patients with

NTM isolation, the mean age was 39 (±23.10). On applying the American Thoracic

Society/Infectious Disease Society of America (ATS/IDSA) criteria to determine

the clinical relevance of the 61 patients with PNTM isolation, only 36.06% had

nontuberculous mycobacterial pulmonary disease (NTMPD), and the majority were

caused by M. simiae (40.9%). Chronic obstructive pulmonary disease was

significantly more common in the American Thoracic Society criteria -positive

group (22.7%, P = .004). Nodular bronchiectatic patterns occurred significantly

more often in the American Thoracic Society criteria-positive group (77.3%, P

<.001). A statistically significant correlation was determined between NTMPD and

fatigue, although fatigue was not specific for a diagnosis of NTMPD. Cough was

the predominant symptom. In conclusion, our findings indicate that the species

diversity of NTM isolates in our region differs from that observed in other

cities across Turkey. M. simiae emerged as the species with the highest

isolation frequency and clinical significance.

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**99. Georgian Med News. 2025 Apr;(361):190-193.**

THE INCIDENCE OF RESISTANCE TO ANTI-TUBERCULOSIS DRUGS AMONG DIFFERENT

CATEGORIES OF TUBERCULOSIS PATIENTS IN THE REPUBLIC OF AZERBAIJAN.

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In recent years, the epidemiological situation of tuberculosis in the world has

remained tense. One of the main reasons for the epidemiological tension is the

rapid increase in resistance to anti-tuberculosis drugs. The status and

frequency of resistance among different categories of tuberculosis patients in

the Republic of Azerbaijan have been investigated. In the last three years

(2021-2023), sputum and other examination materials of 11,093 tuberculosis

patients in our country were sent to the "National Reference" laboratory for

susceptibility testing. 40.7% of those examined are initially registered, and

59,3% are recurrent patients. Resistance to various types of drugs was detected

in 20,4% of initially registered patients and 31,2% of repetitive ones. Among

the examined patients, the highest frequency of Mono-H and Poly-resistance (HS,

HE, HSE) was found in those who did not previously applied to anti-tuberculosis

institutions - 66,9%, in initially registered patients - 38,9%, in relapses -

36,7%, in those who violated the treatment regimen - 25,1%, and the least in

patients after unsuccessful treatment - 15,0%. Mono, Poly-resistance (R, RS, RE,

RSE) was found in 36,9% of those who violated the treatment regimen, 36.4% after

unsuccessful treatment, 35.2% in relapses, 27,8% in initially registered

patients, and 10,7% among those who had not previously registered. The level of

MDR was higher among those who failed treatment and violated the treatment

regimen. Thus, they are 32,0% and 24,9%, respectively. The incidence of GDD

forms, 16,5%, was observed most often among patients with unsuccessful

treatment. One of the main reasons for the epidemiological tension is the high

prevalence of broad-spectrum drug resistance among persistent forms (49,2%). The

increase in resistance among relapsers and treatment defaulters (20,1% and

19,9%, respectively) is one of the main reasons for the low treatment

effectiveness.

PMID: 40694718 [Indexed for MEDLINE]

**100. Am J Respir Crit Care Med. 2025 Jan;211(1):15-33. doi:**

**10.1164/rccm.202410-2096ST.**

Updates on the Treatment of Drug-Susceptible and Drug-Resistant Tuberculosis: An

Official ATS/CDC/ERS/IDSA Clinical Practice Guideline.

Saukkonen JJ, Duarte R, Munsiff SS, Winston CA, Mammen MJ, Abubakar I,

Acuña-Villaorduña C, Barry PM, Bastos ML, Carr W, Chami H, Chen LL, Chorba T,

Daley CL, Garcia-Prats AJ, Holland K, Konstantinidis I, Lipman M, Battista

Migliori G, Parvez FM, Shapiro AE, Sotgiu G, Starke JR, Starks AM, Thakore S,

Wang SH, Wortham JM, Nahid P.

**Background:** On the basis of recent clinical trial data for the treatment of

drug-susceptible and drug-resistant tuberculosis (TB), the American Thoracic

Society, U.S. Centers for Disease Control and Prevention, European Respiratory

Society, and Infectious Diseases Society of America have updated clinical

practice guidelines for TB treatment in children and adults in settings in which

mycobacterial cultures, molecular and phenotypic drug susceptibility tests, and

radiographic studies, among other diagnostic tools, are available on a routine

basis. **Methods:** A Joint Panel representing multiple interdisciplinary

perspectives convened with American Thoracic Society methodologists to review

evidence and make recommendations using the GRADE (Grading of Recommendations

Assessment, Development and Evaluation) and GRADE-ADOLOPMENT (adoption,

adaptation, and, as needed, de novo development of recommendations) methodology.

**Results:** New drug-susceptible TB recommendations include the use of a novel

4-month regimen for people with pulmonary TB and a shortened 4-month regimen for

children with nonsevere TB. Drug-resistant TB recommendation updates include the

use of novel regimens containing bedaquiline, pretomanid, and linezolid with or

without moxifloxacin**. Conclusions:** All-oral, shorter treatment regimens for TB

are now recommended for use in eligible individuals.

DOI: 10.1164/rccm.202410-2096ST

PMID: 40693952 [Indexed for MEDLINE]

**101. SAGE Open Med. 2025 Jul 17;13:20503121251353436. doi: 10.1177/20503121251353436. eCollection 2025.**

Family dynamics and diagnostic delay among pulmonary tuberculosis patients in

Ile-Ife, South-Western Nigeria.

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SB(1)(3), Samuel AO(1)(4), Temitope OO(1), Waheed OI(1), Muideen KA(1), Sonibare

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**BACKGROUND:** Despite the availability of directly observed treatment

short-course, which provides free treatment to patients with tuberculosis,

leading to some progress, Nigeria still faces a slow decline in tuberculosis

incidence and low case detection. The delay in diagnosis of pulmonary

tuberculosis, regarding access to healthcare, has made extensive efforts towards

its control and elimination appear unrewarding. This study aimed to assess the

relationship between family dynamics and diagnostic delay among patients with

pulmonary tuberculosis receiving care in the directly observed treatment

short-course centres in Ile-Ife, Nigeria.

**METHODS:** A descriptive cross-sectional study of 282 patients on treatment for

pulmonary tuberculosis in the directly observed treatment short-course centres

in Ile-Ife was conducted. The respondents were recruited using a multistage

sampling technique. Data were collected using an interviewer-administered World

Health Organization-validated questionnaire on case-finding in tuberculosis

patients, the Perceived Social Support Family Scale, and the family

adaptability, partnership, growth, affection, and resolve (APGAR) score.

Multiple logistic regression was done to determine the family dynamics variables

that independently predict diagnostic delay. A p < 0.05 was taken as

statistically significant.

**RESULTS:** The family dynamics of the respondents showed that 68.1% of them had

strong family support, with about two-thirds (69.1%) having functional families.

The median diagnostic delay before diagnosis was 45 days (range 9-217 days).

Having a dysfunctional family (Adjusted Odd Ratio (AOR), 3.87; 95% confidence

interval, 1.704-8.777, p = 0.001), monthly family income <₦30,000 (US$56.07;

AOR, 2.96; 95% confidence interval, 1.358-6.453, p = 0.006), and family size

larger than 6 (AOR, 2.223; 95% confidence interval, 1.212-4.076, p = 0.010) were

significant predictors of prolonged diagnostic delay.

**CONCLUSION:** Family factors predicting diagnostic delay were large family size,

low family income, and family dysfunction. There is a need to increase

tuberculosis diagnostic access to families with these characteristics.

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**102. Pediatric Health Med Ther. 2025 Jul 16;16:171-182. doi: 10.2147/PHMT.S513904.**

**eCollection 2025.**

Therapeutic Management Strategies Among Immunocompetent Infants with

Nontuberculous Mycobacterial Pulmonary Infection.

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**PURPOSE:** The prevalence of pulmonary nontuberculous mycobacteria (NTM) infection

and disease is increasing globally. Pediatric studies on treatment of pulmonary

NTM disease in immunocompetent infants are limited, and adult guidelines lack

details regarding age-specific management strategies. This systematic review

analyzes pharmaceutical, procedural, and supportive management strategies for

pulmonary NTM infections in immunocompetent infants based on published case

reports and series.

**METHODS:** A systematic review of PubMed for case reports on pulmonary NTM

infections in immunocompetent infants (≤24 months) until December 2023 was

conducted. Demographic information, therapeutic interventions, procedural

details, and patient outcomes were extracted to Covidence. Data on therapeutic

strategies were summarized descriptively.

**RESULTS:** Twenty-six case reports describing 33 infants with pulmonary NTM were

identified. Study demographics included: 55% female, median age at diagnosis was

12 months, and Mycobacterium avium complex (58%) was the most common NTM strain.

Most patients (94%) received antibiotic therapy, with a median treatment

duration of 30 weeks. Common regimens included combined ethambutol with rifampin

(n=9) or clarithromycin (n=6), and clarithromycin with amikacin (n=6). Most

patients started on therapy for tuberculosis before switching treatment courses

after NTM diagnosis. Common antibiotic classes after NTM diagnosis were

macrolides, antituberculous, and aminoglycosides. Non-pharmaceutical therapies

included 79% undergoing diagnostic bronchoscopy, 39% receiving tissue debulking,

33% undergoing surgical biopsy for diagnostic confirmation, and 12% requiring

lung resection. Two patients underwent surgical interventions without

antibiotics. Supportive therapies included non-invasive supplemental oxygen

(12%) and mechanical ventilation (6%), with three patients admitted to intensive

care units. Overall survival rate was 94%.

**CONCLUSION:** This study reports diverse therapeutic approaches to management of

immunocompetent infants with diagnosed pulmonary NTM disease, which utilized

varying antibiotics and procedural interventions. Although few patient deaths

were reported, these results suggest a need for additional prospective studies

to compare efficacy of treatment regimens and establish tailored pediatric

guidelines for disease management.

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DOI: 10.2147/PHMT.S513904

PMCID: PMC12276739

PMID: 40689233

**103. Cureus. 2025 Jun 20;17(6):e86438. doi: 10.7759/cureus.86438. eCollection 2025 Jun.**

Tsukamurella pulmonis Isolated in Sputum Culture During Workup for Tuberculosis:

Colonization or Infection?

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Tsukamurella pulmonis is a rare, opportunistic actinomycete most often

associated with respiratory infections in immunocompromised patients. We report

the case of a young immunocompetent man with a remote history of completely

treated pulmonary tuberculosis, in whom T. pulmonis was repeatedly isolated from

sputum during routine screening. Despite these findings, the patient remained

asymptomatic, with normal inflammatory markers and stable chest imaging, and

therefore did not receive antimicrobial therapy. This case underscores the

importance of correlating microbiological results with clinical and radiological

assessments. It highlights that, in immunocompetent individuals, the presence of

T. pulmonis in respiratory cultures may represent colonization rather than true

infection, and unnecessary antimicrobial treatment can be avoided with thorough

evaluation.

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PMID: 40689003

**104. Cureus. 2025 Jun 19;17(6):e86357. doi: 10.7759/cureus.86357. eCollection 2025 Jun.**

Algerian Tuberculosis Control Program: 60 Years of Successful Experience.

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Tuberculosis continues to pose a major challenge to the healthcare systems of

many countries, particularly those with low to moderate incomes. Since gaining

independence in 1962, Algeria has made significant economic and healthcare

development strides. Tuberculosis control remains a key focus of its public

health strategy. Thanks to the dedicated efforts of its experts and through

participation in WHO programs, the prevalence and incidence of tuberculosis,

especially the highly contagious pulmonary form, have seen a substantial

decrease and have been consistently maintained for several years. This editorial

summarizes the progress of tuberculosis control programs in Algeria, detailing

their objectives and the positive impact on the epidemiological landscape of

tuberculosis over the past decades.

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**105. Cureus. 2025 Jun 19;17(6):e86359. doi: 10.7759/cureus.86359. eCollection 2025 Jun.**

Abnormal Chest X-Ray Findings of Patients With Confirmed Tuberculosis in Ghana.

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**Background** Tuberculosis (TB) remains a major global health issue despite being

treatable and preventable. Early diagnosis and effective treatment are crucial

for reducing TB transmission, in line with global control strategies. Chest

X-rays, widely accessible and rapid, are key imaging tools for diagnosing TB.

This retrospective study sought to assess chest X-ray findings of patients with

confirmed tuberculosis in Ghana. **Methods** This study retrospectively analyzed

chest X-ray findings to characterize lung lesions and assess tissue damage in

131 patients with bacteriologically confirmed TB. Lung lesions were categorized

based on parenchymal changes, lesion extent, location, and pleural involvement.

**Results** Reticulonodular infiltrates were observed in 66.4% (n=87) of patients,

consolidation/ground-glass opacities in 58.8% (n=77), reticular infiltrates in

45.0% (n=59), and cavities in 42.0% (n=55). Pleural effusions were noted in

31.3% (n=41), predominantly unilateral (24.4%, n=32). Parenchymal anomalies

primarily affected the apical/upper lung zones, mostly on the left (70.2%,

n=92). Both middle-zone (48.1%, n=63) and lower-zone (49.6%, n=65) abnormalities

predominantly affected the right lung. The extent of lung involvement varied:

23.6% (n=31) had small (one zone), 11.4% (n=15) medium (two zones), and 58.0%

(n=76) large (more than two zones) involvement. **Conclusion** These findings

highlight the significant lung damage caused by TB and underscore the importance

of imaging in early detection and management.

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