



EPIDEMIOLOGICAL TRENDS OF TUBERCULOSIS IN ALBANIA IN 2024: A NATIONAL OVERVIEW

Epidemiology

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ABSTRACT

Tuberculosis (TB) remains a public health concern in Albania, despite its low-incidence classification. In 2024, 232 TB cases were reported, with stable trends compared to 2022 and 2023. This overview aims to highlight the demographic, clinical, and geographic characteristics of TB in Albania. **Methodology:** Data were collected from the national TB surveillance system and included variables such as case classification (new or retreatment), age, sex, location (urban/rural), clinical form (pulmonary/extrapulmonary), and HIV co-infection status. Descriptive analysis was used to identify trends and changes compared to previous years. **Results:** Of 232 cases, 209 (90%) were new and 23 (10%) retreatments. Pulmonary TB accounted for 86.6% of cases. The highest burden was among individuals over 65 years (25%), while cases in the 15–24 age group increased by 2.9%. Urban residents made up 61.2% of cases. Males represented 67.7%, maintaining a 2:1 male-to-female ratio. High-risk groups, including migrants and drug users, made up 15% of cases. HIV testing covered 90% of patients, identifying 5 TB/HIV co-infections. **Conclusion:** Albania maintains low TB incidence and high treatment success (89%), but demographic shifts and vulnerable groups require focused interventions. Continued investment in diagnostics, surveillance, and prevention is essential to sustain current progress.

KEYWORDS

Tuberculosis, Epidemiology, HIV co-infection, high-risk groups

INTRODUCTION

Tuberculosis (TB) is a preventable and usually curable disease, yet it continues to be a major public health challenge worldwide. In 2023, TB likely returned to being the leading cause of death from a single infectious agent globally, surpassing COVID-19 after a three-year interval. Alarmingly, it caused nearly twice as many deaths as HIV/AIDS. Despite longstanding efforts in prevention and treatment, more than 10 million people continue to develop active TB disease each year, and since 2021, the number of new cases has been rising steadily. TB is caused by the bacterium *Mycobacterium tuberculosis*, which spreads through airborne droplets when a person with pulmonary TB coughs, sneezes, or talks. It primarily affects the lungs but can also impact other parts of the body such as lymph nodes, bones, or the central nervous system (extrapulmonary TB). Globally, it is estimated that about one-quarter of the population is latently infected with TB. These individuals are asymptomatic and non-infectious but remain at risk of developing active TB disease. The highest risk of progression to disease occurs in the first two years after infection, affecting around 5% of infected individuals during this period, while others may either contain or clear the infection naturally. TB tends to disproportionately affect socially vulnerable populations, including those with poor living conditions, malnutrition, co-infections (particularly with HIV), substance use disorders, and limited access to health care. Migrants, prisoners, and healthcare workers also face increased exposure risks. The COVID-19 pandemic brought unprecedented global attention to public health systems and exposed the vulnerabilities of various population groups, including adolescents. During this period, the burden of tuberculosis became increasingly complex due to disruptions in healthcare services, delays in diagnosis, and a reduced focus on TB prevention and treatment. Adolescents faced particular challenges during the COVID-19 crisis and were at heightened risk for TB due to changes in their immune systems and social behaviors. The pandemic caused significant interruptions in TB programs worldwide. Lockdowns and mobility restrictions severely affected the ability to diagnose and treat TB among adolescents. Furthermore, healthcare personnel often prioritized COVID-19 cases, resulting in reduced TB detection and delays in diagnosis. Since TB symptoms can be non-specific or resemble those of COVID-19, adolescents with early signs of TB may have been misdiagnosed or left undiagnosed altogether.

According to the World Health Organization (WHO), adolescents aged 10–19 accounted for approximately 15–20% of all global TB cases during the pandemic period. Research further indicates that adolescents co-infected with HIV and TB face increased risks, including higher mortality rates, delayed treatment initiation, and complications such as multidrug-resistant TB (MDR-TB). The 2021 WHO Global TB Report estimated that the number of newly diagnosed TB cases dropped sharply by 25–30% globally in 2020, primarily due to lockdowns and service disruptions. Effective management of TB patients requires early detection, accurate diagnosis, and a

comprehensive treatment approach. Typically, this involves a six-month regimen of anti-TB medications. Directly Observed Therapy (DOT) is frequently recommended to ensure treatment adherence and prevent the development of drug resistance. In high-burden regions, Bacillus Calmette–Guérin (BCG) vaccination remains a crucial preventive measure, particularly against severe forms such as TB meningitis. However, the emergence of MDR-TB and extensively drug-resistant TB (XDR-TB) presents a growing public health challenge, requiring specialized treatment regimens and close clinical monitoring. Although the incidence of TB in Albania remains relatively low—estimated at 8.7 cases per 100,000 population in 2024—the majority of reported cases occur among individuals in the economically and socially active age group. This trend is especially concerning, as it underscores a critical vulnerability: individuals in this group are not only more exposed to social and occupational risk factors but also face a higher likelihood of progressing more rapidly from latent TB infection (LTBI) to active TB disease.

This increased risk is driven by a combination of biological factors, such as immune system changes due to stress or co-morbidities, and behavioral factors, including increased mobility, urban living, and close interpersonal contact. This demographic pattern highlights the urgent need for targeted TB screening, early diagnosis, and preventive interventions among working-age adults to reduce both individual disease progression and broader community transmission. Furthermore, as this population constitutes the backbone of the workforce, TB in these individuals can have significant socio-economic consequences, affecting productivity, family stability, and public health resources. Strengthening TB control efforts in this group is therefore essential to maintaining Albania's low-incidence status and achieving the long-term goal of TB elimination.

METHODS

A cross-sectional study design was used to conduct this research. The study aims to provide valuable insights into the prevalence, diagnosis, treatment adherence, and psychosocial factors associated with tuberculosis (TB) patients. The chosen sampling method ensured that the study results are representative and unbiased. Data were collected in 2024, offering a comprehensive understanding of TB prevalence among adolescents and the factors influencing it. Data collection was carried out in collaboration with the National Tuberculosis Control Program, regional hospitals, and primary healthcare units across Albania. The study population included all patients diagnosed with TB, both pulmonary and extrapulmonary forms, as well as individuals from high-risk groups such as migrants and HIV-positive patients diagnosed in Albania between 2024. Conducting this study required careful consideration of the methods used for data collection, analysis, and interpretation. Data were primarily gathered from patient records and structured questionnaires, focusing on key epidemiological and clinical indicators, including age, gender, education, socioeconomic status, history of TB contacts, comorbidities, TB risk factors such as

HIV status, treatment adherence, reporting of side effects, laboratory results from TB testing, and treatment outcomes. By using a combination of diagnostic tools, questionnaires, follow-up assessments, and qualitative methods, the study provided a clearer and more comprehensive picture of TB in this age group. The findings from this study are expected to contribute to the development of more effective TB control strategies, improved patient outcomes, and reduced TB transmission in the community.

RESULTS

In 2024, a total of 232 tuberculosis (TB) cases were reported in Albania, of which 209 cases (90%) were new and 23 cases (10%) were retreatments. These figures reflect case classification trends observed in 2022 and 2023. Among retreatment cases, recurrences accounted for 20 cases (8.7%), while treatment interruptions accounted for 3 cases (1.3%). Albania continues to be classified as a low-incidence country for TB, with an estimated 8.7 new cases per 100,000 population in 2024.

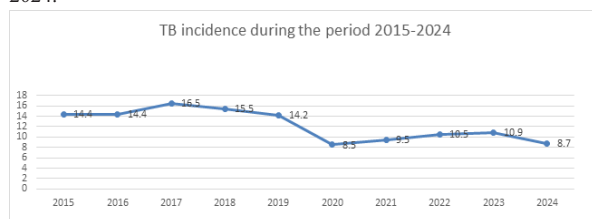


Figure 1; TB Incidence

The country reports low levels of bacterial resistance (2.2%), a low mortality rate (approximately 0.2 per 100,000), and high treatment success rates, estimated at 89%. TB cases in 2024 were distributed across the following age groups: 0–14 years: 11 cases (4.7%) 15–24 years: 26 cases (11.2%), 25–34 years: 34 cases (14.7%), 35–44 years: 37 cases (15.9%), 45–54 years: 39 cases (16.8%), 55–64 years: 27 cases (11.7%), ≥65 years: 58 cases (25%). Cases among the 15–24 age group increased by 2.9% in 2023, whereas TB incidence in individuals aged ≥65 years declined by 2.2% in 2024 compared to the previous year. Additionally, TB cases in the 35–54 age group rose by an average of 4.7%. Of all TB cases, pulmonary TB accounted for 201 cases (86.6%), while extrapulmonary TB comprised 31 cases (13.4%). This distribution remains consistent with the pulmonary-to-extrapulmonary TB ratio observed during the COVID-19 pandemic period (2020–2022), during which pulmonary TB comprised over 90% of cases.

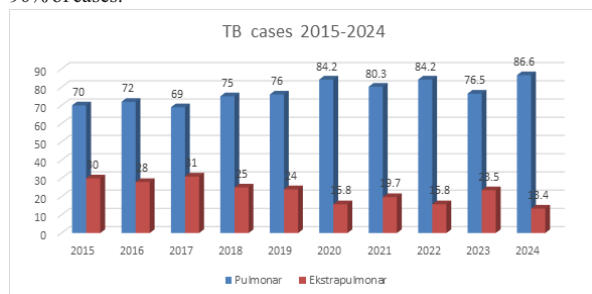


Figure 2; Classification of tuberculosis by form: pulmonary and extrapulmonary TB

In terms of geographical distribution, 61.2% (142 cases) of TB patients resided in urban areas, while 38.8% (90 cases) were from rural areas. Notably, the proportion of urban TB cases declined by 2.4% compared to 2023.

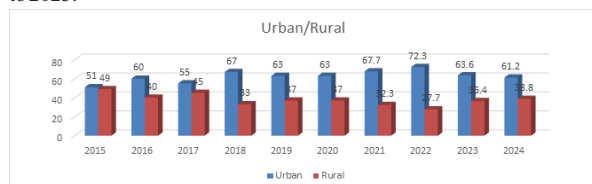


Figure 3; TB cases by geographical distribution

Regarding gender distribution, 157 cases (67.7%) were male, and 75 cases (32.3%) were female, maintaining an approximate 2:1 male-to-female ratio. A 2.5% decrease in female cases was observed compared

to 2023. High-risk populations such as migrants, individuals with alcohol use disorders, drug users, HIV-positive individuals, healthcare personnel, and members of the Roma community accounted for approximately 15% of TB cases in 2024. Compared to 2023, TB cases in high-risk groups increased by 3%, primarily due to seasonal migrants with temporary residence in countries such as Germany and Italy. HIV testing was performed in 90% of all TB cases, identifying 5 TB/HIV co-infections, including one case in a prison hospital. The expansion of HIV testing is partly attributed to Global Fund support, which enabled the provision of rapid diagnostic kits to TB dispensaries across the country. Dispensary staff were trained by the National HIV Program to perform rapid HIV tests. A significant proportion of cases in 2024, 79 individuals (34%), were identified through household contact tracing, marking a 15% increase from 2023. This improvement reflects enhanced monitoring and contact investigation strategies. A total of five cases of drug-resistant TB were reported, 2 cases of multidrug-resistant TB (MDR-TB), 3 cases of monoresistance, specifically to Isoniazid and Streptomycin. All pulmonary TB cases were confirmed through bacteriological testing, including direct microscopy and rapid testing using GeneXpert, which was utilized in 90% of cases at the National TB Reference Laboratory. To facilitate early detection nationwide, the sputum sample transport system from peripheral to central laboratories was strengthened in 2024. The highest number of TB cases were reported in the following regions: Tirana: 34%, Durrës: 10%, Shkodër: 9.5% Lezhë: 6.5%, Kukës: 5.2%. The COVID-19 pandemic brought significant changes to tuberculosis (TB) care and prevention.

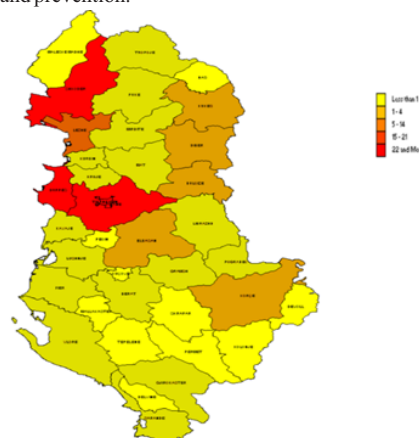


Figure 4; Geographical Distribution of Tuberculosis (TB) Cases in Albania – 2024

Although the world has entered the post pandemic period, the number of reported TB cases in Albania continues to decline year after year compared to the pre-pandemic period. Improved disease control measures and the widespread use of personal protective equipment (PPE) may have contributed to reducing community transmission of TB. In particular, the reduction of large gatherings and the use of face masks during the pandemic likely played a role in lowering the risk of TB transmission. Moreover, the decrease in population due to emigration in recent years may also be a contributing factor to the reduced number of TB cases, according to TB specialists. The recovery following the pandemic has progressed gradually, despite the ongoing implementation of TB treatment and monitoring programs aimed at maintaining control over the disease.

CONCLUSION

To ensure effective and sustainable tuberculosis control in Albania, several strategic actions are being prioritized within the national public health framework. A key focus remains the continuous supply of reagents and diagnostic tests for the GeneXpert system, enabling real-time and accurate detection of TB cases. Equally important is the strengthening of the sputum collection and transport system from district health centers to the National TB Reference Laboratory at the “Shefqet Ndroqi” University Hospital, ensuring timely diagnosis across the country. Community engagement and patient support are essential pillars. Thus, efforts to raise awareness, reduce stigma, and promote TB prevention through sensitization campaigns and partnerships with local institutions are being intensified. These are complemented by the integration of TB services into primary health care, ensuring that early detection and treatment are embedded in routine care. To improve service quality, performance-based indicators

for general practitioners and nurses are being incorporated into contractual agreements with the Health Insurance Fund creating incentives aligned with TB prevention and control objectives. Healthcare provider capacity remains a priority. Comprehensive training programs are being implemented to equip providers with the skills to identify suspected TB cases, strengthen the referral system, and follow up on all individuals referred for TB screening. Primary healthcare staff are also receiving targeted training to enhance service delivery for TB patients. Finally, continuous monitoring and evaluation of TB control activities at dispensaries and district public health units, as well as ongoing investments in research and system integration, are critical to achieving universal access to TB care and advancing the national TB control.

Future Scope

The future scope of TB research in Albania focuses on strengthening diagnostics, improving treatment outcomes, and enhancing public health interventions. Priority should be given to developing rapid, affordable, and accurate diagnostic tools, especially for extrapulmonary and drug-resistant TB. Molecular methods such as point-of-care nucleic acid amplification and sequencing technologies can support early detection and better case management. Strengthening laboratory capacity and access to diagnostics at regional levels will be essential to support Albania's efforts to achieve the WHO End TB Strategy targets.

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