also scale up treatment and securing commitment to prevention in all healthcare sectors. Hepatitis elimination is a national priority but it requires combined efforts of the government, international partners and non-governmental organizations and adoption of WHO guidelines for safety-engineered syringes. If we do not act, Pakistan will face over 11 million HCV cases by 2035, leading to 500,000+ liver cirrhosis cases, 100,000+ cases of liver cancer, and 130,000 HCV-related deaths.

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COMPARATIVE ANALYSIS OF TUBERCULOSIS EPIDEMIOLOGY AND CONTROL STRATEGIES IN ENGLAND AND BELARUS

Introduction

Tuberculosis (TB) persists as a major global cause of mortality, despite the availability of effective treatment. The disease disproportionately affects the world's most vulnerable populations, creating a blatant divide between high- and low-income countries. In response, the World Health Organisation (WHO) launched the ambitious End TB strategy in 2015, aiming to reduce TB incidence by 80% and deaths by 90% by 2035 [1]. The path to achieving this goal, however, differs drastically based on a country's existing epidemiological context and challenges.

This article examines this divide through a comparative analysis of England and Belarus, two nations facing distinct TB endemics. England is a low-incidence country (less than 10 cases per 100,000). Most cases arise from reactivation of latent TB infection (LTBI) aquired abroad, particularly in migrants from high-burden countries, and focused on pre-entry screening and post entry LTBI management. In contrast, Belarus is a high-priority country within the WHO European region, struggling with a high rate of primary transmission and one of the world's highest burdens of multidrug-resistant TB (MDR-TB).

By comparing the epidemiological trends and control measures in England and Belarus, this study aims to investigate how their differing national contexts lead to divergent control strategies.

Goal

The aim of this article is to compare the epidemiology, socio-economic factors and control strategies of TB, highlighting the key factors responsible for the disparity in TB burden between England and Belarus.

Material and Methods of research

Data was gathered from publicly available data, Gomel oblast tuberculosis hospital and published literature. For data from Belarus the WHO global tuberculosis report 2024, Gomel oblast statistics from the Gomel oblast tuberculosis hospital and other peer-reviewed literature was used. For data from England, the tuberculosis in England, 2025 report by the UK health security agency (UKHSA) and UK government publications were used.

The results of the research and their discussion

As of 2023, England is classed as a low incidence country for TB with a rate of 9.4 cases per 100,000. However, this figure does not consider the profound disparities. Incident rates exceed 20 per 100,000 in London and the most deprived areas, where rates have increased from 15.7 in 2019 to current rates of 17.5 per 100,000 [1]. This figure is more than double the rate in the remaining areas, reflecting the impact of social determinants like homelessness and substance misuse. The epidemiology is further characterised by a high burden among individuals born outside the UK, who accounted for 81.9% of all cases, primarily due to reactivation of latent TB infection acquired abroad from high incidence countries. England is striving to meet the WHO 'End TB' goal, however since 2022 there has been a concerning annual 10% increase in reported cases, a trend projected to surpass the WHO low incidence threshold by 2025. The current TB action plan for England (2021-2026) outlines a strategy based on pre-entry screening for active TB and post-entry latent TB testing and treatment, coordinated by the NHS [2]. This plan aims to reduce domestic transmission of TB and enable early detection of reactivated latent TB. The recent surge in cases reported since 2022 has been largely attributed to disruptions in TB detection and treatment during the COVID-19 pandemic. The COVID-19 pandemic differentially impacted TB services. The absence of a strict lockdown in Belarus ensured continuity of TB detection and treatment. Meanwhile, the UK experienced significant service disruptions, leading to a post-lockdown surge in cases from which the system is still recovering. To address the increase in TB cases after the pandemic, the plan prioritises five key areas: recovering from pandemic-related disruptions, improving preventative measures, optimising detection, ensuring disease control, and strengthening the specialised healthcare workforce. The prevalence of MDR-TB in England remains, with approximately 2.2% of cultured cases confirming resistance to first line anti-TB drugs. Consequently, MDR-TB is not currently a primary focus of national control efforts.

Belarus has demonstrated significant progress in its TB control efforts over the past decade, with the WHO-estimated incidence rate nearly halving since 2015 [3]. However, a substantial disparity persists between modelled and reported incidence. The WHO estimate for 2023 was 27 per 100,000 population, while nationally reported cases presented rates of 13.9 and 11.4 per 100,000 for 2023 and 2024. This incidence-notification gap likely stems from several factors, including diagnostic complexities in extrapulmonary and HIV-associated TB, limitations in healthcare access in rural regions, and professional healthcare seeking delays due to stigma. A major ongoing challenge is the high prevalence of multidrug-resistant TB (MDR-TB), which represented 39.2% of confirmed pulmonary cases in 2024. Critically, about

60% of these MDR-TB cases are classified as primary MDR, meaning the patients had no prior history of TB treatment. This high rate of primary resistance was likely fuelled by a large, undetected reservoir of MDR-TB in Belarus during the 1990s, a period when molecular diagnostics for drug resistance were unavailable. The epidemic is not evenly distributed, with the highest burden concentrated in the eastern regions, particularly Gomel. In 2024, Gomel reported an incidence of 17.1 per 100,000, with over 63% of cases occurring in urban settings. This region also bears the disproportionate burden of HIV co-infection, with 14.8% of TB patients in 2024 being HIV-positive. Socioeconomic determinants are strongly correlated with TB risk; social status data indicate that 43.2% of patients were unemployed and 23.1% were pensioners. Furthermore, a history of alcohol use disorder, a significant public health issue in Belarus, is a known risk factor often linked with unemployment and socioeconomic deprivation as well as poor adherence to treatment [4, 5].

Table 1 – Social statuses of reported TB incidents in Gomel oblast in 2024

Social status	Pensioners	Unemployed	Employed	Disabled	Other
Percentage of cases (%)	23.1	43.2	25.3	4.8	3.6

In total, over 71% of TB cases in Gomel occurred among these disadvantaged groups, highlighting profound health inequities and emphasising the need for targeted public health interventions. National TB control strategies include primary prevention and active case-finding. The Bacille Calmette-Guérin (BCG) vaccine is administered to infants between the third and fifth day of life to prevent severe forms of childhood TB, such as miliary and meningeal disease. Surveillance in paediatric populations involves regular tuberculin skin testing for high-risk groups. For adults, mass screening via X-ray is recommended every 1–3 years. However, the efficacy of this approach is debated, as evidence suggests it lacks cost-effectiveness and demonstrates no significant mortality benefit [6]. A more selective screening strategy with better diagnostic equipment, as recommended by the WHO, is highly supported to optimise resource allocation.

The UK's control strategy is established on its epidemiological profile, where most cases are imported; therefore, it focuses on screening migrants and contact tracing [1]. The BCG vaccine is administered selectively to high-risk groups, such as infants in high-incidence households or healthcare workers [7]. In contrast, Belarus utilises universal BCG vaccination of neonates and mass chest X-ray screening for adults due to its higher domestic transmission rates within the general population. Divergence is also apparent in treatment protocols. Upon diagnosis, Belarus typically mandates a minimum two-month inpatient isolation period for active TB cases, in addition to contact tracing. The UK, prioritising outpatient care, generally advises home isolation for the initial 2-3 weeks of treatment. Directly Observed Therapy (DOT) is only reserved for complex cases [1, 7]. While this outpatient model reduces healthcare system strain, it causes challenges in treatment supervision, with 15.6% of patients in England not completing treatment within a 12-month period [1]. Both nations, however, adhere to the WHO-recommended minimum six-month treatment duration.

Conclusion

England's trajectory is currently moving away from the WHO targets, driven by the surge in TB cases post-pandemic and persistent health inequalities among its most disadvantaged groups. To reverse this trend and meet the WHO 'End TB' goal, a strengthened strategy is crucial to directly address the urban hotspots burdening healthcare and profound inequality gaps driving the TB resurgence.

Despite a declining incidence, Belarus's trajectory remains challenged by its high MDR-TB burden and a significant incidence-notification gap. To align with the WHO 'End TB' goals, a strategic pivot from generalised screening and lengthy hospitalisation towards a targeted, cost-effective model is essential. This shift must prioritise rapid molecular diagnostics for high-risk groups and address the underlying socioeconomic drivers, particularly in eastern regions like Gomel, to effectively control transmission and overcome the drug-resistant crisis.

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PREVALENCE OF CHOLERA IN INDIA

Introduction

Cholera, a persistent public health concern in India, is caused by Vibrio cholerae, a gram-negative bacterium [1]. Despite water supply management, sanitation reforms, and vaccination efforts, recurrent outbreaks occur in densely populated or flood-prone areas. Factors like inadequate sewage treatment, poor hand hygiene, open defecation, and unchlorinated municipal water systems contribute to transmission. The Ganges delta region, historically a reservoir of V. cholerae strains, continues to act as a reservoir. Despite improved treatment, the persistence of outbreaks underscores the need for revitalized public health interventions [2].