

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
КАФЕДРА ПУЛЬМОНОЛОГИИ, ФТИЗИАТРИИ, АЛЛЕРГОЛОГИИ И ПРОФПАТОЛОГИИ
С КУРСОМ ПОВЫШЕНИЯ КВАЛИФИКАЦИИ И ПЕРЕПОДГОТОВКИ

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МЕЖДУНАРОДНЫЕ СТРАТЕГИИ БОРЬБЫ С ТУБЕРКУЛЕЗОМ

INTERNATIONAL STRATEGIES FOR COMBATING TUBERCULOSIS

Учебно-методическое пособие



Минск БГМУ 2025

УДК [616.24-002.5:327:616-084](075.8)-054.6

ББК 55.4я73

К82

Рекомендовано Научно-методическим советом университета в качестве учебно-методического пособия 21.05.2025 г., протокол № 9

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К82 Международные стратегии борьбы с туберкулезом = International strategies for combating tuberculosis : учебно-методическое пособие / Ж. И. Кривошеева, Н. А. Емельянова, Д. М. Журкин. – Минск : БГМУ, 2025. – 16 с.

ISBN 978-985-21-2025-8.

Изложены основные положения Плана действий по борьбе с туберкулезом для Европейского региона ВОЗ и региональные целевые ориентиры до 2030 г., стратегические приоритеты и действия регуляторного характера, направленные на предупреждение заболевания туберкулезом. Отражено также влияние пандемии COVID-19 на работу фтизиатрической службы и меры по ограничению дальнейшего распространения туберкулезной инфекции среди населения. Детально рассмотрены важные факторы, которые препятствуют достижению глобальных целевых ориентиров стратегии по ликвидации туберкулеза.

Предназначено для студентов 4, 6-го курсов медицинского факультета иностранных учащихся, обучающихся по специальности «Лечебное дело».

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ISBN 978-985-21-2025-8

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Журкин Д. М., 2025

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MOTIVATIONAL CHARACTERISTICS OF THE TOPIC

Topic: «International Strategies for Combating Tuberculosis. WHO Recommendations on Detection, Treatment, and Prevention of Tuberculosis».

Tuberculosis (TB) and drug-resistant tuberculosis (DR-TB) continue to pose serious public health threats in the WHO European Region. Since 2015, countries in this region have made significant progress in reducing overall TB incidence and mortality, achieving the fastest decline rates among all WHO regions. This success has been achieved through government funding, improved access to WHO-recommended rapid molecular diagnostic methods, enhanced testing quality, transition to new short treatment regimens for both TB and its drug-resistant forms, and the expanded use of person-centered comprehensive tuberculosis care models.

Objective: to study the main international strategies for TB elimination and joint actions by countries for effective protection of people from health emergencies, including TB outbreaks.

Learning objectives. Students should:

- familiarize themselves with key areas of work to ensure universal access to TB prevention, diagnosis, and treatment;
- study the key provisions of the TB Action Plan and regional targets up to 2030;
- explore the challenges in providing tuberculosis care during and after the COVID-19 pandemic in various countries;
- examine different service delivery models, forms, and methods of remote assistance and support for people with TB;
- identify important factors impeding the achievement of global targets of the TB elimination strategy in Eastern Europe and Central Asia (EECA).

In the late 1980s and early 1990s, as the HIV epidemic gained momentum, funding for tuberculosis programs declined in many developed countries. Following the collapse of the Soviet Union, TB incidence and mortality significantly increased, making TB the sixth leading cause of death globally by 1990. In 1993, WHO declared TB a global public health emergency and, in 1994, introduced a new approach to combating TB—the DOTS program (Directly Observed Therapy, Short-course), which later became the comprehensive WHO strategy. It included measures of governmental support, medication supply chain management, monitoring and evaluation, complementing TB treatment with standard regimens. This was followed by the DOTS-Plus program in 1999, which introduced culture-based diagnostics, drug susceptibility testing, and second-line drugs for multidrug-resistant tuberculosis (MDR-TB).

The establishment of the Global Fund to Fight AIDS, Tuberculosis, and Malaria in 2002 boosted funding for the TB epidemic response. However, compared to HIV and malaria, TB incidence rates have declined very slowly. From

2000 onward, TB incidence reduction rates have ranged from less than 1 % to 1.5 % per year, with variations across countries and regions.

Challenges in tuberculosis control led to the launch of a new strategy in 2006, “Stop TB”, which emphasized expanding DOTS coverage, improving laboratory facilities, and addressing HIV-associated TB and MDR-TB. In May 2014, the World Health Assembly, convened annually by WHO at the Palais des Nations in Geneva, adopted a resolution fully approving the new Global TB Strategy. The ambitious goals set for the post-2015 period included “Eliminating the TB Epidemic” (End TB Strategy). This strategy aimed to end the global TB epidemic, reduce mortality by 95 %, decrease new cases by 90 % from 2015 to 2035, and ensure that no family faces catastrophic TB-related expenses.

RATIONALE FOR DEVELOPING THE REGIONAL ACTION PLAN FOR COMBATING TUBERCULOSIS FOR 2023–2030

Most WHO member states in the European Region (Western Europe) are successfully progressing toward TB elimination. However, in some countries in the eastern part of the region, a high burden of DR-TB remains. EECA countries account for 24 % of all TB cases with multidrug resistance or rifampicin resistance (MDR/RR-TB) and 47 % of TB cases with pre-extensive drug resistance profiles. The proportion of MDR/RR-TB cases identified among new and previously treated TB patients significantly exceeds the global average values: MDR/RR-TB accounts for 18 % among newly diagnosed and 53 % among previously treated patients. Moreover, the level of TB/HIV co-infection is increasing in the WHO European Region: in 2020, the estimated rate of HIV infection among new TB cases and relapses was 12 %, compared to 9.7 % in 2015.

At the 72nd session of the WHO Regional Committee for Europe, the member states approved the TB Action Plan for the WHO European Region for 2023–2030. To strengthen regional measures for reducing TB incidence, this plan outlines the priorities of member states under new conditions (COVID-19 pandemic and other emergencies) and reflects the urgency of resuming efforts to achieve TB elimination goals. The Action Plan presents a general vision and strategic steps to reduce the TB burden by 2030.

OVERVIEW OF THE ACTION PLAN FOR COMBATING TUBERCULOSIS IN THE WHO EUROPEAN REGION FOR 2023–2030

The goal of the Action Plan for Combating TB is to stop the spread of this disease by ensuring universal access to prevention, diagnosis, and treatment in all countries of the European Region, thereby contributing to achieving the goal of the End TB Strategy. Universal access means providing quality services that are accessible, affordable, and acceptable to everyone, enshrining access to healthcare as a fundamental human right through approaches that protect and uphold the principles of equity, ethics, gender equality, and human rights.

Regional targets for the European Region to be achieved by 2030 (compared to 2015 levels) include:

- reduction in TB mortality by 90 %;
- reduction in TB incidence by 80 %;
- increase in the treatment success rate for MDR/RR-TB patients to 85 %.

Regional intermediate indicators to be achieved by 2025:

- reduction in TB mortality by 75 %;
- reduction in TB incidence by 50 %;
- increase in the treatment success rate for MDR/RR-TB patients to 80 %.

Key areas of work (priority areas of intervention) aimed at implementing the tuberculosis action plan:

I. Integrated and people-centered medical care and prevention:

1. People-centered approach: a comprehensive approach based on partnerships with primary healthcare, public health, and civil society to implement joint actions.

Providing effective care to individuals with TB and MDR-TB requires the adoption of interdisciplinary service delivery models, people-centered practices, collaboration, development of clinical skills, and high staff motivation.

Achievements during 2016–2021 in this area include the adoption of people-centered care models as part of policies and strategies by countries and efforts to transition to outpatient care, particularly in countries participating in the multi-partner Regional TB Project in EECA countries. However, despite the measures taken, the reduction rate of unjustified hospitalizations for TB cases was lower than expected. Documented effectiveness of TB control measures and significant efforts by member states provide a solid foundation for implementing national TB programs to ensure people-centered care for families affected by this disease.

The COVID-19 pandemic and other public health emergencies emphasize the importance of ensuring the readiness of health services, including TB services, to respond to emergencies, their resilience (ability to continue providing essential services), and their capacity to recover quickly.

Adopting predominantly outpatient models of care, involving general health services, applying multidisciplinary approaches, and reducing hospitalizations to cases with clear clinical criteria is critically important. The focus on integrating TB, HIV, and viral hepatitis control measures will continue within the framework of implementing the UN Common Position on Ending HIV, TB, and Viral Hepatitis.

2. Ensuring healthcare access for key vulnerable groups. Tuberculosis is closely linked to factors weakening the immune system (including HIV infection, diabetes, and other non-communicable diseases; tobacco, alcohol, and drug use) and with social, economic, and environmental determinants increasing the risk of infection and vulnerability to TB (poverty, unemployment, imprisonment, and migration). This means that increasing inequality amid insufficient social protection contributes to the TB burden, and measures against the COVID-19 pandemic exacerbate the problem of inequality and injustice in TB control. Nosocomial transmission, especially in closed settings and places with crowding, is one of the factors contributing to the TB epidemic in the European Region.

Tuberculosis significantly impacts the health and socioeconomic status of children: almost 1 million children have TB, and 10 million children have become orphans due to TB. Children suffering from TB require prolonged hospitalization, which is associated with high treatment costs or parents being absent from work.

A biosocial approach to solving the TB problem requires adaptation, considering the individual characteristics of socioeconomically disadvantaged population groups, cultural nuances, and widespread stigma.

3. Protecting and promoting the principles of social justice, ethics, gender equality, and human rights in TB control. The right to health, defined as the highest attainable level of physical and mental health, is a fundamental right of every individual and is enshrined in the WHO Constitution. Social justice, ethical principles, and values are at the core of the End TB Strategy. Ethics examines what should or should not be done, includes the evaluation of our actions, intentions, and habits. Human rights are legal guarantees that protect individuals and groups from actions infringing on fundamental freedoms and human dignity while requiring the state to fulfill positive obligations.

Applying biomedical approaches alone does not significantly reduce the TB burden. While expanding universal healthcare coverage will improve population access to essential medical services and protect against catastrophic healthcare expenses, these measures alone will not suffice. Social determinants are the defining factor of the TB burden and heavily influence TB control activities. Implementing a biosocial approach, which goes beyond biomedical approaches and includes socioeconomic and environmental measures, is essential for TB control.

4. Systematic screening for active TB in target population groups. The goal of systematic screening (or active case finding for TB) is the early detection of active TB to minimize preventable delays in diagnosis and treatment initiation

while simultaneously reducing the risk of adverse treatment outcomes, health impacts, and undesirable social and economic consequences of TB. Additionally, screening reduces TB transmission in households, workplaces, schools, or other public spaces, allowing isolation of individuals with active TB and shortening the period during which they pose an epidemic risk. This reduces infection rates and, consequently, the incidence and prevalence of active TB.

5. Early diagnosis of all forms of TB and universal access to drug susceptibility testing, including rapid tests. Delayed diagnosis of TB and DR-TB and, consequently, late initiation of appropriate therapy, is one of the main factors resulting in poor treatment outcomes and ongoing infection transmission. Ensuring universal coverage of drug susceptibility testing for all patients using molecular methods for rapid detection of drug resistance to all drugs used for treating TB and DR-TB and making these methods accessible near the point of care must become a priority. In countries with low TB burdens, ensuring access for vulnerable groups (high-risk groups and those living in remote areas) will help reduce the time to confirm the diagnosis and initiate appropriate therapy promptly, decrease the risk of adverse treatment outcomes, and save lives.

Equal access to quality treatment for all individuals with TB, DR-TB, and comorbidities, as well as providing patient support, will enhance treatment adherence/compliance.

Despite steady improvements in TB treatment outcomes, many countries have not reached the regional target set for 2020. Factors contributing to low treatment success rates among DR-TB cohorts include deficiencies in clinical management and health system-level barriers. Efforts must be intensified to ensure universal access to proven, effective, and safe treatment regimens for MDR/RR-TB in both programmatic use and operational research.

6. Addressing TB-related comorbidities and disabilities. In collaboration with relevant professional organizations, periodic assessment of risk factors for comorbidities and disabilities among people with TB should be conducted to provide appropriate prevention, treatment, and rehabilitation. Mechanisms of collaboration between all healthcare programs should be strengthened, considering local epidemiology. The problem of comorbidities and disabilities among people with TB should be addressed by incorporating management and prevention of comorbidities, and disability-related rehabilitation, into national TB guidelines and patient referral systems for necessary care.

II. Active Policies and Supporting Systems:

1. Strategic Management and Governance. Governmental support is essential for accelerating the implementation of measures aimed at combating the TB epidemic, including the development of appropriate policies, allocation of resources, management, and accountability. Healthcare system governance determines its ability to provide equitable, sustainable, and high-quality medical

services, particularly TB treatment and prevention services, ensuring no one is left behind.

The End TB Strategy includes the goal of reducing catastrophic costs (including both direct medical and non-medical expenses, as well as income losses) due to TB, particularly for families affected by this disease. Currently, few countries in the European Region have conducted studies on the cost of TB treatment.

2. **Healthcare Workforce.** Medical personnel play a vital role in every healthcare system. A people-centered model of care delivery requires a wide range of services provided by various medical and non-medical professionals, including psychologists, social and community workers, and peer consultants. With the shift toward more decentralized primary healthcare models, it is crucial for TB services to include functions for patient retention and equitable service provision. However, many countries face significant challenges related to staffing in healthcare institutions, including acute shortages of workers and inadequate occupational structures among personnel.

3. **Epidemiological Surveillance and Monitoring of Responses.** Information obtained through systematic collection, analysis, and dissemination of epidemiological surveillance data is vital for justifying policies, planning, and conducting targeted activities. Despite significant investments and progress made in the European Region, many countries continue to face numerous challenges related to data systems, including poor quality, fragmentation, and inconsistency, a heavy reporting burden for frontline workers, and limited capacity for data analysis and use at local and national levels.

4. **Digital Health.** Digital health solutions have the potential to transform traditional care delivery and control forms into more accessible and convenient solutions with high effectiveness. The use of digital technologies to ensure patient adherence to treatment, considering challenges arising during public health emergencies, is a new reality.

5. **Procurement and Supply Chain Management.** Governments' ability to ensure access to and affordability of new technologies, including diagnostic tools and treatment regimens, is central to their implementation. During the COVID-19 pandemic, countries faced difficulties in supplying essential medical goods, including priority TB diagnostics and medications, as well as drugs and medical supplies for emergency healthcare.

III. Enhancing Research and Innovation Activities. Achieving the goals of the End TB Strategy requires rapid implementation of innovations. This necessitates conducting operational research and using its results to develop, implement, and scale up innovations, as well as urgently increasing financial investments to support the development of new tools that can quickly become accessible and widely available in the next decade.

The high prevalence of MDR/RR-TB, comorbidities, and coinfections in the European Region continue to pose a significant threat to progress in achieving the global targets of the End TB Strategy. Many health programs operate under challenging conditions and face financial constraints. Over the past decade, efforts have been made to increase successful treatment rates for MDR/RR-TB, with positive trends observed following the recommendation of new drugs for MDR-TB treatment.

The limitations of available TB vaccines are well-documented in scientific literature. The BCG vaccine was developed in the 1920s, and its estimated efficacy ranges from 80 % protection to no protection at all. Concerns over the duration of the vaccine's protective effect and its subsequent population-level effects in preventing active TB among adolescents and adults remain significant. Interest in developing new TB vaccines remains high, yet achieving highly effective and long-lasting vaccines remains a challenging task.

In line with strategic goals, research in TB control must be accelerated, ensuring equitable access to the benefits of scientific research to help the European Region move closer to TB elimination through the following two directions:

- discovery, development, and rapid implementation of new tools, interventions, and strategies;
- research to optimize the implementation and advancement of developments.

In 2023, WHO launched a research tracking mechanism aimed at providing a user-friendly platform for monitoring new TB drugs, treatment regimens, and vaccines nearing release, as well as operational research projects. According to the tracking mechanism, by mid-2023, there were at least 28 drugs, 16 vaccines, and several diagnostic tools in clinical development (compared to 22 drugs and 14 vaccines in 2020).

IMPACT OF THE COVID-19 PANDEMIC ON HEALTHCARE SYSTEMS

Globally, the COVID-19 pandemic has had serious consequences for the health and socio-economic aspects of people's lives, which are also felt in the countries of the European Region. The pandemic placed significant pressure on healthcare and social protection systems, creating additional challenges for health and well-being throughout the region, with profound effects on people affected by TB. Disruptions in service delivery and barriers to accessing healthcare during the pandemic severely impacted progress toward achieving TB targets, leading to a significant reduction in registered cases and treatment coverage, particularly for MDR/RR-TB. In 2020, case registration decreased by 24 % compared to 2019 levels, and TB mortality in 2020 increased by 5 %, marking the first rise in more than two decades in TB-related deaths among HIV-positive patients.

To ensure the continuity of essential tuberculosis services during and after the pandemic, WHO released strategic and technical guidelines for their integration and urged member states to undertake key actions needed to address the backlog, including:

1. Limiting TB and COVID-19 transmission in crowded places and healthcare facilities by ensuring basic infection prevention and control measures for healthcare workers and patients, cough etiquette, and medical triage of patients.
2. Utilizing the knowledge and experience of national TB programs, including rapid testing, contact tracing, and treatment research, through collaboration with COVID-19 response initiatives.
3. Promoting people-centered tuberculosis care delivered on an outpatient basis instead of hospital-based treatment, except in cases of severe clinical indications.
4. Utilizing WHO-recommended injection-free chemotherapy regimens for TB.
5. Expanding remote formats of assistance and support for people with TB as much as possible, as well as enhancing the capacity of national TB programs through the use of digital technologies.
6. Ensuring screening and testing for TB and COVID-19 when indicated.
7. Monitoring initiatives.
8. Ensuring active planning and budgeting for TB and COVID-19 control efforts (including during the backlog elimination stage), supply of materials etc.

KEY PRIORITIES OF THE EUROPEAN PROGRAM OF WORK FOR 2020–2025

The European Program of Work (EPW) for 2020–2025, titled “United Action for Better Health in Europe,” was presented for adoption at the 70th session of the WHO Regional Committee for Europe in September 2020.

It focuses on three main priorities:

1. Ensuring universal health coverage, with a focus on five areas:
 - people-centered health services;
 - strengthening and expanding financial protection;
 - addressing workforce challenges during recovery from the COVID-19 pandemic;
 - ensuring access to all essential medicines, vaccines, and medical products;
 - improving strategic governance and management.
2. Enhancing the protection of people from health emergencies. The crisis caused by the COVID-19 pandemic remains a transformative experience for

the European Region. This crisis underscored the need to address three health challenges:

- learning lessons: expanding the ongoing operational review of the COVID-19 crisis into an official review of the region’s responses to recent health emergencies;

- sustaining preparedness and response capabilities of countries;

- strengthening regional preparedness and response capabilities while creating public goods necessary for crisis management.

3. Promoting healthy lifestyles and well-being for all ages. Effective disease prevention, health promotion, and well-being enhancement require programs with clearly defined commitments for targeted and specific efforts in public health:

- supporting local environments that foster health promotion and well-being;

- promoting safer, healthier, and higher-quality lifestyles;

- improving patient safety and addressing antimicrobial resistance;

- developing a strategic information system to monitor existing inequalities in health and well-being;

- reviewing established programs and assessing the need for increased effectiveness through innovations in digitalization, technology use, and organizational practices.

All member states of the WHO are committed to these priorities, aligning them with the Sustainable Development Goals (SDGs) for the region by 2030.

The targets of the TB Action Plan were aligned with the key priorities and initiatives of the EPW.

The implementation of the TB Action Plan will contribute to achieving universal health coverage by focusing on introducing key TB interventions at the primary healthcare level; reducing financial barriers for key population groups; removing financial and geographical barriers to accessing healthcare; and addressing barriers related to gender, human rights, stigma, and discrimination.

The TB Action Plan will accelerate progress in implementing the potential of primary healthcare by enhancing its role and multidisciplinary service networks aimed at improving physical and mental health and increasing the social well-being of individuals affected by TB. Moreover, the implementation of effective regional measures against TB, including improvement of service delivery, strengthening healthcare personnel and financing, developing diagnostic networks, managing procurement and supply, and enhancing data systems will improve the reliability of health systems overall.

The contribution of the TB Action Plan to the implementation of the EPW will be measured using specific TB indicators and targets to be achieved first by 2025 (as an interim result) and then by 2030. Additional emphasis will be placed on catching up on progress lost due to the COVID-19 pandemic, protecting health

gains during emergencies, and ensuring better preparedness to maintain essential TB services during crises.

The predictive model for the TB care cascade consists of three periods of intervention:

1. 2016–2020: progress in achieving universal health coverage.
2. 2021–2025: introduction of innovative interventions/tools.
3. 2027–2030: implementation of the so-called “ideal” measures (i.e., effective vaccination).

This approach presents a forecast of TB incidence and mortality rates up to 2035, comparing the decline in incidence with the WHO-defined TB elimination threshold. The disruptions in TB detection and treatment caused by the COVID-19 pandemic during 2020–2021 are also taken into account.

The alarming spread of the dangerous combination of TB with HIV infection, high levels of drug dependence, and the prevalence of viral hepatitis among TB patients, particularly those with MDR/RR-TB, are critical factors hindering the achievement of the global targets of the End TB Strategy in the European Region. Coordination among national programs to ensure equal access to quality treatment and medical care for all TB patients, maximizing complementary connections and initiatives, and establishing access to healthcare as a fundamental human right will enable the region to achieve the goal of eliminating the TB burden by 2030 (Fig.).

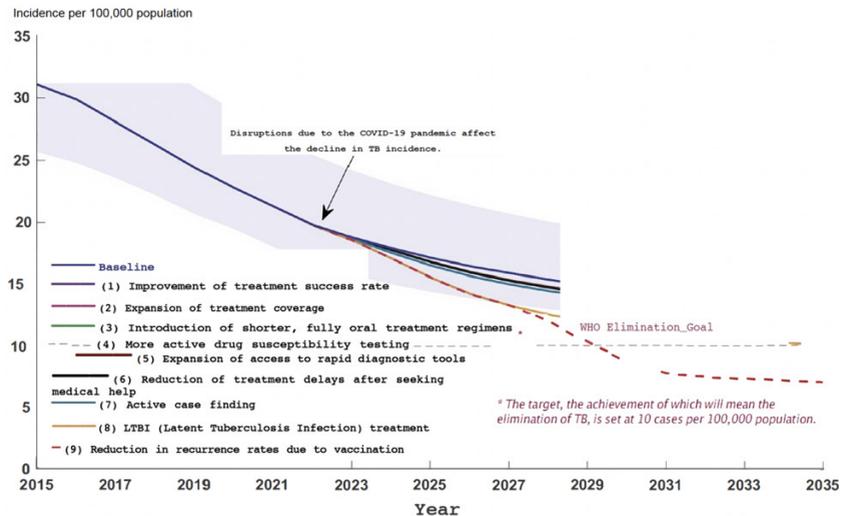


Fig. Forecasted Tuberculosis Incidence in the European Region for 2016–2035

Additional global targets on tuberculosis control adopted in 2023 at the 2nd High-Level Meeting of the UN General Assembly:

1. Treatment coverage for TB patients — 90 % by 2027 (equivalent to 45 million people worldwide from 2023 to 2027, including up to 4.5 million children and up to 1.5 million people with DR-TB).

2. Preventive TB treatment coverage — 90 % by 2027 (equivalent to approximately 45 million people worldwide from 2023 to 2027, including 30 million household contacts of TB patients and 15 million people living with HIV).

3. Diagnostic rapid testing coverage for TB — 100 % by 2027.

4. Coverage of TB patients with medical and social benefit packages — 100 % by 2027.

5. Annual funding for core TB control services — \$22 billion USD by 2027, \$35 billion USD by 2030.

6. Annual investments in TB research — \$5 billion USD by 2027.

7. Availability of new safe and effective TB vaccines — introduction preferably within five years.

DISCUSSING QUESTIONS ON THE TOPIC

1. What are the regional targets of the TB Action Plan for 2030?

2. What are the intermediate targets of the TB Action Plan to be achieved by 2025?

3. Identify the main directions — key intervention areas — to ensure universal access to TB prevention, diagnosis, and treatment in the European Region.

4. What were the main challenges in providing tuberculosis care to the population during and after the COVID-19 pandemic in various countries?

5. Name the key actions needed to address the backlog and restore work after the COVID-19 epidemic.

6. Determine the most critical factors preventing the achievement of the global targets of the End TB Strategy in EECA countries.

7. List the main priorities and flagship initiatives of the EPW.

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Учебное издание

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БОРЬБЫ С ТУБЕРКУЛЕЗОМ**

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Учебно-методическое пособие

На английском языке

Ответственная за выпуск Е. А. Лаптева
Компьютерная вёрстка М. Г. Лободы

Подписано в печать 26.09.25. Формат 60×84/16. Бумага писчая «PROJECTA Special».
Ризография. Гарнитура «Times».
Усл. печ. л. 0,93. Уч.-изд. л. 0,81. Тираж 50 экз. Заказ 685.

Издатель и полиграфическое исполнение: учреждение образования
«Белорусский государственный медицинский университет».
Свидетельство о государственной регистрации издателя, изготовителя,
распространителя печатных изданий № 1/187 от 24.11.2023.
Ул. Ленинградская, 6, 220006, Минск.