



Fact sheets on sustainable development goals: health targets

Tuberculosis

Tuberculosis (TB) remains a major global health problem, causing ill health in millions of people each year. It is one of the leading causes of death from an infectious disease (1). Nine of the world's 30 countries with a high burden of multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB) are within the European Region (2). TB is a serious threat to the gains in health and development and the attainment of the Sustainable Development Goals (SDGs). Action is necessary across all sectors and settings to end TB.

Overview

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can also affect other sites (extrapulmonary TB). The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, for example by coughing. Overall, a relatively small proportion (5–15%) of the estimated 2–3 billion people infected with *M. tuberculosis* will develop TB disease during their lifetime. However, the probability of developing TB disease is much higher among people infected with HIV (1).

MDR-TB is caused by the strain of *M. tuberculosis* that is resistant to at least isoniazid and rifampicin, the two most potent TB drugs. XDR-TB is a type of MDR-TB that is additionally resistant to fluoroquinolone and at least one injectable second-line drug.

With a timely diagnosis and correct treatment, most people who develop TB can be cured. However, TB was one of the top 10 causes of death worldwide in 2015, ranking above HIV/AIDS as one of the leading causes of death from an infectious disease (1).



Tuberculosis and SDGs: facts and figures



TB has long been a disease of the poor. Crowded living conditions and compromised immune systems, linked to causes such as undernutrition, have contributed to the disease (1).

- In the European Region, the highest burden of TB is found in 18 countries with income disparities and poverty-associated conditions (homelessness, unemployment, alcohol dependency) (1). These countries are considered high-priority for addressing TB in order to end TB in the European Region.



Through the concerted efforts of individual countries, WHO and partners, TB incidence and mortality in the European Region has shown the fastest decline in the world.

- Averages of 4.3% and 8.5%, respectively, for incidence and mortality during 2011–2015 (3), have been achieved mainly as a result of increased detection of TB and universal treatment enrolment for drug-susceptible/resistant TB (2).

Nevertheless, challenges remain for achieving the target set in the global and regional TB strategies and action plans (Fig. 1).

- An estimated 323 000 new episodes of TB cases occurred in 2015 (3).
- In 2015, there were an estimated 32 000 deaths from TB (3).
- MDR-TB remains a public health crisis for the European Region; in 2015 an estimated 74 000 cases occurred. Patients with MDR-TB accounted for 48% of those with previously treated TB and 16% of patients with newly diagnosed TB (3).
- XDR-TB is also a concern; in 2015, one in four patients with MDR-TB had XDR-TB, which is an increase from 12% in 2011 to 23% in 2015 (3).
- Children under 15 years of age represent approximately 4% of total notified TB cases ((2).

End the HIV epidemic: despite the progress made in reducing TB incidence and mortality, new TB/HIV coinfections increased by 40% in 2011–2015 (3), highlighting the need for testing patients with TB for HIV, and vice versa, along with counselling and rapid treatment.

- It is estimated that in the European Region there are 27 000 individuals coinfecting with TB and HIV, of which only 61% are detected and only 36% are offered antiretroviral treatment. In this population, treatment success remains low (41%) (3).
- People suffering from TB/HIV coinfection have a seven times higher risk of failing treatment and a three times higher risk of losing their lives than people suffering from TB only (3).

Reduce premature mortality from noncommunicable diseases, strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol, and strengthen tobacco controls.

- Several noncommunicable diseases, such as diabetes mellitus, alcohol-use disorders and smoking-related conditions, are responsible for a significant proportion of TB cases globally. In the European Region, they represent a larger attributable fraction for TB than for HIV (4). Management of the patient and treatment outcomes through comprehensive identification of treatment and support needs is advised.
- The European Region has the highest level of adult alcohol consumption per capita and alcohol-related harm among all WHO regions (5). Evidence indicates that about 170 000 deaths from TB were attributable to alcohol consumption worldwide in 2014, and as many as 17% of incident cases of TB and 15% of deaths from TB could be prevented by eliminating the harmful use of alcohol (6).

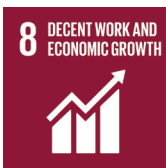
Achieve universal health coverage and support research and development for vaccines and medicines.

- In many countries, TB and especially MDR-TB may be indications of partial health system failure. National health systems faced increasing challenges in the context of the post-Soviet era, the economic downturn and more dynamic and unpredictable movements of people both within countries and across borders (2, 7).

- The fragility of national health systems may be worsened by an overall reduction in external donor funding for TB in the Region. Providing sustainable health financing in rapidly changing environments is proving to be demanding for countries (2).
- Despite the sustainable increase of treatment success rate among people with MDR-TB in the European Region, from 46% to 51%, it remains far under the defined target of 75% (3).
- Lack of sustainable human resources and sound health financing mechanisms represent important challenges that affect all levels of MDR-TB and XDR-TB prevention, control and care. Particular requirements are specialized human resources to manage drug-resistant TB in children and adults and to deliver adequate services for detection of infection, plus scaling up of diagnostic and laboratory capacity (8).
- Intensified research and innovation is needed to achieve the target (9). Gaps remain in:
 - improving early diagnosis
 - shorter and more effective treatment regimens
 - improved prevention (preventive treatment and vaccines)
 - engagement of partners for cross-sectoral actions.

Strengthen the capacity of all countries for early warning, risk reduction and management of national and global health risks.

- Early identification of TB-infected patients, application of infection-control measures and early enrolment in treatment would significantly decrease the transmission of TB, including drug-resistance strains. Consequently, transmission risks would be reduced with decentralization of TB diagnosis and patient-oriented models of TB detection.
- Laboratory capacities are underused in the European Region, and laboratory confirmation is poor in the eastern part of the Region. This leads to missing cases, especially for MDR-TB and XDR-TB, which can only be detected by laboratory tests (2).



Almost half (45%) of new registered TB cases are among people aged 25–44 years; this adversely affects household and national economies through loss of income in the most economically productive age group, as patients with TB are often unable to work for a long period of time and risk losing their jobs, in addition to facing stigmatization when looking for new employment (2).



Despite a decline in TB incidence between 2011 and 2015 (3), the burden of TB continues to be unequally distributed within the European Region.

- The 18 high-TB priority countries have 85% of the TB cases in the European Region and these countries bear 99% of the MDR-TB burden (3).
- TB can affect anyone, but is often found among: alcohol abusers, drug-users, people living with HIV, homeless people and prisoners (Box 1) (10–13).
 - In the European Region, 6.4% of new TB cases occur in prisons (3). The relative risk of acquiring TB in prisons is more than double in the 18 high-priority countries than in the rest of the European Region (3).
 - Treatment outcomes are also poorer among prisoners, with only 63% of positive treatment outcomes versus 77% in the civilian population (3).
 - Migrants (including refugees) face challenges of discrimination, economic adversity, language barriers, stigma and fear of deportation, which, combined with the migratory nature of the population, pose enormous barriers and difficulties in accessing diagnosis and continuous TB treatment services (14–17).
 - In several countries, most cases of TB are found in migrants. These populations also present higher rates of MDR-TB and XDR-TB. It is important to stress that most studies indicate that transmission of TB occurs within migrant communities themselves after arrival (18).



Joint actions to integrate services for drug users and TB, HIV and hepatitis treatment among key partners and diverse sectors is a high priority in order to achieve the targets regarding communicable diseases.

Commitment to act

At the Sixty-seventh World Health Assembly in 2014, Member States agreed unanimously to “ending the TB epidemic by 2035” (ending being defined as around 10 new cases per 100 000 population per year) (12). To this end, the Sixty-fifth session of the WHO Regional Committee for Europe endorsed the WHO Tuberculosis action plan for the European Region 2016–2020, which aims to vanquish TB and ensure that no affected family has to face catastrophic costs due to the disease (8).

Box 1. Leaving no one behind...

Focused prevention strategies for vulnerable populations: TB can affect everyone but is strongly associated with social determinants of health such as imprisonment, migration and social marginalization. People living with HIV or suffering from other conditions that weaken the immune system, such as diabetes mellitus, are at much higher risk of developing the disease. Patients with TB are most frequently young adults in the eastern part of the European Region, migrants and native-born elderly people in western European countries. Providing focused prevention strategies for these vulnerable populations would support reduction of TB in affected areas. Ending the global TB epidemic is feasible, with dramatic decline in TB deaths and cases and elimination of associated economic and social burdens (12).

The TB action plan for the European Region sets out activities and milestones agreed with Member States and partners (8). This plan also corresponds with the three pillars of the global End TB strategy (12) and with multidisciplinary interventions to address social determinants of infection and prevent and manage TB/HIV coinfection and other comorbidities through approaches that can be both disease specific and oriented towards health systems and public health (Table 1 and Box 2).

Table 1. TB action plan for the WHO European Region 2016–2020: areas of intervention

Areas	Interventions
1. Integrated patient-centred care and prevention	<ul style="list-style-type: none"> A. Systematic screening of contacts and high-risk groups B. Early diagnosis of all forms of TB and universal access to drug-susceptibility testing, including the use of rapid tests C. Equitable access to quality treatment and continuity of care for all patients with TB, including those with drug-resistant TB, and patient support to facilitate treatment adherence D. Collaborative TB/HIV activities and management of comorbidities E. Management of latent TB infection, preventive treatment for people at high risk and vaccination against TB
2. Bold policies and supportive systems	<ul style="list-style-type: none"> A. Political commitment with adequate resources, including universal health coverage policies B. Health-system strengthening in all of its functions, including well-aligned financing mechanisms for TB and human resources C. Regulatory frameworks for case-based surveillance, strengthened vital registration, quality and rational use of medicines, and pharmacovigilance D. Airborne infection control, including regulated administrative, engineering and personal protection measures in all relevant health care facilities and congregate settings E. Community systems and civil society engagement F. Social protection, poverty alleviation and actions on other determinants of TB, such as migration and prisons
3. Intensified research and innovation	<ul style="list-style-type: none"> A. Discovery, development and rapid uptake of new tools, interventions and strategies B. Research to optimize implementation and impact, and promote innovations

Box 2. Intersectoral action

Public health approach to end TB: the Tuberculosis Regional Eastern European and Central Asian Project was launched in January 2016 as a three-year project with financial support from the Global Fund to fight AIDS, Tuberculosis and Malaria. Its overarching goals are to stop the spread of TB and drug-resistant TB and improve treatment outcomes in 11 target countries.

The Project is engaged in increasing political commitment and translating evidence into implementation of country-adapted, people-centred models of TB care. The participation of civil society organizations is an integral part of this approach because these organizations can be instrumental in generating political commitment and high-level advocacy, and can also ensure that the voices of the most vulnerable, including patients and ex-patients, are heard (19).

Under this collaboration with partners, a blueprint for a people-centred model of TB care that shifts care closer to people and communities was developed. This entails moving towards ambulatory treatment and care, strengthening services involving primary care, and improving integration of care across various providers, levels and settings within health systems (20).

Monitoring progress

The WHO Regional Office for Europe is developing a joint monitoring framework for the SDG, Health 2020 and noncommunicable diseases indicators¹ to facilitate reporting in Member States and to provide a consistent and timely way to measure progress. Failure to reduce levels of TB compromises all Health 2020 targets (21,22). The following, as proposed in the global indicators' framework of the United Nations Economic and Social Council (ECOSOC), will support monitoring progress in ending TB (23). In addition, disease-specific monitoring processes for Member State reporting to WHO (24) support tracking of progress towards the TB-specific targets outlined in the TB action plan (8).

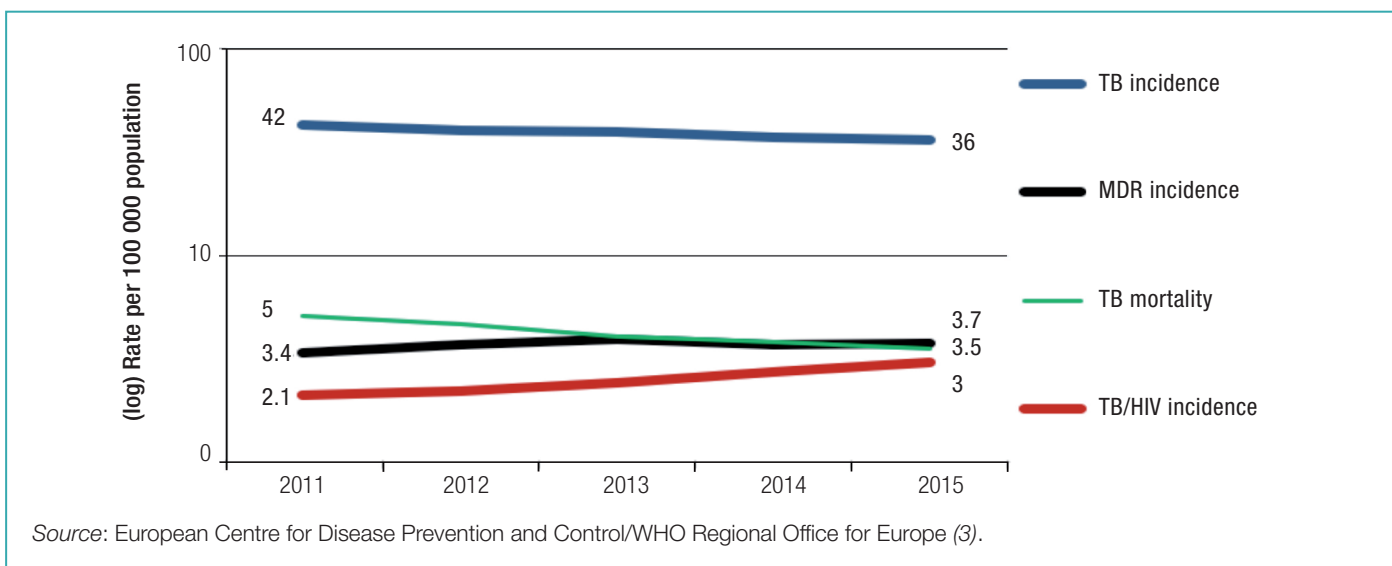
ECOSOC indicators

3.3.2. Tuberculosis incidence per 100 000 population

Health 2020 core indicators

(17) 5.1.b. Percentage of people treated successfully among those with laboratory-confirmed pulmonary TB who completed treatment

Fig.1. Incidence of TB, MDR-TB and TB/HIV coinfection and TB mortality rates per 100 000, in the WHO European Region, 2011–2015



¹ EUR/RC67/Inf.Doc./1: joint monitoring framework: proposal for reducing the reporting burden on Member States.

WHO support to its Member States

WHO provides evidence-based strategies and policy support to Member States to improve the TB situation, care and prevention services to enable a comprehensive and sustainable response to TB.

The WHO Regional Office for Europe supports Member States developing and implementing country plans based on the WHO TB action plan for the European Region 2016–2020 (8) and the global End TB strategy (12). Specific activities include:

- conducting missions to the Member States to assure the quality of services for drug-resistant TB;
- strengthening laboratory diagnosis through the European TB Laboratory Initiative;
- organizing training courses and facilitating the exchange of good practices in order to strengthen Member States' health system responses to TB;
- supporting eligible countries in applying for external financial assistance and making the transition to domestic funding, to ensure sustainable financing for TB programmes;
- developing and promoting integrated, people-centred models of TB care and prevention, translating them into country norms and standards;
- enhancing evidence-building research and development through the European TB Research Initiative;
- collecting and analysing epidemiological and surveillance data and strengthening country capacity on surveillance and response monitoring of the TB epidemic.

Partners

Among others, WHO collaborates with the following partners to end TB::

- European Centre for Disease Prevention and Control
- European Respiratory Society
- Global Fund to fight AIDS, Tuberculosis and Malaria
- International Union against Tuberculosis and Lung Diseases
- KNCV Tuberculosis Foundation
- Stop TB partnership
- TB Europe Coalition
- United States Agency for International Development
- WHO collaborating centres for TB in the European Region.

Resources

- End TB strategy
http://www.who.int/tb/strategy/End_TB_Strategy.pdf?ua=1
- Tuberculosis action plan for the WHO European Region 2016-2020
http://www.euro.who.int/__data/assets/pdf_file/0007/283804/65wd17e_Rev1_TBActionPlan_150588_withCover.pdf?ua=1
- Roadmap to implement the Tuberculosis action plan for the WHO European Region 2016–2020
http://www.euro.who.int/__data/assets/pdf_file/0020/318233/50148-WHO-TB-Plan_web_V2-from-Phoenix.pdf?ua=1
- Global tuberculosis report 2016
<http://apps.who.int/iris/bitstream/10665/250441/1/9789241565394-eng.pdf?ua=1>
- Tuberculosis surveillance and monitoring in Europe, 2017
<https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/ecdc-tuberculosis-surveillance-monitoring-Europe-2017.pdf>

Key definitions

- **Multidrug-resistant tuberculosis (MDR-TB).** Infection resistant to two of the most potent anti-TB drugs, resulting from inadequate treatment of TB or poor airborne infection control in health care facilities and congregate settings.
- **Extensively drug-resistant tuberculosis (XDR-TB).** Infection resistant to the main first- and second-line drugs and, therefore, with very limited chances of cure.

References

1. Global tuberculosis report 2016. Geneva: World Health Organization; 2016 (http://reliefweb.int/sites/reliefweb.int/files/resources/gtbr2016_main_text.pdf, accessed 4 August 2017).
2. Tuberculosis. In: Health topics [website]. Copenhagen: WHO Regional Office for Europe; 2017 (<http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/tuberculosis-read-more#335368>, accessed 4 August 2017).
3. European Centre for Disease Prevention and Control, WHO Regional Office for Europe. Tuberculosis surveillance and monitoring in Europe 2017. Copenhagen: WHO Regional Office for Europe; 2017 (<https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/ecdc-tuberculosis-surveillance-monitoring-Europe-2017.pdf>, accessed 4 August 2017).
4. Creswell J, Raviglione M, Ottmani S, Migliori GB, Uplekar M, Blanc L et al. Tuberculosis and noncommunicable diseases: neglected links and missed opportunities. *Eur Respir J.* 2011;137:1269–82.
5. Public health successes and missed opportunities. Trends in alcohol consumption and attributable mortality in the WHO European Region, 1990–2014. Copenhagen: WHO Regional Office for Europe; 2016 (<http://www.euro.who.int/en/health-topics/disease-prevention/alcohol-use/publications/2016/public-health-successes-and-missed-opportunities.-trends-in-alcohol-consumption-and-attributable-mortality-in-the-who-european-region,-19902014-2016>, accessed 4 August 2017).
6. Raviglione M, Poznyak V. Targeting harmful use of alcohol for prevention and treatment of tuberculosis: a call for action. *Eur Respir J.* 2017;50(1): pii 1700946.
7. Dara M, de Colombani P, Petrova-Benedict R, Centis R, Zellweger JP, Sandgren A et al. Minimum package for cross-border TB control and care in the WHO European region: a Wolfheze consensus statement. *Eur Respir J.* 2012;40(5):1081–90.
8. Tuberculosis action plan for the WHO European Region 2016–2020. Copenhagen: WHO Regional Office for Europe; 2015 (EUR/RC65/17 Rev.1; http://www.euro.who.int/__data/assets/pdf_file/0007/283804/65wd17e_Rev1_TBActionPlan_150588_withCover.pdf?ua=1, accessed 4 August 2017).
9. Roadmap to implement the tuberculosis action plan for the WHO European Region 2016–2020. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/__data/assets/pdf_file/0020/318233/50148-WHO-TB-Plan_web_V2-from-Phoenix.pdf?ua=1, accessed 4 August 2017).
10. Lönnroth K, Jaramillo E, Williams BG, Dye C, Raviglione M. Drivers of tuberculosis epidemics: the role of risk factors and social determinants. *Soc Sci Med.* 2009;68:2240–6.
11. TB comorbidities and risk factors. In: Tuberculosis (TB) programme [website]. Geneva: World Health Organization; 2017 (<http://www.who.int/tb/areas-of-work/treatment/risk-factors/en/>, accessed 4 August 2017).
12. The end TB strategy: global strategy and targets for tuberculosis prevention, care and control after 2015. Geneva: World Health Organization; 2014 (http://www.who.int/tb/strategy/End_TB_Strategy.pdf?ua=1, accessed 4 August 2017).
13. Dara M, Grzemska M, Kimerling M, Reyes H, Zagorsky; Time to act to prevent and control TB among inmates; *IJTLD*, Volume 15, Number 5, May 2011, pp. 662-667(6).
14. De Vito E, de Waure C, Specchia ML, Ricciardi W. Public health aspects of migrant health: a review of the evidence on health status for undocumented migrants in the European Region. Copenhagen: WHO Regional Office for Europe; 2015 (Health Evidence Network synthesis report 42).
15. Bradby H, Humphris R, Newall D, Phillimore J. Public health aspects of migrant health: a review of the evidence on health status for refugees and asylum seekers in the European Region. Copenhagen: WHO Regional Office for Europe; 2015 (Health Evidence Network synthesis report 44).
16. Simon J, Kiss N, Łaszewska A MS. Public health aspects of migrant health: a review of the evidence on health status for labour migrants in the European Region. Copenhagen: WHO Regional Office for Europe; 2015 (Health Evidence Network synthesis report 43).
17. Dara M, Solovic I, Sotgiu G, D’Ambrosio L, Centis R, Tran R et al. Tuberculosis care among refugees arriving in Europe: a ERS/WHO Europe Region survey of current practices; *Eur Respir J.* 2016;48(3):808–17.
18. Rodier G, Dara M, Acosta CD, Dadu A. Epidemiology of tuberculosis (TB) among migrants in the WHO European Region. *Public Health Asp Migr Eur.* 2014;(3):1–3.
19. Civil society organizations and tuberculosis (TB) stakeholders identify common ground to implement people-centred models of care. Copenhagen: WHO Regional Office for Europe; 2017 (<http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/news/news/2017/03/civil-society-organizations-and-tuberculosis-tb-stakeholders-identify-common-ground-to-implement-people-centred-models-of-care>, accessed 4 August 2017).
20. New WHO report provides blueprint for delivering people-centred care for tuberculosis. In: Health topics [website]. Copenhagen: WHO Regional Office for Europe; 2017 (<http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/news/news/2017/06/new-who-report-provides-blueprint-for-delivering-people-centred-care-for-tuberculosis>, accessed 4 August 2017).

21. Targets and indicator for Health 2020, version 3. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/__data/assets/pdf_file/0011/317936/Targets-indicators-Health-2020-version3.pdf, accessed 4 August 2017).
22. Jakab Z, Acosta CD, Kluge HH, Dara M. Consolidated action plan to prevent and combat multidrug- and extensively drug-resistant tuberculosis in the WHO European Region 2011–2015: cost-effectiveness analysis. *Tuberculosis*. 2015;95(Suppl 1):S212–16.
23. Statistical Commission report E/2017/24 on the 48th session. New York: United Nations; 2017 (<https://unstats.un.org/unsd/statcom/48th-session/documents/Report-on-the-48th-session-of-the-statistical-commission-E.pdf>, accessed 28 July 2017).
24. Surveillance and monitoring: European TB surveillance network. In: Health topics [website]. Copenhagen: WHO Regional Office for Europe; 2017 (<http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/areas-of-work/surveillance-and-monitoring>, accessed 4 August 2017).

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