

Tuberculosis in Europe: From passive control to active elimination

High- and low-incidence countries

Tuberculosis in the EU/EEA 2013

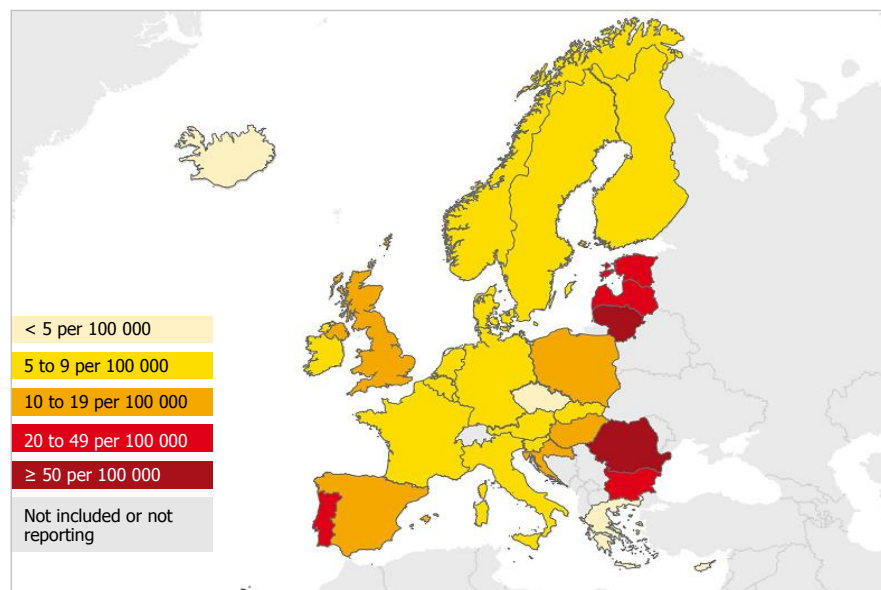
Number of notified cases

Austria	649
Belgium	981
Bulgaria	1 932
Croatia	517
Cyprus	41
Czech Republic	501
Denmark	356
Estonia	286
Finland	271
France	4 939 ¹
Germany	4 318
Greece	540
Hungary	1 045
Iceland	11
Ireland	384
Italy	3 521
Latvia	904
Lithuania	1 705
Luxembourg	38
Malta	50
Netherlands	848
Norway	401
Poland	7 250
Portugal	2 393
Romania	16 711
Slovakia	401
Slovenia	140
Spain	5 539
Sweden	648
United Kingdom	7 892

¹ Includes cases in overseas territories

The most recent European surveillance data show that the majority of European Union (EU)/European Economic Area (EEA) Member States reported fewer than 20 tuberculosis (TB) cases per 100 000 population: In 2013, the 28 EU Member States, plus Iceland and Norway, notified **12.7 TB cases per 100 000 population**.

Map 1. TB notifications per 100 000 population, by country, EU/EEA, 2013



Every year, the number of TB cases is going down in what looks like a successful fight against this serious bacterial disease. But despite this apparent success, EU Member States still reported a total of **64 844 TB cases in 2013** – more than twice the average annual number of people newly diagnosed with HIV. The fact that an average of 180 Europeans develops TB on any given day of the year, clearly indicates that TB is a long way from becoming a thing of the past. It also raises one central question: Why does tuberculosis continue to be a major public health problem in the EU/EEA?

TB transmission knows no borders

Anyone can get TB regardless of age, gender or origin. The disease is treatable and preventable, but since there is currently no completely effective vaccine, control relies heavily on detecting infectious cases and treating them for at least six months with a combination of antibiotics. In that respect, Europe can still improve the basics: effectively identifying, correctly managing, and successfully treating individuals with TB.

Currently, tuberculosis takes a substantial toll on the national health budgets of the Member States. According to a recent study¹, the direct and indirect costs of diagnosing and treating TB cases in the EU exceeded 536 million euros in 2011.

Tuberculosis is not an easy disease to tackle. It requires dealing with more than just the medical condition, and so interventions should not only look at diagnosis and treatment but also at the social needs of the individuals and the communities at risk. This includes providing support to the homeless, people with alcohol addiction, people who inject drugs, or those with a history of imprisonment. Migrants and socially and economically disadvantaged groups experience a disproportionate burden of disease. Efforts focused towards these groups should minimise their respective risk of getting infected and developing disease and improve their chances of successfully completing treatment if they fall ill.

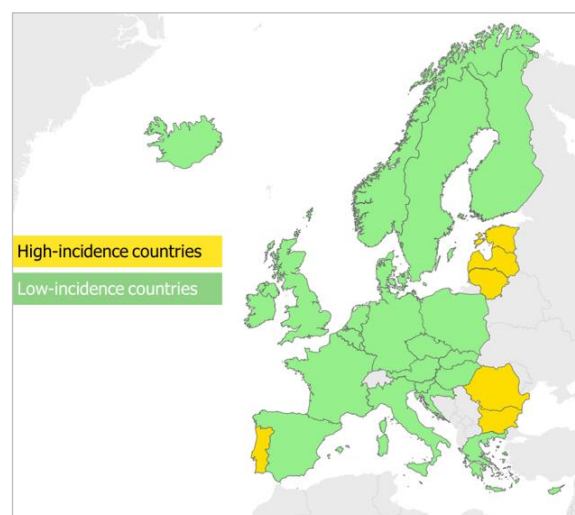
Access to medicines is crucial but not sufficient: integrating health and social systems, ensuring support from community services, and delivering interventions that offer incentives to taking treatment are known to increase treatment adherence and completion.

Reducing investments in TB control is a false economy. Investments in TB prevention and control have proved to be money well spent and will far outweigh the costs of future treatment^{2,3}. Sustained financing for TB programmes is essential to ensure sufficient resources at the national level to diagnose and adequately treat tuberculosis, now and in the future.

Some countries are hit harder than others

Roughly speaking, the EU can be divided into countries with low and high incidence of TB, both with their own set of epidemiological features. Despite historically low numbers and a significant decline over the last ten years, not all EU countries are showing a similar decline. TB control efforts should therefore be tailored to the specific national situation, and money and resources invested in TB prevention and control should be connected to the epidemiological situation of the affected country.

Map 2: High-and low-incidence countries in the EU/EEA in 2013



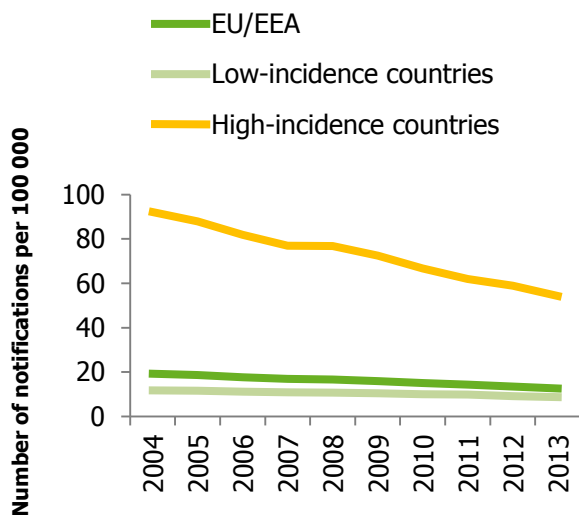
High-incidence countries: countries reporting 20 or more TB cases per 100 000 population; low-incidence countries: countries reporting under 20 TB cases per 100 000 population

¹ Diel R, Vandeputte J, de Vries G, Stillo J, Wanlin M, Nienhaus A. Costs of tuberculosis disease in the European Union: a systematic analysis and cost calculation. *Eur Respir J.* 2014 Feb;43(2):554-65.

² Quaglio G, Karapiperis T, Van Woensel L, Arnold E, McDaid D. Austerity and health in Europe. *Health Policy.* 2013 Nov;113(1-2):13-9.

³ van der Werf M, Giesecke J, Sprenger M. Can the economic crisis have an impact on tuberculosis in the EU/EEA? *Euro Surveill.* 2012 Mar 22;17(12).

Figure 1: TB notifications per 100 000 population by high- and low-incidence countries, EU/EEA, 2004–2013



Despite the continued decline in the number of TB cases over the past decade in most EU/EEA Member States, the slowdown is not sufficient to eliminate TB any time soon. The fact that trends move at different speeds in high and low-incidence countries further complicates matters.

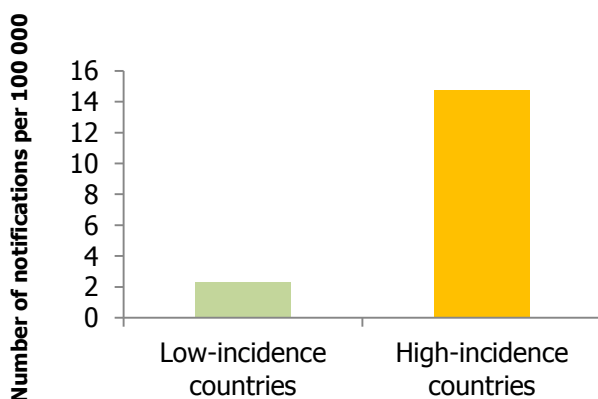
High-incidence countries

Main epidemiological features

- Childhood TB is an indicator of ongoing transmission
- Multidrug-resistant tuberculosis (MDR TB) is a major challenge

In general, high-incidence countries have higher rates of childhood TB. As children usually develop TB within one year of being infected, childhood TB rates are a good proxy for ongoing transmission in the community. Also, children constitute a reservoir for future TB disease, so preventing the spread among children is crucial to achieve TB elimination.

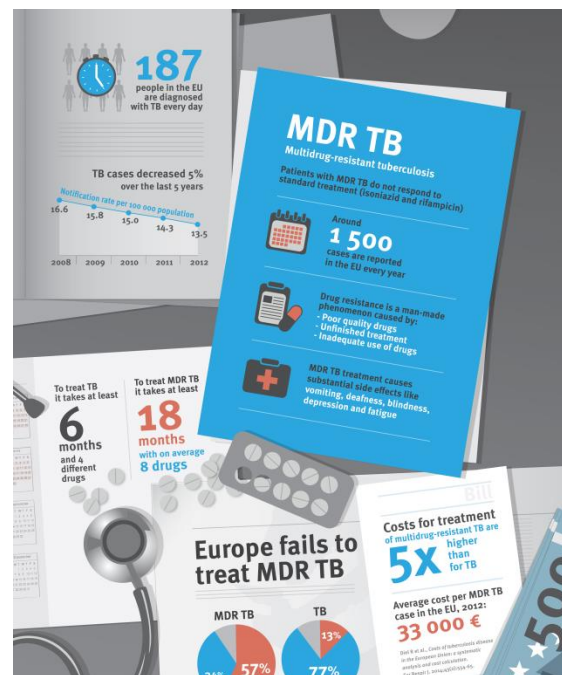
Figure 2: TB notifications per 100 000 in children between 0–14 years of age, high- and low-incidence countries, EU/EEA, 2004–2013



Ensuring preventive treatment of latent TB infection is particularly important in children, as is contact tracing – at home, at day care and in school – and early diagnosis.

In high-incidence countries, the proportion of multidrug-resistant TB is relatively high (8.8% of the total number of TB cases, compared with 2.0% in low-incidence countries). Drug-resistant forms of TB are notoriously difficult to manage and treat: patients face longer treatment, have to take more drugs, and suffer from more side effects. Also, treatment costs are five times higher compared with drug-susceptible TB.

Figure 3: A 2014 ECDC infographic on MDR TB



Source:

<http://ecdc.europa.eu/en/healthtopics/Tuberculosis/Pages/infographics.aspx>

Another trait of high-incidence countries is the higher percentage of previously treated cases (20% in high-incidence countries, 6.9% in low-incidence countries). In other words: patients that have already been treated for TB need another round of treatment. This can be the result of poor patient management or indicate significant ongoing transmission, resulting in re-infection of former-TB patients.

Adding to this are the poor outcomes of treatment of MDR TB cases. In the EU/EEA, only one in every three patients with MDR TB has a successful treatment outcome; more than half either die, fail treatment, or default (stop taking treatment).

Only complete and successful tuberculosis treatment can stop disease transmission and prevent the development of resistant strains that can lead to extensively drug-resistant TB (XDR TB), which is extremely difficult to treat.

Low-incidence countries

Main epidemiological features

- Slow decrease in notification rates
- Accumulation in risk groups
- A high proportion of TB patients are of foreign origin

In low-incidence EU/EEA countries, the TB notification rates are only declining slowly, and some even experienced an increase in cases and rates over the last few years. Budget cuts may explain part of this trend, which can also be attributed to low awareness and knowledge about TB among healthcare professionals and incorrect patient management. In addition, a substantial proportion of the TB patients in low-incidence countries come from countries with a high incidence of TB, often from outside the EU. The lack of a pronounced decline in almost all EU/EEA countries jeopardises TB elimination targets.

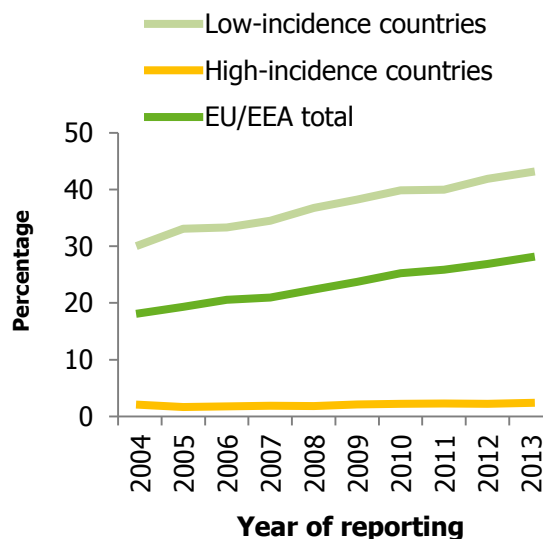
In low-incidence countries, TB is increasingly concentrated in big cities. This is mainly due to high rates of TB in vulnerable urban groups such as the homeless, people with alcohol addiction, people who inject drugs, people with a history of imprisonment, and migrants.

Vulnerable groups are difficult to reach with standard health interventions. They are often not aware of specific health risks or may not have good access to health services. In these groups, treatment success is affected by patients presenting late to healthcare facilities with advanced disease and by patients from vulnerable groups who do not complete the lengthy treatment. This is reflected in poor treatment outcomes: proportionally, fewer patients get successfully treated in low-incidence countries than in high-incidence countries.

Interventions required to target the hard-to-reach are often more costly than standard TB control interventions. The higher costs are incurred because of interventions that are more human resource intensive, for example mobile screening programmes and outreach work.

One group at high risk are migrants from countries with a high burden of TB. There is a significantly higher proportion of foreign-origin TB cases in low-incidence countries compared with high-incidence countries (43% versus 2.4%). To progress towards TB elimination in low-incidence countries, we need to effectively identify and manage TB cases among migrants.

Figure 4: TB cases of foreign origin, by high- and low-incidence countries, EU/EEA, 2004–2013



Towards TB elimination in the EU/EEA

The WHO *End TB strategy* and the ECDC *Framework action plan to fight tuberculosis in the European Union* both aspire to achieve TB elimination. To reach this goal, we need to make more efficient use of current tools and interventions, step up the investments in TB control, and push forward research.

More importantly, we need a change of focus – from the more passive control approach to an active elimination approach. Given the global nature of TB, supporting TB prevention and control needs to be a concerted action.

No country or continent has ever been successful at eliminating tuberculosis. Can Europe be the first?