

Tuberculosis

Annual Epidemiological Report for 2017

Key facts

- Thirty-one EU/EEA countries reported 55 337 TB cases, 10.7 per 100 000 population.
- The overall notification rate and most country-specific rates continued to fall. However, countries face a number of challenges in reaching the goal to end the TB epidemic.
- Foreign-origin TB cases accounted for 33% of cases overall. In countries with TB notification rates higher than 10 per 100 000 population, 20% or less of cases were reported as being of foreign origin.
- Multidrug resistance (MDR) was reported for 4% of cases tested overall and for 11–25% of the cases tested in the Baltic countries. Extensive drug resistance (XDR) was reported for 24% of MDR TB cases that underwent second-line drug susceptibility testing.
- Treatment success was achieved in 71% of all TB cases, 63% of HIV-coinfected TB cases, 45% of MDR TB cases notified in 2015, and 28% of XDR TB cases notified in 2014.
- The estimated TB mortality rate in the EU/EEA, excluding HIV deaths in co-infected TB cases, was 0.8 deaths per 100 000 population, with 4 000 estimated deaths overall.

Methods

This report is based on data for 2017 retrieved from The European Surveillance System (TESSy) on 5 October 2018. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases. For a detailed description of methods used to produce this report, please refer to the *Methods* chapter [1].

An overview of the national surveillance systems for TB is available online [2].

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [2].

ECDC and WHO's Regional Office for Europe jointly coordinate the collection and analysis of TB surveillance data in Europe. This report only includes data from EU/EEA countries. For 2017, all reporting countries had comprehensive surveillance systems. Most countries used an EU case definition.

Confirmed cases required a positive culture or detection of both acid-fast bacilli by microscopy and *M. tuberculosis* complex by nucleic acid amplification testing.

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Multidrug resistance (MDR) was defined as resistance to at least isoniazid and rifampicin. Extensive drug resistance (XDR) was defined as resistance to (i) isoniazid and rifampicin (i.e. MDR) and (ii) resistance to a fluoroquinolone, and (iii) resistance to one or more of the following injectable drugs: amikacin, capreomycin or kanamycin.

The term 'native' as used in this report refers to cases born in, or having the citizenship (nationality) of the reporting country. 'Foreign origin' refers to cases born in (or citizens of) a country different to the reporting country.

Periods of observation for treatment outcome monitoring were 12 months for all TB cases, 24 months for MDR TB and 36 months for XDR TB cases. Treatment success was defined as the proportion of cases reported as cured or having completed their treatment.

Epidemiology

Time and place

For 2017, 31 countries reported 55 337 TB cases, with Romania accounting for 23.5% of all TB cases (Table 1). The number of notifications per 100 000 population was 10.7, continuing the downward trend observed since the launch of European enhanced TB surveillance in 1996 [3]. As reported for previous years, country-specific rates differed considerably in 2017, ranging from 2.6 in Liechtenstein to 66.2 in Romania (Table 1, Figure 1). Notification rates in the majority of countries have fallen since 2013. Age-standardised notification rates did not differ substantially from crude rates.

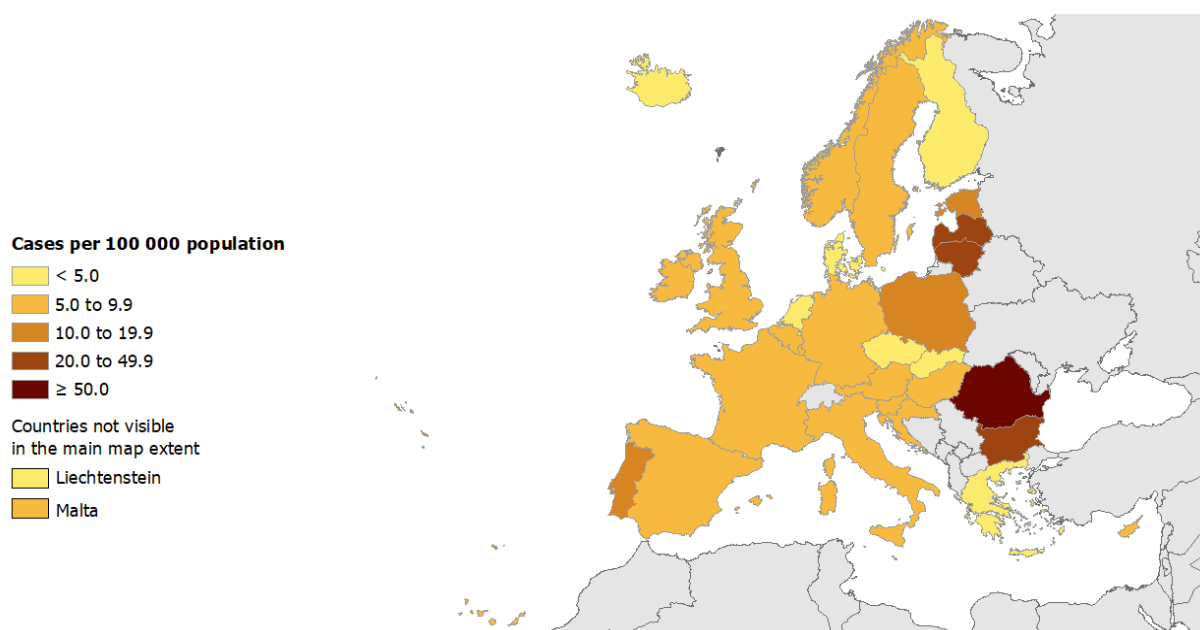
Table 1. Distribution of tuberculosis cases by country and year, EU/EEA, 2013–2017

Country	2013		2014		2015		2016		2017			Confirmed cases
	Reported cases		Reported cases		Reported cases		Reported cases		Reported cases			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR	
Austria	653	7.7	586	6.9	583	6.8	634	7.3	570	6.5	6.5	445
Belgium	963	8.6	949	8.5	977	8.7	1 042	9.2	972	8.6	8.9	758
Bulgaria	1 932	26.5	1 872	25.8	1 660	23.0	1 603	22.4	1 463	20.6	20.0	696
Croatia	517	12.1	499	11.7	488	11.5	464	11.1	371	8.9	8.3	316
Cyprus	41	4.7	41	4.8	63	7.4	60	7.1	53	6.2	6.1	39
Czech Republic	497	4.7	511	4.9	517	4.9	516	4.9	505	4.8	4.6	379
Denmark	356	6.4	320	5.7	357	6.3	330	5.8	275	4.8	4.9	218
Estonia	290	22.0	248	18.8	217	16.5	193	14.7	175	13.3	12.8	145
Finland	273	5.0	263	4.8	270	4.9	233	4.2	237	4.3	4.1	195
France	4 947	7.5	4 888	7.4	4 744	7.1	4 907	7.4	5 131	7.7	8.0	2 603
Germany	4 340	5.4	4 524	5.6	5 834	7.2	5 949	7.2	5 486	6.6	7.0	3 978
Greece	540	4.9	519	4.7	482	4.4	440	4.1	467	4.3	4.1	265
Hungary	1 045	10.5	851	8.6	906	9.2	786	8.0	685	7.0	6.7	352
Iceland	11	3.4	9	2.8	7	2.1	6	1.8	14	4.1	4.3	10
Ireland	374	8.1	311	6.7	283	6.1	315	6.7	318	6.6	7.0	214
Italy	3 973	6.7	3 916	6.4	3 769	6.2	4 032	6.6	3 944	6.5	7.0	2 831
Latvia	904	44.7	761	38.0	721	36.3	660	33.5	552	28.3	28.1	453
Liechtenstein	0	0.0	1	2.7	2	5.4	2	5.3	1	2.6	3.0	1
Lithuania	1 705	57.4	1 607	54.6	1 507	51.6	1 442	49.9	1 387	48.7	48.2	1 148
Luxembourg	38	7.1	24	4.4	30	5.3	29	5.0	32	5.4	5.4	23

Country	2013		2014		2015		2016		2017			Confirmed cases
	Reported cases		Reported cases		Reported cases		Reported cases		Reported cases			
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR	
Malta	50	11.8	46	10.7	32	7.3	50	11.1	42	9.1	9.1	33
Netherlands	845	5.0	814	4.8	862	5.1	887	5.2	787	4.6	4.8	542
Norway	392	7.8	323	6.3	313	6.1	295	5.7	261	5.0	5.1	216
Poland	7 250	19.0	6 698	17.6	6 430	16.9	6 444	17.0	5 787	15.2	14.8	4 179
Portugal	2 410	23.0	2 278	21.8	2 196	21.2	1 936	18.7	1 800	17.5	16.9	1 106
Romania	16 689	83.4	15 879	79.6	15 183	76.4	13 601	68.8	13 004	66.2	65.5	9 194
Slovakia	401	7.4	336	6.2	317	5.8	296	5.5	249	4.6	4.6	134
Slovenia	140	6.8	144	7.0	130	6.3	118	5.7	112	5.4	4.9	109
Spain	5 632	12.1	4 913	10.6	5 021	10.8	5 063	10.9	4 570	9.8	9.7	3 216
Sweden	639	6.7	659	6.8	815	8.4	714	7.2	520	5.2	5.5	424
United Kingdom	7 870	12.3	7 029	10.9	6 224	9.6	6 116	9.4	5 567	8.5	8.7	3 478
EU/EEA	65 717	12.9	61 819	12.1	60 940	11.9	59 163	11.5	55 337	10.7	10.8	37 700

ASR: age-standardised rate

Figure 1. Distribution of tuberculosis notifications by country, EU/EEA, 2017



Source: ECDC/WHO (2019). Tuberculosis surveillance and monitoring in Europe 2019–2017 data.

Previous treatment, laboratory confirmation and TB site

In 2017, the distribution of cases by previous treatment history was similar to that reported in previous years: 39 903 (72.1%) of 55 337 TB cases reported in 2017 were newly diagnosed, 5 556 (10.0%) had been previously treated for TB and 9 878 (17.9%) had an unknown previous treatment status. The proportion of previously treated cases was above 20% in Romania and more than 10% in another nine countries: Bulgaria, Estonia, Greece, Hungary, Iceland, Latvia, Lithuania, Poland and Slovakia.

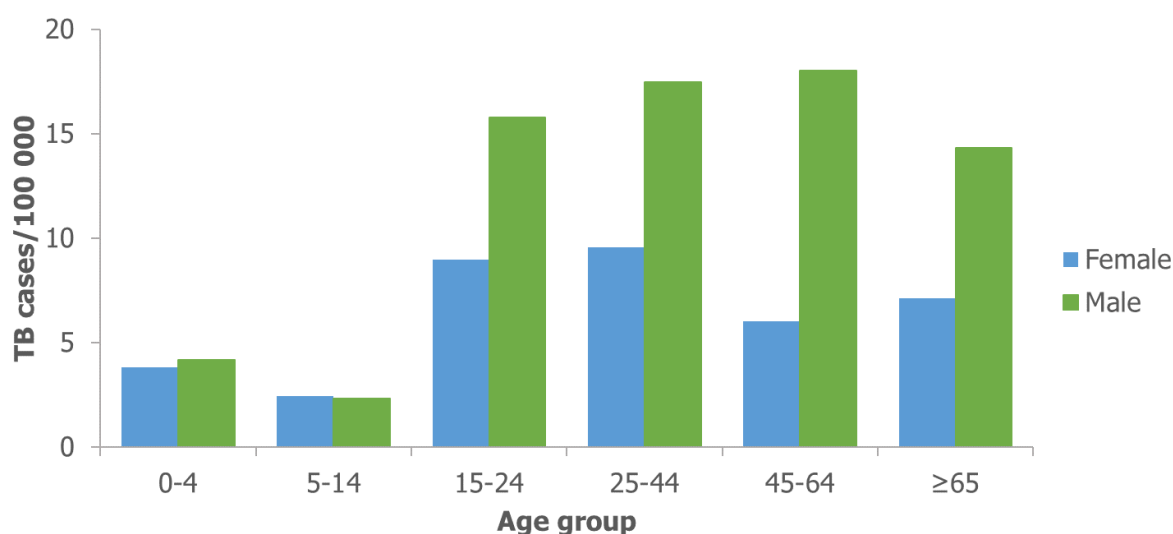
Laboratory confirmation was reported for 37 700 (68.1%) of the 55 337 TB cases reported in 2017. Country-specific proportions of laboratory-confirmed cases ranged from 47.6% in Bulgaria to 97.3% in Slovenia and 100% in Liechtenstein.

Of all 55 337 TB cases reported in 2017, 38 088 (68.8%) were diagnosed with pulmonary TB, 12 483 (22.6%) with extrapulmonary TB, 4 323 (7.8%) with a combination of both and 443 (0.8%) had no TB site reported.

Age and gender

In 2017, the highest notification rate was observed in the age group 25–44 years (13.6 per 100 000 population). However, notification rates per 100 000 population among 15–24-year-olds, 25–44-year olds, 45–64-year olds and persons aged 65 years and older were in a similar range (Figure 2). The rate in males was twice the rate in females overall, an imbalance mainly affecting the age groups above 14 years.

Figure 2. Distribution of tuberculosis cases per 100 000 population, by age (years) and gender, EU/EEA, 2017



Source: ECDC/WHO (2019). Tuberculosis surveillance and monitoring in Europe 2019–2017 data

Origin of cases

Of the 55 337 TB cases notified in 2017, 35 446 (64.1%) were born in, or were citizens of, the reporting country (referred to as 'native'), 18 299 (33.1%) were of foreign and 1 592 (2.9%) were of unknown origin. Among the cases of foreign origin, more than half (58.1%) were reported by France, Germany and the United Kingdom. Among cases reported from countries with TB notification rates higher than 10 per 100 000 population, 20% or less were reported as being of foreign origin.

Drug resistance

Of 32 266 laboratory-confirmed TB cases notified in 2017, 27 339 (84.7%) had isoniazid and rifampicin susceptibility testing results reported. Resistance to at least one anti-TB drug was reported for 2 985 (10.9%) of the cases tested, and for 20.4–39.4% of cases with results in Estonia, Greece, Latvia and Lithuania. MDR TB was reported for 1 041 (3.8%) of the 27 339 cases with isoniazid and rifampicin susceptibility testing results, with the highest proportions reported in Estonia, Latvia and Lithuania (10.6–25.4%). After remaining at 0.3 per 100 000 population from 2013 to 2016, the rate of notified MDR TB cases decreased to 0.2 in 2017. XDR TB was reported for 187 (24.3%) of 770 MDR TB cases that underwent second-line drug susceptibility testing. The proportion of XDR TB cases among pulmonary MDR TB cases with results for second-line DST increased from 18.6% in 2013 to 24.6% in 2017.

HIV co-infection

HIV status was reported for 25 583 (76.0%) of 33 661 TB cases from the 23 countries that reported HIV status of TB cases. Of these cases with known HIV status, 1 006 (3.9%) were reported as HIV-positive. Among countries with at least 50% reporting completeness for HIV status, the proportion of co-infected cases was highest in Estonia, Latvia and Portugal at 8.6%, 11.0%, and 11.4%, respectively. Data reported over the last five years show a decreasing proportion of HIV co-infected TB cases.

Treatment outcome

Of the 54 612 TB cases notified in 2016 with a treatment outcome reported in 2017, 38 614 (70.7%) were treated successfully, 3 997 (7.3%) died, 457 (0.8%) experienced treatment failure, 2 518 (4.6%) were lost to follow-up, 1 965 (3.6%) were still on treatment in 2017, and 7 061 (12.9%) had not been evaluated. Treatment success was achieved in 63.0% of HIV co-infected cases who were not started on second-line treatment and had a treatment outcome reported in 2017, 44.8% of MDR TB cases notified in 2015, and 27.6% of XDR TB cases notified in 2014.

The estimated TB mortality rate in the EU/EEA, excluding HIV deaths in co-infected TB cases, was 0.8 deaths per 100 000 population, with 4 000 estimated deaths overall.

Discussion

For 2017, all EU/EEA countries reported TB notification data. The overall TB notification rate continued the decline observed since 2002 and reached 10.7 per 100 000 population. As in previous years, a few countries reported large numbers of cases, including Romania, which accounted for 23.5% of all reported cases in 2017.

Overall, the decreasing notification rates observed in most countries are reassuring, but when the situation is evaluated based on the aim to reach an 80% reduction in the TB incidence rate by 2030 compared to 2015 (a United Nations Sustainable Development Goal 3 target), the challenge ahead becomes evident [4]. The target at EU/EEA level is a notification rate of 2.4 per 100 000. If the mean annual change in rate (2013–2017) in low-incidence EU/EEA countries continues at the current pace, WHO calculations [5] suggest that the WHO target of TB elimination by 2050 in European low-incidence countries will not be met by approximately four fifths of the countries currently in this group.

In many low-incidence countries, a large proportion of TB cases is of foreign origin. In the EU/EEA overall, this proportion remained at around one third of all TB cases. A recently published ECDC public health guidance concluded that screening for active TB or latent TB infection among newly arrived migrants from high-incidence countries is probably both effective and cost-effective for TB disease prevention [6]. Nevertheless, the fact that overall the majority of cases notified in the EU/EEA were native cases should not be overlooked.

The surveillance data indicate that the treatment success rate after 12 months is considerably below the WHO target of 85% [7]. Moreover, the treatment success rates for MDR TB after 24 months and for XDR TB after 36 months are low.

ECDC notes that at a United Nations high-level meeting on 26 September 2018, the EU/EEA countries reaffirmed their commitment to ending the epidemic in all countries [8]. The TB situation reflected in this report indicates that the countries face several challenges in reaching this goal and need to intensify their public health measures against TB.

Public health implications

TB is a poverty-related disease and therefore some of the reasons for the differences between high- and low-incidence countries are socio-economic and will eventually need to be addressed at that level rather than through public health measures alone. Meanwhile, all countries are encouraged to continue to ensure rapid diagnosis of TB and drug-resistant TB and provide adequate treatment as the most effective intervention to stop TB transmission. High-incidence countries should consider assessing whether and where their TB programmes need further strengthening. Low-incidence countries need to consider focusing their screening, diagnostic and treatment efforts even more on sub-populations vulnerable to TB.

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