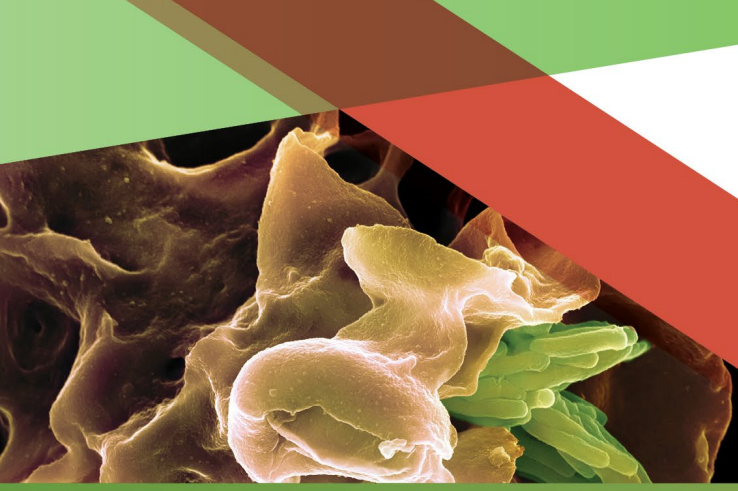


SURVEILLANCE REPORT

Tuberculosis

Annual Epidemiological Report for 2018

Key facts

- For 2018, 30 countries in the European Union/European Economic Area (EU/EEA) reported a total of 52 862 tuberculosis (TB) cases (10.2 per 100 000 population).
- The overall notification rate continued to fall, as did most country-specific rates. However, the EU/EEA is not on track for reaching the goal of ending the TB epidemic by 2030.
- Multidrug resistance (MDR) was reported for 4% of TB cases with drug susceptibility testing results reported. Extensive drug resistance (XDR) was reported for 20% of MDR TB cases that underwent second-line drug susceptibility testing.
- HIV status was reported by 21 countries for 75% of their total TB cases, and of TB cases with known HIV status, 4.2% were HIV-positive.
- Treatment success was achieved in 68% of all TB cases notified in 2017, 60% of HIV-co-infected TB cases notified in 2017, 48% of MDR TB cases notified in 2016, and 37% of XDR TB cases notified in 2015.
- The estimated TB mortality rate in the EU/EEA, excluding deaths in people who were HIV-positive, was 0.7 deaths per 100 000 population, with 3 700 estimated deaths overall.

Methods

This report is based on data for 2018 retrieved from The European Surveillance System (TESSy) on 26 August 2020. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

An overview of the national surveillance systems for TB is available online [1].

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

ECDC and the WHO 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 2018, all reporting countries had comprehensive surveillance systems. All countries used the EU case definition for tuberculosis during the period included in this report.

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

Suggested citation: European Centre for Disease Prevention and Control. Tuberculosis. In: ECDC. Annual epidemiological report for 2018. Stockholm: ECDC; 2020.

Stockholm, October 2020

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 other than 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

Geographic distribution

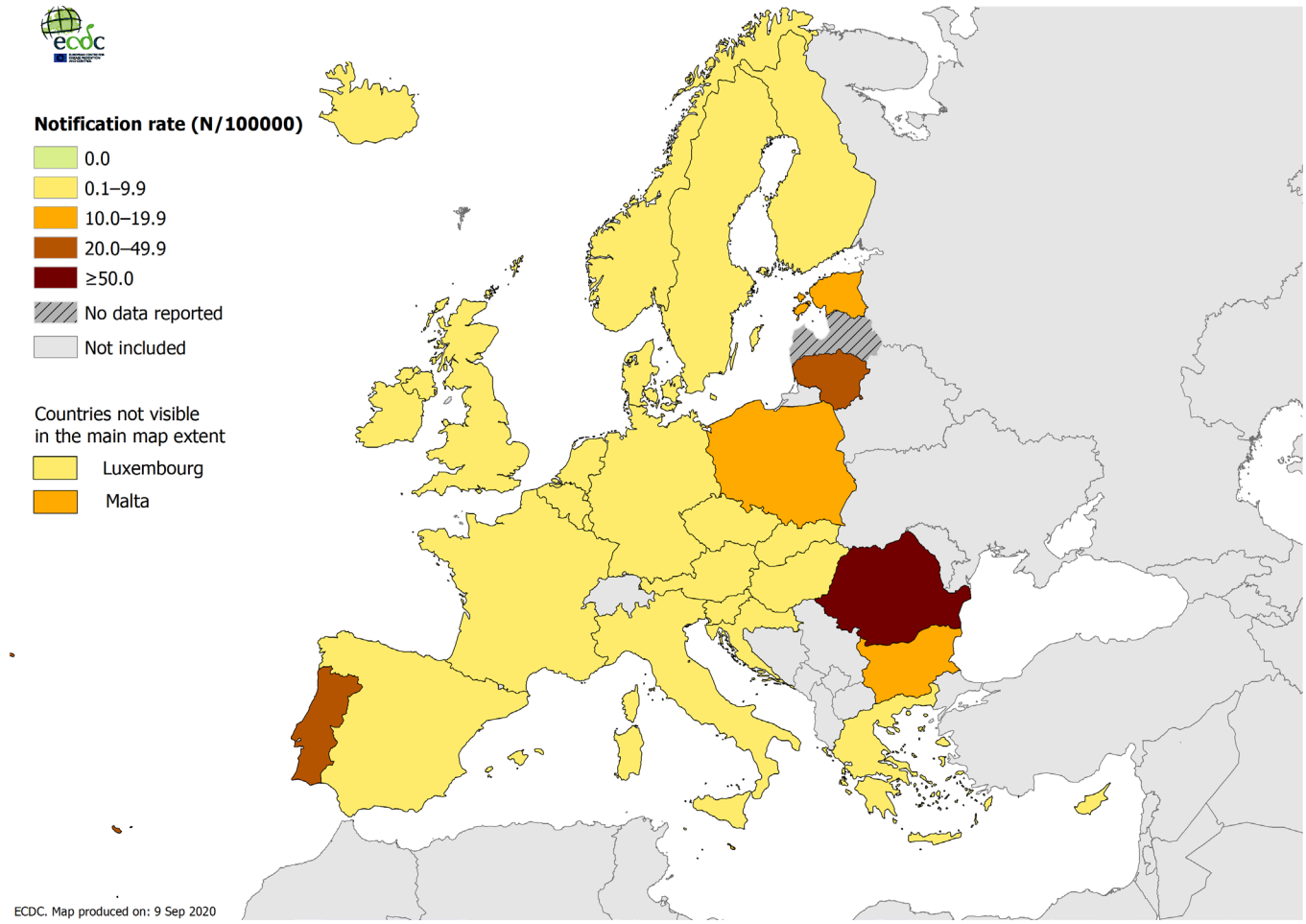
In 2018, a total of 52 862 TB cases were reported by 30 of 31 EU/EEA countries. Ten countries reported 87.9% of the total cases, with Romania alone accounting for 23.0% of all TB cases reported in 2018 (Table 1). The number of notifications per 100 000 population was 10.2, continuing the downward trend observed since the launch of European enhanced TB surveillance in 1996. As reported for previous years, country-specific rates differed considerably in 2018, ranging from 2.3 in Iceland to 62.5 in Romania (Table 1 and Figure 1). Notification rates in the majority of countries have continued to decline or have remained largely stable since 2014. Age-standardised notification rates did not differ substantially from crude rates.

Table 1. Distribution of tuberculosis cases and rates per 100 000 population by country, EU/EEA, 2014–2018

Country	2014		2015		2016		2017		2018			
	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	ASR	Confirmed cases
Austria	586	6.9	583	6.8	634	7.3	569	6.5	482	5.5	5.5	365
Belgium	949	8.5	977	8.7	1 042	9.2	967	8.5	981	8.6	8.9	730
Bulgaria	1 872	25.8	1 660	23.0	1 603	22.4	1 463	20.6	1 358	19.3	18.5	618
Croatia	499	11.7	488	11.5	464	11.1	378	9.1	372	9.1	8.3	325
Cyprus	41	4.8	63	7.4	60	7.1	53	6.2	52	6.0	6.0	40
Czechia	511	4.9	517	4.9	516	4.9	501	4.7	444	4.2	4.1	361
Denmark	320	5.7	357	6.3	330	5.8	275	4.8	291	5.0	5.2	221
Estonia	248	18.8	217	16.5	192	14.6	175	13.3	147	11.1	10.9	125
Finland	263	4.8	272	5.0	233	4.2	246	4.5	230	4.2	3.9	194
France	4 888	7.4	4 744	7.1	5 735	8.6	5 005	7.5	5 092	7.6	7.9	2 234
Germany	4 524	5.6	5 837	7.2	5 926	7.2	5 495	6.7	5 429	6.6	6.9	4 127
Greece	519	4.7	482	4.4	440	4.1	467	4.3	432	4.0	4.0	225
Hungary	851	8.6	906	9.2	786	8.0	685	7.0	640	6.5	6.2	367
Iceland	9	2.8	7	2.1	6	1.8	14	4.1	8	2.3	2.6	2
Ireland	311	6.7	283	6.1	315	6.7	305	6.4	314	6.5	7.0	228
Italy	3 916	6.4	3 769	6.2	4 032	6.6	3 944	6.5	3 912	6.5	6.8	2 728
Latvia	761	38.0	721	36.3	660	33.5	552	28.3	NR	NR	NR	NR
Liechtenstein	1	2.7	2	5.4	2	5.3	1	2.6	1	2.6	3.0	1
Lithuania	1 607	54.6	1 507	51.6	1 442	49.9	1 387	48.7	1 142	40.7	39.4	992
Luxembourg	24	4.4	30	5.3	29	5.0	32	5.4	42	7.0	7.1	35
Malta	46	10.7	32	7.3	50	11.1	42	9.1	55	11.6	12.0	34
Netherlands	814	4.8	862	5.1	887	5.2	783	4.6	806	4.7	4.9	560
Norway	323	6.3	313	6.1	295	5.7	261	5.0	209	3.9	4.1	170
Poland	6 698	17.6	6 430	16.9	6 444	17.0	5 787	15.2	5 487	14.4	14.0	4 075
Portugal	2 278	21.8	2 196	21.2	1 936	18.7	1 800	17.5	2 137	20.8	20.1	1 527
Romania	15 879	79.6	15 183	76.4	13 601	68.8	12 997	66.2	12 205	62.5	61.3	8 720
Slovakia	336	6.2	317	5.8	296	5.5	249	4.6	281	5.2	5.2	146
Slovenia	144	7.0	130	6.3	118	5.7	112	5.4	99	4.8	4.5	92
Spain	4 913	10.6	5 020	10.8	5 070	10.9	5 690	12.2	4 648	10.0	9.8	3 250
Sweden	659	6.8	815	8.4	714	7.2	519	5.2	491	4.9	5.1	408
UK	7 030	10.9	6 229	9.6	6 117	9.4	5 537	8.4	5 075	7.7	8.0	3 147
EU/EEA	**61 820**	**12.1**	**60949**	**11.9**	**59 975**	**11.6**	**56 291**	**10.9**	**52 862**	**10.2**	**10.3**	**36 047**

ASR: age-standardised rate
NR: no data reported
Confirmed cases are based on the EU case definition: culture-positive OR microscopy-positive and nucleic acid amplification test-positive

Figure 1. Distribution of tuberculosis cases per 100 000 population by country, EU/EEA, 2018



Source: ECDC/WHO (2020). Tuberculosis surveillance and monitoring in Europe 2020–2018 data.

Previous treatment, laboratory confirmation and TB site

The distribution of cases by previous treatment history was similar in 2018 to that reported in previous years: 40 625 (76.9%) of 52 862 TB cases reported in 2018 were newly diagnosed, 5 213 (9.9%) had been previously treated for TB and 7 024 (13.3%) had an unknown previous treatment status. The proportion of previously treated cases was above 10% in seven countries: Bulgaria (14.4%), Estonia (17.7%), Hungary (10.5%), Lithuania (19.3%), Poland (11.6%), Romania (19.8%), and Slovenia (10.1%).

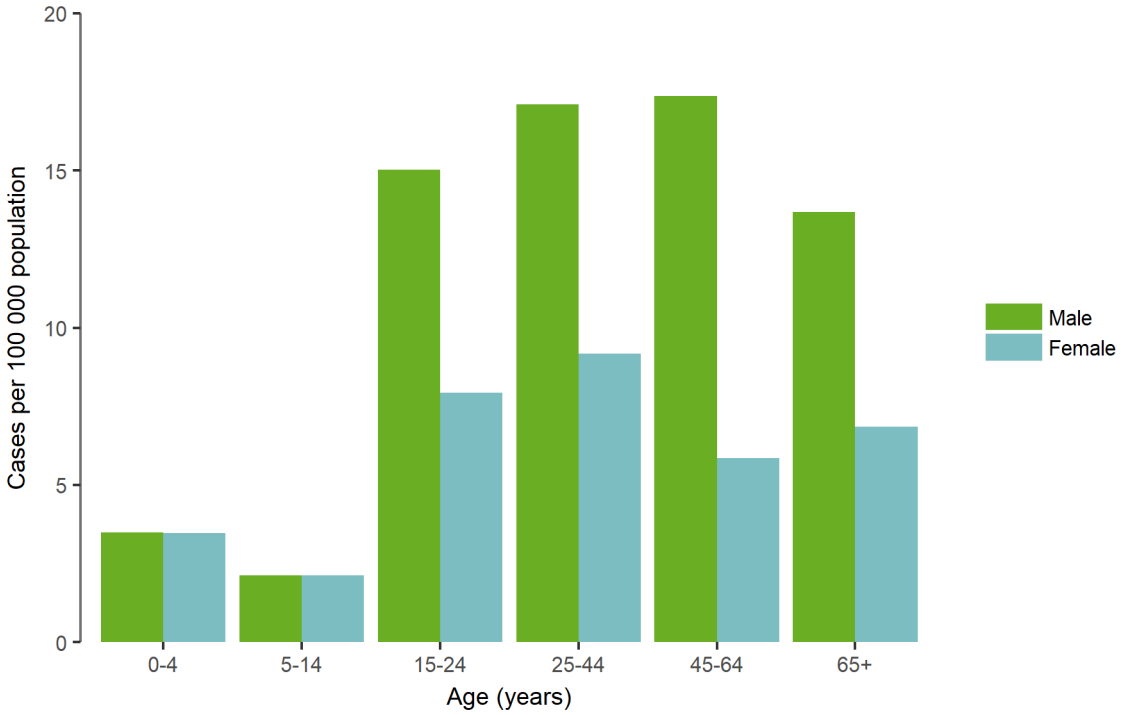
Among TB cases reported in 2018, 36 047 (68.2%) were laboratory-confirmed based on the EU case definition. Of these cases, 29 036 (80.6%) had laboratory confirmation based on culture-positive result/s only, with a further 6 619 (18.4%) cases meeting both criteria (culture-positive, as well as smear-positive and nucleic acid test-positive).

Of all 52 862 TB cases reported in 2018, 36 406 (68.9%) were diagnosed with pulmonary TB, 11 857 (22.4%) with extrapulmonary TB, 4 419 (8.4%) with a combination of both and 180 (0.3%) had no TB site reported.

Age and gender

The highest notification rate in 2018 was observed in the age group 25-44 years (12.5 per 100 000 population). Overall the rate in males was twice the rate in females, but this imbalance was limited to age groups above 14 years (Figure 2).

Figure 2. Distribution of tuberculosis cases per 100 000 population, by age and gender, EU/EEA, 2018



Source: ECDC/WHO (2020). Tuberculosis surveillance and monitoring in Europe 2020–2018 data

Origin of cases

Of the 52 862 TB cases notified in 2018, 33 365 (63.1%) were born in, or were citizens of, the reporting country (referred to as 'native'), 18 246 (34.5%) were of foreign origin, and 1 251 (2.4%) were of unknown origin. Of the seven countries with TB notification rates higher than 10 per 100 000 population, four reported fewer than 5% of TB cases as being of foreign origin: Bulgaria (0.6%), Lithuania (1.1%), Poland (1.8%), and Romania (0.3%). The remaining three countries reported a higher proportion of TB cases of foreign origin: Estonia (21.8%), Malta (96.4%), and Portugal (23.3%).

Drug resistance

Of 33 319 laboratory-confirmed TB cases notified in 2018, 26 881 (80.7%) had isoniazid and rifampicin susceptibility testing results reported. Resistance to at least one anti-TB drug was reported for 3 090 (11.5%) of the cases with testing results reported, and multidrug resistance was reported for 999 (3.7%) of the cases with testing results reported. The proportion of TB cases with resistance to at least one or multiple anti-TB drugs in 2018 was similar to that in 2017 (11.5% vs 10.9% and 3.7% vs 3.8%, respectively).

XDR TB was reported for 158 (19.6%) of 808 MDR TB cases that had second-line drug susceptibility testing results reported. The proportion of XDR TB cases among MDR TB cases with results for second-line DST decreased from 24.3% in 2017 to 19.6% in 2018.

HIV co-infection

The HIV status was reported for 23 783 (75.1%) of 31 683 TB cases from the 21 countries that reported the HIV status of TB cases. Of cases with known HIV status, 991 (4.2%) were reported as HIV-positive. There were 16 countries with at least 50% reporting completeness for HIV status. Across these countries and among cases with known HIV status, co-infected cases were highest in Belgium (7.2%), Estonia (9.5%), Iceland (12.5%), Portugal (9.6%), and Spain (11.2%). Compared with 2017, there was a slight increase in the proportion of HIV co-infected TB cases in 2018 (3.9% to 4.2%, respectively).

Treatment outcome

Of the 45 499 TB cases notified in 2017 with a treatment outcome reported in 2018, 30 764 (67.6%) were treated successfully, 3 125 (6.9%) died, 440 (1.0%) experienced treatment failure, 1 771 (3.9%) were lost to follow-up, 2 400 (5.3%) were still on treatment in 2018, and 6 999 (15.4%) had not been evaluated. Treatment success was achieved in 60.0% of HIV co-infected cases who were on first-line treatment and had a treatment outcome reported in 2018, 48.1% of MDR TB cases notified in 2016, and 37.4% of XDR TB cases notified in 2015.

The estimated TB mortality rate in the EU/EEA, excluding HIV deaths in people who were HIV positive, was 0.7 deaths per 100 000 population, with 3 700 estimated deaths overall.

Discussion

In 2018, 30 of 31 EU/EEA countries reported TB notification data. As in previous years, most of the cases were reported by a subset of EU/EEA countries, with Romania accounting for nearly a quarter of all cases in 2018.

While it is reassuring to continue to observe decreasing notification rates in most countries, many countries still have significant work ahead to meet the United Nations Sustainable Development Goal 3 target (an 80% reduction in the TB incidence rate in 2030 compared to 2015). The target at the EU/EEA level is to reach a notification rate of 2.4 per 100 000 (80% reduction of 2015 TB notification rate of 11.9 per 100 000). Although the overall TB notification rate continued to decline in 2018 compared to previous years, at 10.2 per 100 000 population the EU/EEA is not on track to reach the target.

It is notable that there is a decreasing trend in the proportion of laboratory-confirmed TB cases with isoniazid and rifampicin susceptibility testing results reported (80.7% in 2018 compared with 84.7% in 2017 and 87.4% in 2016) [3, 4]. Over the same time period, the proportion of cases with resistance to at least one anti-TB drug has increased (11.5% in 2018, 10.9% in 2017, 9.9% in 2016). It is reassuring however, that the proportion of MDR TB cases and XDR TB cases has continued to decline over this time period. There is a need for greater vigilance to reduce risk of transmission of drug-resistant strains. Susceptibility testing of all identified TB cases, as well as the surveillance and reporting of susceptibility results, will remain important [5].

WHO has set a target of 85% for TB treatment success [6]. The 2018 surveillance data indicate that the proportion of TB cases with treatment success after 12 months is considerably below that target (at 67.6%), and this proportion has decreased when compared to 2017 and 2016 (70.7% and 71.5%, respectively) [3, 4]. Furthermore, the proportion of successfully treated cases continues to be even lower among those co-infected with HIV, those with MDR TB, and those with XDR TB.

The TB situation reflected in this report indicates that countries continue to face several challenges in reaching the goals set by the United Nations and WHO, and as such need to intensify their public health measures against TB.

Public health implications

TB is a poverty-related disease, so some of the reasons for the differences between high- and low-incidence countries are socio-economical and will eventually need to be addressed on that level rather than by public health measures alone. Meanwhile, all countries are encouraged to continue to ensure the 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.

References

1. European Centre for Disease Prevention and Control. Introduction to the Annual epidemiological report. In: ECDC. Stockholm: ECDC; 2017. Available at: https://ecdc.europa.eu/en/annual-epidemiological-reports-2016/methods
2. European Centre for Disease Prevention and Control. Surveillance atlas of infectious diseases. Stockholm: ECDC; 2018 [accessed 7 October 2020]. Available at: http://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=54
3. European Centre for Disease Prevention and Control. Tuberculosis. In: ECDC. Annual epidemiological report for 2016. Stockholm: ECDC; 2018. Available at: https://www.ecdc.europa.eu/sites/default/files/documents/AER_for_2016-tuberculosis.pdf
4. European Centre for Disease Prevention and Control. Tuberculosis. In: ECDC. Annual epidemiological report for 2017. Stockholm: ECDC; 2020. Available at: https://www.ecdc.europa.eu/sites/default/files/documents/tuberculosis-annual-epidemiological-report-2017.pdf
5. Towards TB elimination: an action framework for low-incidence countries. Geneva: World Health Organization; 2014. Available at: https://apps.who.int/iris/bitstream/handle/10665/132231/9789241507707_eng.pdf?sequence=1
6. Roadmap to implement the tuberculosis action plan for the WHO European Region 2016–2020. Towards ending tuberculosis and multidrug-resistant tuberculosis. Copenhagen: WHO Regional Office for Europe; 2016. Available at: http://www.euro.who.int/en/publications/abstracts/roadmap-to-implement-the-tuberculosis-action-plan-for-the-who-european-region-20162020.-towards-ending-tuberculosis-and-multidrug-resistant-tuberculosis-2016