SURVEILLANCE

Syphilis

Annual Epidemiological Report for 2023

Key facts

- In 2023, 41 051 confirmed syphilis cases were reported in 29 EU/EEA Member States, with a crude notification rate of 9.9 cases per 100 000 population, representing a 13% increase in the crude notification rate compared to 2022, and a 100% increase compared to 2014.
- Reported syphilis rates were seven times higher in men than in women and highest in men aged 25–34 years (43 cases per 100 000 population).
- The majority (72%) of syphilis cases with information on transmission category were reported in men who have sex with men (MSM).
- In 2023, eleven countries reported more than half of the cases as primary and/or secondary syphilis, compared to ten countries in 2022.
- Overall, the trend in syphilis notifications increased between 2014 and 2023, mainly due to an increase in the number of cases among MSM. During the same period, there were very small fluctuations in syphilis notifications among heterosexuals at EU/EEA level. After a brief decline during the COVID-19 pandemic, the number of syphilis notifications began increasing again in 2022 across all transmission groups. This increase continued in 2023.

Introduction

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum* [1]. It can also be transmitted from mother to child (congenital syphilis). Syphilis can be acquired during sexual activity by direct contact with treponema-rich, open lesions and contaminated secretions from an infected partner. After an average incubation period of three weeks (range 10–90 days) a lesion (chancre, that is usually painless) at the site of infection occurs (primary syphilis), followed by a series of eruptions on mucous membranes and skin (secondary syphilis). Untreated infection can become latent, early latent syphilis (within first 12 months of infection) and late latent (one year after infection). Many years after the initial infection, tertiary syphilis lesions may appear (visceral, multi-organ involvement, including serious vascular and neurological damage). Treatment regimens adapted to the stage of infection can effectively cure the infection [2]. Re-infections with syphilis following unprotected sexual contact are possible.

Methods

This report is based on data for 2023 retrieved from The European Surveillance System (TESSy) on 30 October 2024. 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, refer to the 'Methods' chapter of ECDC's 'Annual Epidemiological Report' [3].

An overview of the national surveillance systems is available online [4].

A subset of the data used for this report is available through ECDC's online 'Surveillance atlas of infectious diseases' [5].

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Stockholm, February 2025

For 2023, the majority of countries (22/29) reported data using the standard EU case definitions [6]. Five countries reported using national case definitions and two countries did not state the case definition used.

Most countries (26) had comprehensive surveillance systems. Three countries (Belgium, France and the Netherlands) reported data derived from sentinel systems that only captured syphilis diagnoses from a selection of healthcare providers. Reporting of syphilis infection is compulsory in 26 countries and voluntary in the three countries with sentinel systems.

Data from sentinel surveillance systems were not used in the calculation of national or overall rates because coverage was not always known and denominators were therefore not available. Data from sentinel systems were included in the descriptive analysis. Cases are analysed by date of diagnosis.

In France and Luxembourg, the surveillance systems used to report syphilis changed in 2020 and therefore data for the period 2020 to 2023 should not be compared with data from previous years for these two countries.

Some countries did not provide information on infection stages and therefore all reported syphilis cases are considered for analysis, irrespective of the stage of infection. As a result, some cases of non-infectious syphilis (late latent syphilis, acquired > 1 year ago) might be included for some countries even though they are not under EU/EEA surveillance.

The United Kingdom (UK) contributed surveillance data up to 2019. No data were reported by the UK for 2020 or subsequently due to its withdrawal from the EU on 31 January 2020. The UK data that were reported up to 2019 are presented in Table 1, but are not included in the analysis of trends.

Epidemiology

Geographical distribution

In 2023, 41 051 confirmed syphilis cases were reported in 29 EU/EEA countries, giving a crude notification rate of 9.9 cases per 100 000 population (Table 1) for countries with comprehensive surveillance systems. The highest rate was observed in Luxembourg (24.8 per 100 000 population), followed by Malta (22.7), Spain (22.0), Iceland (18.8), Ireland (16.4), Slovakia (12.8), Hungary (12.6), Denmark (11.3), and Portugal (11.0). Low rates of under three cases per 100 000 population were observed in Croatia, Latvia and Lithuania (Table 1, Figure 1).

Table 1. Confirmed syphilis cases and rates per 100 000 population by country and year, EU/EEA, 2019–2023

Country	2019		2020		2021		2022		2023	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Austria	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Belgium	1 670	NRC	1 407	NRC	2 113	NRC	2 191	NRC	2 545	NRC
Bulgaria	480	7.2	319	4.9	271	4.1	361	5.6	348	5.4
Croatia	28	0.7	22	0.6	35	0.9	48	1.2	36	0.9
Cyprus	31	3.5	43	4.8	92	10.3	72	8.0	95	10.3
Czechia	630	5.9	716	6.7	758	7.2	856	8.1	784	7.2
Denmark	361	6.2	445	7.6	638	10.9	677	11.5	672	11.3
Estonia	37	2.8	33	2.5	31	2.3	39	2.9	50	3.7
Finland	251	4.5	207	3.7	168	3.0	383	6.9	456	8.2
France	1 080	NRC	982	NRC	1 285	NRC	1 761	NRC	2 025	NRC
Germany	7 928	9.5	7 404	8.9	6 755	8.1	8 346	10.0	9 123	10.8
Greece	443	4.1	401	3.7	654	6.1	864	8.3	911	8.7
Hungary	788	8.1	774	7.9	764	7.9	1 062	11.0	1 208	12.6
Iceland	38	10.6	31	8.5	50	13.6	50	13.3	73	18.8
Ireland	745	15.2	582	11.7	717	14.3	879	17.4	864	16.4
Italy	1 826	3.1	843	1.4	1 614	2.7	2 544	4.3	2 538	4.3
Latvia	75	3.9	68	3.6	48	2.5	27	1.4	15	0.8
Liechtenstein	NDR	NRC	4	10.3	1	2.6	6	15.3	4	10.1
Lithuania	117	4.1	54	1.9	117	4.2	86	3.1	75	2.6
Luxembourg	51	8.3	199	31.8	185	29.1	151	23.4	164	24.8
Malta	95	19.2	85	16.5	166	32.2	127	24.4	123	22.7
Netherlands	1 474	NRC	1 526	NRC	1 684	NRC	1 925	NRC	2 097	NRC
Norway	205	3.8	287	5.3	163	3.0	195	3.6	208	3.8
Poland	1 627	4.3	711	1.9	1 127	3.0	1 992	5.4	2 986	8.1
Portugal	480	4.7	870	8.4	1 146	11.1	1 612	15.6	1 153	11.0
Romania	539	2.8	296	1.5	318	1.7	493	2.6	569	3.0
Slovakia	279	5.1	160	2.9	289	5.3	451	8.3	695	12.8
Slovenia	54	2.6	31	1.5	37	1.8	34	1.6	78	3.7
Spain	4 880	10.4	4 531	9.6	5 277	11.1	8 365	17.6	10 591	22.0
Sweden	431	4.2	473	4.6	583	5.6	535	5.1	565	5.4
EU/EEA (30 countries)	**26 643**	**6.5**	**23 504**	**5.6**	**27 086**	**6.4**	**36 132**	**8.8**	**41 051**	**9.9**
UK	8 738	13.1	NDR	NRC	NA	NA	NA	NA	NA	NA
EU/EEA (31 countries)	**35 381**	**7.5**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Source: country reports.

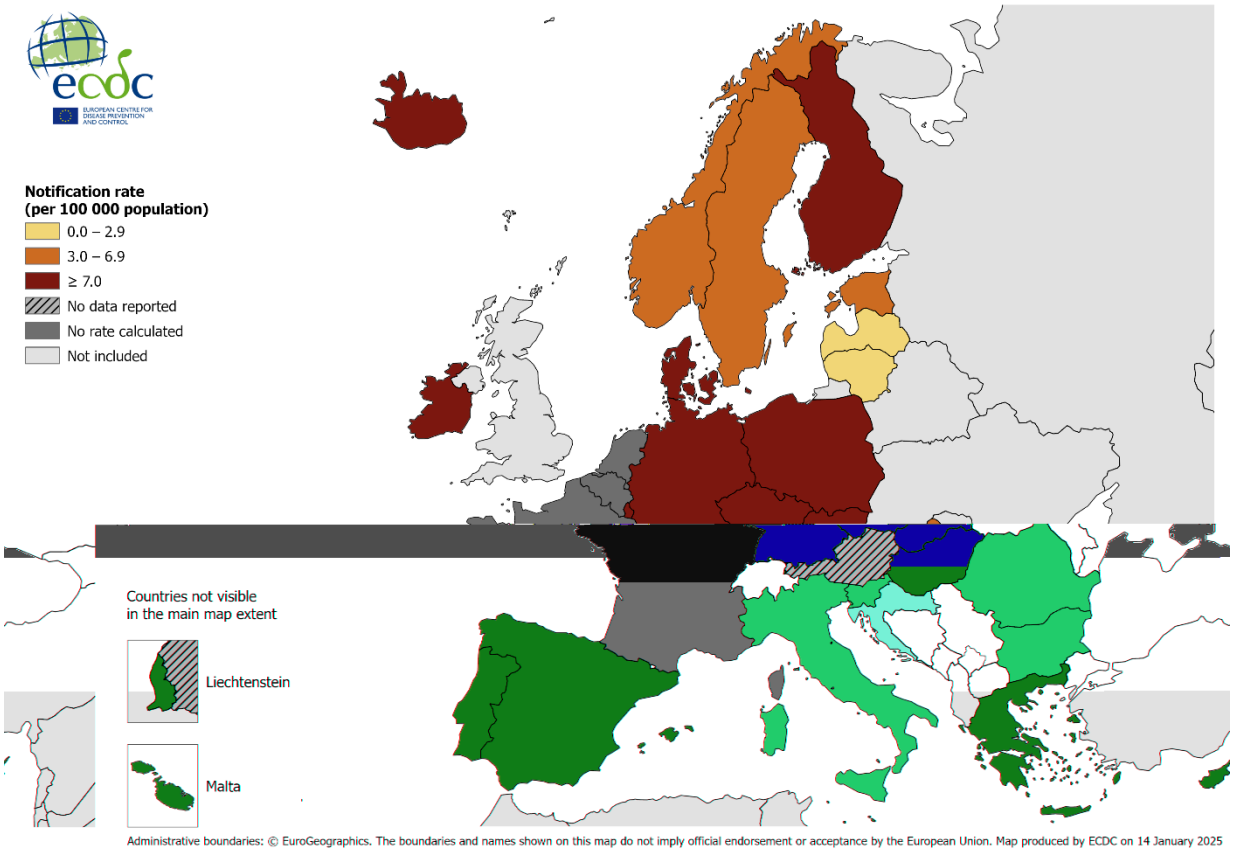
NDR: no data reported. NRC: no rate calculated. NA: not applicable.

No data were reported by the United Kingdom from 2020 onwards due to its withdrawal from the EU on 31 January 2020.

Rates for Belgium, France and the Netherlands were not calculated as data reported are based on sentinel systems where population denominators were unknown.

Note: The surveillance systems for syphilis reporting in France and Luxembourg changed in 2020; the data from 2020 onwards should not therefore be compared with data from previous years.

Figure 1. Confirmed syphilis cases per 100 000 population by country, EU/EEA, 2023



Rates are calculated for countries with comprehensive sexually transmitted infection (STI) surveillance that reported data for 2023.

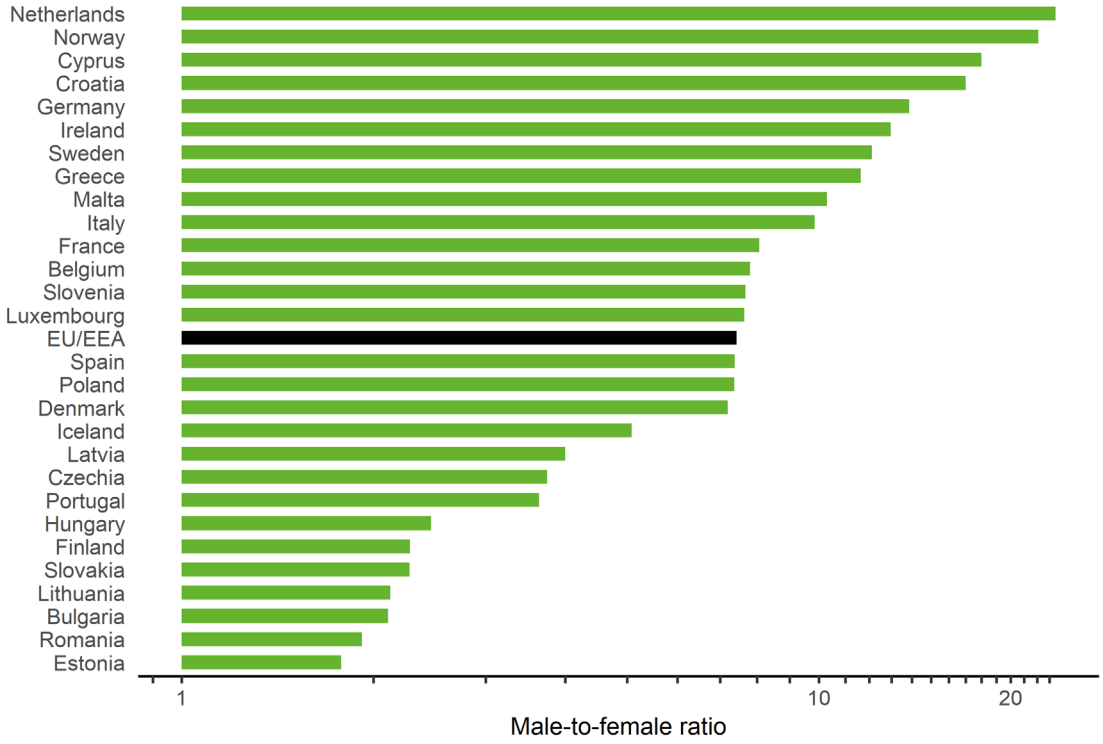
Gender

The overall male-to-female ratio in 2023 was 7.4:1, with rates of 17.6 cases per 100 000 population in men (35 962 cases) and 2.4 cases per 100 000 population in women (4 841 cases). There were 106 cases reported as 'other' gender and 142 where gender was unknown.

In 2023, rates among men (≥20 cases per 100 000 population) were observed in Cyprus, Denmark, Germany, Iceland, Ireland, Liechtenstein, Luxembourg, Malta and Spain. Rates among women were highest (≥3 cases per 100 000 population) in Bulgaria, Czechia, Finland, Hungary, Iceland, Luxembourg, Malta, Portugal, Slovakia and Spain.

There were marked differences in the male-to-female ratios across countries: ratios of 10:1 or above were reported by Croatia, Cyprus, Germany, Greece, Ireland, Malta, the Netherlands, Norway and Sweden, while male-to-female ratios below 3:1 were reported by Bulgaria, Estonia, Finland, Hungary, Lithuania, Romania and Slovakia (Figure 2).

Figure 2. Syphilis, male-to-female ratio in EU/EEA countries, 2023



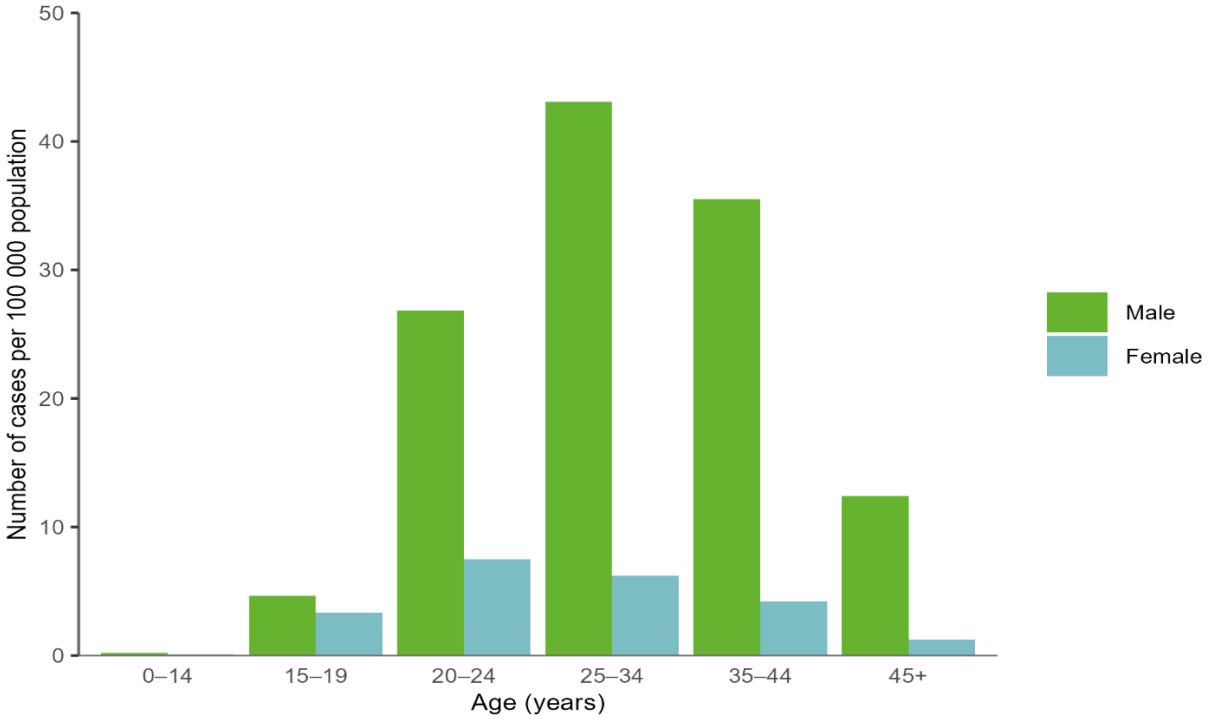
The EU/EEA ratio is based on data from 28 countries.

Age

In 2023, information on age was available for cases reported from 27 countries. Information was either unavailable or reported in a format unsuitable for analysis by Belgium and Poland, accounting for 13% of all cases. In 2023, the largest proportion of cases was reported in two population groups: 25–34-year-olds and those aged 45 years and above. These two age groups accounted for 30% and 32% of all cases respectively. Adults aged 35–44 years accounted for 26% of cases, and young people aged 15–24 years accounted for 12% of all reported cases. When the age group 15–24 years is further subdivided, individuals aged 20–24 years accounted for 10%, and those aged 15–19 years accounted for 2% of all reported cases.

Age-specific rates were higher among men than women across all the age groups (Figure 3). Rates among men were highest among those aged 25–34 years (43.1 cases per 100 000 population), followed by those aged 35–44 years (35.5 per 100 000) and those aged 20–24 years (26.9 per 100 000 population). Women aged 20–24 years had the highest age-specific rate (7.5 cases per 100 000 population), followed by women aged 25–34 years, with 6.2 cases per 100 000 population and women aged 35–44 years (4.2 cases per 100 000 population).

Figure 3. Confirmed syphilis cases per 100 000 population, by age and gender, EU/EEA, 2023



Source: Country reports from Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Transmission

For 2023, 20 countries[1] reported information on transmission category for more than 50% of their cases. They accounted for 53% (n=21 764) of all reported syphilis cases. Among these cases, transmission category was indicated as MSM in 56%, heterosexual in 22% (males: 13%; females: 8%) and unknown in 21%. When cases with unknown transmission category were excluded, 72% of syphilis cases were among MSM, and 17% and 11% were attributed to heterosexual transmission in males and females, respectively. The percentage of cases diagnosed in MSM ranged from 25% or less in Hungary, Romania and Slovakia to 75% or more in Germany, Greece, Ireland, Liechtenstein, the Netherlands, Norway, Slovenia and Sweden.

HIV status

For 2023, information on HIV co-infection status was reported by 16 countries[2], accounting for 52% of syphilis cases (n=21 480). Of these, 10% were HIV positive (either known or newly diagnosed), 35% were HIV negative, and for 55%, the HIV status was unknown. When only the 9 771 cases with known HIV status were taken into consideration, 22% (2 154) were HIV-positive. Among cases reported in MSM, HIV status data were available for 5 736 cases, 31% of which were HIV positive.

Syphilis stage

Details on the clinical stage of syphilis infection were provided by 16 countries[3] for 25% (n=10 274) of all reported cases in 2023. The majority were reported as 'primary' (31%), 'secondary' (26%) or 'early latent' infection (36%), while fewer cases were reported as 'late latent' (4%) or 'latent' syphilis infection (3%). Distribution across countries varied. Eleven countries (Greece, Estonia, France, Hungary, Latvia, Liechtenstein, Luxembourg, Norway, Portugal, Slovenia and Spain) reported more than half of their cases as primary and/or secondary syphilis. In two countries, Cyprus and the Netherlands, early latent syphilis cases exceeded those reported as primary and/or secondary syphilis. For comparison, in 2022, ten countries reported more than 50% of their cases as primary and/or secondary syphilis and in one country, early latent syphilis cases surpassed those reported as primary and/or secondary syphilis.

[1] Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Liechtenstein, Luxembourg, Malta, the Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden.
[2] Cyprus, Czechia, Estonia, France, Greece, Hungary, Iceland, Ireland, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain.
[3] Cyprus, Czechia, Estonia, France, Greece, Hungary, Latvia, Liechtenstein, Luxembourg, the Netherlands, Norway, Portugal Romania, Slovakia, Slovenia, Spain.

Trends

Between 2014 and 2023, 272 137 cases of syphilis were reported in 29 EU/EEA countries. During this period, 28 countries consistently reported data, while Liechtenstein reported data for 2020–2023. An additional 41 965 cases were reported by the UK for the period 2014–2019, before its withdrawal from the European Union on 31 January 2020. Austria did not report data for 2014–2023.

Between 2014 and 2023, in 24 countries with comprehensive surveillance that reported consistently[4], syphilis notification rates per 100 000 population increased continuously until 2019, decreased in 2020, and then began increasing again in 2021, reaching new record-high levels in 2022 and again in 2023 (Figure 4a).

In 2023, compared with 2022, in 26 countries reporting consistently (the countries mentioned above plus Liechtenstein and Luxembourg) the overall rate increased by 13% (from 8.8 to 9.9 per 100 000 population). In 2023 at national level, compared with 2022, an increase in the number of syphilis cases was observed in 18 of the 29 countries that reported data, while 11 other countries reported decreases. Increases by 25% or more were observed in Cyprus, Estonia, Iceland, Poland, Slovakia, Slovenia and Spain – countries that together accounted for 35% of all cases in 2023. Increases of less than 25% were observed in Belgium, Finland, France, Germany, Greece, Hungary, Luxemburg, the Netherlands, Norway, Romania and Sweden – countries that reported 48% of all cases in 2023. Decreases were observed in Bulgaria, Croatia, Czechia, Denmark, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Malta and Portugal - countries that accounted for 16% of syphilis cases in 2023.

In those countries reporting gender consistently, trends by gender were divergent between 2014 and 2019, with a marked increase among men and fluctuations at low levels among women, (Figure 4b). Following a decline in 2020, rates have increased in recent years for both genders, sharply among men and with a lower intensity among women. Between 2022 and 2023, rates among men increased by 12% (from 15.8 to 17.6 per 100 000 population) and among women by 20% (from 2.0 to 2.4 per 100 000 population).

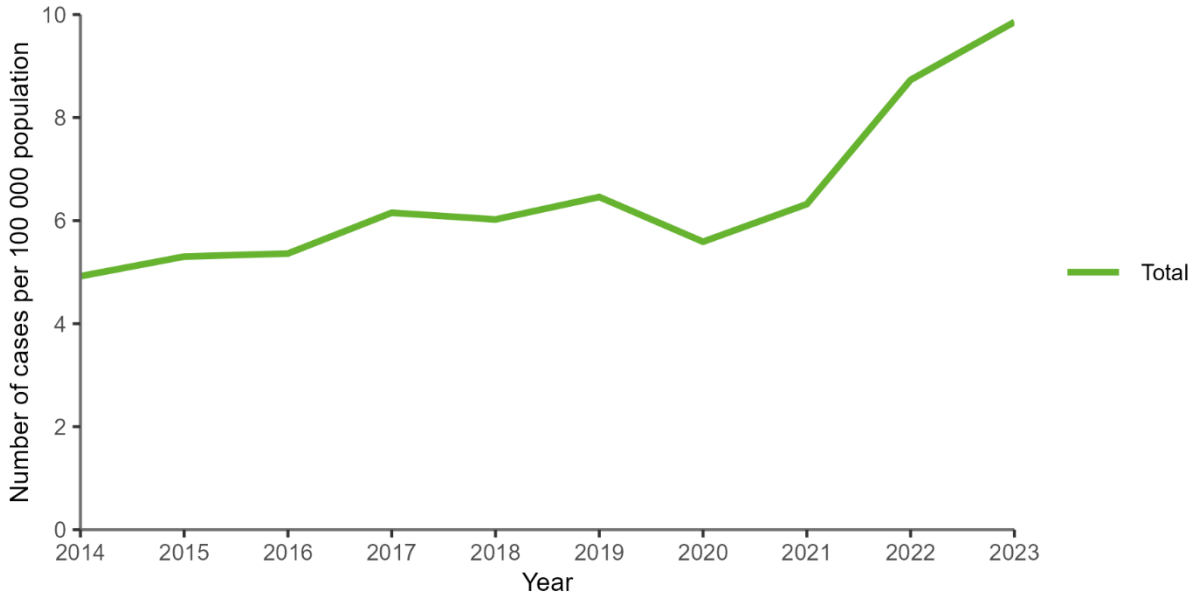
Over the past 10 years, age-specific rates among men have been highest in the age group 25–34 years, followed by those aged 35–44 years. Among women rates have generally been highest in the age group 20–24 years, followed by those aged 25–34 years. Between 2022 and 2023, in 24 countries reporting data for both years[5], age-specific rates among men increased by 13% in the age group 20–24 years, 5% in the age group 25–34 years, and 9% in the age group 35–44 years. Among women, the increases were 17% in the age group 20–24 years, 14% in those aged 25–34 years and 23% in those aged 35-44 years.

Trends by transmission group (Figure 5), in the 10 countries that provided transmission category data with at least 50% completeness for 2014–2023, show a steep increase in reported cases among MSM until 2019, followed by a decrease in 2020, a rebound in 2022 and a further increase in 2023. Among heterosexuals, there were very small fluctuations in the number of cases, with a decreasing tendency between 2014 and 2020, but upsurges were observed in both heterosexual males and heterosexual females during 2022–2023.

Syphilis diagnoses increased by 3% among MSM, 16% among those reported as heterosexual females and 11% among those reported as heterosexual males between 2022 and 2023 in 18 countries providing transmission category data with at least 50% completeness[6].

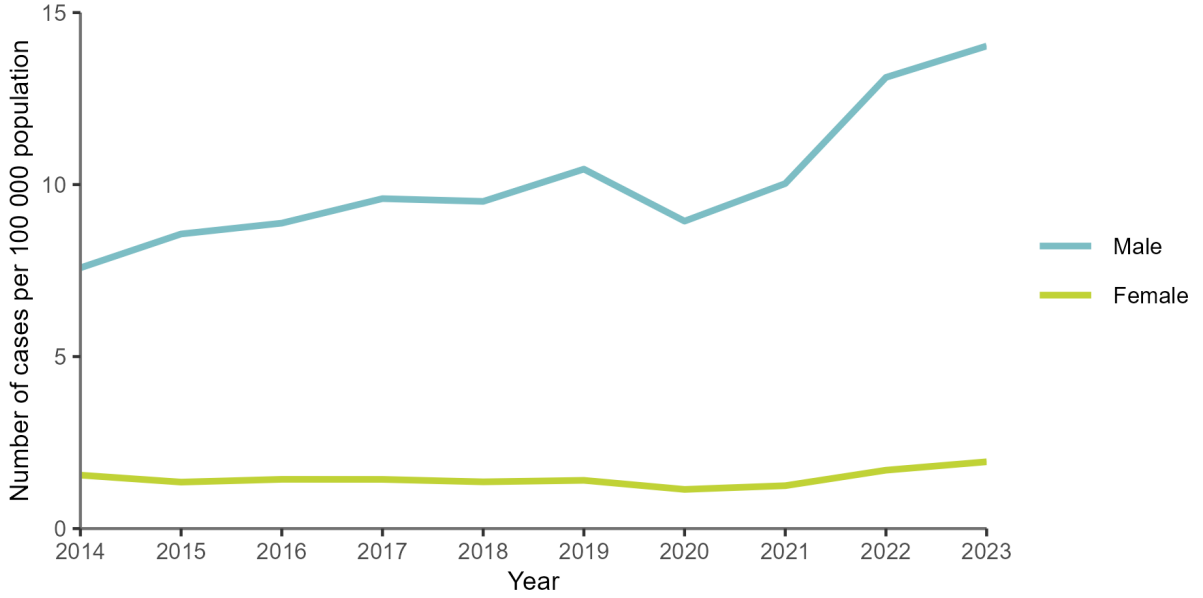
[4] Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.
[5] Croatia, Cyprus, Czechia, Denmark, Estonia, Finland Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.
[6] Czechia, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Latvia, the Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden.

Figure 4a. Rate of confirmed syphilis cases per 100 000 population in EU/EEA countries reporting consistently, 2014–2023



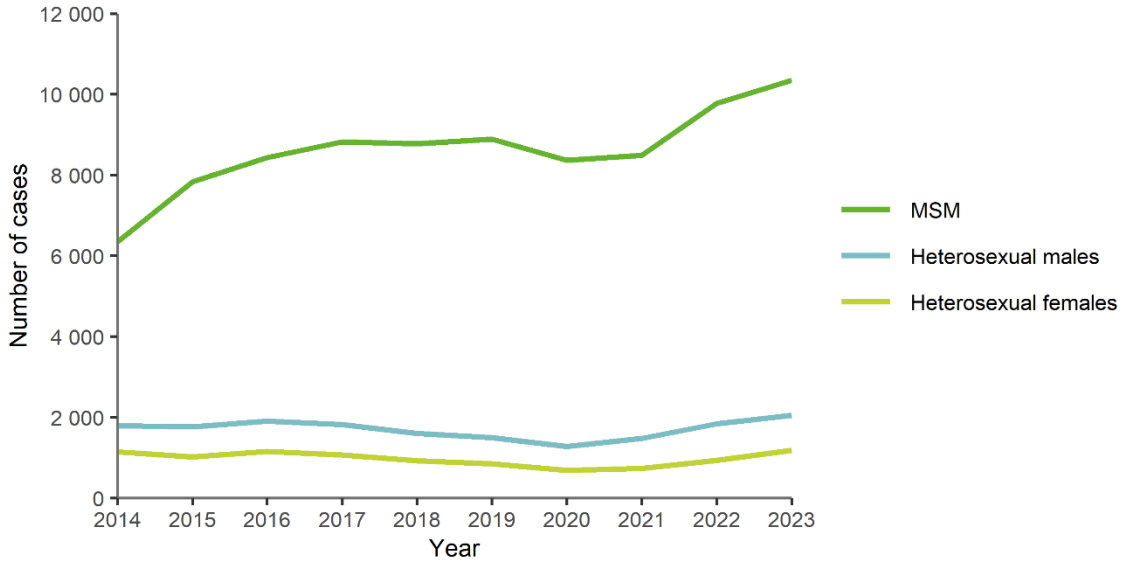
Source: Country reports from Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Figure 4b. Rate of confirmed syphilis cases per 100 000 population, by gender for cases with available data, in EU/EEA countries reporting consistently, 2014–2023



Source: Country reports from Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, and Sweden. Data from Spain are not included because data on gender were not reported consistently by Spain over the past 10 years.

Figure 5. Number of confirmed syphilis cases by gender, transmission category and year in EU/EEA countries reporting consistently, 2014–2023



Source: Country reports from Czechia, Germany, Greece, Latvia, the Netherlands, Norway, Romania, Slovakia, Slovenia and Sweden.

Outbreaks and other threats

In addition to reporting to TESSy, the EU/EEA Member States can also report events and threats of public health significance for the EU/EEA through the ECDC platform EpiPulse [7]. There were no alerts or events related to syphilis posted in 2023.

Discussion

Between 2014–2023, about 272 000 syphilis cases were reported in the EU/EEA. The number of annual notifications increased continuously between 2014 and 2019 before decreasing in 2020. The decrease in 2020 was associated with the impact of the COVID-19 pandemic on availability and/or access to STI care services, reduced testing opportunities and decrease of STI surveillance capacity due to diversion of resources to the COVID-19 response [internal ECDC report, data not published]. The recovery of STI care services, including testing, and surveillance capacities, may explain the rebound in case notifications for 2021. In addition to restored STI services and optimised surveillance, increased transmission may explain the rise in syphilis notifications across all transmission groups, including heterosexual women, in 2022 and 2023.

Men, particularly MSM, have been disproportionately affected by the epidemic over the last decade. A systematic review of European studies identified several sub-groups of MSM at higher risk of syphilis infection [8]. The estimated syphilis prevalence was 6.5% (95% CI 3.2–9.9) in MSM visiting STI clinics, 14.4% (95% CI 1.1–27.6) in MSM living with HIV and 6.5% (95% CI 3.9–9.0) in MSM on pre-exposure prophylaxis (PrEP). The sampling dates in the identified studies ranged from 2015 to 2022. It is interesting to note that the highest prevalence estimates reported in European studies were observed among male and transgender sex workers, at 22.1% (95% CI 5.1–39.0).

Factors contributing to the increasing incidence of syphilis among MSM, identified based on self-reported behaviour data collected through two EMIS surveys (in 2010 and 2017), were: living with HIV, a larger number of non-steady male condomless anal intercourse (CAI) partners, recency of STI screening, selling sex and use of pre-exposure prophylaxis (PrEP) for HIV [9]. For MSM using PrEP, an increased risk of syphilis was associated with recency of STI screening and the number of non-steady male CAI partners. Regular testing for syphilis (and other STIs) among those on PrEP is recommended by the International Union Against Sexually Transmitted Infections (IUSTI) Europe and the European AIDS Clinical Society (EACS) guidelines [2,10].

In a position statement in 2024, IUSTI Europe acknowledges that there is evidence of benefit at the individual level for oral doxycycline 200mg taken 24 to 72 hours after sexual exposure in reduction of syphilis, but also highlights that considerable uncertainties remain regarding longer-term benefits [11]. In 2023, ECDC indicated that, when implemented, doxycycline post-exposure prophylaxis (doxy-PEP) should be part of a comprehensive package of sexual health interventions, including regular screening and provision of treatment where needed, along with close monitoring for individual and population-level antimicrobial resistance [12].

In the last two years, syphilis notifications have increased among both heterosexual men and heterosexual women in the EU/EEA, after very minor fluctuations during the period 2014–2021. In European settings, factors associated with heterosexual transmission are high-risk sexual behaviour, sex work, substance use (drugs or alcohol) and social vulnerabilities such as poverty, homelessness, ethnic minority, migrant or refugee status [13].

Data indicate that most women diagnosed with syphilis are between 20 and 34 years old, which is within the reproductive age range. Given the potentially devastating consequences of syphilis during pregnancy, it is important to monitor syphilis trends among women while at the same time ensuring that antenatal screening programmes are implemented effectively, and that retesting for syphilis during the third trimester (weeks 28–32) is offered to women at higher risk of infection [13].

In 2021, five countries reported more than half of their cases as primary and/or secondary syphilis. This increased to ten countries in 2022 and eleven in 2023. While this may reflect an expansion in availability and early access to testing, it may also indicate increased transmission across Europe. Updated in 2020, the 'European guideline for the management of syphilis' includes recommendations on which patient groups to prioritise for testing, clinical and laboratory diagnosis and details of treatment regimens [2].

Any data comparisons across countries should be made with caution due to differences in testing, reporting and surveillance systems. By way of example, changes in France's surveillance system between 2019 and 2020 place a limitation on the interpretation of trends.

Public health implications

Following the increasing trends in syphilis across the EU/EEA and by request of Member States, ECDC formulated options for public health response which remain valid [13].

In general, response activities should consider a combination of case finding (enhanced screening of populations at risk, expanded testing in outreach venues, partner notification and surveillance activities), case management (diagnosis and treatment), and education (directed at the general population, populations at risk and healthcare providers). More specifically, enhanced testing of populations at risk of syphilis includes offering syphilis testing during routine HIV clinical monitoring for HIV-positive MSM; quarterly testing of HIV-negative MSM engaging in high-risk sexual practices (i.e. MSM using PrEP, MSM with a high number of sex partners, MSM with prior syphilis diagnosis), and routine testing of those attending STI clinics. Testing of other risk groups (e.g. marginalised populations, sex workers, people who inject drugs) should be informed by local syphilis epidemiology. In light of the recent increases in syphilis notifications among women of reproductive age, it is essential that national antenatal screening programmes are strengthened, along with the control of syphilis transmission, among heterosexual populations.

Further development of syphilis surveillance at the European level should be objective-driven. By 2026, with participation of the STI network, ECDC will revise the STI surveillance objectives and develop surveillance standards specific to each STI under EU/EEA surveillance.

The fourth edition of the 'Manual for laboratory and point-of-care diagnostic testing for STIs, including HIV' was published by the World Health Organization in 2023 [14]. This manual was accompanied by the report 'Diagnostics landscape for sexually-transmitted Infections' which highlights the diagnostics available as of 2023 [15].

The upsurges in bacterial STI across the EU/EEA are of concern and were discussed at the meetings of the Health Security Committee (HSC) in 2024. An HSC opinion[7] on this issue was published in January 2025, outlining public health actions to deal with the increases in STIs at EU/EEA and Member-State levels [16].

[7] Opinion of the Health Security Committee on Sexually Transmitted Infections - European Commission

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