SURVEILLANCE

Chlamydia

Annual Epidemiological Report for 2023

Key facts

- For 2023, 230 199 confirmed cases of chlamydia infection were reported in 27 EU/EEA countries, with a crude notification rate of 70.4 cases per 100 000 population. When analysing the rate over time among countries reporting consistently, this represents a 3% increase in the crude notification rate compared to 2022, and a 13% increase compared to 2014.
- After reaching record-high notification rates in 2022, the increase in chlamydia notification rates slowed down in 2023 for both women and men.
- Notification rates continued to be highest among women aged 20–24 years in 2023, although a 2% decrease was observed in the rate for this population group compared to 2022.
- In 2023, transmission between men who have sex with men (MSM) accounted for 20% of chlamydia cases, an increase of 4% compared with 2022.
- National notification rates for cases of chlamydia infection ranged between 0.1 and 626 cases per 100 000 population. Differences in chlamydia testing policies, case finding strategies and reporting are considered to have a greater influence on reported chlamydia numbers than actual differences in epidemiology.

Introduction

Chlamydia is a sexually transmitted infection caused by the *Chlamydia trachomatis* bacterium. The infection is often asymptomatic, both in men and women. Urogenital infections can present as urethritis and proctitis in men and women, cervicitis, salpingitis, endometritis and pelvic inflammatory disease (PID) in women, and orchitis, epididymitis and prostatitis in men [1]. Chlamydia can lead to tubal factor infertility, ectopic pregnancy and chronic pelvic pain. *Chlamydia trachomatis* infection can also be transmitted from mother to child during labour, leading to disease in the neonate [1]. Urogenital chlamydial infections do not result in lasting immunity, meaning that individuals treated for the infection are susceptible to reinfection [2].

Methods

This report is based on data for 2023 retrieved from The European Surveillance System (TESSy) on 31 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 the 'ECDC Annual Epidemiological Report' [3].

An overview of the national surveillance systems is available on ECDC's website [4].

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

In 2023, the majority of countries (23/27) reported data based on the standard EU case definitions [6].

Suggested citation: European Centre for Disease Prevention and Control. Chlamydia. In: ECDC. Annual Epidemiological Report for 2023. Stockholm: ECDC; 2025.

Stockholm, February 2025.

Three countries reported data based on national case definitions and one country did not report the case definition used. Most countries (24) had comprehensive surveillance systems. Three countries (Belgium, France and the Netherlands) reported data derived from sentinel systems that only capture chlamydia diagnoses from a selection of healthcare providers. For 2023, Italy reported data with national coverage instead of sentinel surveillance data. Reporting of chlamydia infection is compulsory in the countries that maintain a comprehensive surveillance system, while it is voluntary in countries with a sentinel system.

Data from sentinel systems are not included in the calculation of rates as the population coverage is unknown and denominators are therefore not available. Cases are analysed by date of diagnosis. The use of incompatible age formats meant that data from the following countries and years were excluded from the analysis of age groups: Belgium (2015–2023) and Poland (2014–2023). Surveillance data on chlamydia were not available from Austria, Czechia and Germany for 2014–2023, from Liechtenstein for 2014–2019, and from France for 2018–2020.

The United Kingdom (UK) contributed surveillance data up to 2019. Since 2020, data are no longer reported by the UK due to its withdrawal from the EU on 31 January 2020. The UK data that were reported up to 2019 are not included in the analysis of trends.

Epidemiology

In 2023, 27 countries reported 230 199 confirmed chlamydia cases (Table 1). The crude notification rate for the 24 EU/EEA countries with comprehensive surveillance systems was 70.4 per 100 000 population.

Notification rates of cases of chlamydia infection varied considerably across the EU/EEA (Table 1, Figure 1). The highest country-specific rates of over 300 cases per 100 000 population were in Denmark, Finland, Iceland, Norway and Sweden – countries that together reported 51% of chlamydia cases in 2023. The lowest rates (of less than three cases per 100 000 population) were reported by Bulgaria, Greece, Italy, Poland and Romania, accounting for 1% of the total cases.

Table 1. Confirmed chlamydia 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	8 288	NRC	5 692	NRC	9 381	NRC	9 081	NRC	10 179	NRC
Bulgaria	121	1.8	50	0.8	31	0.5	26	0.4	40	0.6
Croatia	150	3.8	121	3.1	115	3.0	100	2.6	147	3.8
Cyprus	1	0.1	4	0.5	5	0.6	10	1.1	63	6.8
Czechia	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Denmark	35 680	614.5	34 681	595.6	36 632	627.3	41 634	708.9	37 111	625.5
Estonia	1 064	80.3	942	70.9	977	73.5	1 032	77.5	985	72.1
Finland	16 181	293.2	16 280	294.6	16 789	303.4	16 863	303.9	17 542	315.3
France	NDR	NRC	NDR	NRC	12 665	NRC	14 199	NRC	19 122	NRC
Germany	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Greece	62	0.6	66	0.6	45	0.4	59	0.6	96	0.9
Hungary	913	9.3	624	6.4	640	6.6	641	6.6	677	7.1
Iceland	1 795	502.8	1 788	491.0	1 807	490.0	1 853	492.5	1 933	498.5
Ireland	9 208	187.8	6 901	139.0	8 322	166.2	10 798	213.4	12 656	240.1
Italy	1 109	NRC	602	NRC	1 243	NRC	1 396	NRC	870	1.5
Latvia	1 253	65.3	1 202	63.0	998	52.7	1 006	53.6	1 108	58.8
Liechtenstein	NDR	NRC	30	77.4	33	84.5	38	96.7	38	95.8
Lithuania	248	8.8	174	6.2	228	8.1	257	9.2	260	9.1
Luxembourg	44	7.2	1 003	160.2	1 136	179.0	1 527	236.6	1 636	247.6
Malta	320	64.8	235	45.7	362	70.1	286	54.9	422	77.9
Netherlands	18 148	NRC	16 109	NRC	20 484	NRC	24 685	NRC	24 048	NRC
Norway	28 446	533.9	25 444	474.0	23 447	434.9	29 271	539.5	28 137	512.6
Poland	418	1.1	167	0.4	283	0.8	517	1.4	977	2.7
Portugal	787	7.7	765	7.4	916	8.9	1 598	15.4	1 404	13.4
Romania	14	0.1	5	0.0	4	0.0	12	0.1	24	0.1
Slovakia	780	14.3	682	12.5	888	16.3	1 063	19.6	1 037	19.1
Slovenia	397	19.1	280	13.4	369	17.5	412	19.6	464	21.9
Spain	15 612	38.5	15 254	35.9	20 597	48.4	28 824	62.3	36 967	78.8
Sweden	34 784	340.0	32 890	318.5	30 171	290.7	32 844	314.2	32 256	306.6
EU/EEA (30 countries)	**175 823**	**77.9**	**161 991**	**72.9**	**188 568**	**76.2**	**220 032**	**89.0**	**230 199**	**70.4**
UK	258 904	388.5	NDR	NRC	NA	NA	NA	NA	NA	NA
EU/EEA (31 countries)	**434 727**	**157.5**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

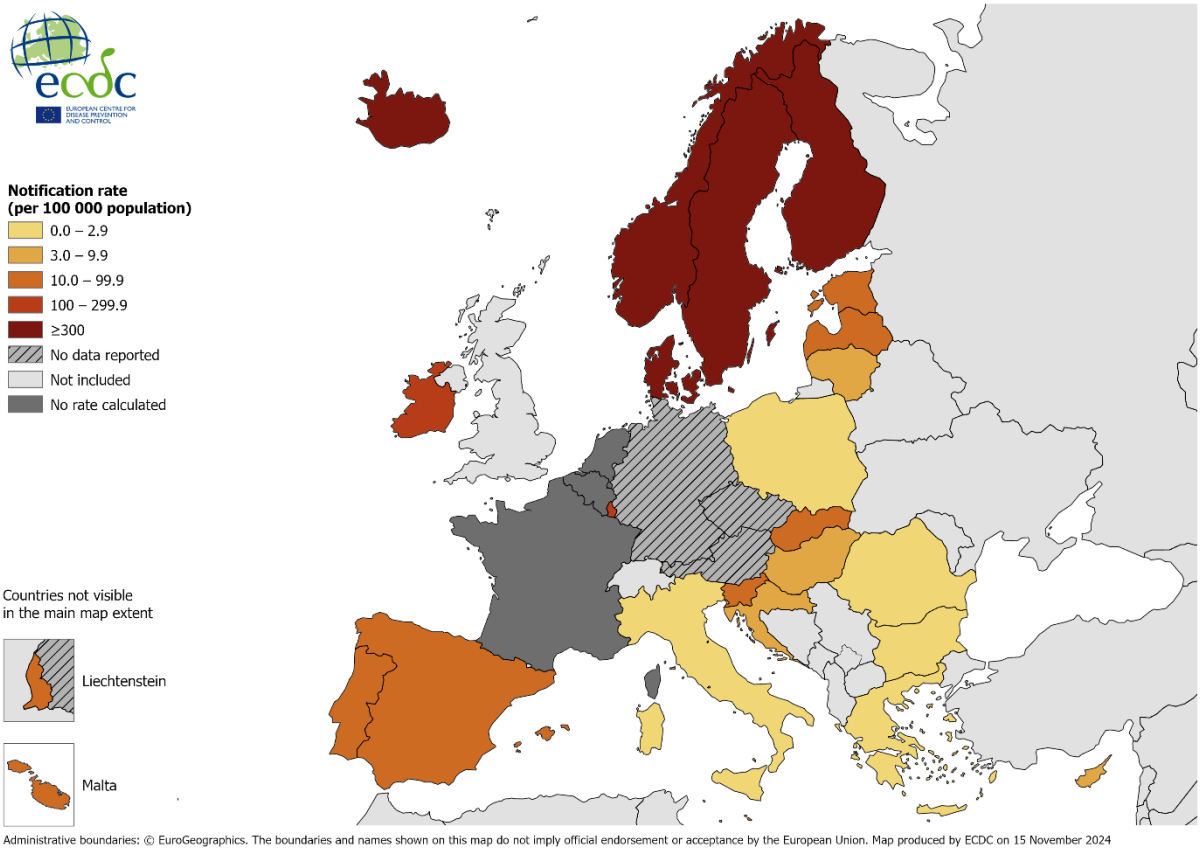
Source: Country reports.
NDR: no data reported.
NRC: no rate calculated.
NA: not applicable.

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 the reported data were from sentinel systems where population denominators were unknown.

In Luxembourg, the surveillance system for chlamydia reporting changed in 2020 and therefore the data from 2020 onwards should not be compared with data from previous years. For 2023, Italy reported data with national coverage instead of sentinel surveillance data, therefore 2023 data should not be compared with data from previous years.

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



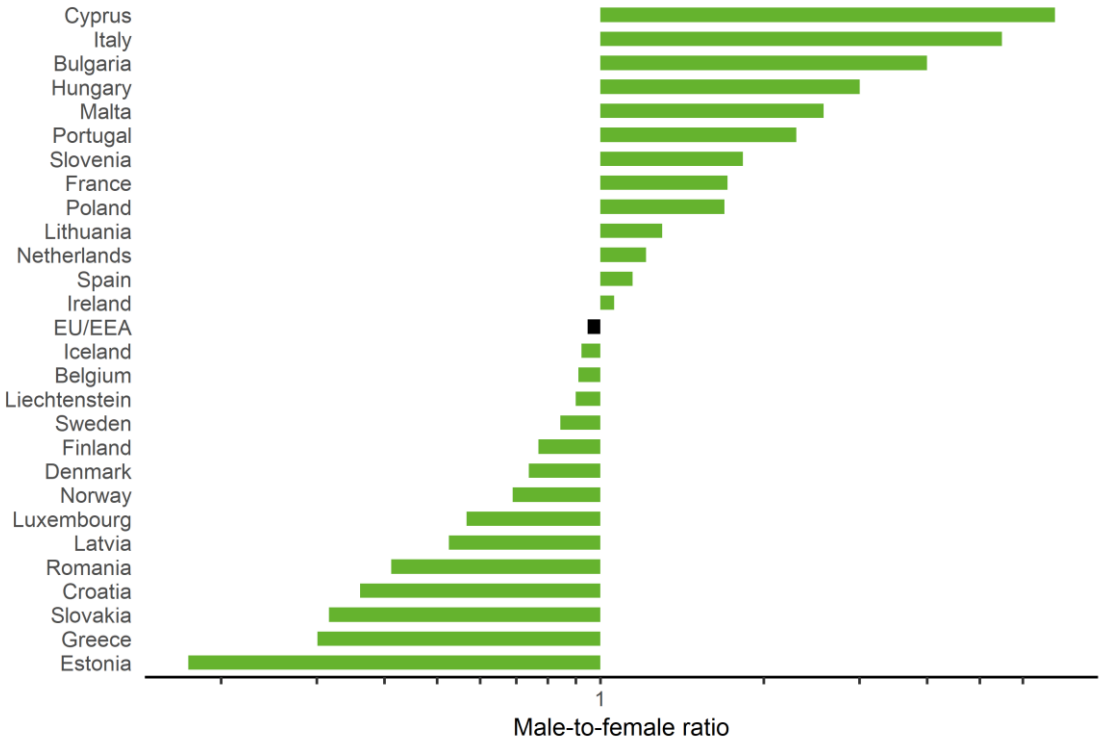
Note: rates are calculated for countries with comprehensive surveillance that reported data for 2023.

Gender

Data on gender were reported for 230 063 cases (99.9% of all confirmed cases). In 2023, the overall male-to-female ratio was 0.9 (Figure 2), with 111 778 cases reported in men, compared with 117 939 cases among women. There were 346 cases reported as 'other' gender and 136 where gender was unknown.

Among countries with comprehensive surveillance systems, the overall notification rate was 66.4 per 100 000 in men and 73.3 per 100 000 in women. The male-to-female ratios were below one in 14 countries. The five countries that reported rates above 300 per 100 000 population all had male-to-female ratios below one: Denmark (0.7), Finland (0.8), Iceland (0.9), Norway (0.7) and Sweden (0.8). Male-to-female ratios of 2.0 or above were reported from six countries with comprehensive systems: Bulgaria (4.0), Cyprus (6.9), Hungary (3.0), Italy (5.5), Malta (2.6) and Portugal (2.3). These countries report relatively low notification rates. The lowest male-to-female ratio was observed in Estonia (0.2) and Greece (0.3).

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



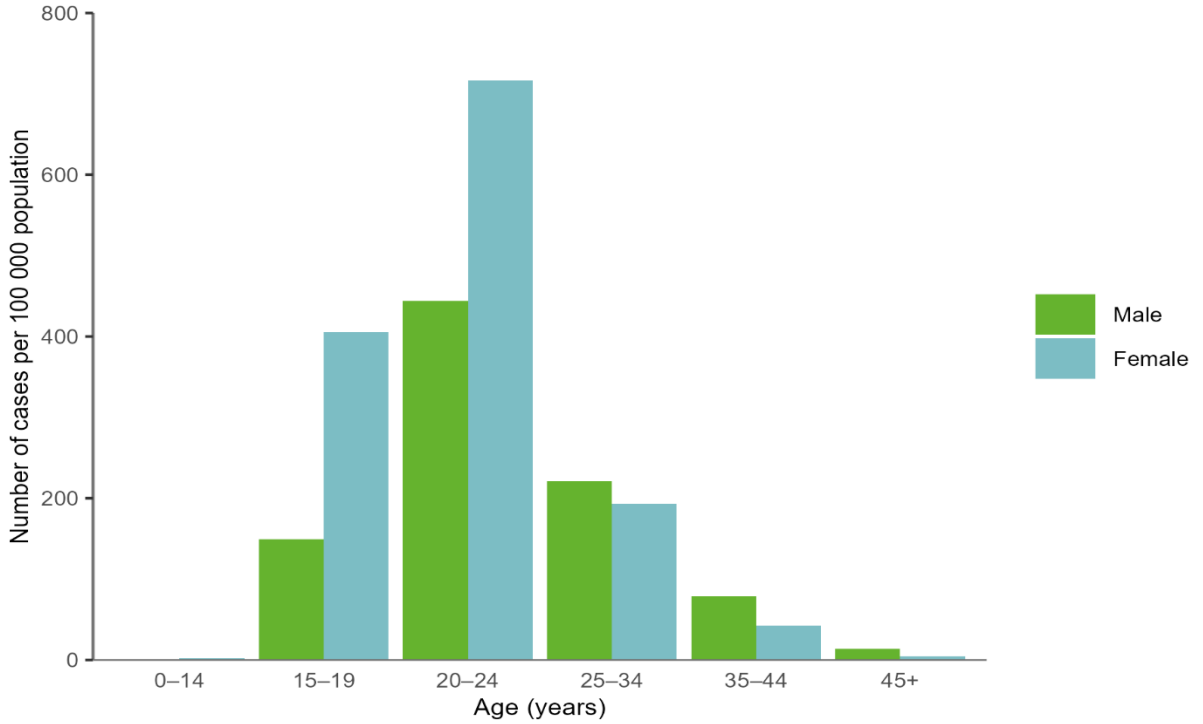
EU/EEA ratio is based on data from 27 countries.

Age

In 2023, information on age was available for 218 809 (95%) cases. The largest proportion of cases reported in 2023 were among those aged 20–24 years, accounting for 39% of cases with known age. The second-largest group was the age group 25–34 years, accounting for 28% of cases. People aged 15–19 years accounted for 17% of cases, while those aged over 34 years accounted for 16% of cases with known age. There were 447 cases in people aged 0–14 years, accounting for 0.2% of cases with reported age in 2023.

The highest age-specific notification rates for 2023 were seen in the age group 20–24-years, with 577.2 cases per 100 000 reported by countries with comprehensive systems, followed by the age group 15−19 years, with 209.2 cases per 100 000 population. The highest rates by age and gender were reported among both women and men in the age groups 20–24 years, with 716.3 cases per 100 000 population for women and 443.8 per 100 000 population for men (Figure 3). Rates among men aged 25 years and over were higher than among women of the same age-group.

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



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

Transmission

In 2023, information on transmission category was available for 34% of all reported cases of chlamydia infection (n=77 322). The main reason for the relatively low completeness of this variable is that countries reporting high numbers of cases (Denmark, Norway, Finland, Belgium) have laboratory-based surveillance systems that are not linked to clinical surveillance and therefore do not include data on transmission. For the 13 countries[1] that reported transmission category for 50% or more of their cases, information was available for 73 888 cases (32% of all reported cases). Of these cases, 79% involved heterosexual transmission (31.6% in males and 47.1% in females), 20% were in MSM, 0.04% were reported as mother-to-child transmission and 1.2 % were categorised as 'other'.

Trends

Between 2014 and 2023, 1 828 099 cases of chlamydia infection were reported from 27 EU/EEA countries. France contributed data for 2014–2017 and for 2021–2023, and Liechtenstein for 2020–2023. An additional 1 432 860 cases were reported by the UK for 2014–2019, before its withdrawal from the European Union on 31 January 2020.

During the period 2014–2023, in the 20 countries with comprehensive surveillance that reported consistently, the overall notification rate of reported cases of chlamydia infection increased by 13%, from 83.6 cases per 100 000 population reported in 2014 to 94.8 cases per 100 000 population reported in 2023 (Figure 4a). Over this period notification rates increased among women by 8%, from 96.3 to 103.5 cases notified per 100 000 population and among men by 22%, from 71.1 to 86.6 cases notified per 100 000 population (Figure 4b). Throughout this period, chlamydia notification rates were consistently higher among women (Figure 4b).

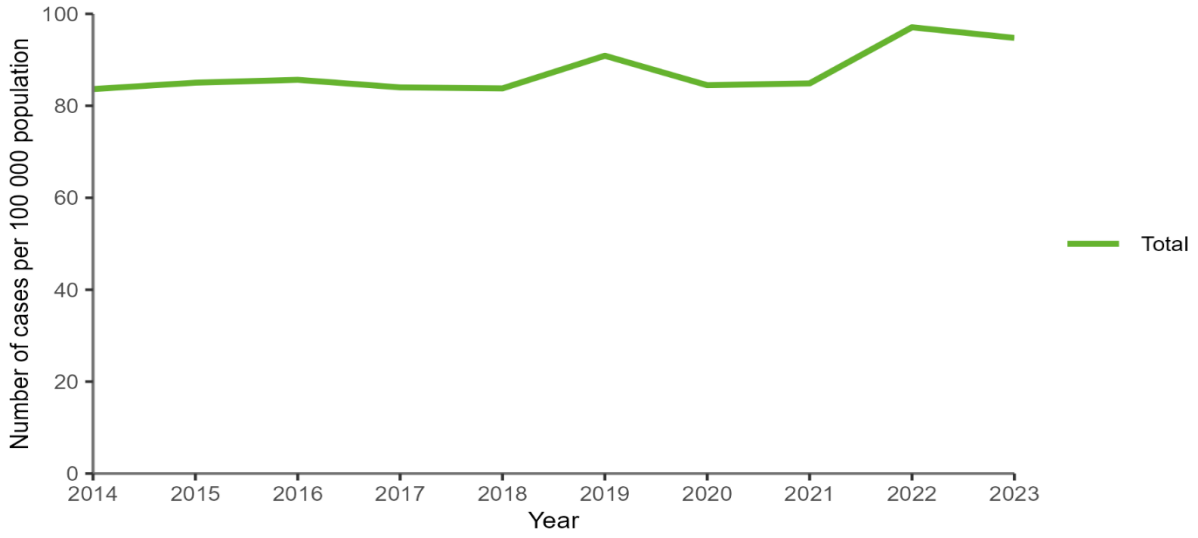
In 2023, as compared to 2022, overall notification rates increased by 3% (from 89.0 to 91.3 per 100 000 population) in 23 countries with comprehensive surveillance that reported consistently[2]. Rates among men increased by 5% (from 81.9 to 85.9 per 100 000 population) and among women by 1% (from 94.9 to 95.5 per 100 000 population). In the past two years, notification rates per 100 000 population have decreased in the age group 15−19 years by 8% (from 593.6 to 548.0) among women and by 9% (from 221.6 to 201.9) among men, and in the age group 20−24 years by 2% for both women and men (from 989.7 to 969.7 and from 615.6 to 602.2, respectively). Rates increased in 2023 relative to 2022 in the age group 25 years and above for both women and men.

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

Among women, there was an increase in the notification rate per 100 000 population by 6% (from 244.5 to 260.1) in age group 25–34 years, by 11% (from 51.7 to 57.4) in age group 35–44 years and by 13% (from 6.3 to 7.2) in women 45 years and above. Among men, the notification rate per 100 000 population increased by 6% (from 276.4 to 294.2) in the age group 25–34 years, by 17% (from 87.6 to 102.8) in the age group 35–44 years and by 20% (from 15.9 to 19.1) in men aged 45 years and above.

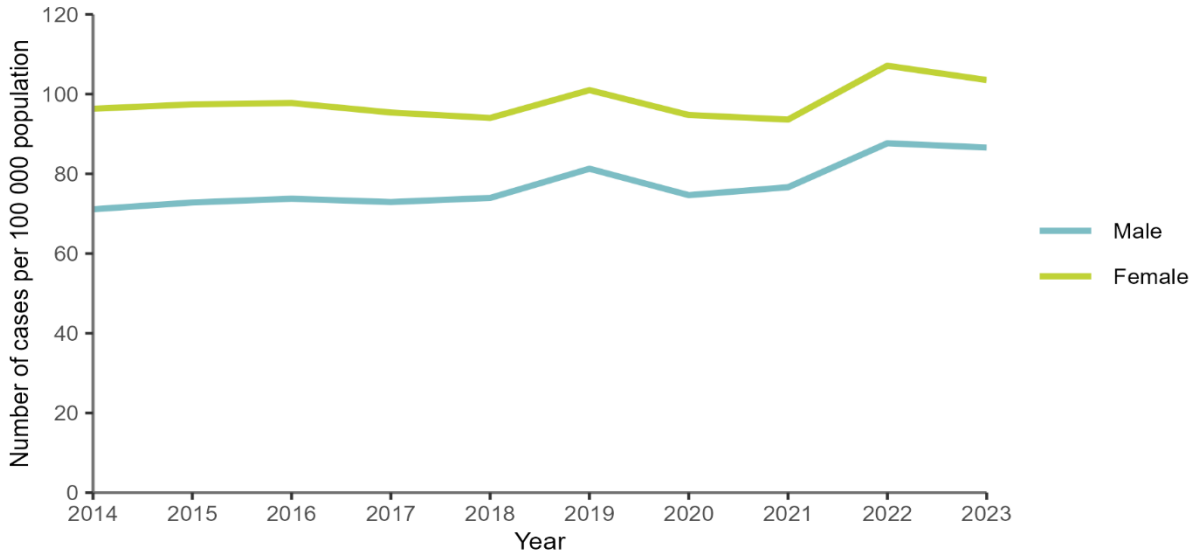
Information on transmission status was consistently reported for more than 50% of cases by nine countries[3] during the period 2019–2023. Among these, the number of cases reported among MSM increased by 48%, from 7 364 in 2019 to 10 877 in 2023. The number of cases reported with transmission status 'heterosexual female' increased by 1% and those reported with transmission status 'heterosexual male' decreased by 3%.

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



Source: Country reports from countries with comprehensive surveillance: Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden.

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



Source: Country reports from countries with comprehensive surveillance that reported consistently and with at least 85% completeness of gender variable: Bulgaria, Croatia, Denmark, Estonia, Finland, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden.

[3] Hungary, Iceland, Lithuania, Netherlands, Portugal, Romania, Slovakia, Slovenia, Sweden.

Outbreaks and other threats

In addition to reporting to TESSy, the EU/EEA countries can report events and threats of public health significance for the EU/EEA through the ECDC platform EpiPulse [7]. In 2023, there were no alerts or events posted that were related to chlamydia.

Discussion

In 2023, for the EU/EEA overall, chlamydia remained the most frequently reported bacterial sexually transmitted infection under surveillance [5].

There are large differences in national notification rates across the EU/EEA. This is contrasted by a more homogenous distribution of chlamydia prevalence in EU/EEA countries, as indicated by prevalence estimates derived from population-based surveys [8,9]. The main factors influencing the notification rates are the extent of access to molecular diagnostics, surveillance system characteristics, national testing policies and the level of implementation of testing policies [10].

Sexually active young women between the ages of 15 and 24 years, and young men aged 20–24 years continued to have the highest rates of reported chlamydia infections in 2023. This is consistent with the findings of a recent systematic review of European studies where chlamydia prevalence in those aged 15–24 years was estimated to be 5.5% in young women and 3.3% in young men [8]. The higher burden of chlamydia among young people is probably driven by behavioural factors, with a risk of sexually transmitted infections (STI) [11] and testing policies which frequently prioritise these groups [2]. Availability of self-sampling at a patient-selected location (i.e. home-based sampling, community outreach) combined with online services appears to optimise access to testing and testing coverage among the populations at risk (e.g. young people, MSM) [12].

The EU/EEA surveillance data indicate an increase in chlamydia diagnoses among MSM over the last five years. Most clinical guidelines on pre-exposure prophylaxis (PrEP) for HIV recommend regular asymptomatic screening for STIs among MSM, which can augment case detection [13]. Enhanced testing may have contributed to the high prevalence estimates identified in the ECDC systematic review among several sub-groups of MSM: MSM visiting STI clinics (9.7% (95% CI 8.3–11.2), MSM living with HIV (6.1% (95% CI 0.7–11.4) and MSM on PrEP (6.1% (95% CI 0.7–11.4) [8]. The benefit of frequent (three sites every three months) asymptomatic screening in PrEP users is currently under scientific scrutiny, as the modest reduction in chlamydia incidence comes at the cost of high antimicrobial use and an increased risk of antimicrobial resistance in this population [14,15]

After a fall in case notifications during the COVID-19 pandemic (in 2020 and 2021), a new peak in case numbers was seen in 2022. National reports for 2022 indicate a drift towards behaviour incurring a higher risk of STI transmission among young people, increased access to testing following the expansion of home testing availability, a rise in the number of consultations in sexual health clinics, and increased travel activity after the lifting of COVID-19 restrictions [16-18]. Increases in chlamydia in 2022 coincided with increases in gonorrhoea in young heterosexual women and men. In 2023, the increase in chlamydia notifications among young people appears to have slowed down.

The large differences in testing, control policies and surveillance methods for chlamydia infection across the EU/EEA also mean that these results should be interpreted with caution, particularly when comparing data at European level.

Public health implications

The high rate of reported chlamydia diagnoses among young adults indicates the need for further control. In 2016, ECDC published a guidance document on chlamydia control in Europe [19]. The guidance recommends that EU/EEA countries have a national strategy or plan for the control of STIs (including chlamydia). The strategy should include primary prevention interventions for at-risk populations, evidence-based case management guidelines (including partner notification approaches) for any setting in which chlamydia may be diagnosed, and effective surveillance activities. The guidance indicates that diagnosing and treating cases of chlamydia can improve the health of the affected individual, and that offering young women (under 25 years) a chlamydia test can reduce the risk of them developing pelvic inflammatory disease. There are also still gaps in the evidence base for population-level chlamydia control, especially as regards the effectiveness of widespread asymptomatic testing in reducing chlamydia prevalence, as highlighted in the guidance.

Evidence from clinical trials indicates that doxycycline post-exposure prophylaxis (doxyPEP) (single 200mg dose of doxycycline taken within 24–72 hours after unprotected sex) is highly effective in reducing chlamydia and early syphilis – by about 70% among MSM and transgender women (TGW) living with HIV or using PrEP [20-22]. Furthermore, in settings implementing doxyPEP outside clinical trials, reductions in chlamydia and syphilis have been observed not only among doxyPEP users, but also more broadly within the MSM community [23]. In 2023, ECDC recommended that, when indicated for high-risk individuals, doxyPEP 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 [24].

Further development of chlamydia surveillance at the European level should be objective-driven. From 2024 onwards, ECDC will engage the STI network in revision of the STI surveillance objectives, agree on updated general and disease-specific objectives, and develop surveillance standards specific to each STI under EU/EEA surveillance.

In addition to case reporting, Member States may benefit from considering alternative approaches to measuring chlamydia distribution in the population, such as national prevalence surveys. A literature review published by ECDC in 2024 [8] provides prevalence estimates for the general population and for population groups at high risk in Europe overall and in countries where studies reporting prevalence estimates have been identified (see country profiles[4]). Prevalence estimates will help describe the epidemiology of chlamydia (and other bacterial STIs) and inform the process of monitoring. This, in turn, will aid progress towards elimination targets for sexually transmitted infections set for 2030 [25].

Upsurges in bacterial STI across the EU/EEA are of concern and were discussed at meetings of the Health Security Committee during 2024. An HSC opinion[5] 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 [26].

[4] https://www.ecdc.europa.eu/en/publications-data/systematic-review-chlamydia-gonorrhoea-trichomoniasis-and-syphilis-prevalence

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

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