

SURVEILLANCE REPORT

Chlamydia infection

Annual Epidemiological Report for 2019

Key facts

- For 2019, 26 EU/EEA Member States reported 434 184 confirmed cases of chlamydia infection.
- The crude notification rate was 157 cases per 100 000 population.
- National notification rates of chlamydia infection varied considerably across the EU/EEA. This is probably due to the differences in chlamydia testing, case finding strategies and reporting rather than being indicative of actual differences in chlamydia distribution.
- Notification rates continue to be highest among young adult heterosexual women.
- Over the last five years the number of chlamydia diagnoses reported among men increased by 19% and among women by 9%. During the same period, the number of chlamydia diagnoses among HIV-negative men who have sex with men (MSM) doubled in those countries consistently reporting information on transmission and HIV status.

Introduction

Chlamydia is a sexually-transmitted infection caused by the *Chlamydia trachomatis* bacterium. Genital infections 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. Many infections are asymptomatic, resulting in delayed diagnosis and uninterrupted transmission [1].

Methods

This report is based on data for 2019 retrieved from The European Surveillance System (TESSy) on 9 September 2021. 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 [2].

An overview of the national surveillance systems is available at the ECDC website [3].

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [4].

In 2019, the majority of countries (19) reported data based on the standard EU case definitions [5]. Five countries reported data based on national case definitions and two countries did not report which case definition they used [3]. Surveillance systems for chlamydia in Europe vary: 23 countries have comprehensive surveillance systems and three have sentinel systems that only capture chlamydia diagnoses from a selection of healthcare providers. Reporting of chlamydia infection is compulsory in all the countries that maintain a comprehensive surveillance system, except for the United Kingdom, whereas it is voluntary in the countries that maintain a sentinel system.

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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 (2015–2019) and Poland (2006–2019). Cases reported from Greece for 2019 are provisional and will be retrospectively updated with the 2020 data upload. Surveillance data on chlamydia were not available from Austria, Czechia, Germany or Liechtenstein for 2010–2019, or from France for 2018–2019.

Epidemiology

In 2019, 26 countries reported 434 184 confirmed chlamydia infections (Table 1). The crude notification rate for the 23 EU/EEA countries with comprehensive surveillance systems was 157 per 100 000 population.

Notification rates of chlamydia infection varied considerably across EU/EEA (Table 1). The highest country-specific rates, of over 300 cases per 100 000 population, were in Denmark, Iceland, Norway, Sweden and the United Kingdom and together these countries reported 83% of chlamydia cases in 2019. The lowest rates, of less than three cases per 100 000 population, were reported by Bulgaria, Cyprus, Greece, Poland and Romania, which together represented 0.1% of chlamydia cases.

The United Kingdom accounted for 60% of all reported cases in 2019. This disproportionate contribution is due to the inclusion by the United Kingdom of data from a successful screening programme in England targeting 15–24-year-olds that has been in operation since 2008. This programme, which offers community-based testing services outside of clinics for sexually-transmitted infections (STI), resulted in a large increase in chlamydia diagnoses from 2008 onwards.

Table 1. Distribution of confirmed chlamydia cases and rates per 100 000 population by country and year, EU/EEA, 2015–2019

Country	2015		2016		2017		2018		2019	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Austria	.	.	.	.	.	.	.	.	.	.
Belgium	6 159	-	7 353	-	8 093	-	9 294	-	8 288	-
Bulgaria	255	3.5	195	2.7	230	3.2	189	2.7	121	1.7
Croatia	332	7.9	217	5.2	194	4.7	213	5.2	150	3.7
Cyprus	0	0.0	0	0.0	1	0.1	3	0.3	1	0.1
Czechia	.	.	.	.	.	.	.	.	.	.
Denmark	31 782	561.5	33 892	593.8	32 932	572.9	33 415	578.0	35 680	614.5
Estonia	1 338	101.8	1 242	94.4	1 132	86.0	1 013	76.8	1 064	80.3
Finland	13 572	248.0	14 321	261.0	14 462	262.8	14 839	269.2	16 181	293.2
France	14 971	-	13 624	-	17 672	-	.	.	.	.
Germany	.	.	.	.	.	.	.	.	.	.
Greece	197	1.8	0	0.0	85	0.8	61	0.6	49	0.5
Hungary	965	9.8	882	9.0	923	9.4	780	8.0	913	9.3
Iceland	1 989	604.4	2 200	661.6	2 197	649.3	1 834	526.3	1 796	503.1
Ireland	6 723	143.7	6 883	145.6	7 389	154.4	7 933	164.2	9 188	187.3
Italy	776	-	979	-	600	-	1 199	-	1 109	-
Latvia	1 420	71.5	1 382	70.2	1 517	77.8	1 248	64.5	1 249	65.1
Liechtenstein	.	.	.	.	.	.	.	.	.	.
Lithuania	409	14.0	348	12.0	397	13.9	257	9.1	248	8.9
Luxembourg	9	1.6	6	1.0	39	6.6	36	6.0	44	7.2
Malta	155	35.3	274	60.8	293	63.7	343	72.1	320	64.8
Netherlands	18 635	-	20 768	-	21 444	-	18 908	-	18 148	-
Norway	25 207	487.9	26 108	501.0	25 130	477.9	26 556	501.5	28 446	533.9
Poland	364	1.0	329	0.9	258	0.7	308	0.8	418	1.1
Portugal	149	1.4	234	2.3	333	3.2	613	6.0	732	7.1
Romania	14	0.1	25	0.1	20	0.1	9	0.0	14	0.1
Slovakia	1 311	24.2	862	15.9	613	11.3	526	9.7	778	14.3
Slovenia	248	12.0	217	10.5	266	12.9	332	16.1	397	19.1
Spain	3 564	-	7303	18.2	9 478	23.6	12 847	31.9	15 612	38.5

Country	2015		2016		2017		2018		2019	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Sweden	37 922	389.0	35 405	359.4	34 298	343.1	31 815	314.4	34 334	335.6
UK	229 147	353.3	231 140	353.5	230 482	350.0	242 386	365.7	258 904	388.5
EU-EEA	397 613	166.9	406 189	140.9	410 478	140.5	406 957	146.1	434 184	157.0

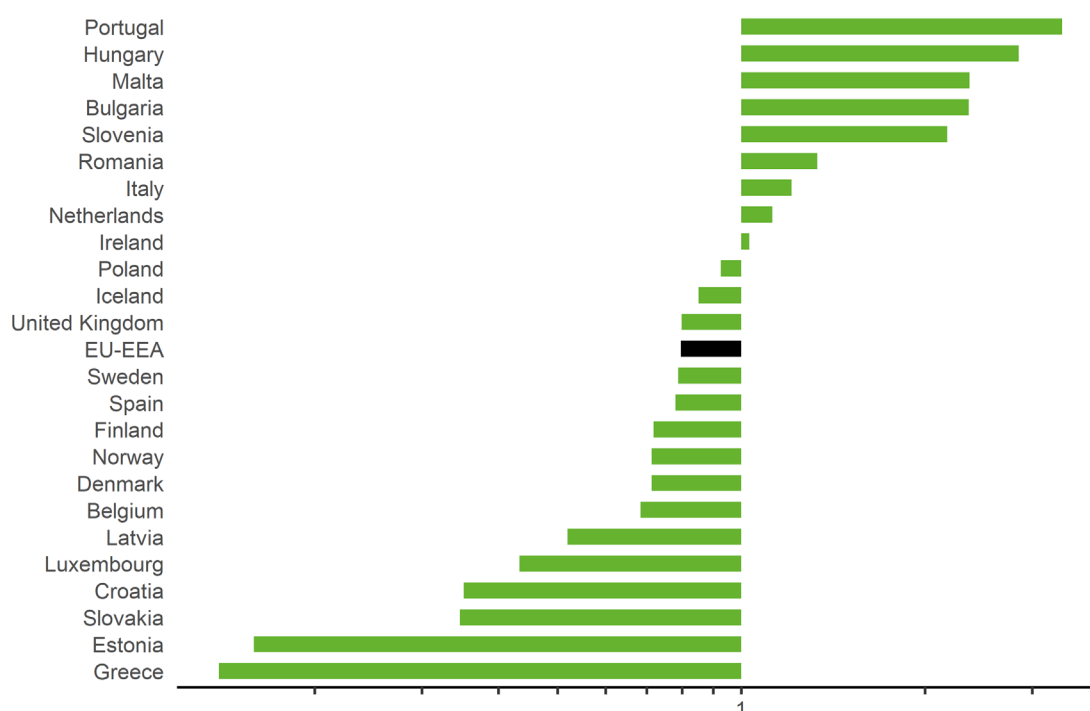
Source: country reports.

∴ no data reported.

-∴ no rate calculated.

Gender

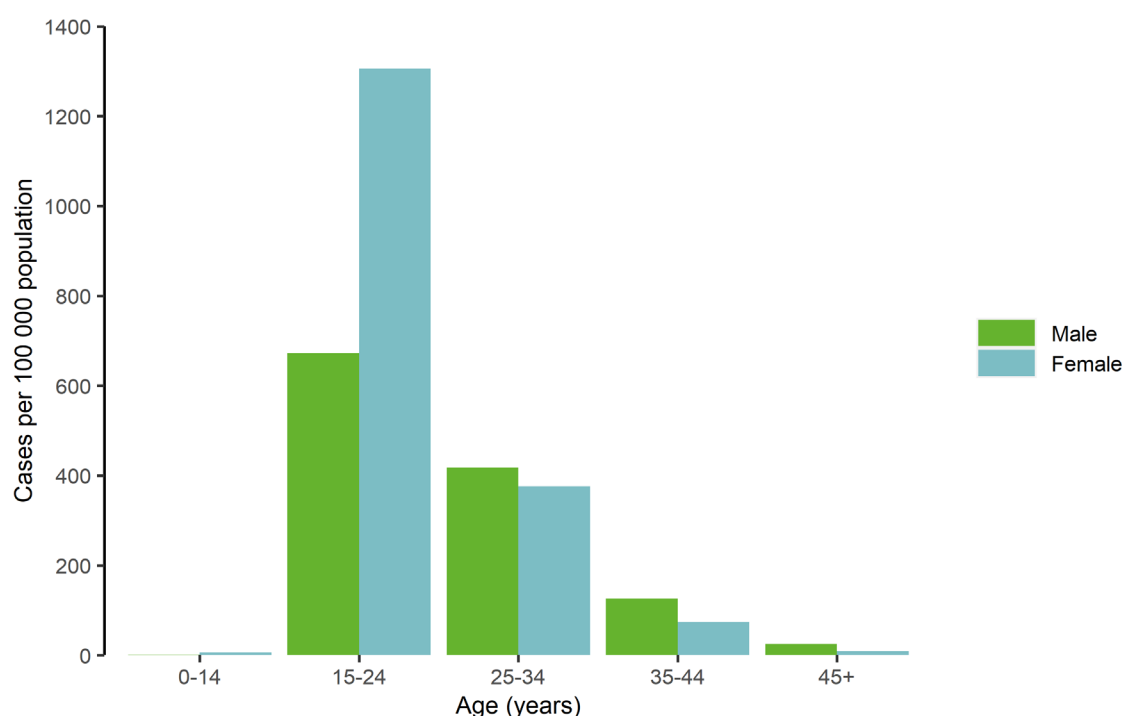
Data on gender was reported for 431 510 cases (99.4% of all confirmed cases). The overall male-to-female ratio in 2019 was 0.8 (Figure 1), with 191 289 cases reported in men, compared with 240 221 cases in women. Among countries with comprehensive surveillance systems, the overall notification rate was 141 per 100 000 in men and 173 per 100 000 in women. The male-to-female ratios were below or close to one in the majority of countries. Male-to-female ratios of 2.0 or above were reported from five countries with comprehensive systems: Bulgaria (2.4), Hungary (2.9), Portugal (3.4), Malta (2.4), and Slovenia (2.2). These countries report relatively low notification rates. The lowest male-to-female ratio was observed in Greece (0.1).

Figure 1. Chlamydia, male-to-female ratio in EU/EEA countries, 2019

Age

In 2019, information on age was available for 412 381 (95%) cases.

The largest proportion of cases reported in 2019 was among 15–24-year-olds (60%). This is mainly as a result of the population group being targeted for screening in countries reporting a large number of cases, but also due to increased risk-taking behaviour among young people. The second-largest group was the age group 25–34 years (28% of cases), while people over 34 years accounted for 12% of cases with known age. This pattern was also reflected in age-specific notification rates (Figure 2). The highest rates for 2019 were seen in the 15–24-year age group, with 985 cases per 100 000 reported by countries with comprehensive systems, followed by the 25–34-year age group, with 398 cases per 100 000 population. The highest rates by age and gender were reported among both women and men in the 15–24 year age groups, with 1 305 cases per 100 000 population among women and 672 per 100 000 population for men. Rates among men aged 25 years and over were higher than among women in the same age group.

Figure 2. Distribution of confirmed chlamydia cases per 100 000 population, by age and sex, EU/EEA, 2019

Transmission

In 2019, information on transmission category was available for 44% of the reported cases of chlamydia infection (n=192 055, including cases reported as 'unknown' transmission). The main reason for the relatively low completeness of this variable is that countries reporting high numbers of cases (Denmark, Norway, Finland) have laboratory-based surveillance systems that are not linked to clinical surveillance and therefore do not include data on transmission. Information on transmission category was available for 52 937 cases (12% of all reported cases) from eight countries that reported transmission category for 60% or more of their cases. Of these cases, 84% were indicated as heterosexual transmission, 13% were in MSM, 0.1% were reported as mother-to-child transmission and 3% were categorised as 'others'.

Trends 2010–2019

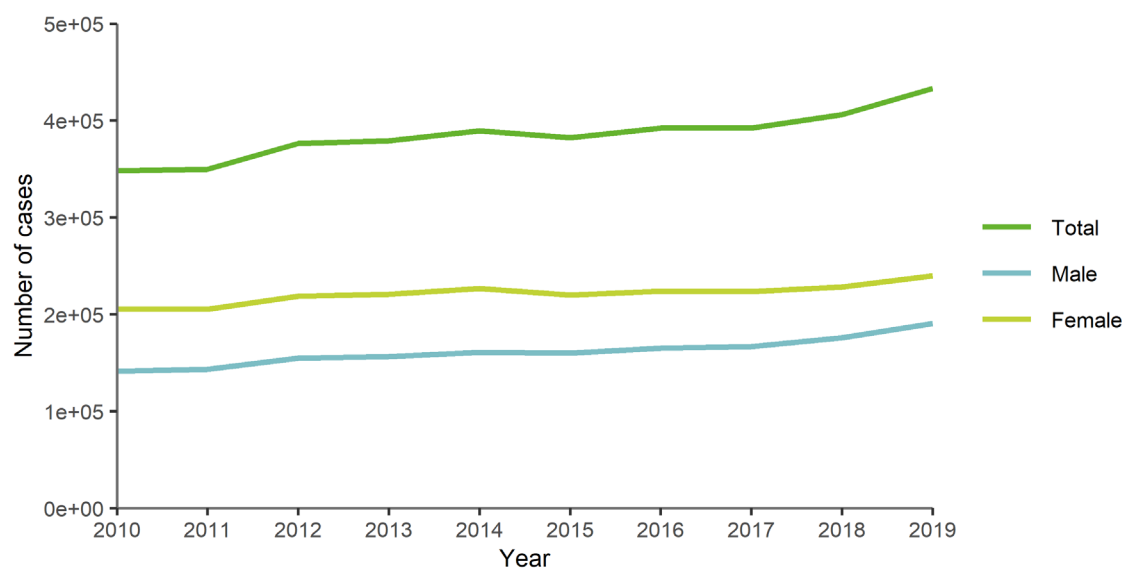
Between 2010 and 2019, 3 961 640 cases of chlamydia infection were reported from 28 countries. Of these, Austria contributed data for the period 2010–2011, Croatia for 2012–2019, France for 2010–2017 and Portugal for 2014–2019.

In the 24 countries that reported consistently, the total number of chlamydia diagnoses increased by 24% from 348 101 cases reported in 2010 to 433 302 cases reported in 2019 (Figure 3). Throughout this period, chlamydia diagnoses reported among women were consistently higher than among men (Figure 3). However, it should be noted that the increase in the numbers of chlamydia diagnoses among men then among women has accelerated over the last five years, by 19% for male cases and by 9% for female cases.

Between 2015 and 2019, among countries reporting at least 10 cases per year, the largest increases in country-specific rates were seen in Portugal (+396%), Malta (+84%) and Slovenia (+59%), while the largest decreases were seen in Bulgaria (-51%) and Croatia (-53%) (Table 1). During the same time period, gender-specific rates among men increased by more than 10% in Denmark (+13%), Finland (+16%), Norway (+12%) and the United Kingdom (+14%) and by more than 25% in Ireland (+28%), Malta (+49%), Portugal (+81%) and Slovenia (+34%).

Information on HIV status for chlamydia cases reported as MSM transmission was available from twelve EU/EEA countries for a total of 14 540 cases in 2015 and 25 361 in 2019. For these countries overall, the proportion of HIV-negative MSM cases increased from 72% (n=10 531) in 2015 to 79% (n= 20 034) in 2019 and the number of HIV-negative MSM cases almost doubled, from 10 531 in 2015 to 20 034 in 2019.

Figure 3. Number of confirmed chlamydia cases by sex and year in EU/EEA countries reporting consistently, 2010–2019



Source: Country reports from Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and the UK.

Discussion

In 2019, the overall rate of chlamydia diagnoses reported in the EU/EEA remained high compared to other sexually-transmitted infections under surveillance [4], driven mostly by reports from countries with more intensive chlamydia testing and control activities and complete reporting to surveillance systems [6].

The large variation in country-specific rates that characterises EU/EEA chlamydia surveillance data is contrasted by a more homogenous distribution of chlamydia prevalence in EU/EEA countries (according to prevalence estimates derived from population-based surveys) [7]. Differences in notification rates across the EU/EEA are a reflection of the extent of access to sensitive diagnostics, differences in surveillance data collection, variations in national testing policies and the level of testing policy implementation [8].

Young people between the ages of 15 and 24 years who are sexually active, especially women of this age, continued to have the highest likelihood of being diagnosed with chlamydia infection in 2019. This is consistent with data on sexual behaviour involving risk-taking among young people and testing policies frequently prioritising these groups [9]. The 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 those populations at risk (e.g. young people, MSM) [10].

Despite a low level of completeness on transmission category and HIV status of reported chlamydia cases, the EU/EEA surveillance data indicate an increase in chlamydia diagnoses among MSM over the last five years, mostly among HIV-negative MSM. In a nationwide, cross-sectional prevalence study among MSM in Germany, conducted in 2018, chlamydia prevalence was highest among HIV-negative MSM using HIV pre-exposure prophylaxis (PrEP) (13.8%), followed by HIV-positive MSM (10.1%) and HIV-negative MSM not using PrEP (7.2%) [11]. Rising STI diagnoses, including chlamydia, among HIV-negative MSM using PrEP in London, were explained by changes in sexual behaviour (i.e. increases in condomless anal intercourse and number of sexual partners), increased screening and increased clinic attendance [12]. Most clinical guidelines on PrEP recommend regular asymptomatic screening for STIs among PrEP users and prompt treatment and partner notification upon STI diagnosis [13].

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

Public health implications

The high rate of reported chlamydia diagnoses among young adults indicates that further control efforts are required. To assist Member States in developing their chlamydia programmes, ECDC has published a guidance document on chlamydia control [6]. The updated guidance recommends that EU/EEA Member States have a national strategy or plan for the control of STIs (including chlamydia). The strategy should include the provision of primary prevention interventions to at-risk individuals and groups; evidence-based case management guidelines that include partner notification for each setting in which chlamydia may be diagnosed; improved systems for the surveillance of diagnosed infections and an evaluation plan for the strategy. The guidance also highlights that there are still gaps in the evidence base regarding population-level chlamydia control. At present, widespread opportunistic testing or screening programmes are only recommended if resources are available and suitable monitoring and evaluation is in place.

Further development of chlamydia surveillance at the European level needs to take into account current limitations. Member States may benefit from studies estimating the prevalence of chlamydia infection in their country, which would help to explore where testing programmes may best be introduced or expanded.

Monitoring the number of STI diagnoses and emerging trends of risk compensation among PrEP users will offer data to assess the impact of PrEP for HIV on the sexual health of MSM and inform preventive strategies [13,14].

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