

# Gonorrhoea

## Annual Epidemiological Report for 2017

### Key facts

- A total of 89 239 cases of gonorrhoea were reported by 27 EU/EEA Member States for 2017.
- The overall crude notification rate was 22.2 cases per 100 000 population.
- Rates of reported gonorrhoea infection vary considerably across Europe, with higher rates reported in northern Europe.
- Men who have sex with men (MSM) accounted for almost half of the reported cases (47%) in 2017.
- The overall notification rate increased in 2017 following the slight reduction seen in 2016.

### Methods

This surveillance report is based on gonorrhoea surveillance data collected by the European Sexually Transmitted Infections Surveillance Network for 2017. Thirty EU/EEA Member States (28 EU Member States plus Iceland and Norway) participate in this network. Data for 2017 were retrieved from The European Surveillance System (TESSy) on 29 November 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, refer to the *Methods* chapter [1].

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

A subset of the data used for this report is available through ECDC's online *Surveillance atlas of infectious diseases* [3].

In 2017, the majority of countries (18) reported data using standard EU case definitions [4]. Five countries reported case numbers based on national case definitions and four countries did not state which case definition they were using.

The majority of countries report gonorrhoea data from comprehensive surveillance systems (24 countries). Three have sentinel systems that only capture gonorrhoea diagnoses from a selection of healthcare services [2]. Reporting of gonorrhoea infection is compulsory in 23 countries. All three countries with sentinel surveillance systems (Belgium, France and the Netherlands) have voluntary reporting systems. All countries with comprehensive surveillance systems have compulsory notification except for the United Kingdom.

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Suggested citation: European Centre for Disease Prevention and Control. Gonorrhoea. In: ECDC. Annual epidemiological report for 2017. Stockholm: ECDC; 2019.

Stockholm, April 2019

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In the analysis below, data from sentinel systems were not used in the calculation of national or overall rates because coverage was not always known and denominators were therefore not available. Cases were analysed by date of diagnosis. Due to incompatibilities in data presentation and age formats, data from Belgium (2015–2016), Hungary (2008) and Poland (2008–2016) were excluded from all analyses that involved age groups.

## Epidemiology

In 2017, 89 239 confirmed gonorrhoea cases were reported in 27 countries, an increase of 17% compared with 2016 (Table 1). One country less (Greece) reported data for 2017 compared with 2016. The United Kingdom reported 55% of all cases reported in 2017. The crude notification rate in 2017 was 22.2 per 100 000 population for countries with comprehensive surveillance systems, an increase of 22% compared with 2016. The highest rates in 2017 (>25/100 000 population) were observed in the United Kingdom (75 per 100 000), Ireland (47), Denmark (33), Iceland (29), Norway (27) and Sweden (25). The lowest notification rates (<1 per 100 000) were observed in Bulgaria, Croatia, Cyprus, Poland and Romania. Figure 1 displays the distribution of gonorrhoea rates among countries reporting from comprehensive surveillance systems.

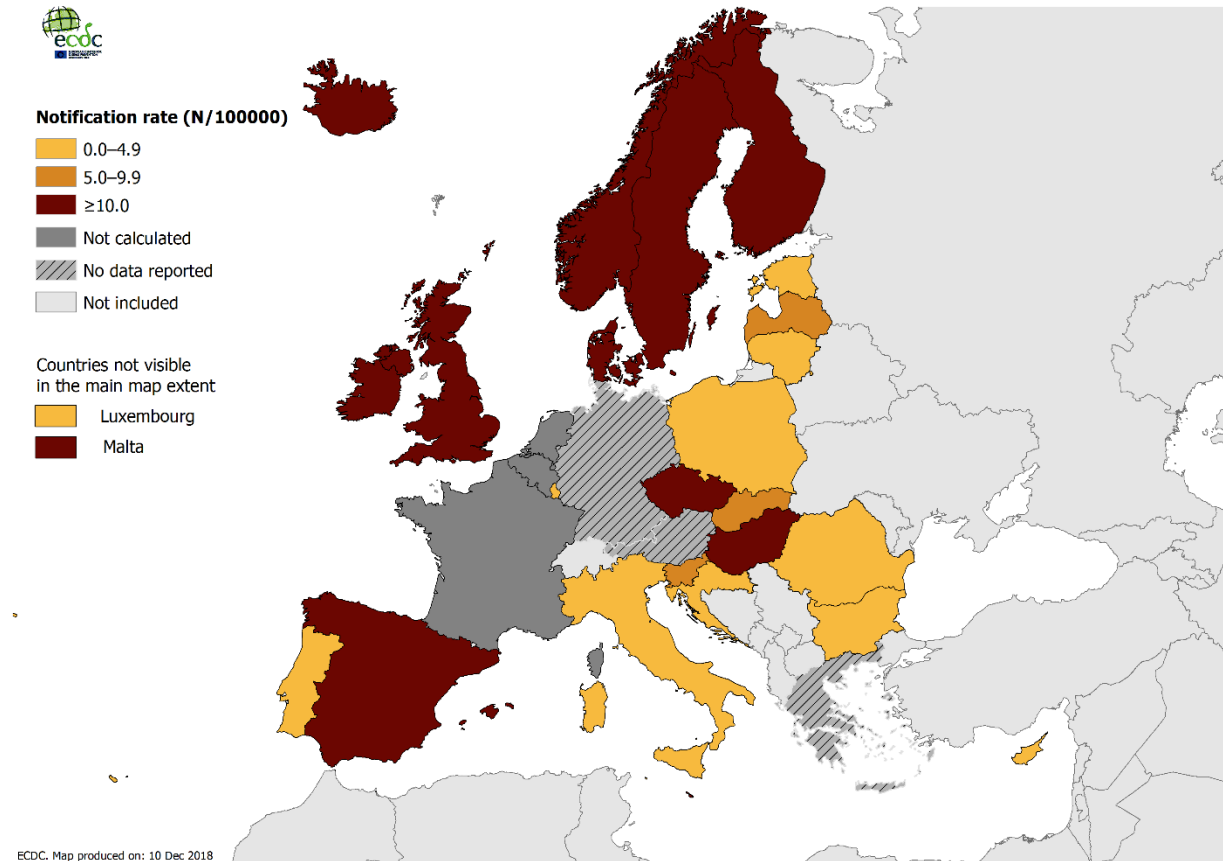
**Table 1. Distribution of confirmed gonorrhoea cases and rates per 100 000 population by country, EU/EEA, 2013–2017**

Country	2013		2014		2015		2016		2017		
	Confirmed cases	Rate	Confirmed cases	Rate	Confirmed cases	Rate	Confirmed cases	Rate	Confirmed cases	Rate	Reported cases
Austria	1 148	-	.	.	.	.	.	.	.	.	.
Belgium	1 011	-	1 119	-	1 368	-	1 997	-	2 271	-	2 271
Bulgaria	96	1.3	170	2.3	119	1.7	115	1.6	67	0.9	67
Croatia	14	0.3	22	0.5	18	0.4	12	0.3	30	0.7	32
Cyprus	2	0.2	4	0.5	1	0.1	1	0.1	2	0.2	2
Czech Republic	1 407	13.4	1 394	13.3	1 459	13.8	1 444	13.7	1 377	13.0	1 377
Denmark	816	14.6	1 140	20.3	2 787	49.2	2 007	35.2	1 916	33.3	1 916
Estonia	133	10.1	139	10.6	118	9.0	96	7.3	56	4.3	56
Finland	267	4.9	286	5.2	281	5.1	416	7.6	598	10.9	598
France	4 884	-	5 211	-	6 228	-	7 849	-	9 177	-	9 177
Germany	.	.	.	.	.	.	.	.	.	.	.
Greece	219	2.0	245	2.2	237	2.2	202	1.9	.	.	.
Hungary	1 526	-	1 620	16.4	1 246	12.6	1 176	12.0	1 030	10.5	1 030
Iceland	19	5.9	38	11.7	45	13.7	95	28.6	99	29.3	99
Ireland	1 274	27.6	1 314	28.3	1 281	27.4	1 954	41.3	2 245	46.9	2 245
Italy	537	0.9	635	1.0	649	1.1	760	1.3	850	1.4	851
Latvia	554	27.4	367	18.3	288	14.5	177	9.0	173	8.9	173
Liechtenstein	.	.	.	.	.	.	.	.	.	.	.
Lithuania	190	6.4	165	5.6	194	6.6	119	4.1	70	2.5	70
Luxembourg	4	0.7	6	1.1	14	2.5	9	1.6	12	2.0	12
Malta	62	14.7	51	11.9	66	15.0	76	16.9	104	22.6	104
Netherlands	4 171	-	4 632	-	5 420	-	6 129	-	6 794	-	6 794
Norway	506	10.0	682	13.4	851	16.5	1 096	21.0	1 399	26.6	1 399
Poland	549	1.4	495	1.3	500	1.3	437	1.2	138	0.4	321
Portugal	105	1.0	188	1.8	277	2.7	338	3.3	391	3.8	590
Romania	340	1.7	178	0.9	90	0.5	114	0.6	77	0.4	77
Slovakia	378	7.0	426	7.9	341	6.3	278	5.1	379	7.0	379
Slovenia	62	3.0	61	3.0	73	3.5	81	3.9	113	5.5	113
Spain	3 315	7.1	4 562	9.8	5 006	10.8	6 816	14.7	8 200	17.6	8 200
Sweden	1 110	11.6	1 346	14.0	1 671	17.1	1 783	18.1	2 515	25.2	2 515
United Kingdom	34 286	53.7	40 575	63.1	45 342	69.9	40 499	61.9	49 156	74.7	49 156
<b>EU/EEA</b>	<b>58 985</b>	<b>14.5</b>	<b>67 071</b>	<b>17.0</b>	<b>75 970</b>	<b>19.1</b>	<b>76 076</b>	<b>18.2</b>	<b>89 239</b>	<b>22.2</b>	<b>89 624</b>

-.: rate not calculated because country has sentinel surveillance system

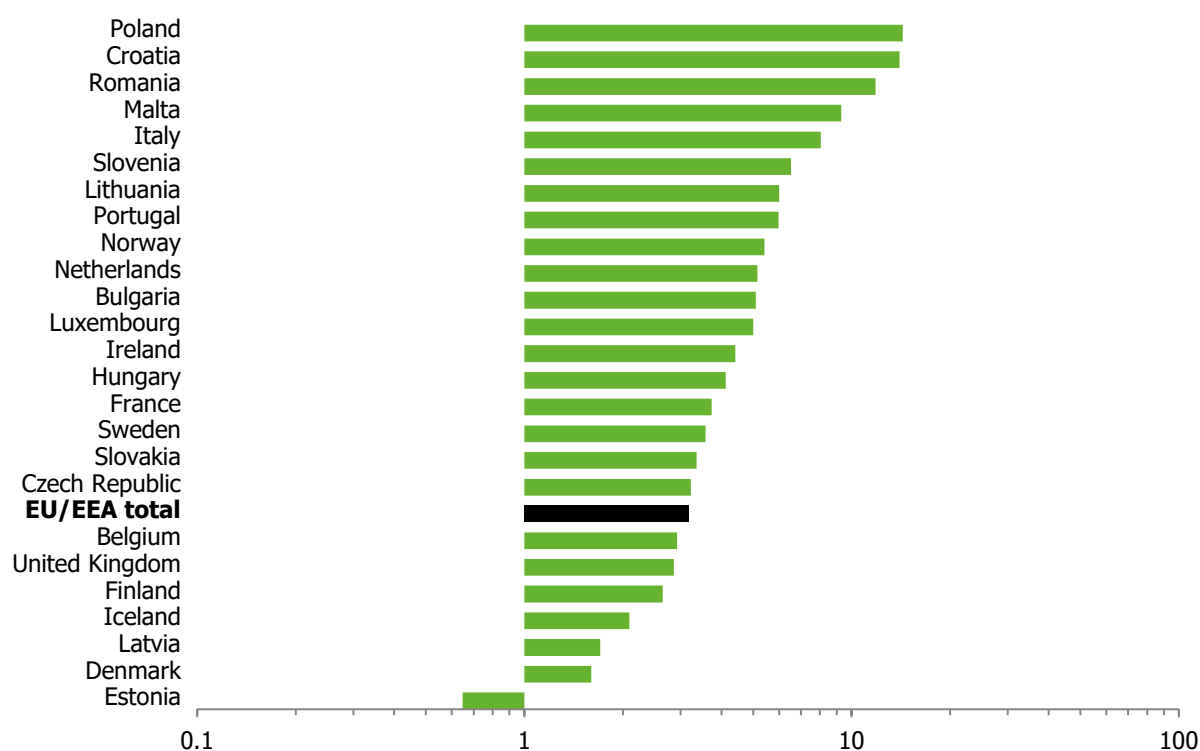
..: no data reported.

**Figure 1. Distribution of confirmed gonorrhoea cases per 100 000 population by country, EU/EEA, 2017**



## Gender

The male-to-female ratio in 2017 was 3.2:1 (Figure 2). The notification rate was 35 per 100 000 population among men (61 390 cases) and 11 per 100 000 population among women (19 320 cases). Male-to-female ratios below 2 were reported by Denmark (1.6), Estonia (0.6) and Latvia (1.7). The highest male-to-female ratios were reported by Poland (14), Croatia (14) and Romania (12). Cyprus did not report any cases among women.

**Figure 2. Gonorrhoea, male-to-female ratio in 25 EU/EEA countries, 2017**

Note: Cyprus reported only two cases among men.

## Age

Information on age was available for 23 countries in 2017. It was not available for Belgium, Bulgaria and Spain (12% of all cases). The largest proportion of cases reported in 2017 was among the age groups 25–34 (37% of cases) and 15–24 years (36% of cases). In countries with comprehensive surveillance systems, age-specific rates of reported cases in 2017 were highest among the age group 20–24 years (97 per 100 000 population; Figure 3). Among the age group 15–19 years, rates were higher in females (60 per 100 000) than males (41 per 100 000). Among older age groups, rates were higher among males. The highest age- and gender-specific rates were among males aged 20–24 years (124 per 100 000).

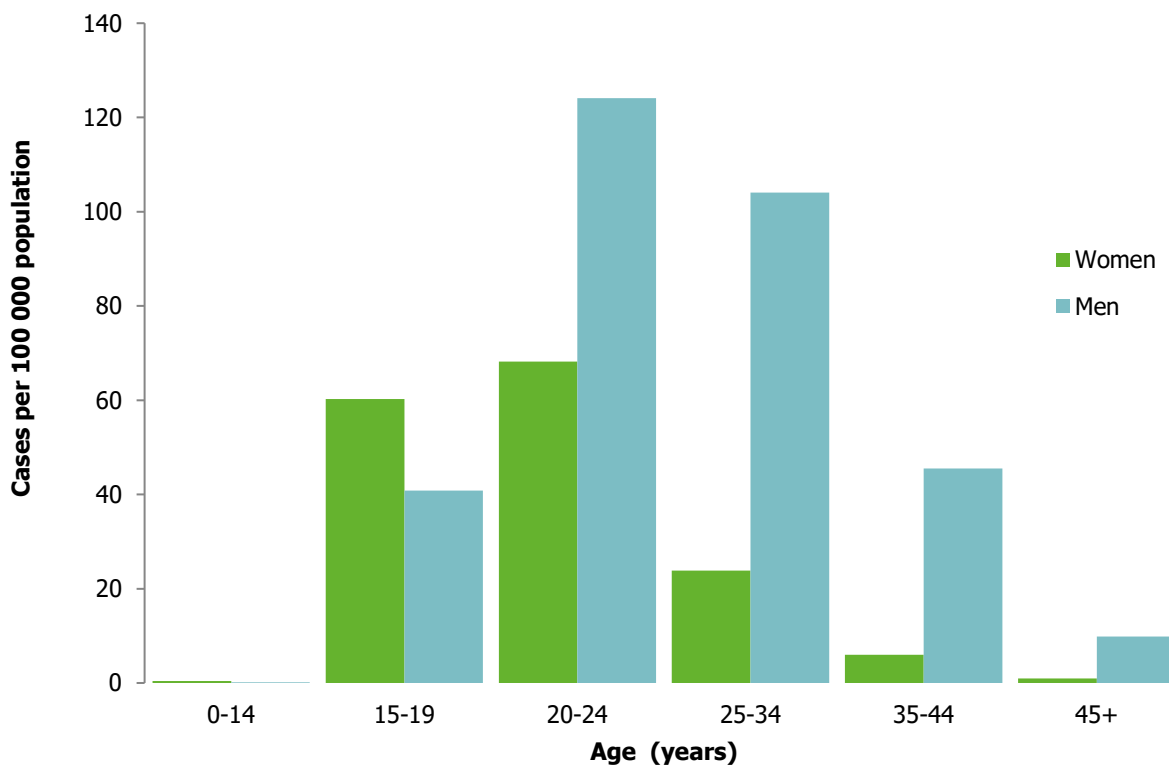
## Transmission

In 2017, 17 countries (accounting for 77% of the reported gonorrhoea cases) reported data on the mode of transmission for 60% or more of their cases (the Czech Republic, Denmark, Finland, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom). Among these countries, 47% of all cases were in men who have sex with men (MSM), 45% were reported among heterosexuals and for 9% of cases, the transmission group was reported as 'unknown' (Figure 4). Cases diagnosed in MSM represented 68% (n=31 863) of male cases diagnosed in the above group of 17 countries with known mode of transmission. The percentage of cases diagnosed in MSM ranged from below 10% (Latvia, Lithuania, Romania and Slovakia) to 50% or over (Malta, the Netherlands, Norway and Sweden).

## HIV status

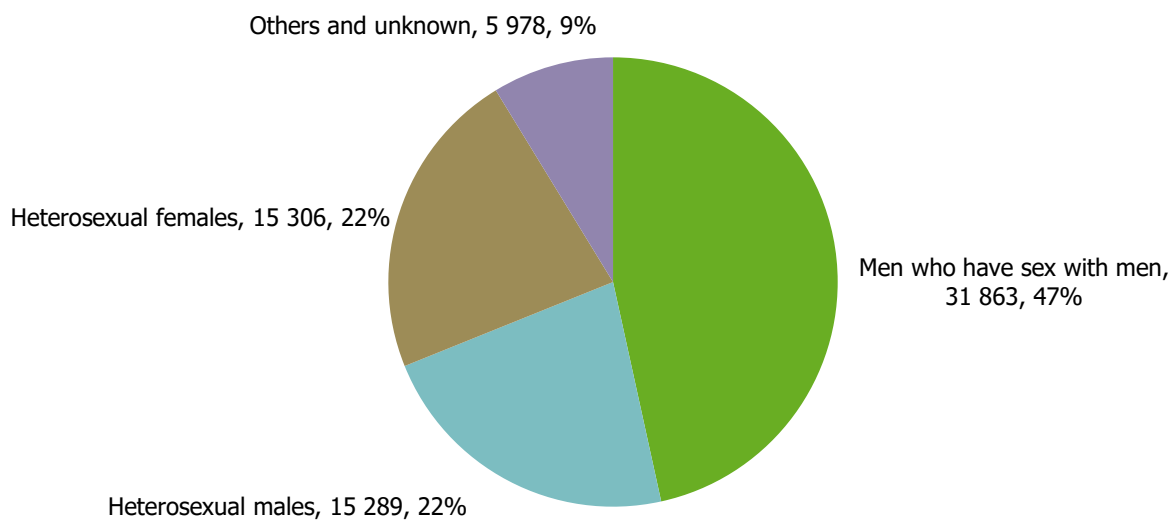
Data on the HIV status of cases for 2017 were provided by 14 countries (the Czech Republic, Denmark, Estonia, France, Hungary, Iceland, Latvia, Malta, the Netherlands, Norway, Portugal, Romania, Slovakia and the United Kingdom), accounting for 81% of all reported gonorrhoea cases. Of these 72 266 cases, information on HIV status was available for 48 568 cases (67%). Among cases with known HIV status, 14% were HIV-positive (either known or newly diagnosed). Among MSM (31 693 cases), HIV status was known for 27 055 cases (85%). Of these, 22% were HIV-positive.

**Figure 3. Distribution of confirmed gonorrhoea cases per 100 000 population by age and gender, EU/EEA, 2017**



Source: Country reports from Cyprus, Croatia, the Czech Republic, Denmark, Estonia, Finland, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom.

**Figure 4. Percentage of gonorrhoea by transmission category and gender (n=68 436), EU/EEA, 2017**



Source: Country reports from the Czech Republic, Denmark, Finland, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom.

## Trends 2008–2017

From 2008–2017, 558 155 cases of confirmed gonorrhoea were reported in 29 countries, with varying degrees of data completeness over this period. The number of countries reporting has been stable over this time with the exception of Austria, which has not reported data since 2014 due to a revision of the surveillance system, and Greece, which was unable to report data for 2017. Croatia has reported data since 2013 (i.e. 2012 data), when it joined the EU.

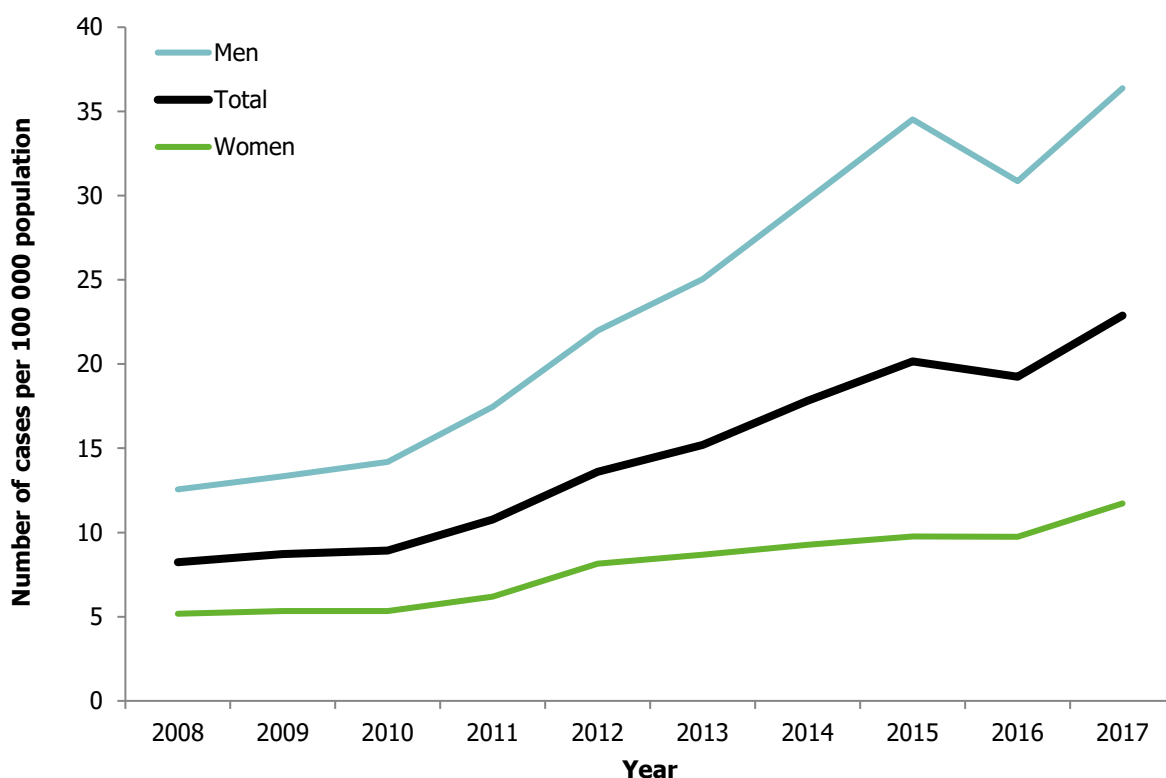
The incidence rate in the 22 countries with comprehensive surveillance systems that reported consistently from 2008–2017 increased from 8.2 per 100 000 population in 2008 to 23 per 100 000 population in 2017 (Figure 5). Throughout this period, rates in men were consistently higher than women. Rates more than doubled for both genders since 2008, but the increase was more pronounced among men (+190%) than among women (+127%).

Age-specific rates increased among all age groups since 2008, with the largest increases among 25–34-year-olds (2.7-fold), 35–44-year-olds (2.6-fold) and persons aged 45 years and over (2.6-fold). The rate of reported gonorrhoea increased from 2008–2017 in 15 of 22 reporting countries with comprehensive systems.

The number of reported cases from 2008–2017 increased in 20 of 28 reporting countries. The largest increases since 2008 in countries reporting more than 15 cases each year were reported from France and Portugal (both sixfold) Denmark (3.7-fold) and Ireland (3.6-fold). The increase in reported cases in Denmark from 2013–2017 is partly due to improved surveillance system coverage. From 2016–2017, among countries reporting at least 100 cases, there was a median increase of 16% (range: -68% to 44%) and 14 countries reported increases, whereas only five reported decreases. The largest increases were reported by Finland (44%), Malta (37%), Slovakia (36%), Slovenia (40%) and Sweden (41%).

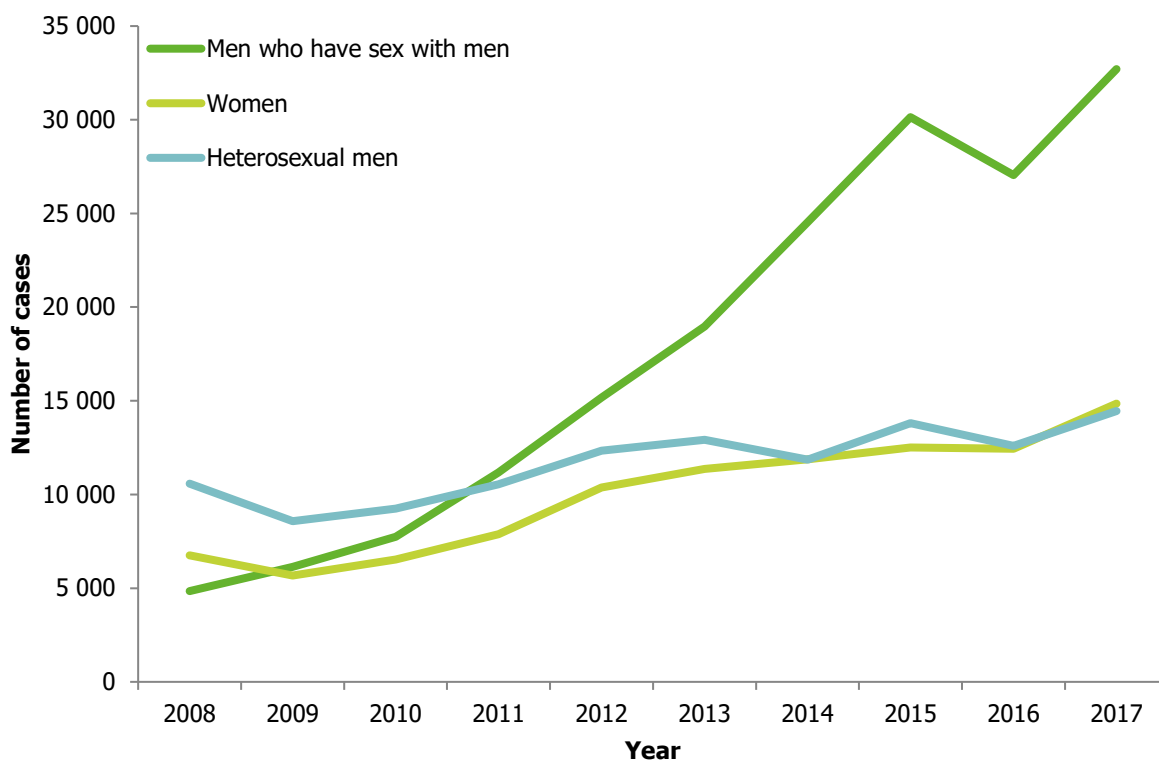
From 2008–2017, case numbers among countries consistently reporting mode of transmission showed an increasing trend among all risk groups, most markedly among MSM, where the number of cases increased 5.8-fold during this period (Figure 6). The number of cases also increased among women (120%) and heterosexual men (37%). Following the decrease in reported cases among MSM and heterosexual men in 2016, cases increased again in all risk groups from 2016–2017 (for all countries reporting data in 2016–2017: MSM: 20%; women: 20%; heterosexual men: 12%). Among countries reporting at least 100 cases, marked increases (>30%) in numbers of cases from 2016–2017 were observed among MSM in Finland (51%), Norway (51%), Portugal (39%), Slovakia (750%) and Sweden (51%), heterosexual men in Malta (133%), Slovakia (33%) and Slovenia (70%), and women in Finland (54%), Ireland (73%), Malta (100%), Slovakia (40%), Slovenia (120%) and Sweden (41%).

**Figure 5. Rate of confirmed gonorrhoea cases per 100 000 population by gender and year, EU/EEA countries reporting consistently, 2008–2017**



Source: Country reports from Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

**Figure 6. Number of confirmed gonorrhoea cases by gender, transmission category and year, EU/EEA countries reporting consistently, EU/EEA, 2008–2017**



Source: Country reports from Cyprus, the Czech Republic, Denmark, France, Latvia, Lithuania, Malta, the Netherlands, Norway, Romania, Slovenia, Sweden and the United Kingdom.

## Discussion

With 89 239 cases reported in 2017, gonorrhoea is the second most notified sexually transmitted infection (STI) in the EU/EEA after chlamydia. The overall gonorrhoea notification rate once again increased in 2017, following the slight decrease in 2016. Increasing notification rates were reported by the majority of countries with some striking year on year increases – for example, in Finland and Sweden, where the number of cases increased by more than 40%.

The high rate of reported gonorrhoea infections across the EU/EEA indicates continuing high levels of risk behaviour. This is especially of concern considering the high levels of resistance to azithromycin reported by the latest data from the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP). The data show that the currently recommended dual treatment regimen for gonorrhoea (ceftriaxone and azithromycin) is threatened [5]. Euro-GASP data also show that resistance to cefixime and ciprofloxacin remained stable over the past years [6]. In addition, no isolates with resistance to ceftriaxone were detected in 2017. The last ceftriaxone-resistant isolate was detected in 2015.

The increasing trend in the number of reported gonorrhoea cases in many countries continues to be mostly driven by increasing cases in MSM, but increases among heterosexual women were also marked from 2016–2017. Increases among women are worrying due to the risk of reproductive tract complications from gonorrhoea. The increase in reported cases in MSM could be related to increased risk behaviour, possibly in some cases also linked to changing sexual behaviour with use of HIV pre-exposure prophylaxis [7,8], increased testing among MSM (particularly at extra-genital sites, a practice recommended by recent guidance) [9] and the more widespread use of nucleic acid amplification tests [10,11].

The distribution of reported gonorrhoea cases continues to vary considerably across the EU/EEA, with rates ranging from below 1 to 75 cases per 100 000 population. The United Kingdom reported over half of the total number of EU/EEA cases in 2017. High rates (above 15 per 100 000 population) were reported in Denmark, Iceland, Malta, Norway, Spain and Sweden. This geographical pattern has been stable in recent years. The variation in rates could be linked to real differences in incidence of infection. However, there are important differences across Europe in terms of testing policies and methods, healthcare systems and access to services, the role of private healthcare providers, inclusion of data in reporting systems and surveillance system structures.

The majority of countries that report gonorrhoea cases indicate that most of their data on STIs are obtained from dedicated specialist services (STI clinics). It is therefore likely that in many countries, a proportion of cases – for example, those diagnosed in primary healthcare – are not captured by surveillance systems. In addition, a few countries obtain data through sentinel surveillance, which again only captures a proportion of diagnoses within the country and may target specific specialist services. Many cases are also either undiagnosed or unreported for various reasons, such as differences in the availability of diagnostics, so that the reported figures do not represent the true extent of the epidemic. Some of the increases reported over time could also be related to improvements in the coverage of surveillance systems and use of more sensitive tests. Given the above limitations, comparisons between countries should be made with caution.

## Public health implications

Rates of reported gonorrhoea infections continue to increase in the majority of EU/EEA countries. There is an urgent need to further strengthen prevention activities aimed at increased testing uptake and testing frequency in those most at risk. This could be achieved by targeting specific risk groups with evidence-based messages and methods. Social media and dating apps should be considered for prevention campaigns in addition to traditional approaches.



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