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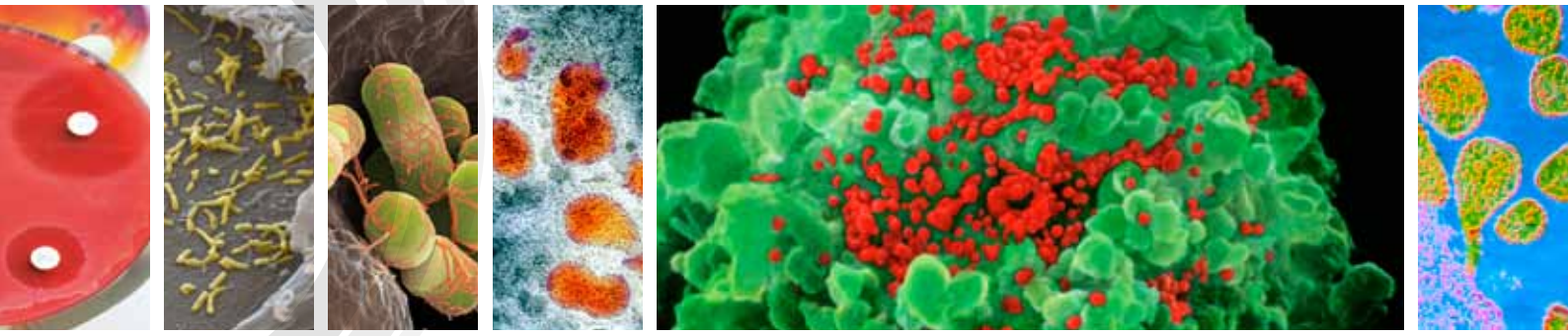
SURVEILLANCE REPORT



Annual epidemiological report

Sexually transmitted infections, including HIV and blood-borne viruses

2014

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ECDC SURVEILLANCE REPORT

Annual epidemiological report

Sexually transmitted infections, including HIV and blood-borne viruses

2014

This report of the European Centre for Disease Prevention and Control (ECDC) was coordinated by Catalin Albu, Sergio Brusin, Joanna Gomes Dias, Bruno Ciancio and Gianfranco Spiteri.
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In order to facilitate more timely publication, the 2014 edition of the Annual Epidemiological Report is being published a disease group at a time and will later be compiled into one comprehensive report. This report presents the epidemiological situation for sexually transmitted infections, including HIV and blood-borne viruses as of 2012.

Errata: 20 March 2015; a sentence was deleted on page 16 which referred to hepatitis C virus not hepatitis B virus.

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Stockholm, February 2015

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Abbreviations

EU/EEA	European Union/European Economic Area
Euro-GASP	European Gonococcal Antimicrobial Surveillance Programme
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
LGV	*Lymphogranuloma venereum*
MSM	Men who have sex with men
NAAT	Nucleic acid amplification tests
PWID	People who inject drugs
STI	Sexually transmitted infection

Introduction

A note to the reader

The Annual Epidemiological Report 2014 gives an overview of the epidemiology of communicable diseases of public health significance in Europe, drawn from surveillance information on the 52 communicable diseases and health issues for which surveillance is mandatory in the European Union (EU) and European Economic Area (EEA) countries[1,2,3,4].

In order to facilitate more timely publication, this year's edition of the Annual Epidemiological Report is being first published a disease group at a time and will later be compiled into one comprehensive report. This report presents the epidemiological situation for sexually transmitted infections including HIV and blood-borne viruses as of 2012 and describes the statistical and epidemiological methods used.

Produced annually, the report is intended for policymakers and health sector leaders, epidemiologists, scientists and the wider public. It is hoped that readers will find it a useful overview and reference to better understand the present situation in relation to communicable diseases in Europe. It should also usefully assist policymakers and health leaders in making evidence-based decisions to plan and improve programmes, services and interventions for preventing, managing and treating these diseases.

This year's edition of the report draws on surveillance data for 2012, submitted by Member States to the European Surveillance System. The report gives an outline description of the epidemiology for each disease, in a standard format, covering the years 2008–2012. In addition, updates from epidemic intelligence in relation to emerging public health threats for 2013 are given, by disease as relevant. Information on these is either directly reported to ECDC through Member State notifications on the Early Warning and Response System (EWRS), according to defined criteria[5], or found through active screening of various sources, including national epidemiological bulletins and international networks, and various additional formal and informal sources. In-depth reviews of the epidemiology of particular diseases (e.g. tuberculosis, HIV) or disease groups (e.g. food- and waterborne diseases) are published separately, sometimes in collaboration with other European agencies or the World Health Organization's Regional Office for Europe. These are referenced, for convenience, with the description of each disease. In addition, further information relating to most of the diseases reported here is available on the ECDC website health topics pages at http://ecdc.europa.eu/en/healthtopics.

The reader will appreciate that most surveillance systems capture only a proportion of the cases occurring in their countries. Some cases of disease remain undiagnosed ('under-ascertainment'), and some are diagnosed but not reported to public health authorities ('underreporting'). The pattern of this under-ascertainment and underreporting varies by disease and country, involving a complex mix of healthcare-seeking behaviour, access to health services, availability of diagnostic tests, reporting practices by doctors and others, and the operation of the surveillance system itself.

The direct comparison of disease rates between countries should therefore be undertaken with caution. The reader should be aware that in most cases, differences in case rates reflect not only differences in the occurrence of the disease, but also in systematic differences in health and surveillance systems as described here.

[1] 2000/96/EC: Commission Decision of 22 December 1999 on the communicable diseases to be progressively covered by the Community network under Decision No 2119/98/EC of the European Parliament and of the Council. Official Journal, OJ L 28, 03.02.2000, p. 50–53.

[2] 2003/534/EC: Commission Decision of 17 July 2003 amending Decision No 2119/98/EC of the European Parliament and of the Council and Decision 2000/96/EC as regards communicable diseases listed in those decisions and amending Decision 2002/253/EC as regards the case definitions for communicable diseases. Official Journal, OJ L 184, 23.07.2003, p. 35–39.

[3] 2007/875/EC: Commission Decision of 18 December 2007 amending Decision No 2119/98/EC of the European Parliament and of the Council and Decision 2000/96/EC as regards communicable diseases listed in those decisions. Official Journal, OJ L 344, 28.12.2007, p. 48–49.

[4] Commission Decision 2119/98/EC of the Parliament and of the Council of 24 September 1998 setting up a network for the epidemiological surveillance and control of communicable diseases in the Community. Official Journal, OJ L 268, 03/10/1998 p 1-7.

[5] 2009/547/EC: Commission Decision of 10 July 2009 amending Decision No 2000/57/EC on the early warning and response system for the prevention and control of communicable diseases under the Decision No 2119/98/EC of the European Parliament and of the Council. Official Journal, OJ L 181, 14.07.2009 p. 57-60.

Each year, we observe improvements in the harmonisation of systems, definitions, protocols and data at Member State and EU levels. Nevertheless, data provided by the Member States continue to show a number of inconsistencies. In several situations, the quality and comparability of the data are not optimal, and more work is planned, in conjunction with Member States, to see how best to improve this situation.

This report aims to be consistent with previously published ECDC surveillance reports for 2012 relating to specific diseases and disease groups. However, Member States update their data continually and a number have made specific corrections for this report, including corrections to data reported for earlier years. Accordingly, some minor differences will be seen when comparing the data in this report to previous Annual Epidemiological and disease-specific reports.

Description of methods

Data sources: indicator-based surveillance (disease cases)

All EU Member States and three EEA countries (Iceland, Liechtenstein and Norway) send information at least annually from their surveillance systems to ECDC relating to occurrences of cases of the 52 communicable diseases and health issues under mandatory EU-wide surveillance. Reports are sent according to case definitions established by the EU[6].

Data upload by Member States occurs continually throughout the year. In conjunction with annual ECDC reports for particular diseases or disease groups, and the consolidated annual report, ECDC issues 'data calls,' with specified end dates, to facilitate accurate and up-to-date submission of data for the previous calendar year.

The information submitted by Member States to ECDC is defined through a 'metadataset' for each disease under surveillance. The metadataset includes the case classification for the disease (particularly whether the case is confirmed or probable) according to official case definitions as determined by the European Commission. It also defines the information to be included with each case report. Most data are submitted as anonymised individual case data, but aggregated data are reported by some Member States for some diseases. Countries actively report zero cases for particular diseases, as applicable.

Data are uploaded and validated by the Member States using ECDC's online system for the collection of surveillance data, the European Surveillance System (TESSy). Member States' information specialists transform the data in their surveillance systems into an appropriate format before uploading to TESSy. System reports generated by TESSy allow Member States to review uploaded data and to make modifications where necessary. TESSy performs automatic validation and additional data validation is conducted by ECDC staff, in liaison with designated disease experts and epidemiologists in the Member States. Once the draft report is produced, it is sent to Member States' National Surveillance Coordinators for final validation. Any final corrections are uploaded to TESSy.

For each disease under surveillance, TESSy also holds a description of the key attributes of the surveillance systems for that disease in each Member State. This information is included in the report to aid the interpretation of surveillance data for each reported disease. Member States are asked to verify and update this information each year.

Data sources: event-based surveillance

The report also presents information relating to health threats identified by ECDC through epidemic intelligence activities, from formal and validated informal sources. These threats are documented and monitored by using a dedicated database, called the Threat Tracking Tool (TTT). Data analysed in this report are extracted from the TTT and the EWRS database. The analysis of monitored threats covers the period from the activation of the TTT in June 2005 until the end of 2013; EWRS entries are covered from January 2005 to the end of 2013.

The expression 'opening a threat' refers to the way ECDC assesses threats during its daily threat review meetings. ECDC experts evaluate potential threats and validate events that require further attention or action from ECDC, based on their relevance to public health or the safety of EU citizens. The following criteria are used to open a threat and further monitor an event:

[6] 2002/253/EC: Commission Decision of 19 March 2002 laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council. Official Journal, OJ L 86, 03.04.2002, p. 44–62.

1. More than one Member State is affected.
2. A disease is new or unknown, even if there are no cases in the EU.
3. There is a request from a Member State or from a third party for ECDC to deploy a response team.
4. There is a request for ECDC to prepare a risk assessment of the situation.
5. There is a documented failure in an effective control measure (vaccination, treatment or diagnosis).
6. There is a documented change in the clinical/epidemiological pattern of the disease, including changes in disease severity, the mode of transmission, etc.
7. The event matches any of the criteria under the International Health Regulations (IHR) or EWRS.

Events are considered relevant to be reported to the EWRS if one or more of the criteria below are met. After the revised International Health Regulations (IHR) entered into force on 15 June 2007, the decision was amended, and criteria now include both IHR notifications and the need to exchange details following contact tracing[7].

The Commission Decision on serious cross-border threats to health[8]; 'lays down rules on epidemiological surveillance, monitoring, early warning of, and combating serious cross border threats to health, including preparedness and response planning related to those activities, in order to coordinate and complement national policies'.

With reference to this Decision, the following criteria are applied for reporting to the EWRS:

1. Outbreaks of communicable diseases extending to more than one EU Member State.
2. Spatial or temporal clustering of cases of a disease of a similar type if pathogenic agents are a possible cause and there is a risk of propagation between Member States within the Union.
3. Spatial or temporal clustering of cases of disease of a similar type outside the EU if pathogenic agents are a possible cause and there is a risk of propagation to the Union.
4. The appearance or resurgence of a communicable disease or an infectious agent which may require timely coordinated EU action to contain it.
5. Any IHR notification (also reported through EWRS).
6. Any event related to communicable diseases with a potential EU dimension necessitating contact tracing to identify infected persons or persons potentially in danger, which may involve the exchange of sensitive personal data of confirmed or suspected cases between concerned Member States.

Data analysis

General principles

All analyses are based on confirmed cases where possible. For some diseases, some Member States do not distinguish confirmed from other cases; in these situations, total case reports from these countries are used in the analyses and the country concerned is identified in a footnote to the summary table. For some diseases (e.g. tuberculosis, Legionnaires' disease), confirmed cases are defined on a specific basis, described in the relevant sections. For other diseases the reporting of only confirmed cases would result in a severe underestimation of the true disease burden, hence both probable and confirmed cases are reported. The 'month' variable used in the seasonality analyses is based on the date that the country chooses as its preferred date for reporting. This could be either date of onset of disease, date of diagnosis, date of notification, or some other date at the country's discretion.

Population data

Population data for the calculation of rates are obtained from Eurostat, the statistical office of the EU. Data for overall calculations are extracted from the Eurostat database 'Demographic balance and crude rates' (DEMO_PJAN). The population as of 1 January of each year is used. Totals per year and per country are available for all countries for 2012. For calculation of age- and gender-specific rates, the data are aggregated into the following age groups for the analyses: 0–4, 5–14, 15–24, 25–44, 45–64 and ≥65 years.

[7] Commission Decision of 10 July 2009 amending Decision No 2000/57/EC on the early warning and response system for the prevention and control of communicable diseases under the Decision No 2119/98/EC of the European Parliament and of the Council, in Official Journal of the European Union. 2009. p. L 181: 57-9.

[8] Commission Decision 1082/2013/EU, of 5th November 2013 of the European Parliament and the Council of 22 October 2013 on serious cross-border threats to health.in Official Journal of the European Union 2013.p.L293:1-15.

Presentation of analyses

The descriptive epidemiology for each disease is set out as a summary table by country and supplementary figures describing overall epidemiology at EU/EEA level. These include the trend for reported confirmed cases from 2007–12, age- and gender-specific rates, and occurrence by month ('seasonality'), if relevant. Additional graphs, figures and maps are used where necessary to illustrate other important aspects of the disease epidemiology in the EU and EEA.

Summary table

The summary table for each disease indicates whether the country data were reported from a surveillance system with national or lesser geographical area of coverage. The table also indicates what type of data the country submitted: case based ('C'), aggregated ('A') data or data submitted to a disease-specific network ('D').

This table presents an overview of the number and rates (including age-standardised rates) of total and confirmed cases reported by the Member States surveillance systems for the period 2008–12. The total number of reported cases (independent of case classification) for 2012 is also shown.

Confirmed case rates are given per 100 000 persons (the number of reported confirmed cases divided by the official Eurostat estimate of the population for that year multiplied by 100 000). Countries that made no report for a disease are excluded from the calculation for overall European rates for that disease. Country reports from systems with less than national coverage (e.g. where only some regions of the country report nationally) are also excluded from calculation of overall EU case rates.

Age-standardised rates (ASR) are calculated to facilitate comparisons between countries by adjusting for differences with respect to certain underlying population characteristics such as age. ASRs were calculated when the EU/EEA rate exceeds 1 per 100 000 population and are given per 100 000 persons.

ASRs were calculated using the direct method according to the following formula:

$$ASR = \frac{\sum_{i=1}^{6} \left(r_i \, p_i \right)}{\sum_{i=1}^{6} p_i}$$

where r_i is the specific rate for the age group i in the population being studied, and p_i is the population of age group i in the standard population.

The standard population considered in this report was based on the average population of the EU27 Member States for the period 2001–2010 (Table). This standard population was defined to reflect the current age structure of Europe.

Age group	Standard population
0–4	25 506 062
5–14	54 043 285
15–24	62 075 051
25–44	143 411 393
45–64	124 427 054
65+	81 889 316
Total	**491 352 161**

Aspects of descriptive epidemiology at EU/EEA level

The descriptive epidemiology for each disease for the EU and EEA region overall is described as follows:

Trends in reported number of confirmed cases. The number of confirmed cases by month, 2008–12, for the EU/EEA is presented as a figure. Countries with consistent reporting of cases or zero cases for the whole five-year period are included. The figure also shows a centred 12-month moving average to show the overall trend by smoothing seasonal and random variations.

Age- and gender-specific rates for confirmed cases. Age- and gender-specific rates for the EU/EEA Member States are presented and given per 100 000 persons. It should be noted that these analyses are based only on cases for which both age and gender were reported. For some diseases this can result in exclusion of a significant proportion of cases, and the overall EU and EEA rate will be underestimated. The denominator includes the sum of the populations within the respective age–gender groups, including countries which actively reported zero cases.

Seasonal distribution of cases. For diseases where reported occurrence varies by month, a figure showing the seasonality is presented. This shows the total number of confirmed cases reported for each month in 2012, compared with the maximum, minimum and average number of cases observed for each month for the period 2008–12. These analyses include only cases for which the month of reporting is given; for some diseases this can result in exclusion of significant numbers of cases.

It will be noted that for some diseases reported numbers are too small for some or all of the above analyses to be presented.

Data protection

The data received in TESSy from Member States are subject to Regulation (EC) No 45/2001 of the European Parliament and of the Council of 18 December 2000, providing for 'the protection of individuals with regard to the processing of personal data by the Community institutions and bodies, and on the free movement of such data.' High standards of data protection consistent with these requirements are applied, supervised by the ECDC Data Protection Officer (DPO). ECDC data protection arrangements are also under the review of the European Data Protection Supervisor.

Data are made available on request to other European Agencies, Institutions and approved researchers, under procedures in accordance with the above requirements, approved by the ECDC Management Board.

Chlamydia trachomatis infection

- Chlamydia is the most frequently reported sexually transmitted infection and notifiable disease in the EU/EEA. In 2012, 384 105 cases of chlamydia were reported in 25 EU/EEA Member States, an overall rate of 199 per 100 000 population. The true incidence of chlamydia is likely to be higher as this infection is liable to underreporting due to asymptomatic infections and differences in diagnostic practices and surveillance systems across Europe.
- Two thirds (68%) of all chlamydia cases were reported in young people between 15 and 24 years of age, with the highest rate reported among women aged 20 to 24 years (1 683 cases per 100 000), although this is influenced by the screening opportunities for this age group.
- The overall recent EU/EEA trend is more or less stable with some minor fluctuations since 2008. The interpretation of trends is challenging due to different numbers of countries reporting data over the years, heterogeneity in surveillance systems and diagnostic methods used, and changes in the amount of testing and screening for chlamydia over time.

Infection with the bacterium *Chlamydia trachomatis* is the most frequently reported sexually transmitted infection in Europe [1]. Most infections are asymptomatic and complications mostly affect women, including pelvic inflammatory disease, chronic pelvic pain and reduced fertility [2]. In addition, *Chlamydia trachomatis* is a co-factor for HIV infection, increasing both susceptibility and infectiousness [3].

Epidemiological situation in 2012

In 2012, 25 EU/EEA Member States reported 384 105 cases (199 per 100 000 population), of which 84% were reported by four countries (Denmark, Norway, Sweden and United Kingdom). The distribution of chlamydia across EU/EEA countries appears to be very heterogeneous, with rates of reported cases ranging from below 1 to more than 500 cases per 100 000 population. Rates above the EU/EEA average were reported by Iceland (600 per 100 000), Denmark (473 per 100 000), Norway (431 per 100 000), Sweden (388 per 100 000), United Kingdom (374 per 100 000) and Finland (245 per 100 000). Rates below 15 per 100 000 were reported by eight countries (Bulgaria, Cyprus, Lithuania, Luxembourg, Poland, Romania, Slovakia and Slovenia) (Table 1).

The United Kingdom continues to contribute a large proportion of reported cases, with 62% of all cases reported in 2012. This is due to the inclusion of cases detected in a screening programme targeting 15–24 year olds in England. This programme offers community-based test services outside of STI clinics and has resulted in a large increase of chlamydia diagnoses from 2008 onwards.

Since 2008, the overall EU/EEA rate has been stable with some minor fluctuations: it decreased slightly from 193 cases per 100 000 population in 2009 to 189 in 2011, but increased again to 199 in 2012. Interpretation of any trend at EU/EEA level is challenging due to the increasing number of countries reporting data over the years. Comparison between countries is hampered by differences in the surveillance systems, the diagnostic methods used, the amount of testing and screening for chlamydia, and the proportion of underreporting. The availability of a screening programme in dedicated STI services or targeted at (sub)groups of the population, e.g. young people or pregnant women, may significantly increase the reported number of chlamydia cases. Likewise, the absence of such screening programmes in most countries means that the true incidence and prevalence, given the frequency of asymptomatic infection, are likely to be higher than the rates reported here.

Table 1. Number and rates of chlamydia reported cases, EU/EEA, 2008–2012

Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	-	-	-	-	1 004	-	1 085	-	597	-	742	-
Belgium	N	C	4667	-	3 566	-	3 310	-	2942	-	2 601	-
Bulgaria	Y	A	131	1.8	55	0.7	49	0.7	0	0.0	0	0.0
Cyprus	Y	C	10	1.2	6	0.7	3	0.4	4	0.5	1	0.1
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	Y	C	26 385	472.8	26 617	478.7	27 950	505.0	29 825	541.1	29 116	531.7
Estonia	Y	C	1 541	115.5	1 775	132.8	1 729	129.3	2 003	149.6	2 206	164.5
Finland	Y	C	13 247	245.3	13 666	254.2	12 825	239.7	13 317	250.0	13 873	261.7
France	N	C	13 011	-	10 969	-	9 083	-	7 516	-	6 219	-
Germany	-	-	-	-	-	-	-	-	-	-	-	-
Greece	N	A	396	-	502	-	657	-	327	-	71	-
Hungary	N	A	1 060	-	858	-	710	-	711	-	754	-
Ireland	Y	A	6 162	134.5	6 407	140.2	5 399	120.8	5 781	129.9	6 290	141.1
Italy	N	C	469	-	715	-	736	-	610	-	210	-

Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Latvia	Y	C	1 727	84.5	1 565	75.4	1 000	47.2	1 142	52.8	750	34.2
Lithuania	Y	C	265	8.8	343	11.2	367	11.7	326	10.2	403	12.5
Luxembourg	Y	C	4	0.8	1	0.2	2	0.4	0	0.0	2	0.4
Malta	Y	C	139	33.3	146	35.2	138	33.3	67	16.3	108	26.5
Netherlands	N	C	14 731	-	12 922	-	11 374	-	9 788	-	9 355	-
Poland	Y	A	314	0.8	319	0.8	539	1.4	908	2.4	695	1.8
Portugal	-	-	-	-	-	-	-	-	-	-	-	-
Romania	Y	C	59	0.3	133	0.7	97	0.5	91	0.5	127	0.6
Slovakia	Y	C	752	13.9	305	5.7	188	3.5	228	4.2	105	2.0
Slovenia	Y	C	249	12.1	232	11.3	176	8.6	135	6.6	120	6.0
Spain	N	C	909	-	1 059	-	947	-	846	-	402	-
Sweden	Y	C	36 795	388.0	37 262	395.7	36 932	395.4	37 771	408.1	42 783	465.9
United Kingdom	Y	A	237 675	374.3	215 972	345.3	218 560	352.1	218 392	354.4	206 339	337.4
EU Total	**-**	**-**	**360 698**	**191.8**	**336 399**	**180.4**	**333 856**	**181.9**	**333 327**	**184.8**	**323 272**	**180.9**
Iceland	Y	C	1 918	600.2	2 091	656.6	2 197	691.7	2 271	711.1	1 834	581.4
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-
Norway	Y	C	21 489	431.0	22 530	457.9	22 527	463.7	22 754	474.1	23 488	495.8
EU/EEA Total	**-**	**-**	**384 105**	**199.4**	**361 020**	**189.1**	**358 580**	**190.8**	**358 352**	**193.8**	**348 594**	**190.3**

Source: Country reports; Y: Yes; N: No; A: Aggregated data report; C: Case-based data report; –: No report; U: Unspecified.

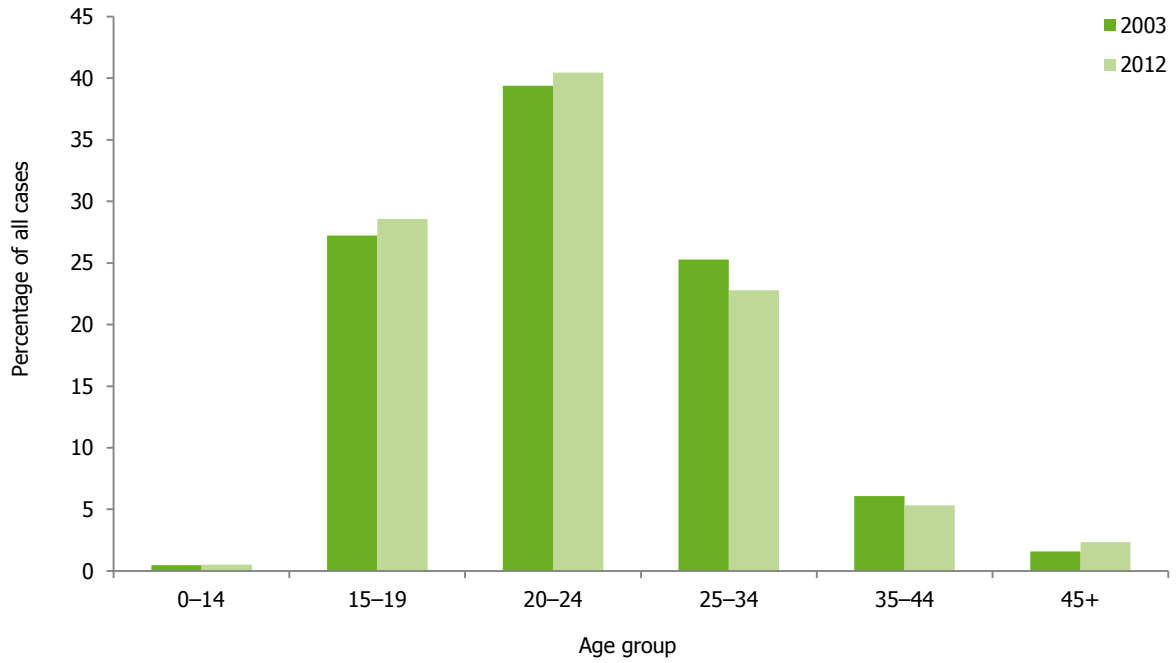
Note: Rates are calculated only for countries with comprehensive surveillance. Data is presented by 'date of diagnosis', and if not available by 'date used for statistics'. Case numbers might differ from those reported in national bulletins due to different date variables.

Age and gender distribution

In 2012, 68% of the 374 747 cases with known age were reported in young people between 15 and 24 years of age. The age category 20–24 years was affected the most (40%) followed by the category 15–19 years (28%) (Figure 1). This pattern is also reflected by the age-specific incidence rates, with 621 cases per 100 000 in 20–24 year olds and 466 per 100 000 in 15–19 year olds. The overall notification rate for these two age groups has increased since 2002, when rates among 15–19 year olds and 20-4 year olds were 180 and 246 per 100 000 respectively (Figure 1). The highest rates were reported among women aged 20 to 24 years (1 683 cases per 100 000 persons) (Figure 2). Extended testing activities and screening programmes specifically targeted at young people (and women in particular) should be considered when interpreting this increase.

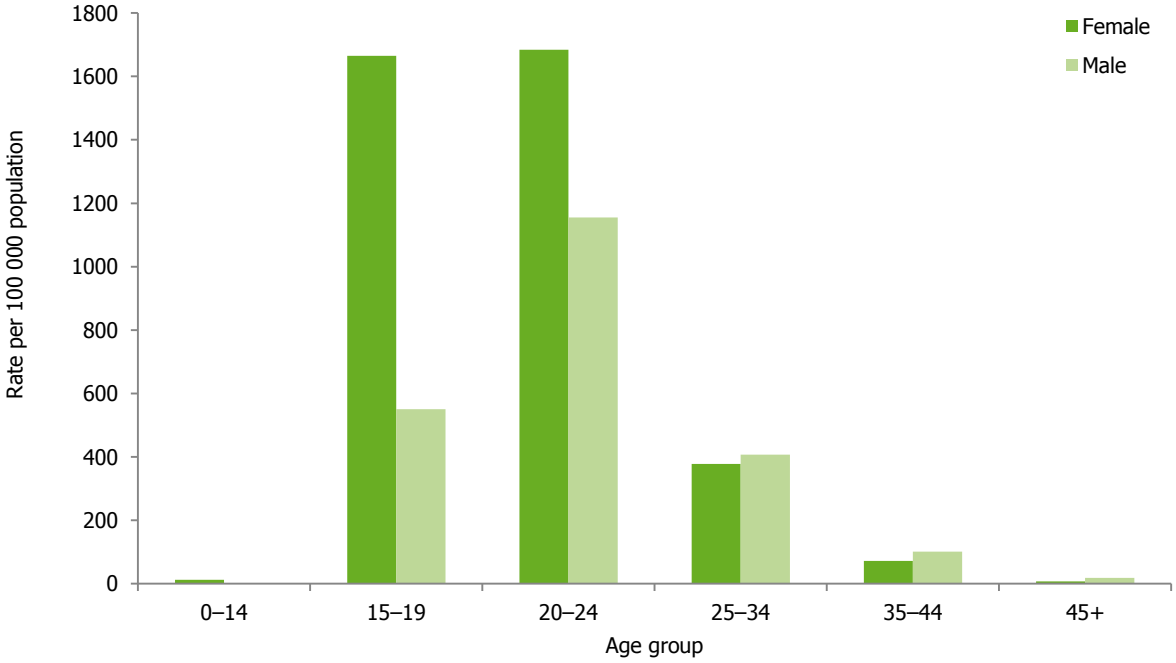
Information on gender was available for 99.2% (380 951) of cases. In 2012, 157 053 cases were reported in males and 223 898 in females, with rates of 166 and 228 per 100 000 population, respectively, which results in a male-to-female rate ratio of 0.7:1. It should be noted that there is a known ascertainment bias due to more screening opportunities for young women.

Figure 1. Rates of chlamydia reported cases by age, EU/EEA, 2003/2012



Includes data from EU/EEA countries with comprehensive systems reporting consistently.
Source: Country reports from Denmark, Estonia, Finland, Iceland, Latvia, Sweden and United Kingdom.

Figure 2. Rates of chlamydia reported cases by age and gender, EU/EEA, 2012



Source: Country reports from Bulgaria, Cyprus, Denmark, Estonia, Finland, Greece, Iceland, Latvia, Lithuania, Luxembourg, Malta, Norway, Romania, Slovakia, Slovenia, Sweden and United Kingdom.

Transmission

Information on transmission was available for 175 261 (46%) cases in 2012. Some of the countries with the highest number of cases (Denmark, Norway, Finland and France) did not report data on transmission and the United Kingdom was excluded as transmission data was reported for only 53% of cases. Of the 55 257 cases reported from the eight countries providing this information, for more than 60% of their cases, transmission was indicated as heterosexual in 87%, men who have sex with men (MSM) in 6% and 'unknown' in 7% of the cases. These proportions have not changed since 2010.

Lymphogranuloma venereum

In 2012, 830 cases of *lymphogranuloma venereum* (LGV) were reported from eight countries: Belgium (23 cases), Czech Republic (9 cases), Finland (5 cases), France (197 cases), Hungary (1 case), Ireland (3 cases), Netherlands (190 cases) and the United Kingdom (402 cases). Between 2004 and 2012, 3 691 cases of LGV were reported from ten countries, with the majority of cases being reported by the United Kingdom (2 177 cases), Netherlands (739 cases) and France (572 cases).

Of the 296 cases with information on transmission category, all but one, were reported as MSM. The most affected age group was 35–44 years old, accounting for 297 of 829 cases with known age (36%). Among cases with known HIV status (321), 79% were HIV-positive.

Almost half (14/31) of the EU/EEA countries did not report LGV cases for 2012 or before, as LGV diagnosis requires confirmation by genotyping and/or LGV is not under national surveillance. The heterogeneity in reporting significantly hindered the accuracy in understanding the LGV burden in the EU/EEA. In recent years, outbreaks have been communicated from several European countries, predominantly among HIV-positive MSM [6].

Discussion

Surveillance of chlamydia presents a number of challenges when trying to interpret the epidemiological situation across the EU/EEA. The asymptomatic nature of infection with *Chlamydia trachomatis*, especially in women, makes the diagnosis difficult, and the number of cases reported is highly affected by national screening and testing practices. Many diagnoses across Europe are therefore not made if asymptomatic young adults are not specifically targeted for testing.

In a recent ECDC survey in 28 EU/EEA countries, an association was found between the chlamydia reporting rate and the level of chlamydia control activities [4]. Most (4/5) of the countries with no organised control activity and the majority of those only performing case management (3/4) or undertaking case finding (3/4) reported less than 100 cases per 100 000 population in 2011. On the other hand, rates higher than 250 per 100 000 population were reported in countries offering opportunistic testing (6/10) or having implemented a national screening programme (the United Kingdom).

The introduction of sensitive nucleic acid amplification tests (NAATs) in the 1990s improved chlamydia case detection considerably, and resulted in an increased number of diagnoses in western and northern EU/EEA countries. In 2012, NAATs were available in 28/28 EU/EEA countries in the private sector, but only 17/28 (61%) countries used a NAAT for more than 90% of all chlamydia tests in the public sector [4]. The lower reporting rates in countries in central and eastern EU/EEA may be explained by the use of NAATs in less than 50% of laboratory diagnoses rather than a genuinely low prevalence of chlamydia.

Estimates of chlamydia prevalence in four EU/EEA Member States (France, Germany, Slovenia and United Kingdom) ranged between 3.0% and 5.0% in nationally representative samples of sexually experienced women and men aged up to 25 years and were statistically consistent with those in other high-income countries [5].

LGV remains a disease primarily found in HIV-positive MSM in the EU/EEA. Accurate description of the ongoing LGV epidemic is challenging due to the heterogeneous capacity for case detection and reporting among EU/EEA countries.

Surveillance systems overview

Country	Data source	Compulsory (Cp) Voluntary (V)/ Other(O)	Comprehensive (Co)/ Sentinel (Se)/ Other(O)	Active (A)/ Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition Used
						Laboratories	Physicians	Hospitals	Others		
Belgium	BE-LABNET	V	Se	A	C	Y	N	-	-	Y	Not specified/unknown
Bulgaria	BG-STI	Cp	Co	P	A	-	-	Y	Y	-	EU-2002
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y	Other
Estonia	EE-HCV/CHLAMYDIA	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y	Not specified/unknown
France	FR-RENACHLA	V	Se	A	C	Y	N	N	N	-	Not specified/unknown
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	A	Y	N	Y	N	Y	EU-2008
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	N	EU-2008
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Ireland	IE-AGGR_STI	Cp	Co	P	A	Y	Y	Y	N	Y	EU-2002
Italy	IT-COA_ISS_STI lab	V	Se	P	C	Y	N	Y	N	N	EU-2008
Latvia	LV-BSN	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y	EU-2002
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	Y	Other
Norway	NO-MSIS_CHLAMYDIA)	Cp	Co	A	A	Y	N	N	N	Y	Other
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y	Not specified/unknown
Romania	RO-RNSSy	Cp	Co	P	A	N	N	Y	N	Y	EU-2008
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N	EU-2008
Sweden	SE-SMINET	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
United Kingdom	UK-GUM-COM-LAB	O	Co	P	A	Y	Y	Y	Y	Y	Other

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Gonorrhoea

- In 2012, 50 341 cases of gonorrhoea were reported by 29 EU/EEA countries, a rate of 13 per 100 000 population.
- One third (33%) of gonorrhoea cases were reported among MSM. Overall, 37% of gonorrhoea cases were reported in people between 15 and 25 years old.
- The number of reported cases increased by 58% between 2008 and 2012, with most countries reporting increasing trends.
- Decreased susceptibility of *N. gonorrhoeae* to third-generation cephalosporins remains an important public health issue. In 2012, the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP) found that 4% of isolates were resistant to cefixime, a decrease compared to previous years.

Gonorrhoea is a sexually transmitted infection caused by the bacterium *Neisseria gonorrhoeae*. It is the second most commonly reported bacterial STI in Europe. Control of gonorrhoea relies entirely on antibiotics and is currently being challenged by emerging resistance to third-generation cephalosporins.

Epidemiological situation in 2012

In 2012, 50 341 cases of gonorrhoea were reported in 28 EU/EEA countries resulting in a notification rate of 13 per 100 000 population (Table 1). No data were available from Germany and Liechtenstein. United Kingdom reported 57% of all gonorrhoea cases. The number of reported cases increased by 58% overall between 2008 and 2012 (Table 1); increases by over 50% during this time were reported by 14 countries. The only countries reporting decreasing numbers of cases during this period are Bulgaria, Italy, Lithuania, Luxembourg, Malta and Romania. The overall rate increased by 58% among countries reporting through similar comprehensive systems (Figure 1).

Rates of reported cases in 2012 varied widely, ranging from less than 1.5 per 100 000 in Bulgaria, Cyprus, Italy, Luxembourg and Portugal to more than 15 per 100 000 in Estonia, Ireland, Latvia and the United Kingdom.

Table 1. Number and rates of gonorrhoea reported cases, EU/EEA, 2008–2012

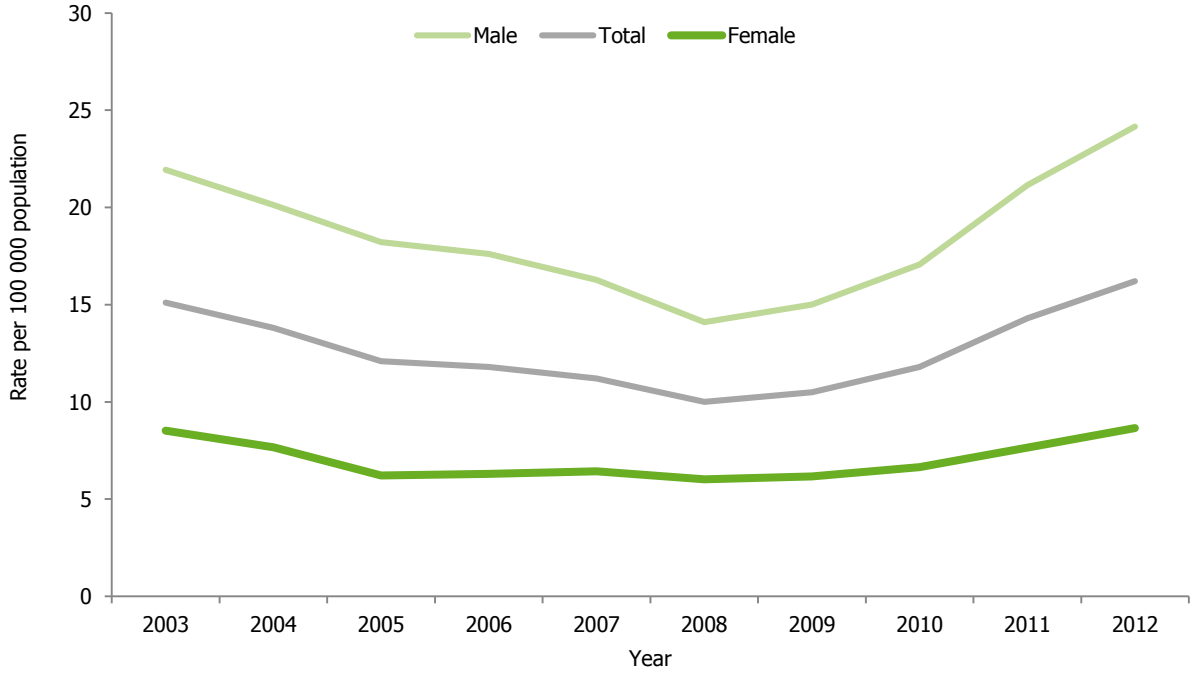
Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	N	C	402	-	470	-	331	-	143	-	263	-
Belgium	N	C	930	-	842	-	752	-	734	-	718	-
Bulgaria	Y	A	99	1.4	197	2.7	184	2.5	191	2.6	178	2.4
Cyprus	Y	C	6	0.7	11	1.3	23	2.8	7	0.9	2	0.3
Czech Republic	Y	C	1 134	10.8	714	6.8	749	7.2	716	6.9	809	7.8
Denmark	Y	C	673	12.1	501	9.0	482	8.7	563	10.2	409	7.5
Estonia	Y	C	210	15.7	173	12.9	118	8.8	126	9.4	146	10.9
Finland	Y	C	312	5.8	289	5.4	255	4.8	237	4.5	198	3.7
France	N	C	3 908	-	2 949	-	2 340	-	1 840	-	1 318	-
Germany	-	-	-	-	-	-	-	-	-	-	-	-
Greece	N	A	238	-	378	-	312	-	164	-	208	-
Hungary	N	A	1 487	-	1 369	-	1 170	-	872	-	892	-
Ireland	Y	A	1 108	24.2	834	18.2	625	14.0	434	9.8	444	10.0
Italy	Y	C	289	0.5	356	0.6	365	0.6	348	0.6	221	0.4
Latvia	Y	C	601	29.4	545	26.3	349	16.5	433	20.0	500	22.8
Lithuania	Y	C	219	7.3	248	8.1	315	10.0	391	12.3	533	16.6
Luxembourg	Y	C	5	1.0	2	0.4	3	0.6	6	1.2	18	3.7
Malta	Y	C	29	6.9	46	11.1	48	11.6	62	15.1	50	12.3
Netherlands	N	C	3 998	-	3 576	-	2 815	-	2 426	-	1 969	-
Poland	Y	A	733	1.9	298	0.8	301	0.8	402	1.1	285	0.7
Portugal	Y	C	119	1.1	120	1.2	89	0.9	114	1.1	67	0.6

Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Romania	Y	C	323	1.6	510	2.6	479	2.4	622	3.1	631	3.1
Slovakia	Y	C	283	5.2	212	3.9	130	2.4	174	3.2	152	2.8
Slovenia	Y	C	45	2.2	25	1.2	44	2.2	30	1.5	40	2.0
Spain	Y	A	3 042	6.5	2 640	5.7	2 306	5.0	1 954	4.2	1 897	4.2
Sweden	Y	C	1 082	11.4	952	10.1	847	9.1	613	6.6	720	7.8
United Kingdom	Y	A	28 594	45.4	23 321	37.3	18 723	30.2	17 653	28.6	16 451	26.9
EU Total	**-**	**-**	**49 869**	**13.1**	**41 578**	**10.8**	**34 155**	**8.9**	**31 255**	**8.5**	**29 119**	**8.1**
Iceland	Y	C	29	9.1	32	10.0	18	5.7	47	14.7	25	7.9
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-
Norway	Y	C	443	8.9	368	7.5	412	8.5	269	5.6	301	6.4
EU/EEA Total	**-**	**-**	**50 341**	**13.0**	**41 978**	**10.7**	**34 585**	**8.9**	**31 571**	**8.5**	**29 445**	**8.1**

Source: Country reports; Y: Yes; N: No; A: Aggregated data report; C: Case-based data report; –: No report; U: Unspecified.

Note: Rates are calculated only for countries with comprehensive surveillance. Data is presented by 'date of diagnosis', and if not available by 'date used for statistics'. Case numbers might differ from those reported in national bulletins due to different date variables.

Figure 1. Rates of gonorrhoea reported cases by gender, EU/EEA, 2003–2012



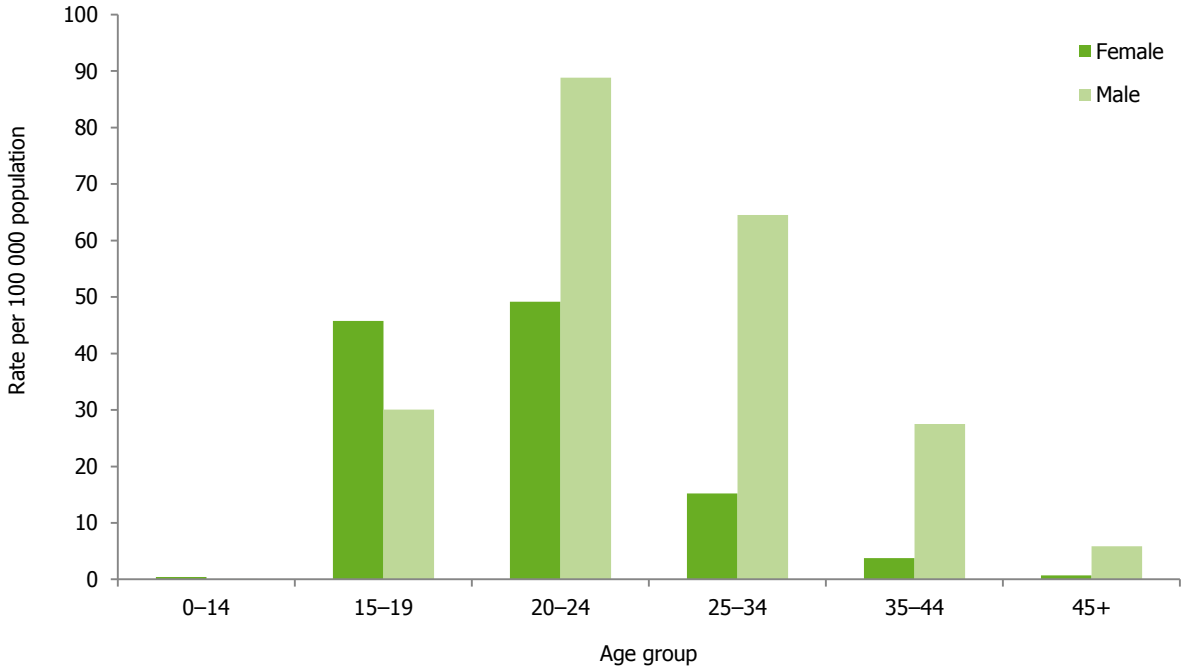
Source: Country reports from Bulgaria, Czech Republic, Denmark, Estonia, Finland, Greece, Iceland, Ireland, Latvia, Lithuania, Norway, Portugal, Romania, Sweden and United Kingdom.

Age and gender distribution

Data on age was available for 91% of all cases. Young adults between 15 and 24 years accounted for 37% of cases. A further 34% of cases were among adults aged 25 to 34 years. The age distribution did not change significantly since 2003; age-specific rates, however, are still highest among 20–24-year-olds (45 per 100 000 population) (Figure 2).

Information on gender was available for 47 122 cases. Men account for 73% of reported gonorrhoea cases (34 300 cases), with an overall rate of 21.2 per 100 000, compared with 7.5 per 100 000 among women (12 822 cases). The male-to-female rate ratio was 2.8:1. Only Austria and Estonia reported proportionally more females. In Austria, this is likely to be due to the compulsory screening of sex workers.

Figure 2. Rates of gonorrhoea reported cases by age and gender, EU/EEA, 2012



Source: Country reports from Bulgaria, Cyprus, Czech Republic, Finland, Greece, Iceland, Italy, Lithuania, Luxembourg, Latvia, Malta, Norway, Portugal, Romania, Sweden, Slovenia, Slovakia and United Kingdom.

Transmission

In 2012, information on transmission category was available from 17 countries for 82% of all reported gonorrhoea cases (39 056 cases). Transmission category was reported as heterosexual (57%), MSM (38%) or unknown (4%). Cases diagnosed in MSM represented 69% (n=15 024) of all male cases diagnosed in 2012.

More details on the epidemiology and trends of gonorrhoea can be found in ECDC's 2012 STI Surveillance Report [1].

Gonococcal antimicrobial resistance

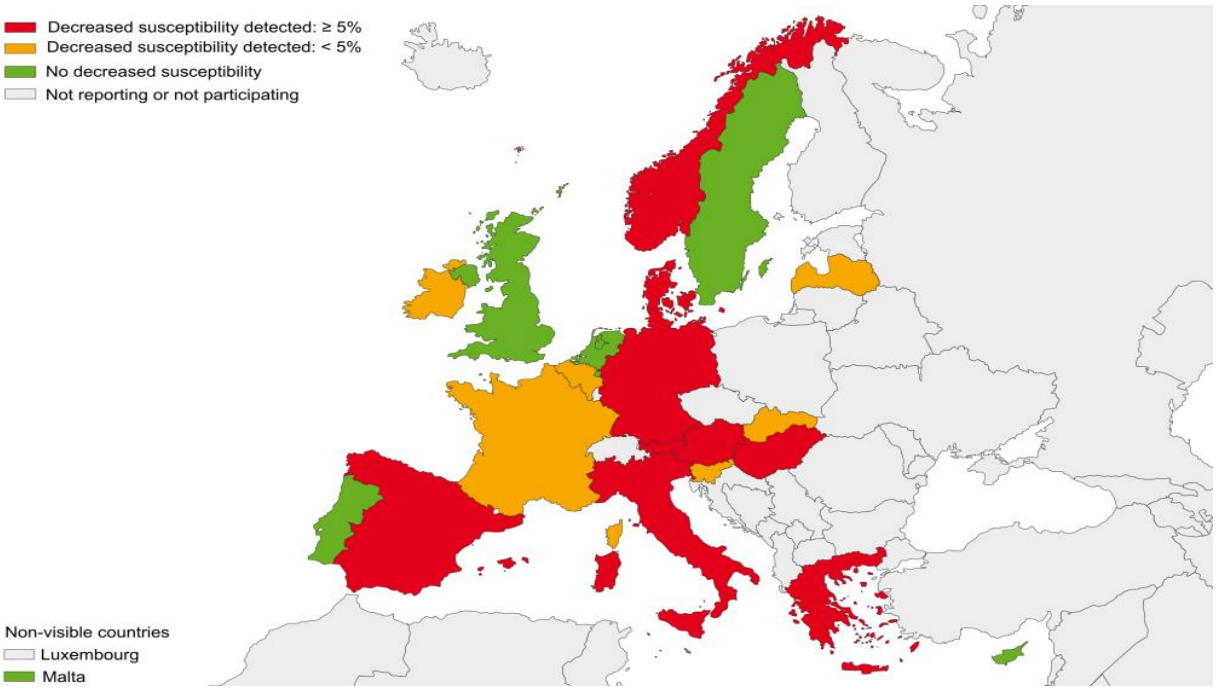
In 2012, 20 EU/EEA Member States participated in the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP). Participating countries each submitted up to 110 consecutive gonococcal isolates. Susceptibility testing was performed by E-test or agar dilution for the following therapeutically relevant antimicrobials: cefixime, ceftriaxone, ciprofloxacin, azithromycin, spectinomycin, and gentamicin. A total of 1 927 isolates were collected and tested. The majority of gonococci (84%) were isolated from samples taken from men. Patient age ranged from less than 1 year to 78 years, with a median of 28 years; 33% of patients were younger than 25 years.

The proportion of tested isolates with reduced susceptibility to cefixime decreased from 7.6% in 2011 to 4% in 2012 (cut-off >0.125 mg/L). Isolates with this phenotype were detected in 14 countries, a reduction from 17 in 2011. Figure 3 displays the geographical distribution of these isolates. Three isolates with decreased susceptibility to ceftriaxone (>0.125 mg/L) were detected compared to ten in 2011.

Results from the external quality assurance scheme for gonococcal antimicrobial resistance showed concordance above 90% for all antimicrobials except cefixime (88%). Cefixime concordance was lower due to strains being close to breakpoints and/or different interpretative criteria used by laboratories. This suggests that surveillance results, with respect to gonococcal antimicrobial susceptibility, can be used with confidence and are comparable.

More details on the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP) can be found in the 2012 Annual Report [2].

Figure 3. Proportion of gonococcal isolates with decreased susceptibility to cefixime, EU/EEA, 2012



Source: European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP), 2012.

Discussion

National surveillance systems for all STIs are heterogeneous, and have a mixture of voluntary or mandatory reporting, sentinel or national coverage, and clinical or laboratory reporting, which accounts for much of the variability in the country data. Major variations in surveillance systems across countries in terms of coverage, completeness and representativeness also hamper meaningful comparisons.

Young adults are an important risk group for gonorrhoea as they contribute 40% of cases, with the highest rate in the group of 20–24-year-old men. The male-to-female ratio and the transmission category indicate that transmission among MSM is one of the main modes of transmission across Europe, although this information is not available in all countries. The rate of gonorrhoea in the EU/EEA has increased since 2008, among both males and females; however there has been a more pronounced rise in rates among men. A number of countries have reported that the increase is mainly related to MSM [3, 4, 5]. Part of the reason for the increasing trend may be attributed to the increased uptake of testing and more sensitive diagnostics; changes in sexual risk behaviour, however, are also likely to be important. Further development of behavioural surveillance would improve the understanding of the changing epidemiology. Nonetheless, these results indicate that there is a need to strengthen and target health promotion messages, in particular for affected key populations, to promote safer sexual behaviour, including consistent condom use with new and casual partners.

The latest Euro-GASP data provide some reassurance that levels of decreased susceptibility to cefixime across Europe have stabilised and possibly even started decreasing. Part of the reason for the decrease could be related to enhanced testing and treatment of pharyngeal gonorrhoea and new testing guidelines issued by the International Union against STI (IUSTI) [6]. The new guidelines recommend treatment with intramuscular ceftriaxone and azithromycin given orally, both as single doses. Despite this, the detection of isolates with decreased susceptibility to ceftriaxone reminds us that it is probably only a matter of time before decreased susceptibility to ceftriaxone becomes widespread in Europe. The European antibiotic resistance sentinel surveillance of *Neisseria gonorrhoeae* is therefore essential to monitor trends and inform treatment guidelines, thus preventing onward transmission and reducing patient morbidity. In 2012, ECDC issued a public health response plan to control and manage the threat of multidrug-resistant gonorrhoea in Europe which details needed actions and guides national interventions [7] with the aim of minimising the impact of resistant gonorrhoea in Europe.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)/ Other(O)	Comprehensive (Co)/Sentinel (Se)/ Other(O)	Active (A)/Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Austria	AT-STISentinella	V	Se	A	C	Y	N	N	N	N	EU-2008
Belgium	BE-LABNET	V	Se	A	C	Y	N	-	-	Y	Not specified/unknown
Bulgaria	BG-STI	Cp	Co	P	A	-	-	Y	Y	-	EU-2002
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Czech Republic	CZ-STD	Cp	Co	A	C	N	Y	Y	N	Y	EU-2008
Denmark	DK-STI_CLINICAL	Cp	Co	P	C	N	Y	N	N	Y	Other
Estonia	EE-GONOCOCC	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y	Not specified/unknown
France	FR-RENAGO	V	Se	P	C	Y	N	Y	Y	Y	EU Case Definition (legacy/deprecated)
France	FR-STI	V	Se	A	C	Y	Y	Y	Y	N	Not specified/unknown
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	A	Y	Y	Y	N	Y	EU-2008
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	N	EU-2008
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Ireland	IE-AGGR_STI	Cp	Co	P	A	Y	Y	Y	N	Y	EU-2002
Italy	IT-NRS	Cp	Co	P	C	N	Y	Y	N	Y	Other
Latvia	LV-BSN	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y	EU-2002
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	Y	Other
Norway	NO-MSIS_B	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y	Not specified/unknown
Portugal	PT-GONOCOCCAL	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Romania	RO-RNSSy	Cp	Co	P	A	N	N	Y	N	Y	EU-2008
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Spain	ES-STATUTORY_DISEASES_STI_AGGR	Cp	Co	P	A	N	Y	N	N	-	Not specified/unknown
Sweden	SE-SMINET	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
United Kingdom	UK-GUM-COM-LAB	O	Co	P	A	Y	Y	Y	Y	Y	Other

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Hepatitis B virus infection

- In 2012, 17 291cases of hepatitis B virus infection were reported by 28 EU/EEA Member States, a rate of 3.4 per 100 000 population.
- 2 952 (17.1%) of these reported cases were classified as acute infection and 12 306(71.2%) were chronic.
- In 2012, heterosexual transmission (31.2%), nosocomial transmission (20.6%), non-occupational injuries (9.3%) injecting drug use (8.7%) and transmission among men who have sex with men (11.1%) were most commonly reported for acute infections. Mother-to-child transmission was the most common route (67.0%) for chronic cases.
- In 2012, for both acute and chronic cases the rates were highest in the 25 to 34 age group, at 1.2 and 29.7 cases per 100 000. The male to female ratio was 2.5:1 for acute cases and 1.3:1 for chronic cases.
- Geographic and time trends are difficult to interpret due to differences in the application of local case definitions and reporting practices. Nevertheless, there has been a steady downward trend in the reported rate of acute cases which is most likely related to the impact of local vaccination campaigns.

Hepatitis B is a blood-borne virus and represents a major cause of liver inflammation, cirrhosis and cancer around the world. The natural history of hepatitis B virus (HBV) infection is influenced by the age at which an individual is infected. Neonatal infections are generally asymptomatic, but in most cases lead to chronic infection, whereas infections amongst adults are more likely to result in symptomatic acute hepatitis, but are associated with a lower risk of persistent infection [1]. Individuals who become chronically infected are at subsequent risk for developing liver disease. In most European countries, the current transmission of hepatitis B infection is through sexual contact and injecting drug use [2]. WHO estimates suggest that around 350 million people worldwide are chronically infected with HBV [3, 4]. It has been estimated that 14 million people are chronically infected with HBV across the WHO European Region [5].

Epidemiological situation in 2012

In 2012, 28 EU/EEA Member States reported 17 291 cases of hepatitis B virus infection (no data from Belgium and Liechtenstein), at a rate of 3.4 per 100 000 population (Table 1).

Of all cases reported in 2012, 2 952 (17.1%) were reported as acute, 12 306 (71.2%) as chronic and 1 711(9.9%) as 'unknown'. Data to classify the cases were missing for a total of 322 cases (1.9%).

In 2012, 22 countries were able to provide data on acute cases. The rate of acute cases ranged from 0.1 cases per 100 000 in Portugal to 3.7 in Latvia (Figure 1). The overall reporting rate for acute cases of hepatitis B (0.7 per 100 000) was considerably lower than the rate for chronic cases (8.6 per 100 000) and has shown a steady decline since 2006 (1.3 per 100 000).

Table 1. Number and rates of hepatitis B reported cases, EU/EEA, 2009–2012†

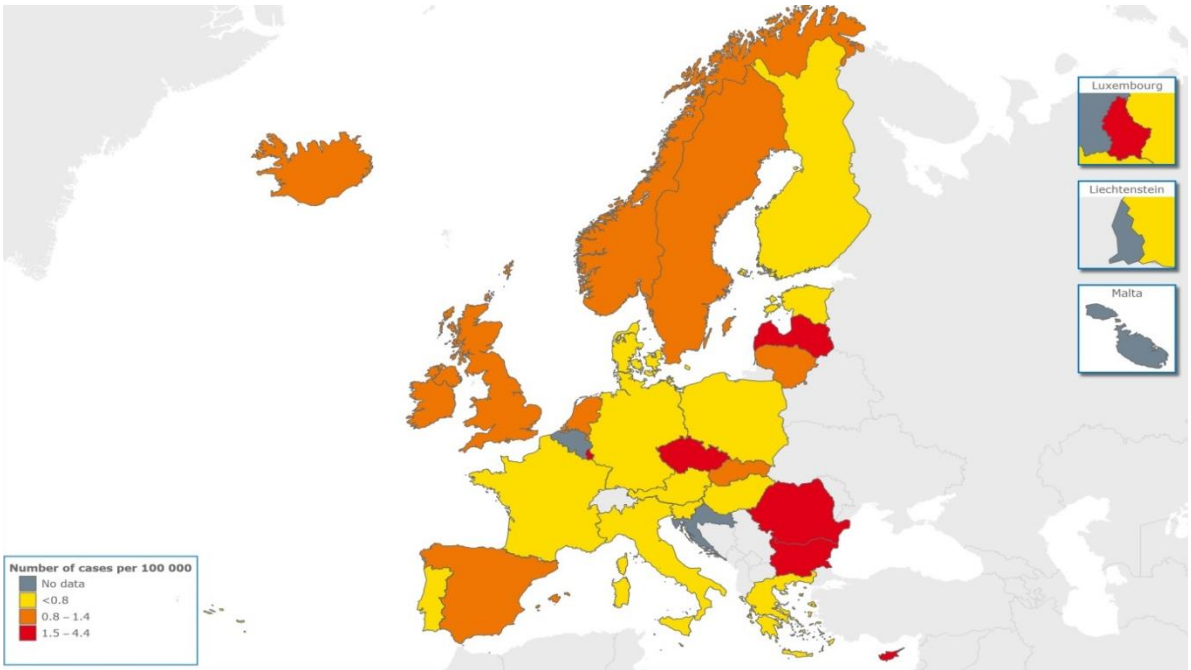
Country	2012*									2011*		2010*		2009*	
	Case definition	Total		Acute		Chronic		Unknown		Total		Total		Total	
		Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	EU 2008	428	5.1	62	0.7	297	3.5	69	0.8	574	6.8	136	1.6	45	0.5
Belgium	-	-	-	-	-	-	-	-	-	-	-	-	-	129	1.2
Bulgaria**	EU 2008	322	4.4	-	-	-	-	-	-	344	4.7	387	5.1	504	6.6
Cyprus**	EU 2008	13	1.5	-	-	-	-	13	1.5	10	1.2	7	0.9	7	0.9
Czech Republic	EU 2012	154	1.5	154	1.5	-	-	-	-	191	1.8	244	2.3	247	2.4
Denmark	National	298	5.3	25	0.4	269	4.8	4	0.1	264	4.7	170	3.1	180	3.3
Estonia	EU 2012	51	3.8	9	0.7	42	3.1	-	-	44	3.3	58	4.3	60	4.5
Finland	EU 2012	251	4.6	34	0.6	217	4.0	-	-	248	4.6	286	5.3	360	6.8
France††	EU 2012	101	0.2	101	0.2	-	-	-	-	101	0.2	86	0.1	94	0.1
Germany	National	672	0.8	561	0.7	-	-	111	0.1	806	1.0	762	0.9	743	0.9
Greece	EU 2008	50	0.4	50	0.4	-	-	-	-	38	0.3	35	0.3	52	0.5
Hungary	EU 2012	54	0.6	54	0.6	-	-	-	-	65	0.7	60	0.6	67	0.7
Ireland	EU 2012	564	12.3	35	0.8	511	11.2	18	0.4	523	11.4	649	14.5	796	17.9
Italy	National	243	0.4	-	-	-	-	243	0.4	603	1.0	648	1.1	778	1.3
Latvia	EU 2012	301	14.7	75	3.7	68	3.3	158	7.7	315	15.2	321	14.3	434	19.2
Lithuania	EU 2012	23	0.8	23	0.8	-	-	-	-	60	2.0	71	2.1	58	1.7
Luxembourg**	National	11	2.1	-	-	-	-	11	2.1	16	3.1	18	3.6	19	3.9
Malta	EU 2012	18	4.3	-	-	-	-	18	4.3	35	8.4	20	4.8	22	5.3
Netherlands	EU 2012	1524	9.1	172	1.0	1326	7.9	26	0.2	1 735	10.4	1 794	10.8	599	3.6
Poland	EU 2008	78	0.2	78	0.2	-	-	-	-	104	0.3	128	0.3	199	0.5

Country	2012*								2011*		2010*		2009*	
	Case definition	Total		Acute		Chronic		Unknown		Total		Total		Total	
		Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Portugal	EU 2012	28	0.3	8	0.1	-	-	20	0.2	26	0.3	16	0.2	67	0.6
Romania	National	371	1.7	342	1.6	29	0.1	-	-	412	1.9	486	2.3	586	2.7
Slovakia	EU 2012	155	2.9	73	1.4	82	1.5	-	-	171	3.2	209	3.9	230	4.3
Slovenia	EU 2012	41	2.0	15	0.7	26	1.3	-	-	71	3.5	42	2.1	43	2.1
Spain**	EU 2008	525	1.1	525	1.1	-	-	-	-	522	1.1	662	1.4	710	1.5
Sweden	EU 2012	1 528	16.1	80	0.8	1 411	14.9	37	0.4	1 365	14.5	1 574	16.9	1 481	16.0
United Kingdom***	EU 2012	8 761	15.6	427	0.8	7 368	13.1	966	1.7	7 876	14.0	6 036	10.7	6 241	11.1
EU Total	-	**16 565**	**3.3**	**2 903**	**0.7**	**11 646**	**8.5**	**16 94**	**0.7**	**14 784**	**3.4**	**14 905**	**3.1**	**14 751**	**3.0**
Iceland	EU 2012	20	6.3	3	0.9	-	-	17	5.3	25	7.9	29	9.1	23	7.2
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	EU 2012	706	14.2	46	0.9	660	13.2	-	-	763	15.5	764	15.7	890	18.5
EU/EEA Total	-	**17 291**	**3.4**	**2 952**	**0.7**	**12 306**	**8.6**	**1 711**	**0.7**	**15 572**	**3.5**	**15 698**	**3.2**	**15 664**	**3.1**

Source: Country reports and Eurostat data for all populations except United Kingdom (for the UK population, Office for National Statistics mid-2008 population figures used across all years excluding the population of Scotland).

† Due to the significant differences in surveillance systems between countries and over time, comparisons between individual Member States and over time should be interpreted with caution.
†† Under-reporting of cases occurs in many countries and was estimated to be as high as 85% in France in 2010. In France for example, taking into account under-reporting, the number of acute cases and the incidence rate in 2010, were estimated at, respectively, 2 324 cases and 3.6 per 100 000.
** Data defined by year of diagnosis. Note that case numbers might differ from those reported in national bulletins due to use of different date variables.*
*** Data submitted using previous record type version with no classification of data by disease status possible.*
**** Excludes data from Scotland.*

Figure 1. Rates of acute hepatitis B reported cases by country, EU/EEA, 2012

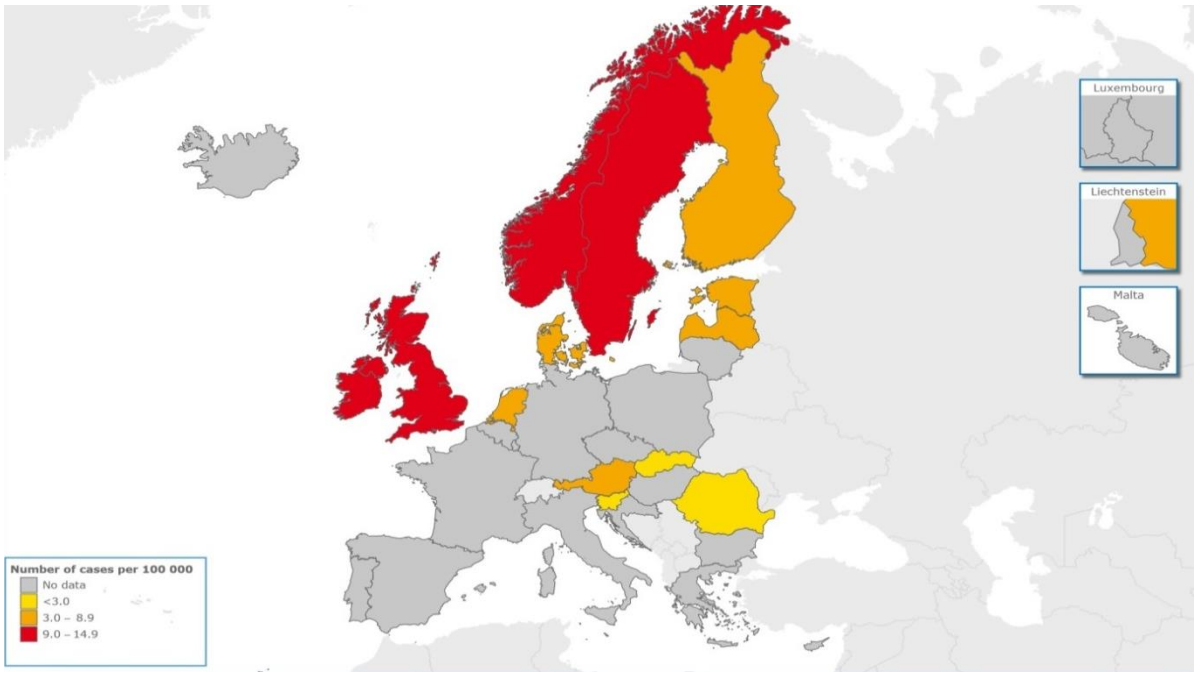


Source: Country reports: Austria, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway ,Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom (excluding Scotland).*

**Under-reporting was estimated in France to be 85% for acute hepatitis B cases in 2010*

In 2012, 13 countries were able to provide data on chronic cases. Rates of chronic infections ranged from 0.1 cases per 100 000 in Romania to 14.9 in Sweden (Figure 2). The overall rate of reported chronic infections has increased since 2006 from 4.3 per 100 000 to 8.6 per 100 000.

Figure 2. Rates of chronic hepatitis B reported cases by country, EU/EEA, 2012



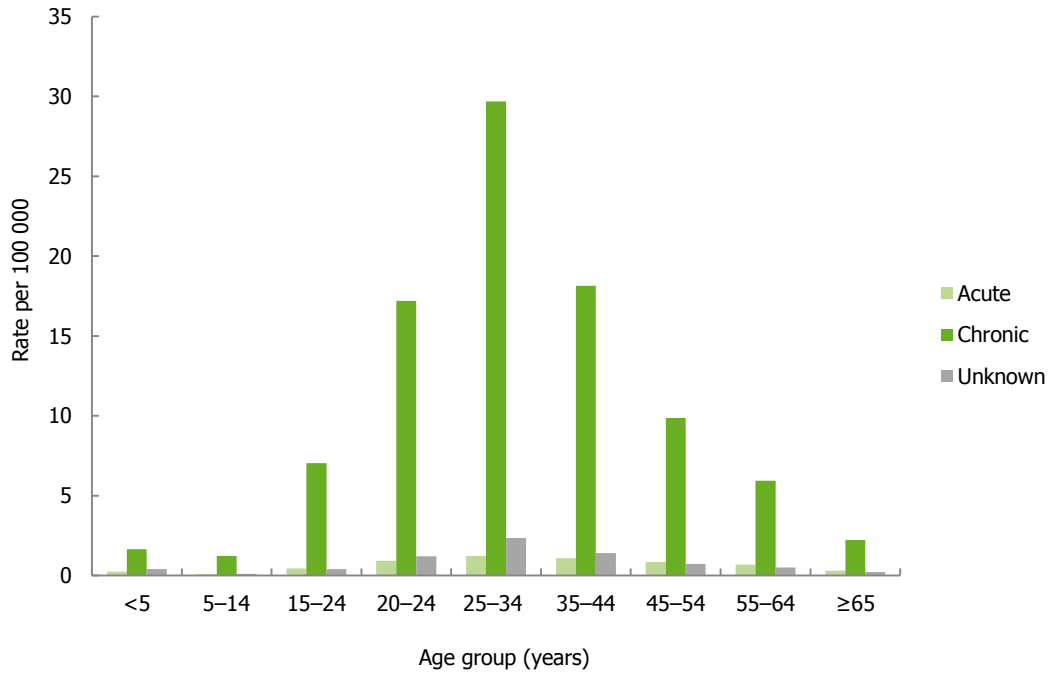
Source: Country reports from Austria, Denmark, Estonia, Finland, Ireland, Latvia, Malta, Netherlands, Norway, Slovakia, Slovenia, Romania, Sweden and United Kingdom.

Age and gender distribution

In 2012, 9 983 acute and chronic cases were reported in males (4.2 per 100 000) and 7 017 cases were in females (2.8 per 100 000). This represents an overall male-to-female rate ratio of 1.5. The male-to-female ratio was higher amongst acute cases (2.5) than amongst chronic cases (1.3).

One third of acute and chronic hepatitis B cases reported were in the 25–34 age group (33.3%). The highest rates in both males and females were in this age group at 9.2 per 100 000 in males and 8.1 in females. In 2012, for both acute and chronic cases the rates were highest in the 25 to 34 age group, at 1.2 and 29.7 cases per 100 000. The age distribution among reported cases of acute and chronic infections was similar with 14.8% of acute cases and 16.9% of chronic cases aged less than 25 years (Figure 3).

Figure 3. Rates of hepatitis B reported cases by age, EU/EEA, 2012



Source: Country reports from Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Latvia, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom (excluding Scotland).

Transmission

In 2012, for acute cases with complete information, heterosexual transmission was the most common route of transmission (31.2%) followed by nosocomial transmission (20.6%), transmission among men who have sex with men (11.1%), non-occupational injuries (9.3%) and injecting drug use (8.7%). Mother-to-child transmission was the most common route (67.0%) for chronic cases, followed by 'other' routes (9.0%) and heterosexual transmission (6.8%).

Discussion

The interpretation of hepatitis B data remains challenging due to the diversity in surveillance systems and case definitions in use. The number of reported chronic cases considerably outnumbers the acute cases in those countries able to report both acute and chronic cases. The reporting rate for acute cases has continued to decline over time which is probably related to the impact of vaccination programmes across Europe. For chronic cases, there has been a steep rise in the number and rate over time. This increase is related to changes in reporting over the period, but may also reflect increases in local testing and screening practices among key populations. Migration of individuals from highly endemic countries is also an important factor underlying the high numbers of chronic hepatitis B cases in a number of countries, and further epidemiological analysis is required to better understand the impact of migration.

The variation between countries reflects the differences in reporting and testing as well as underlying epidemiological differences between countries. The rates of reported acute hepatitis B infections correlate fairly closely with what may be expected based on the results from prevalence surveys, with the highest rates among the eastern and south eastern European countries [6]. Rates of reported chronic hepatitis B cases were highest in north western European countries and lowest in south eastern European countries and this trend is the inverse of findings from prevalence surveys.

Nosocomial transmission is the main reported route of transmission for a few European countries and the cases reported from these countries account for most of the nosocomial cases in Europe. For most European countries, nosocomial transmission of hepatitis B accounts for only a small proportion of the cases reported.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)/ Other(O)	Comprehensive (Co)/Sentinel (Se)/ Other(O)	Active (A)/ Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Austria	AT-Epidemiegesetz	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Bulgaria	BG-NATIONAL_SURVEILLANCE	Cp	Co	P	A	Y	Y	Y	Y	Y	EU-2008
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	N	Y	Y	N	Y	EU-2012
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y	Other
Estonia	EE-HBV/GIARDIASIS	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y	EU-2012
France	FR-MANDATORY_INFECTIOUS_DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y	Other
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Hungary	HU-EFRIR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Ireland	IE-CIDR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Italy	IT-NRS	Cp	Co	P	C	N	Y	Y	N	Y	Other
Latvia	LV-BSN	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y	Other
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	N	Y	EU-2012
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	N	Y	Y	N	Y	EU-2008
Portugal	PT-HEPATITISB	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
Romania	RO-RNSSy	Cp	Co	P	C	Y	N	Y	N	Y	Other
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	N	Y	Y	N	Y	EU-2008
Sweden	SE-SMINET	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
United Kingdom	UK-HEPATITISB	O	Co	P	C	Y	N	Y	N	Y	EU-2012

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Hepatitis C virus infection

- In 2012, 30 483 cases of hepatitis C were reported in 26 EU/ EEA Member States, a rate of 7.8 per 100 000 population.
- Of cases reported in 2012, 509 (1.7%) were reported as 'acute', 3905 (12.8%) as 'chronic' and 23 712 (77.8%) as 'unknown'.
- The male-to-female rate ratio was 2.0. The most affected age group were those between 25 and 34 years old with a rate of 22.3 cases per 100 000 in males and 13.3 in females.
- The most common route of transmission reported across all disease categories was injecting drug use, accounting for 76.5% of all cases with complete information. There has been a continued rise in the proportion of acute cases among MSM from 0.8% in 2006 to 14.6% in 2012.
- The interpretation of hepatitis C data across countries is hampered by differences in surveillance systems and difficulties in defining the cases as acute or chronic. In addition to these differences, the variation in testing between countries should be taken into consideration.

The hepatitis C virus (HCV) is a blood-borne pathogen that affects the liver and is a major cause of morbidity and mortality worldwide. Infection with the virus results in an acute phase which is asymptomatic for the majority of individuals and rarely fatal. Whilst some of those infected with the virus will naturally clear it from their body, approximately 75% of acute cases become chronically infected. Chronic HCV infection may result in cirrhosis in up to 35% of individuals, and in these individuals, there is a 3% incidence of hepatocellular carcinoma. The lifetime risk of death related to HCV in chronic infections has been estimated to be 37% [1].

Recent estimates suggest between 120 and 170 million people living with HCV [2, 3]. Across Europe, the incidence and prevalence of HCV infections vary between countries [4]. It has been estimated that across the WHO European Region nine million people are chronically infected with HCV [5].

Epidemiological situation in 2012

In 2012, 30 483 cases of hepatitis C virus (HCV) infection were reported in 26 EU and EEA Member States (Belgium, France, Liechtenstein and Spain did not report) with a rate of 7.8 per 100 000 population (Table 1). Of these cases, 509 (1.7%) were reported as 'acute', 3 905 (12.8%) as 'chronic' and 23 712 (77.8%) as 'unknown'. 2 357 cases (7.7%) could not be classified at all according to disease status due to the format of the data provided.

In 2012, 14 countries were able to provide data using the revised case definition (EU 2012), two countries (Hungary and Lithuania) could only provide data on acute infections; 12 countries were able to classify cases as acute or chronic with 85.5% of cases classified as 'unknown' or unclassified.

In 2012, the number of cases reported ranged from 24 in Malta (5.7 cases per 100 000) to 13 474 (21.8 cases per 100 000) in the United Kingdom. Twelve countries provided data on acute cases of hepatitis C in 2012. The number of acute cases ranged from 9 in Slovenia (0.4 cases per 100 000) to 139 in Austria (1.6 cases per 100 000). Ten countries reported chronic cases in 2012. The number of chronic cases varied from 40 in Greece (0.3 cases per 100 000) to 1 230 in Latvia (60.2 cases per 100 000). Fifteen countries provided data on 'unknown' cases.

There has been a continued increase in the number of reported cases from 27 354 cases in 2006 to 30 483 cases in 2012. This increase in cases has occurred across all disease categories. The overall rate has fallen from 9.3 cases per 100 000 in 2006 to 6.8 in 2007 and has remained stable since. The changes in reporting rates are likely to be affected by the number of countries reporting data over time.

Table 1. Number and rates of hepatitis C reported cases, EU/EEA, 2009–2012†

Country	2012*									2011*		2010*		2009*	
	Case definition	Total		Acute		Chronic		Unknown		Total		Total		Total	
		Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	EU 2008	680	8.1	139	1.6	434	5.1	107	1.3	789	9.4	243	2.9	277	3.3
Belgium	-	-	-	-	-	-	-	-	-	-	-	-	-	34	0.3
Bulgaria**	EU 2008	92	1.3	-	-	-	-	-	-	60	0.8	58	0.8	93	1.2
Cyprus**	EU 2008	46	5.3	-	-	-	-	46	5.3	57	6.8	26	3.2	33	4.1
Czech Republic	EU 2008	718	6.8	-	-	-	-	718	6.8	885	8.4	712	6.8	836	8.0
Denmark	National	260	4.7	12	0.2	247	4.4	1	<0.1	291	5.2	318	5.7	295	5.4
Estonia	EU 2012	238	17.8	23	1.7	215	16.0	-	-	210	15.7	276	20.6	227	16.9
Finland	EU 2012	1 166	21.6	-	-	-	-	1 166	21.6	1 135	21.1	1 138	21.3	1 047	19.7
France	-	-	-	-	-	-	-	-	-	-	-	-	-		
Germany	National	4880	6.0	-	-	-	-	4 880	6.0	5 076	6.2	5279	6.5	5420	6.6

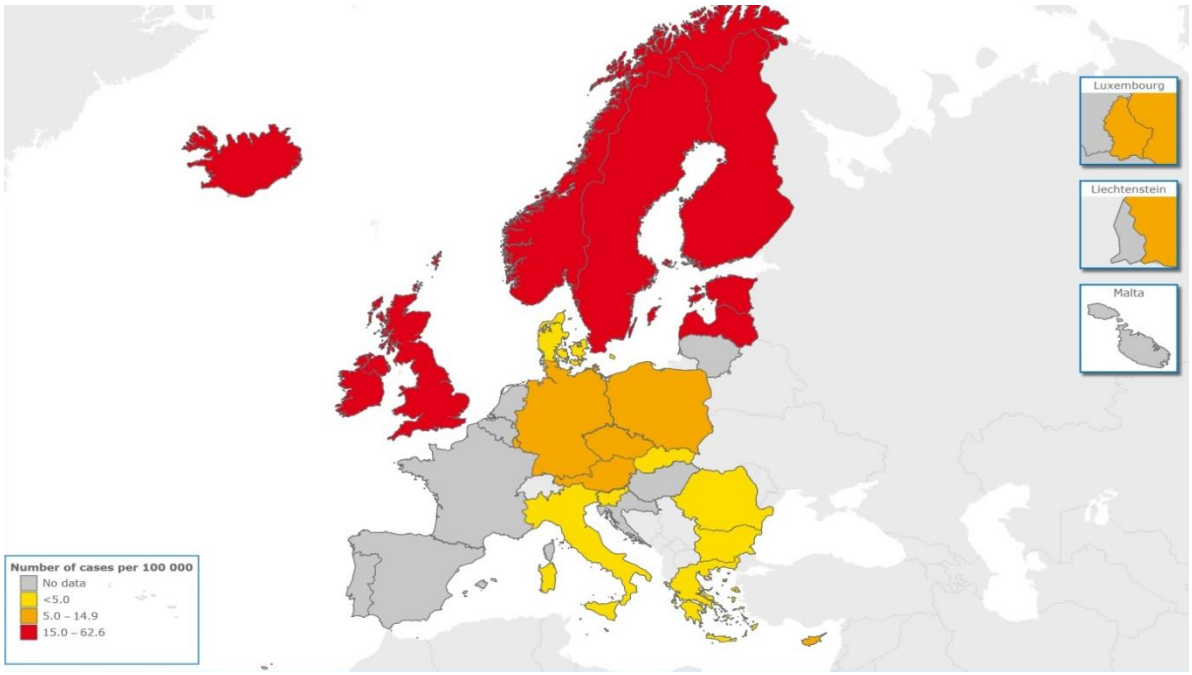
Country	2012*								2011*		2010*		2009*	
	Case definition	Total		Acute		Chronic		Unknown		Total		Total		Total	
		Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Greece	EU 2008	43	0.4	12	0.1	31	0.3	-	-	18	0.2	11	0.1	10	0.1
Hungary	EU 2012	40	0.4	40	0.4	-	-	-	-	40	0.4	11	0.1	31	0.3
Ireland	EU 2012	1 018	22.2	13	0.3	75	1.6	930	20.3	1 254	27.4	1 240	27.8	1 244	28.0
Italy	National	120	0.2	-	-	-	-	120	0.2	214	0.4	208	0.3	215	0.4
Latvia	EU 2012	1 278	62.6	48	2.4	1 230	60.2	-	-	1 321	63.7	1 145	50.9	1 319	58.3
Lithuania	EU 2012	40	1.3	40	1.3	-	-	-	-	43	1.4	41	1.2	47	1.4
Luxembourg**	National	46	8.8	-	-	-	-	46	8.8	74	14.5	73	14.5	55	11.1
Malta	EU 2012	24	5.7	-	-	-	-	24	5.7	18	4.3	14	3.4	26	6.3
Netherlands	EU 2008	57	0.3	57	0.3	-	-	-	-	68	0.4	31	0.2	50	0.3
Poland	EU 2008	2 265	5.9	-	-	-	-	-	-	2 241	5.8	2 179	5.7	1 939	5.1
Portugal	National	42	0.4	-	-	-	-	42	0.4	45	0.4	39	0.4	85	0.8
Romania	National	129	0.6	96	0.4	30	0.1	3	<0.1	80	0.4	77	0.4	66	0.3
Slovakia	EU 2012	223	4.1	20	0.4	203	3.8	-	-	303	5.6	237	4.4	318	5.9
Slovenia	EU 2012	102	5.0	9	0.4	93	4.5	-	-	95	4.6	87	4.3	111	5.5
Spain**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sweden	EU 2012	1 938	20.4	-	-	-	-	1 938	20.4	2 143	22.8	1 933	20.7	2 173	23.5
United Kingdom	EU 2012	13 474	21.8	-	-	1347	2.2	12 127	19.6	12 138	19.6	9 951	16.2	10 708	17.4
EU Total	**-**	**28 919**	**7.6**	**509**	**0.6**	**3 905**	**3.2**	**22 148**	**8.1**	**28 598**	**7.5**	**25 327**	**6.7**	**26 659**	**6.9**
Iceland	EU 2012	51	16.0	-	-	-	-	51	16.0	72	22.6	59	18.6	103	32.3
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	EU 2012	1 513	30.3	-	-	-		1 513	30.3	1 675	34.0	1 783	36.7	2 292	47.8
EU/EEA Total	**-**	**30 483**	**7.8**	**509**	**0.6**	**3 905**	**3.2**	**23 712**	**8.3**	**30 345**	**7.9**	**27 169**	**7.1**	**29 054**	**7.4**

Source: Country reports; –: No report.

† Due to the significant differences in surveillance systems between countries and over time, comparisons between individual Member States and over time should be interpreted with caution.
** Data defined by year of diagnosis. Note that case numbers might differ from those reported in national bulletins due to use of different date variables.*
*** Data submitted using previous record type version with no classification of data by disease status.*

Figure 1 shows the notification rate of hepatitis C cases across EU/EEA countries. Countries were included if their surveillance systems were known to capture data on both acute and chronic cases, even if most of the cases were classified as 'unknown'. Whilst there are limitations to this approach, it provides an opportunity to consider the data geographically and highlights higher rates of reported cases in north European countries and lower rates in southern and east European countries.

Figure 1. Rates of hepatitis C reported cases by country, EU/EEA, 2012



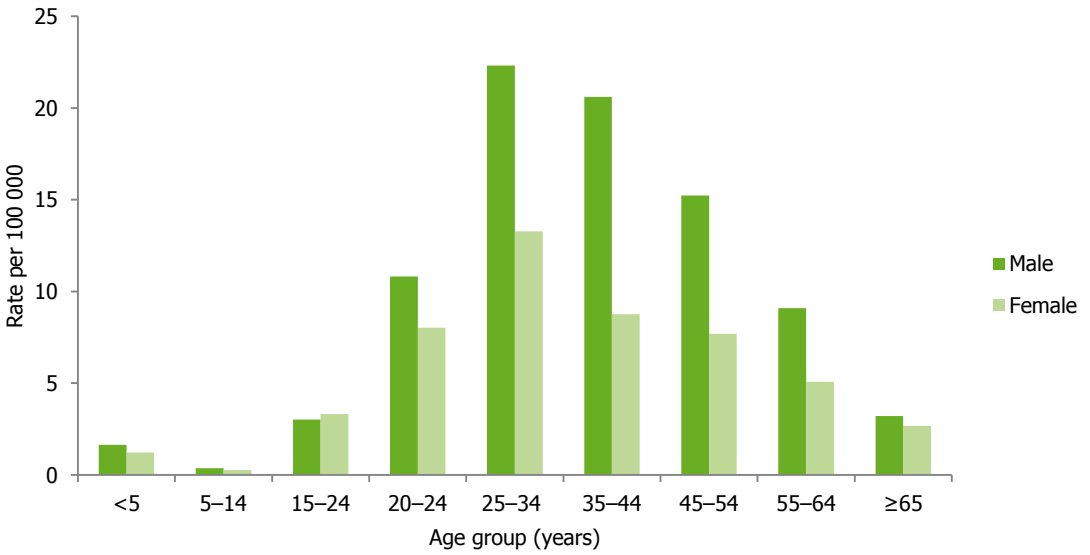
Source: Country reports from Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

Age and gender distribution

In 2012, 19 396 reported acute and chronic cases were male (10.8 cases per 100 000) and 10 774 were female (5.5 cases per 100 000), a male-to-female rate ratio of 2. The rates were considerably higher among males than females for all age groups from 20 years (see figure 2).

In 2012, just over a half of all the reported hepatitis C cases were aged between 25 and 44 (54.0% of cases) and 9.5% of cases were under 25 years old. Acute cases had a slightly younger profile with 17.2% of cases aged under 25 compared to 7.8% and 9.9% of chronic and unknown cases, respectively. The overall notification rate was highest for both males and females in the 25 to 34 age group at 22.3 per 100 000 in males and 13.3 in females.

Figure 2. Rates of hepatitis C reported cases by age and gender, EU/EEA, 2012



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

Transmission

The most commonly reported route of transmission in both acute and chronic cases was injecting drug use, accounting for 76.5% of all cases in 2012 with known transmission route, with the percentage being lower among acute cases (29.9%) compared with chronic cases (58.6%). Among acute cases, the other main routes of transmission included nosocomial transmission (26.5%) and transmission among MSM(14.6%). The proportion of acute cases reported among MSM rose markedly from 2006 when the proportion was 0.8%.

Discussion

The interpretation of hepatitis C data is complicated by the differences in national surveillance systems and reporting practices, with some countries reporting data on acute cases only. The incompleteness of the data as defined by disease status also limits the presentation of the data and identification of trends among acute and chronic cases. In addition to these problems, many countries have had difficulty in defining cases as either acute or chronic and a large proportion of cases are classified as 'unknown'. Acute cases are difficult to diagnose clinically and serological classification is not straightforward. Due to the difficulties in diagnosing acute infection, it is likely that the majority of 'unknown' cases are chronic cases. Chronic infection is also largely asymptomatic and individuals may not develop any symptoms for up to 15 to 20 years after initial infection, so data on newly diagnosed chronic hepatitis C cases are largely driven by testing practices which vary considerably across the EU. It is likely that much of the variation in reported cases between countries reflects differences in testing and screening programmes among risk groups.

The data indicate that hepatitis C is an infection predominantly affecting young adult males, which reflects the demographic profile of the key risk groups. Injecting drug use was the main route of transmission across all disease categories and countries. Analyses of the data show an increasing proportion of cases among MSM over time. Several European countries with routine screening of HIV-positive MSM have reported a rise in hepatitis C infections in this risk group [6]. It is possible that such screening explains most of the increase of MSM among acute cases, but it is still an important observation that countries should take into account when considering prevention strategies.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/ Voluntary (V) / Other(O)	Comprehensive (Co)/ Sentinel (Se) / Other(O)	Active (A)/ Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Austria	AT-Epidemiegesetz	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Bulgaria	BG-NATIONAL_SURVEILLANCE	Cp	Co	P	A	Y	Y	Y	Y	Y	EU-2008
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	N	Y	Y	N	Y	EU-2008
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y	Other
Estonia	EE-HCV/CHLAMYDIA	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y	EU-2012
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y	Other
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Hungary	HU-EFRIR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Ireland	IE-CIDR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Italy	IT-NRS	Cp	Co	P	C	N	Y	Y	N	Y	Other
Latvia	LV-BSN	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y	Other
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	N	Y	EU-2008

Country	Data source	Compulsory (Cp)/ Voluntary (V) / Other(O)	Comprehensive (Co)/ Sentinel (Se) / Other(O)	Active (A)/ Passive (P)	Case-based (C)/ Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	N	Y	Y	N	Y	EU-2008
Portugal	PT-HEPATITISC	Cp	Co	P	C	N	Y	N	N	Y	Other
Romania	RO-RNSSy	Cp	Co	P	C	Y	N	Y	N	Y	Other
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Sweden	SE-SMINET	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
United Kingdom	UK-HEPATITISC	O	Co	A	C	Y	N	Y	N	Y	EU-2012

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HIV/AIDS

- HIV infection remains a major public health concern in EU/EEA countries, characterised by a significant number of new infections. In contrast, the overall number of AIDS cases has continued to decline in correlation with the use of effective antiretroviral treatment, although in some eastern EU countries, the number of AIDS cases continues to rise.
- In 2012, 29 306 diagnosed cases of HIV infection were reported in 29 EU/EEA countries, a rate of 5.7 per 100 000 population. This number is likely to be an underestimation due to the delay in reporting HIV diagnoses in a number of countries.
- The highest proportion was reported among MSM (40%); heterosexual contact accounted for 34% (including 12% in cases from countries with generalised HIV epidemics); and injecting drug use for 6%.
- The overall rate ranged from 6 cases per 100 000 population in 2008 to 5.7 per 100 000 in 2012. When adjusted for reporting delay, the rate was 6.2 cases per 100 000 in 2012, indicating a relatively stable rate over the period.

Human immunodeficiency virus (HIV) is a retrovirus which causes acquired immunodeficiency syndrome (AIDS), characterised as progressive failure of the immune system, leaving the human body vulnerable to life-threatening opportunistic infections and cancers. The modes of transmission include unprotected sexual intercourse, sharing of needles and syringes when injecting drugs, mother-to-child transmission, and the transfusion of contaminated blood or blood products.

Epidemiological situation in 2012

In 2012, 29 306 HIV diagnoses were reported in 29 EU/EEA countries, a rate of 5.7 per 100 000 population (Table 1). The countries with the highest rates of HIV cases were Estonia (23.6), Latvia (16.6), Belgium (11.1), Luxemburg (10.3) and the United Kingdom (10.1). The lowest rate was reported by Slovakia (0.9).

The rate of reported HIV infections per 100 000 population has been relatively stable over time, ranging from 6 cases per 100 000 in 2008 to 5.7 per 100 000 in 2012; if the 2012 rate is adjusted for reporting delay, it rises to 6.2 cases per 100 000. Since 2008, rates of reported HIV cases have almost doubled in Greece, Iceland, Italy, Lithuania and Romania; an increase of 50% was reported in Cyprus, Czech Republic and Hungary (Table 1). It should be noted that the number of reported HIV cases in recent years was also affected by reporting delays.

Table 1. Number and rates of confirmed HIV reported infections, EU/EEA, 2008–2012

Country	2012			2011		2010		2009		2008	
	National data	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	Y	306	3.6	309	3.7	317	3.8	301	3.6	347	4.2
Belgium	Y	1 227	11.1	1 182	10.7	1 198	11.1	1 130	10.5	1 091	10.2
Bulgaria	Y	157	2.1	201	2.7	163	2.2	171	2.3	123	1.6
Cyprus	Y	58	6.7	54	6.4	41	5.0	38	4.8	37	4.8
Czech Republic	Y	212	2.0	153	1.5	180	1.7	156	1.5	148	1.4
Denmark	Y	201	3.6	266	4.8	275	5.0	236	4.3	285	5.2
Estonia	Y	315	23.6	366	27.4	376	28.1	411	30.7	545	40.6
Finland	Y	156	2.9	172	3.2	184	3.4	172	3.2	147	2.8
France	Y	4 066	6.2	5 376	8.3	5 536	8.6	5 448	8.5	5 764	9.0
Germany	Y	2 953	3.6	2 888	3.5	2 919	3.6	2 885	3.5	2 850	3.5
Greece	Y	1 059	9.5	940	8.5	626	5.6	592	5.3	603	5.4
Hungary	Y	219	2.2	162	1.7	182	1.8	140	1.4	145	1.5
Ireland	Y	339	7.4	323	7.1	330	7.4	395	8.9	405	9.1
Italy	Y	3 898	6.6	3 748	6.2	3 932	6.5	2 588	4.3	2 038	3.4
Latvia	Y	339	16.6	299	14.4	274	12.9	275	12.7	358	16.3
Lithuania	Y	160	5.3	166	5.4	153	4.9	180	5.7	95	3.0
Luxembourg	Y	54	10.3	48	9.4	49	9.8	54	10.9	57	11.8
Malta	Y	29	6.9	21	5.1	18	4.3	19	4.6	28	6.9
Netherlands	Y	976	5.8	1 083	6.5	1 157	7.0	1 173	7.1	1 288	7.9
Poland	Y	1 085	2.8	1 115	2.9	954	2.5	952	2.5	833	2.2
Portugal	Y	721	6.8	1 218	11.8	1 511	14.6	1 708	16.5	1 900	18.3
Romania	Y	489	2.4	427	2.1	274	1.4	253	1.3	259	1.3
Slovakia	Y	50	0.9	49	0.9	28	0.5	53	1.0	53	1.0
Slovenia	Y	45	2.2	55	2.7	35	1.7	48	2.4	48	2.4
Spain	N	3 210	-	3 244	-	3 575	-	3 340	-	3 188	-

Country	2012			2011		2010		2009		2008	
	National data	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Sweden	Y	363	3.8	382	4.1	449	4.8	421	4.5	416	4.5
United Kingdom	Y	6 358	10.1	6 211	9.9	6 358	10.2	6 672	10.8	7 268	11.9
EU Total	**-**	**29 045**	**5.7**	**30 458**	**6.0**	**31 094**	**6.1**	**29 811**	**5.9**	**30 319**	**6.0**
Iceland	Y	19	5.9	23	7.2	24	7.6	15	4.7	10	3.2
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-
Norway	Y	242	4.9	269	5.5	258	5.3	282	5.9	299	6.3
EU/EEA Total	**-**	**29 306**	**5.7**	**30 750**	**6.0**	**31 376**	**6.1**	**30 108**	**5.9**	**30 628**	**6.0**

Source: Country reports; Y: Yes; N: No.

Note: HIV data is not adjusted for reporting delay and numbers and rates from recent years for some countries are likely to increase in future reports. Levels of underreporting of cases vary significantly between countries; conclusions from comparisons between countries should be drawn with caution.

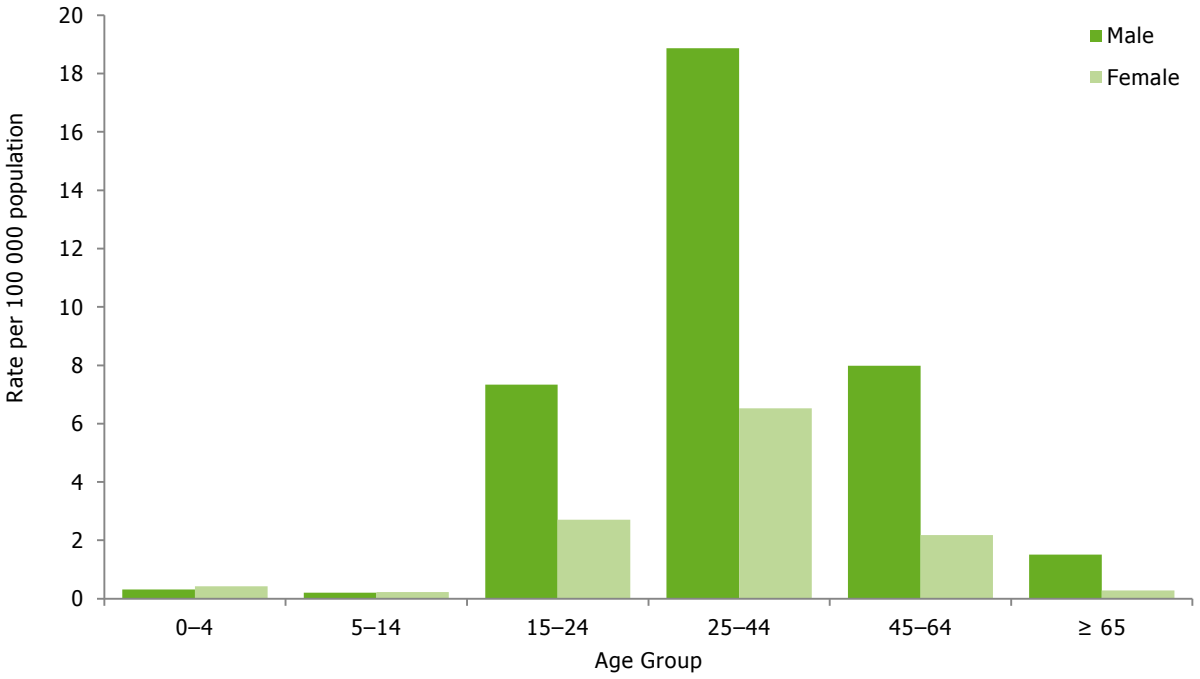
Note: Rates are calculated only for countries with comprehensive surveillance. Data is presented by 'date of diagnosis', and if not available by 'date used for statistics'. Case numbers might differ from those reported in national bulletins due to different date variables.

Age and gender distribution

In 2012, information on age and gender was available for 99.7% of cases. HIV was reported 3.2 times more frequently among men than women, with rates of 8.7 and 2.7 per 100 000, respectively. The male-to-female ratio was highest in Hungary (14.5:1) and Slovenia (14.3:1). The male-to-female ratio was higher than five in the Cyprus, Czech Republic, Germany, Greece, Netherlands, Poland and Slovakia.

Eleven percent of HIV infections were reported in young adults aged 15–24 years, and one third of the cases were reported in the age group 30–39 years. The highest age-specific rates were observed among 25–44 year-olds (Figure 1). On average, men were older at the time of HIV diagnosis than women.

Figure 1. Rates of diagnosed HIV reported infections by age and gender, EU/EEA, 2012



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

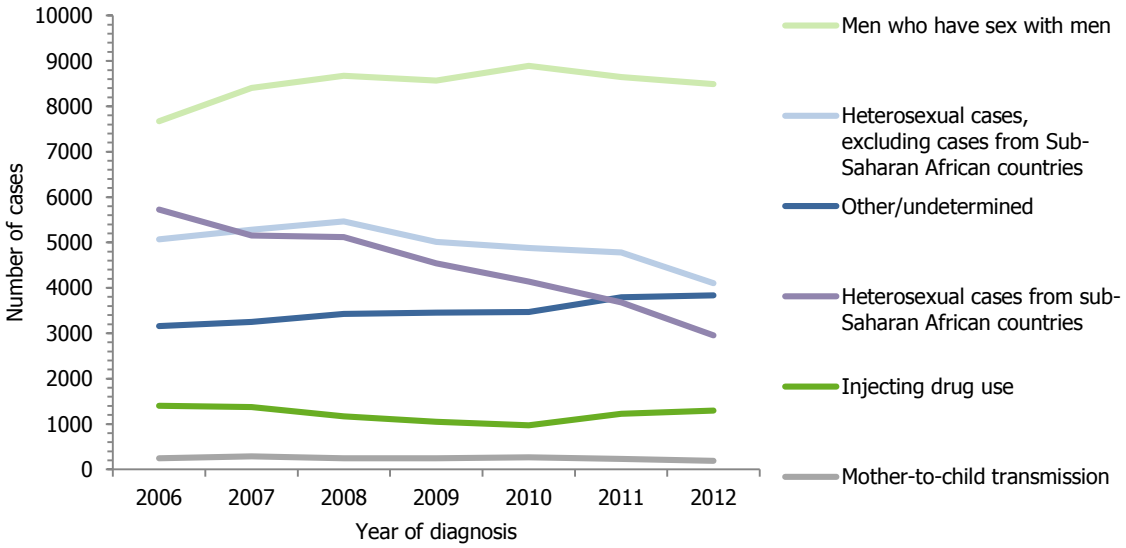
Transmission

Data on transmission mode was available for 82% (n=24 111) of reported HIV cases and indicates that men who have sex with men (MSM) accounted for 40% of all reported HIV infections in 2012. Heterosexual transmission accounted for 34% of infections; this includes 12% in cases reported to have originated from sub-Saharan African countries. Injecting drug use accounted for 6% of the reported HIV infections in 2012. Transmission mode was reported as unknown for 19%. Less than one per cent of reported HIV cases were reported as due to mother-to-child transmission, nosocomial infection, and transfusion of blood or blood products.

Transmission among MSM accounted for more than half of the HIV cases reported in 8 countries (Croatia, Cyprus, Czech Republic, Germany, Netherlands, Slovenia, Slovakia and Spain).

Since 2006, 26 EU/EEA countries have consistently reported data on transmission mode. Trends adjusted for reporting delay, by transmission mode for the EU/EEA countries, are presented in Figure 2.

Figure 2. Number of diagnosed HIV reported infections adjusted for reporting delay, by transmission mode, origin and year, EU/EEA, 2006–2012



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden and United Kingdom.

The number of HIV infections among MSM increased by 11% over the period, from 7 661 cases in 2006 to 8 491 in 2012, with a high of 8 892 cases reported in 2010. This increase was greater than 100% in Slovakia, the Czech Republic, Hungary, Cyprus, Bulgaria and Romania.

Heterosexually-acquired infections decreased by 35% from 2006 to 2012 (10 781 to 7 057). The main driver of this decrease was a decline in cases reported to have originated from countries with generalised HIV epidemics, mainly countries in Sub-Saharan Africa (5 726 in 2006 to 2 954 in 2012).

HIV infections among people who inject drugs declined by 30% from 1 397 in 2006 to 971 cases in 2010, but since then an increase has been observed, with 1 297 cases reported in 2012. This increase is mainly due to two national outbreaks resulting in an almost twenty-fold increase reported in Greece (from 25 cases in 2010 to 484 cases in 2012) and in Romania (from nine cases in 2010 to 170 cases in 2012). In most other countries, the numbers of HIV infections reported among people who inject drugs have remained low or are decreasing.

The number of HIV infections transmitted from mother-to-child decreased by 22%, from 246 infections in 2006 to 191 in 2012.

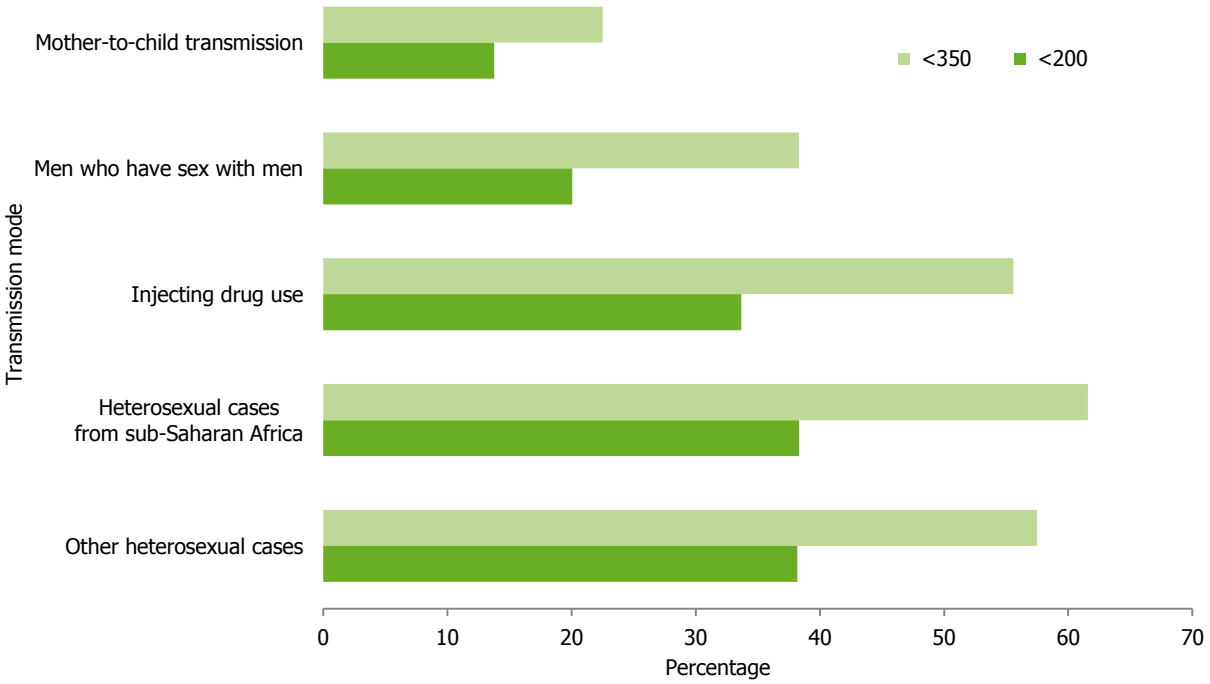
The number of HIV infections due to nosocomial transmission decreased from 18 cases in 2006 to seven in 2012. The number of reported HIV infections due to transfusion of blood and its products has decreased by 50% since 2006: from 74 cases in 2006 to 37 cases in 2012.

The number of cases with unknown risk factors has increased from 3 065 in 2006 to 3 792 in 2012.

Late diagnoses

In 2012, 20 countries provided information on CD4 cell count at time of HIV diagnosis, a measure that provides an indication of immune system function and duration of infection. CD4 cell counts were available for 55% of all the reported HIV cases in the EU/EEA. Almost half (49%) of these cases were late presenters (CD4 cell count <350/mm^3), including 30% of cases with advanced HIV infection at the time of HIV diagnosis (CD4 cell count <200/mm^3). The highest proportion of late presenters was observed among heterosexually-acquired cases, especially among those originating from countries in sub-Saharan Africa (62%). The lowest proportion of CD4 cell counts below 350/mm^3 as well as CD4 cell counts below 200/mm^3 was observed among cases attributed to mother-to-child transmission (23% and 14%) and MSM (38% and 20%) (Figure 3).

Figure 3. Percentage of CD4 cell count <350/mm3 and <200/mm3, by mode of transmission, EU/EEA, 2012



Source: Country reports from Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Greece, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, and United Kingdom.

AIDS diagnoses

In 2012, 4 285 diagnoses of AIDS were reported in 28 EU/EEA countries (no data from Sweden or Liechtenstein), a rate of 0.9 per 100 000 population. The highest rates were reported by Latvia (6.8), Estonia (2.7), Portugal (2.4) and Spain (1.7). Overall, there has been a 42% decrease in AIDS cases since 2008, when 7 438 cases (1.5 per 100 000) were reported. However, an increase in rates, more than 20% between 2008 and 2012 was reported in Bulgaria, Hungary, Latvia, Slovakia and Norway (Table 2).

Table 2. Number and rates of confirmed AIDS reported diagnoses, EU/EEA, 2008–2012

Country	2012			2011		2010		2009		2008	
	National data	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	Y	28	0.3	66	0.8	94	1.1	102	1.2	110	1.3
Belgium	Y	82	0.7	83	0.8	101	0.9	121	1.1	118	1.1
Bulgaria	Y	65	0.9	40	0.5	32	0.4	30	0.4	31	0.4
Cyprus	Y	5	0.6	5	0.6	10	1.2	8	1.0	12	1.5
Czech Republic	Y	29	0.3	24	0.2	26	0.2	23	0.2	29	0.3
Denmark	Y	41	0.7	59	1.1	44	0.8	36	0.7	40	0.7
Estonia	Y	36	2.7	38	2.8	26	1.9	38	2.8	61	4.5
Finland	Y	19	0.4	25	0.5	32	0.6	23	0.4	27	0.5
France	Y	497	0.8	810	1.2	961	1.5	947	1.5	1 051	1.6
Germany	Y	280	0.3	442	0.5	457	0.6	605	0.7	567	0.7

Country	2012			2011		2010		2009		2008	
	National data	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Greece	Y	108	1.0	97	0.9	102	0.9	99	0.9	103	0.9
Hungary	Y	48	0.5	32	0.3	28	0.3	23	0.2	23	0.2
Ireland	Y	34	0.7	47	1.0	38	0.9	35	0.8	36	0.8
Italy	Y	715	1.2	1 018	1.7	1 125	1.9	1 192	2.0	1 332	2.2
Latvia	Y	139	6.8	111	5.4	132	6.2	101	4.7	103	4.7
Lithuania	Y	38	1.3	21	0.7	33	1.1	37	1.2	54	1.7
Luxembourg	Y	7	1.3	11	2.1	8	1.6	3	0.6	8	1.7
Malta	Y	6	1.4	5	1.2	6	1.4	1	0.2	9	2.2
Netherlands	Y	208	1.2	220	1.3	274	1.7	267	1.6	270	1.6
Poland	Y	147	0.4	181	0.5	173	0.5	129	0.3	179	0.5
Portugal	Y	249	2.4	394	3.8	495	4.8	485	4.7	610	5.9
Romania	Y	293	1.5	299	1.5	247	1.2	257	1.3	281	1.4
Slovakia	Y	7	0.1	4	0.1	2	0.0	4	0.1	1	0.0
Slovenia	Y	11	0.5	15	0.7	7	0.3	18	0.9	11	0.5
Spain	Y	777	1.7	1 015	2.2	1 172	2.5	1 392	3.0	1 525	3.3
Sweden	-	-	-	-	-	-	-	-	-	-	-
United Kingdom	Y	390	0.6	411	0.7	659	1.1	649	1.1	827	1.4
EU Total	**-**	**4 259**	**0.9**	**5 473**	**1.1**	**6 284**	**1.3**	**6 625**	**1.4**	**7 418**	**1.5**
Iceland	Y	1	0.3	2	0.6	1	0.3	0	0.0	2	0.6
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-
Norway	Y	25	0.5	19	0.4	22	0.5	18	0.4	18	0.4
EU/EEA Total	**-**	**4 285**	**0.9**	**5 494**	**1.1**	**6 307**	**1.3**	**6 643**	**1.3**	**7 438**	**1.5**

Source: Country reports; Y: Yes; N: No; -: No report.

Note: Rates are calculated only for countries with comprehensive surveillance. Data is presented by 'date of diagnosis', and if not available by 'date used for statistics'. Case numbers might differ from those reported in national bulletins due to different date variables. Data are not adjusted for reporting delay and numbers for recent years could, therefore, increase for some countries in future reports.

Discussion

Surveillance data suggest that the HIV epidemic is evolving with diverse transmission patterns across countries. The number of people living with HIV and AIDS is steadily increasing; HIV/AIDS continues to be an important public health problem. HIV remains mainly concentrated in key populations at increased risk, such as MSM, migrant populations and PWID [1].

In the EU/EEA, MSM account for the largest proportion of HIV diagnoses. Although the number of HIV reported in PWID remains low, the increases seen in the Greece and Romania outbreaks demonstrates the potential for rapid spread of HIV in vulnerable populations. The decreasing trend of heterosexually acquired HIV cases originating from countries with generalised epidemics may be a result of several factors, for example recent migration patterns, the effect of preventive measures in these populations, or decreased access to testing and preventive services.

It is of concern that half of the HIV cases with information on CD4 cell counts are late presenters, diagnosed with a low CD4 cell count (<350/mm^3); this reflects insufficient coverage and uptake of testing programmes in many countries. Persons who are undiagnosed cannot benefit from available treatment and care regimes and may continue to infect others.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V) / Other(O)	Comprehensive (Co)/Sentinel (Se) / Other(O)	Active (A)/ Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Austria	AT-AIDS	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Belgium	BE-HIV/AIDS	V	Co	A	C	Y	Y	Y	-	Y	EU Case Definition (legacy/deprecated)
Bulgaria	BG-AIDS	Cp	Co	A	C	N	N	Y	N	Y	EU Case Definition (legacy/deprecated)
Cyprus	CY-HIV/AIDS	Cp	Co	A	C	N	N	Y	N	Y	EU Case Definition (legacy/deprecated)
Czech Republic	CZ-HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2008
Denmark	DK-MIS	Cp	Co	P	C	Y	Y	N	N	Y	EU-2012
Estonia	EE-AIDS	Cp	Co	P	C	Y	N	Y	N	Y	EU-2008
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y	Not specified/unknown
France	FR-AIDS	Cp	Co	P	C	N	Y	Y	N	Y	Not specified/unknown
France	FR-MNOID-HIV	Cp	Co	P	C	Y	Y	Y	N	Y	Not specified/unknown
Germany	DE-AIDS	V	Co	P	C	N	Y	Y	N	Y	Not specified/unknown
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Hungary	HU-HIV/AIDS	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Ireland	IE-CIDR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Italy	IT-COA-ISS	Cp	Co	P	C	Y	N	Y	-	Y	EU-2008
Latvia	LV-AIDS	Cp	Co	P	C	N	Y	Y	N	Y	EU-2008
Lithuania	LT-AIDS_CENTRE	Cp	Co	P	C	Y	Y	N	N	Y	EU-2008
Luxembourg	LU-AIDS	V	Co	P	C	Y	Y	N	N	Y	EU Case Definition (legacy/deprecated)
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Netherlands	NL-HIV/AIDS	V	Co	P	C	N	Y	Y	N	Y	EU-2008
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Poland	PL-AIDS	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Portugal	PT-HIV/AIDS	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Romania	RO-RSS	Cp	Co	P	C	N	Y	Y	N	-	Other
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-HIVSUR	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Spain	ES-AIDS	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
United Kingdom	UK-AIDS	V	Co	A	C	Y	Y	Y	Y	-	Other

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Syphilis

- In 2012, 20 769 syphilis cases were reported by 29 EU/EEA Member States, a rate of 4.5 cases per 100 000 population.
- Syphilis was reported more than four times more frequently among men than women, with rates of 7.8 and 1.7 cases per 100 000 population, respectively. Almost half (48%) of syphilis cases with information on transmission category were reported among MSM.
- Young people between 15 and 24 years of age accounted for 14% of cases; the majority of cases were reported among people older than 25 years.
- The long-term trend has been declining overall, however a growing proportion of countries are reporting increasing rates in recent years. Rates are increasing mainly among men, suggesting that this may be influenced by increased transmission of syphilis among MSM.
- In 2012, 101 congenital syphilis cases were reported by 23 EU/EEA Member States, a rate of 3.8 per 100 000 live births. The trend of reported congenital syphilis cases has remained stable over the years, however it is suspected that there is considerable underreporting.

Syphilis is a sexually transmitted infection caused by the spirochete *Treponema pallidum* subspecies *pallidum*. Although syphilis can be easily treated with penicillin, congenital syphilis is a serious condition which can be fatal or cause permanent impairment.

Epidemiological situation in 2012

In 2012, 20 769 syphilis cases were reported by 29 EU/EEA Member States with a rate of 4.5 per 100 000 population (Table 1). Liechtenstein was the only country not to report data. Almost two thirds (63%) of all cases were reported by four countries (Germany, Romania, Spain and United Kingdom). In 2012, syphilis notification rates varied from below two per 100 000 population in Italy and Iceland to rates above eight in Romania (8.5) and Malta (8.4).

Between 2008 and 2012, the number of reported cases remained stable overall (increase by 0.3%). Increases were reported from 17 countries, whereas the number of reported cases decreased or remained the same in 12 countries (Table 1). The largest decreases between 2008 and 2012 were observed in Cyprus, Estonia, Latvia and Romania. The highest increases (by more than 50%) were observed in Denmark, Greece, Iceland, Malta, Norway and Portugal. Among countries with comprehensive surveillance systems for syphilis, the overall rate has remained stable between 2008 and 2012. The increase in reported cases in Greece is mainly due to broader coverage of their surveillance system.

Table 1. Number and rates of syphilis reported cases, EU/EEA, 2008–2012

Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	N	C	78	-	72	-	59	-	62	-	61	-
Belgium	N	C	776	-	746	-	704	-	699	-	586	-
Bulgaria	Y	A	309	4.2	314	4.3	397	5.3	420	5.6	419	5.6
Cyprus	Y	C	6	0.7	16	1.9	20	2.4	15	1.9	14	1.8
Czech Republic	Y	C	325	3.1	372	3.5	462	4.4	697	6.7	342	3.3
Denmark	Y	C	343	6.1	427	7.7	413	7.5	255	4.6	151	2.8
Estonia	Y	C	40	3.0	66	4.9	69	5.2	57	4.3	71	5.3
Finland	Y	C	203	3.8	176	3.3	200	3.7	194	3.6	211	4.0
France	N	C	857	-	782	-	657	-	540	-	570	-
Germany	Y	C	4 406	5.4	3 692	4.5	3 029	3.7	2 738	3.3	3 186	3.9
Greece	N	A	363	-	272	-	241	-	259	-	155	-
Hungary	N	A	621	-	565	-	504	-	489	-	549	-
Ireland	Y	C	99	2.2	148	3.2	115	2.6	106	2.4	119	2.7
Italy	Y	C	596	1.0	898	1.5	1 060	1.8	1 074	1.8	923	1.5
Latvia	Y	C	146	7.1	143	6.9	122	5.8	175	8.1	236	10.8
Lithuania	Y	C	227	7.6	273	8.9	345	11.0	326	10.2	326	10.1
Luxembourg	Y	C	19	3.6	28	5.5	13	2.6	13	2.6	12	2.5
Malta	Y	C	35	8.4	45	10.8	25	6.0	16	3.9	19	4.7
Netherlands	N	C	649	-	545	-	695	-	711	-	792	-
Poland	Y	A	961	2.5	941	2.4	914	2.4	1 255	3.3	929	2.4
Portugal	Y	C	267	2.5	159	1.5	179	1.7	150	1.4	98	0.9
Romania	Y	C	1 707	8.5	2 348	11.8	1 809	9.0	3 252	16.1	4 006	19.6

Country	2012				2011		2010		2009		2008	
	National data	Report type	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Slovakia	Y	C	407	7.5	416	7.7	328	6.1	301	5.6	228	4.2
Slovenia	Y	C	63	3.1	79	3.9	40	2.0	47	2.3	63	3.1
Spain	Y	A	3 638	7.8	3 522	7.5	3 187	6.9	2 496	5.4	2 545	5.6
Sweden	Y	C	197	2.1	206	2.2	198	2.1	182	2.0	165	1.8
United Kingdom	Y	A	3 316	5.3	3 252	5.2	2 930	4.7	3 192	5.2	3 309	5.4
EU Total	**-**	**-**	**20 654**	**4.6**	**20 503**	**4.6**	**18 715**	**4.2**	**19 721**	**4.5**	**20 085**	**4.6**
Iceland	Y	C	5	1.6	2	0.6	5	1.6	0	0.0	2	0.6
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-
Norway	Y	C	110	2.2	130	2.6	118	2.4	76	1.6	56	1.2
EU/EEA Total	**-**	**-**	**20 769**	**4.5**	**20 635**	**4.6**	**18 838**	**4.2**	**19 797**	**4.5**	**20 143**	**4.6**

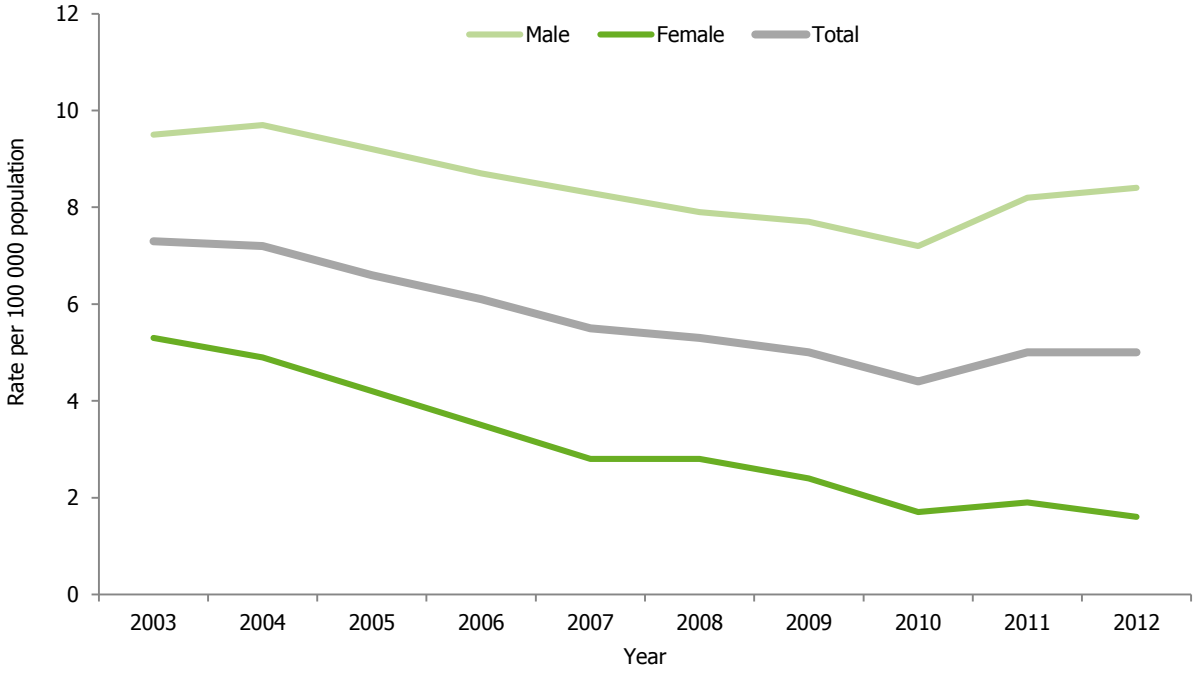
Source: Country reports; Y: Yes; N: No; A: Aggregated data report; C: Case-based data report; –: No report; U: Unspecified.

Note: Rates are calculated only for countries with comprehensive surveillance. Data is presented by 'date of diagnosis', and if not available by 'date used for statistics'. Case numbers might differ from those reported in national bulletins due to different date variables.

Age and gender distribution

Information on gender was available for 17 116 cases of syphilis: 14 159 cases were reported in males and 2 957 in females, with rates of 6.9 and 1.5 per 100 000 population, respectively. The highest rates for men were reported by Malta (12 per 100 000 male population), Denmark (11.2), Germany (10.2) and Latvia (10.2), while the highest rates for women were reported by Romania (8.3 per 100 000 female population), Lithuania (7.5) and Slovakia (6.4). Overall, the male-to-female rate ratio was 4.6 in 2012, with marked differences between countries. Ratios above 10 were reported by France, Germany, Iceland, Italy, Netherlands, Norway and United Kingdom. Austria was the only country to report a male-to-female ratio below one; this is likely to be due to the compulsory screening of sex workers in Austria. Male-to-female ratios close to one were reported by Cyprus, Estonia, Lithuania, Romania and Slovakia.

Figure 1. Rates of syphilis reported cases by gender, EU/EEA, 2003-2012



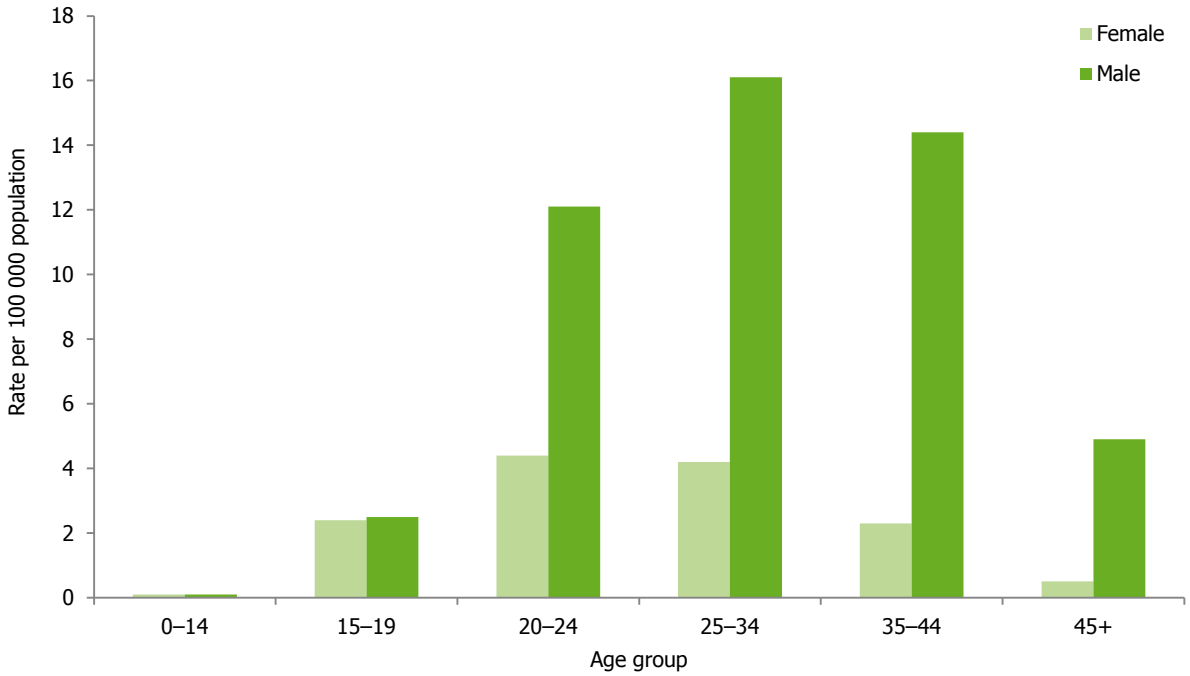
Source: Country reports from Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Latvia, Lithuania, Norway, Portugal, Romania, Sweden and United Kingdom.

In 2012, information on age was available from 27 countries and correctly reported for 76% of cases. Age was not reported by Bulgaria and Spain. Among these cases, in 2012, the age categories 25–34 and 35–44 years were the largest, with 30% and 28% of all cases. Only 11% of cases were diagnosed in the 20–24-year age group.

Adults aged 25 years or older contributed 85% of cases (compared with 73% in 2003), whereas only 14% were reported in the 15–24-years age category (26% in 2003). Between 2003 and 2012, age-specific rates decreased

among all age groups, with the largest decrease being among those below 25 years of age. Age-specific rates were highest among 25–34-year-old males in 2012, with a rate of 16.3 per 100 000 population (Figure 2).

Figure 2. Rates of syphilis reported cases by age and gender, EU/EEA, 2012



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

Transmission

In 2012, information on transmission category was available from 20 countries, representing 45% of all syphilis cases (n=9 410). Transmission category was reported as heterosexual (40%), MSM (48%) or unknown (11%). The percentage of cases diagnosed in MSM ranges from below 10% in Romania, Lithuania and Cyprus to more than 70% in Denmark, France, Ireland, Netherlands, and Norway. Cases diagnosed among MSM represent 67% of all male cases diagnosed in 2012 overall.

Congenital syphilis

In 2012, 23 EU/EEA Member States reported data on congenital syphilis: 12 countries reported zero cases while 11 countries reported a total of 91 cases, 85 confirmed cases. The majority of the cases were reported from Poland (32 cases), Bulgaria (29 cases) and Portugal (12 cases).

The number of congenital cases reported in 2012 is stable compared with 2011, with a more than doubling of the number of cases from Poland (2011: 14 cases; 2012: 32 cases).

The rate of congenital syphilis was 3.8 cases per 100 000 live births in 2012, with the highest rates observed in Bulgaria (42 per 100 000) and Portugal (24.5). It should be noted that eight countries did not report congenital syphilis cases in 2012, and it is likely that the reported rates are underestimated.

Discussion

In 2012, the distribution of syphilis cases varied across countries: rates ranged from less than 1 to 8.5 per 100 000 population. Although the overall rate has been declining over the longer term, in recent years, rates have stabilised and also started to increase, particularly among men. The overall declining rate in previous years was largely due to the substantial decrease of reported cases in four countries (Estonia, Latvia, Romania, and Bulgaria), which, during the last ten years, had reported very high rates of syphilis. These decreases may reflect changes in surveillance systems (e.g. case definitions) and healthcare systems (i.e. privatisation) or reluctance to report practices rather than an actual decrease.

In a number of other countries, however, large increases were reported: Denmark, Greece, Iceland, Malta, Norway, Portugal and Slovakia all reported a strong rising trend. The increases reported in these countries, as well as the increase overall since 2010, appear to be mainly due to increases in cases among men, particularly among MSM based on the male-to-female rate ratio and gender-specific rates. Changing testing patterns are also likely to have contributed to these increases, particularly with increased testing among MSM, for example as part of HIV care. Increases in other countries such as France [1], Germany [2], Sweden [3] and the United Kingdom [4] have been described in the literature.

The proportion of syphilis cases reported in MSM varies across the EU/EEA, with the highest proportions reported in western and northern countries (Denmark, France, Ireland, Netherlands, Norway, Sweden and the United Kingdom) but also in the Czech Republic, Greece, Malta and Slovenia. However, the interpretation of these findings is hampered by the incompleteness of reporting and insufficient information from other countries. The high male-to-female ratio reported in many countries may indicate a possible underreporting of cases in MSM in countries where data on transmission category are not available. The available data suggest that syphilis is largely transmitted among MSM in the EU/EEA, and it is likely that in some countries homosexually-acquired cases may not be identified and reported as such.

Less than a fifth of all syphilis cases were reported in young people between 15 and 24 years of age, in contrast to other STIs. For syphilis, the peak of infections in 2012 was found among 25–34-year-old males, particularly among MSM. The age distribution has also shifted upwards over time, with older cases being reported.

The majority of countries which reported syphilis diagnoses indicate that data on STI are obtained from dedicated special services (STI clinics) rather than general practitioners or gynaecologists. In addition, data are obtained from sentinel surveillance in a number of countries, so clearly, not all cases diagnosed across Europe are reported here. Also, many diagnoses are either not made or not reported at a local or national level. The variations in underdiagnoses and under-reporting across Europe limit the interpretation of the true epidemiological situation in the EU/EEA.

Although reported trends of congenital syphilis remained stable over the years, considerable underreporting is suspected. Even so, the number of cases reported from some countries in 2012 has increased significantly. This is concerning when the World Health Organisation is advocating for the elimination of congenital syphilis [5]. Effective antenatal screening programmes are crucial in preventing mother-to-child transmission. ECDC is conducting a project aiming to describe the effectiveness of antenatal screening in EU/EEA countries and to identify challenges for the elimination of mother-to-child transmission of syphilis.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)/ Other(O)	Comprehensive (Co)/Sentinel (Se)/ Other(O)	Active (A)/Passive (P)	Case-based (C)/Aggregated (A)	Data reported by				National coverage	Case definition used
						Laboratories	Physicians	Hospitals	Others		
Austria	AT-STISentinella	V	Se	A	C	Y	N	N	N	N	EU-2008
Belgium	BE-LABNET	V	Se	A	C	Y	N	-	-	Y	Not specified/unknown
Bulgaria	BG-STI	Cp	Co	P	A	-	-	Y	Y	-	EU-2002
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Czech Republic	CZ-STD	Cp	Co	A	C	N	Y	Y	N	Y	EU-2008
Denmark	DK-STI_CLINICAL	Cp	Co	P	C	N	Y	N	N	Y	Other
Estonia	EE-PERTUSSIS/SHIGELLOSIS/SYPHILIS	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y	Not specified/unknown
France	FR-STI	V	Se	A	C	Y	Y	Y	Y	N	Not specified/unknown
Germany	DE-SURVNET@RKI-7.3	Cp	Co	P	C	Y	N	N	N	Y	Other
Greece	GR-NOTIFIABLE_DISEASES	Cp	O	P	A	Y	Y	Y	Y	Y	EU-2008
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	N	EU-2008
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Ireland	IE-CIDR	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2008
Italy	IT-NRS	Cp	Co	P	C	N	Y	Y	N	Y	Other
Latvia	LV-BSN	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2012
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y	EU-2002
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y	EU-2008
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	Y	Other
Norway	NO-MSIS_B	Cp	Co	P	C	Y	Y	Y	N	Y	EU-2012
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y	Not specified/unknown
Portugal	PT-SYPHILIS	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Romania	RO-RNSSy	Cp	Co	P	A	N	N	Y	N	Y	EU-2008
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	N	Y	EU-2012
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y	EU-2008
Spain	ES-STATUTORY_DISEASES_STI_AGGR	Cp	Co	P	A	N	Y	N	N	-	Not specified/unknown
Sweden	SE-SMINET	Cp	Co	P	C	N	Y	N	N	Y	EU-2012
United Kingdom	UK-GUM-COM-LAB	O	Co	P	A	Y	Y	Y	Y	Y	Other

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