SURVEILLANCE

Congenital syphilis

Annual Epidemiological Report for 2023

Key facts

- In 2023, 78 confirmed congenital syphilis cases were reported from 13 EU/EEA countries, while 13 other countries reported no cases. For 2022, 73 cases were reported by 14 out of 25 countries contributing data.
- The number of cases reported in 2023 and 2022 represent an overall increase in congenital syphilis notifications in the EU/EEA. This follows a decrease in notifications in 2020.
- Increases in congenital syphilis were paralleled by increases in the notification rates of syphilis among women and heterosexual men in several EU/EEA countries in 2022 and 2023.
- National rates remained low in most EU/EEA countries that provided data on congenital syphilis between 2014 and 2023. Five countries reported no vertical transmission events during the 10-year period.
- To achieve the revised 2030 targets for congenital syphilis elimination in the WHO European Region, better indicator data are needed to ascertain the factors associated with congenital syphilis prevention failures, particularly in EU/EEA Member States that report higher number of cases. Countries that do not currently collect data may benefit from documenting their progress towards congenital syphilis elimination, particularly given the current increases in syphilis notifications among women in the EU/EEA.

Introduction

Congenital syphilis is a disease that occurs when a syphilis infection is passed down from the mother to the child. 'Congenital' indicates that the foetus became infected during pregnancy. Syphilis is a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum*.

In pregnant women with untreated early syphilis, 70–100% of infants will be infected and stillbirths will occur in up to one third of cases. Most mother-to-child transmission, described as 'vertical transmission', occurs in late pregnancy (after 28 weeks) and treatment before this period will usually prevent complications in the foetus. Only congenital syphilis cases in infants that meet the laboratory criteria for case confirmation are currently under EU epidemiological surveillance [1].

Suggested citation: European Centre for Disease Prevention and Control. Congenital syphilis. In: ECDC. Annual epidemiological report for 2023. Stockholm: ECDC; 2025.

Errata, 17 March 2025 - the following changes were made: clarification on data representing rates per 100 000 live births was made on page 2 and in the title of Table 1.

Stockholm, February 2025

Methods

This report is based on data for 2023 retrieved from The European Surveillance System (TESSy) on 31 October 2024. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

An overview of the national surveillance systems is available on the ECDC website [2].

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

In 2023, the majority of countries (20/26) reported congenital syphilis data using the standard EU case definitions [1]. Of these, 14 countries reported using the 2018 EU case definition, three countries reported using the 2012 EU case definition, two used the 2008 definition and one used the 2002 definition. The remaining six countries reported either using national case definitions (four countries) or did not specify the case definition in use (two countries).

Congenital syphilis surveillance is comprehensive in 25 countries. In 24 of these countries, reporting is compulsory. The Netherlands did not provide this information. France implements sentinel surveillance for congenital syphilis with voluntary reporting and is therefore not included in population rates presented.

Cases are analysed by date of diagnosis. National congenital syphilis rates per 100 000 live births are calculated by considering the number of reported cases in a given year for the numerator and the number of live births in the country for that respective year for the denominator.

The United Kingdom (UK) contributed surveillance data up to 2019 which are presented in Table 1 but are not otherwise included in the analysis. No data from 2020 onwards were reported by the UK due to its withdrawal from the EU on 1 February 2020.

Epidemiology

In 2023, 78 confirmed cases of congenital syphilis were reported in 13 EU countries (Table 1). Thirteen countries reported no cases. Bulgaria, Hungary, and Portugal reported the most (51%) cases in 2023 (13, 13, and 14 cases, respectively). For 2022, 73 confirmed congenital syphilis cases were reported by 14 of the 25 countries that provided data; most (66%) cases in 2022 were reported from Bulgaria, Hungary and Portugal (24, 8 and 16 cases, respectively).

The number of cases reported in 2023 and 2022 in the European Union/European Economic Area (EU/EEA) represents an increase after a decrease in the number of congenital syphilis notifications reported during 2020. Prior to 2020, a peak in reported cases was reached in 2019, when 73 cases were reported from 13 of the 24 countries contributing data in that year.

National rates of congenital syphilis in 2023 in EU/EEA countries ranged between 0 and 31.6 cases per 100 000 live births. The thirteen countries that reported no cases were: Cyprus, Czechia, Denmark, Estonia, Iceland, Ireland, Latvia, Liechtenstein, Malta, the Netherlands, Norway, Slovenia, and Sweden. In countries that reported congenital syphilis cases, the rate ranged between 0.4 cases per 100 000 live births in Germany, 31.6 cases per 100 000 live births in Luxembourg, and 22.7 cases per 100 000 live births in Bulgaria (Table 1, Figure 1).

In 2023, data on the mother's country of birth were reported by eight countries for a total of 38 cases. Of these, four mothers were born outside of the reporting country (two cases in Luxembourg and two cases in Spain).

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

Country	2019		2020		2021		2022		2023	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Austria	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Belgium	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Bulgaria	37	60.1	16	27.1	13	22.2	24	42.4	13	22.7
Croatia	0	0.0	0	0.0	0	0.0	0	0.0	1	3.1
Cyprus	0	0.0	0	0.0	0	0.0	2	19.6	0	0.0
Czechia	3	2.7	4	3.6	1	0.9	0	0.0	0	0.0
Denmark	1	1.6	0	0.0	0	0.0	1	1.7	0	0.0
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Finland	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
France	2	NRC	6	NRC	4	NRC	3	NRC	5	NRC
Germany	3	0.4	6	0.8	1	0.1	2	0.3	3	0.4
Greece	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Hungary	3	3.2	3	3.2	12	12.8	8	8.9	13	14.8
Iceland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ireland	1	1.7	0	0.0	NDR	NRC	1	1.8	0	0.0
Italy	4	1.0	1	0.2	1	0.2	2	0.5	6	1.6
Latvia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Liechtenstein	NDR	NRC	0	0.0	0	0.0	0	0.0	0	0.0
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8
Luxembourg	0	0.0	0	0.0	1	14.9	0	0.0	2	31.6
Malta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Netherlands	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	0	0.0
Norway	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Poland	3	0.8	3	0.8	1	0.3	1	0.3	2	0.7
Portugal	13	15.0	7	8.3	15	18.8	16	19.1	14	16.3
Romania	0	0.0	2	1.0	1	0.5	3	1.7	9	5.9
Slovakia	1	1.8	1	1.8	0	0.0	6	11.4	4	8.2
Slovenia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Spain	1	0.3	0	0.0	5	1.5	2	0.6	5	1.6
Sweden	1	0.9	0	0.0	0	0.0	2	1.9	0	0.0
EU/EEA (30 countries)	**73**	**2.4**	**49**	**1.5**	**55**	**1.8**	**73**	**2.6**	**78**	**2.7**
United Kingdom	0	0.0	NDR	NRC	NA	NA	NA	NA	NA	NA
EU/EEA (31 countries)	**73**	**1.9**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Source: Country reports.
NDR: no data reported.
NRC: no rate calculated.
NA: Not applicable.
The UK did not report data from 2020 onwards, due to its withdrawal from the EU on 31 January 2020.

The total number of congenital syphilis notifications in 22 EU/EEA countries that consistently reported data for 2014–2023 decreased in 2015-2016, with 37 and 39 cases reported, compared to the 58 cases reported in 2014. Cases then rose again to a high of 68 cases in 2019. The number of congenital syphilis cases decreased in 2020 (48 cases) largely due to a reduction in the number of cases reported from Bulgaria and Portugal, but increased again in 2021 (54 cases), primarily due to increases in Hungary, Portugal, and Spain. The increase continued in 2022 (70 cases) and 2023 (72 cases) (Figure 2).

During 2014–2023, Bulgaria reported the highest numbers of congenital syphilis cases for eight of these years (range: 10 cases in 2015 to 37 cases in 2019). Other countries that reported high number of cases in one year are Portugal with 15 cases in 2021 and 16 cases in 2022, and Hungary with 12 cases in 2021 and 13 cases in 2023. Between 2014 and 2023, five countries (Estonia, Iceland, Malta, Norway, and Slovenia) consistently reported no cases of congenital syphilis.

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

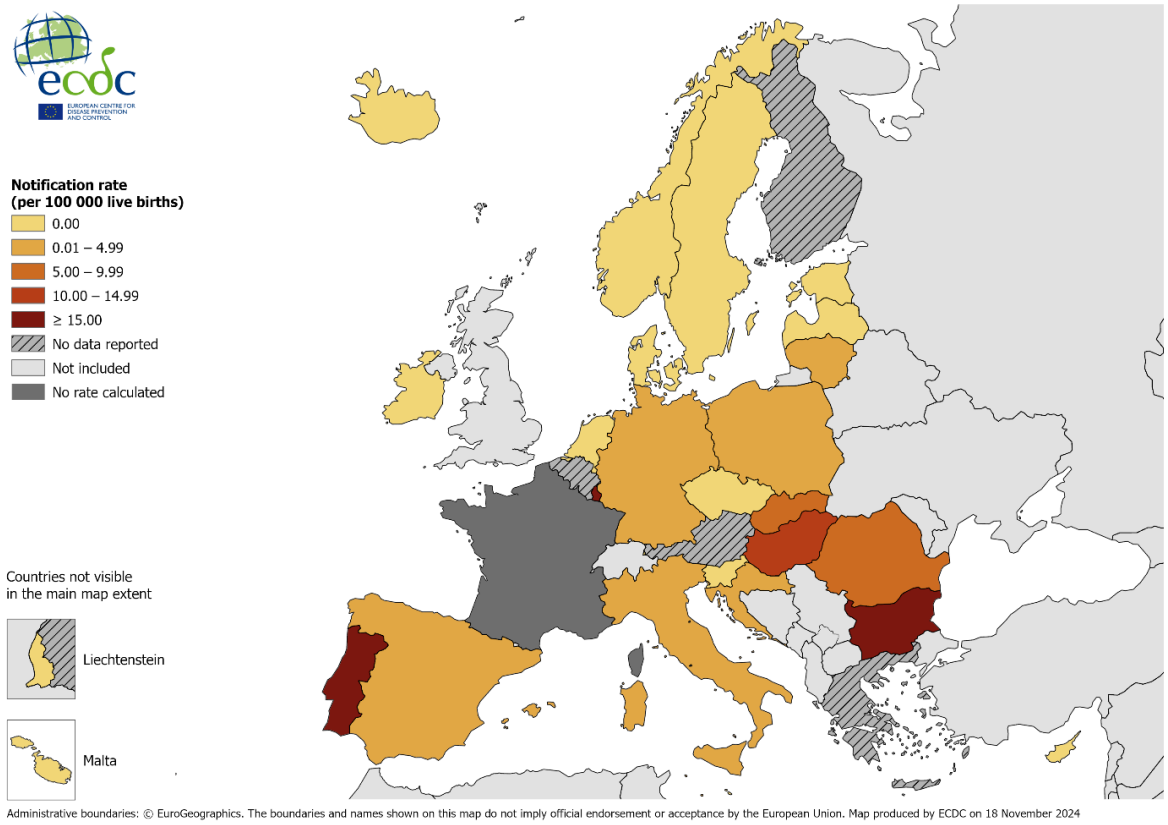
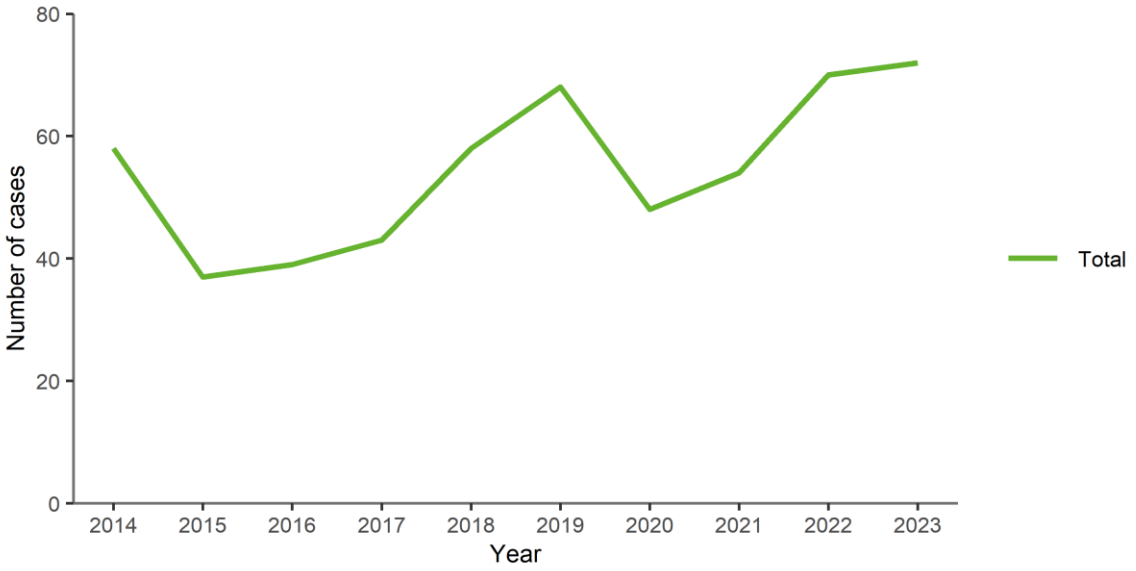


Figure 2. Number of confirmed congenital syphilis cases by year in EU/EEA countries reporting consistently, 2014–2023



Source: Country reports from Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, France, Germany, Hungary, Iceland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Outbreaks and other threats

In addition to reporting to TESSy, EU/EEA Member States can report events and threats of public health significance for the EU/EEA through the ECDC platform EpiPulse [4]. There were no alerts or events related to congenital syphilis posted in 2022 or 2023.

Discussion

After a peak in congenital syphilis notifications in 2019, the number of cases decreased in 2020, only to rise again in 2021 and to reach a new high of 72 in 2023 which the highest number reported in last decade among countries reporting consistently during 2014-2023.

According to data reported to TESSy, rates of syphilis infections among women increased in 2022 and 2023 [5]. Most women diagnosed with syphilis in 2023 were between 20 and 34 years old, which is within the reproductive age range.

Country reports from a webinar organised by ECDC/EACS in May 2023 (data not published) indicate several challenges in the prevention of vertical transmission of syphilis in the EU/EEA, primarily among key populations. These populations include pregnant women with a migrant background (including intra-EU migrants), women engaging in behaviour that may put them at higher risk of contracting syphilis (e.g. a high number of sexual partners, injecting drugs), or those with a partner at a high risk of acquiring sexually transmitted infections or blood-borne viruses (HIV, hepatitis B).

Risk factors related to the organisation of healthcare in a country and the quality of antenatal screening were also highlighted in the country reports. These factors include the lack of syphilis testing during antenatal care visits, inadequate or no treatment provided after a positive test result, and syphilis infections acquired after an initial negative screening test in pregnant individuals with no identified risk factors during the initial screening. A retrospective analysis of characteristics of 22 neonates with suspected congenital syphilis born between 2001 and 2020 in a level II hospital in Northern Portugal indicated that pregnancy was unsupervised or had inadequate surveillance in 36% of cases, in 32% of instances syphilis was diagnosed but not treated, and in 14% it was inadequately treated [6]. Social vulnerabilities among the study group were also mentioned by the authors.

Despite annual fluctuations in the number of reported cases, the national rates remained consistently low in most EU/EEA countries that provided data on congenital syphilis between 2014 and 2023. Five countries (Estonia, Iceland, Malta, Norway, and Slovenia) reported no cases during the entire period.

To maintain these low rates, effective national antenatal screening programmes along with controlling syphilis transmission among heterosexual populations is essential. Effective interventions comprise of a universal offer of antenatal syphilis screening during the first trimester followed by treatment appropriate to the stage of maternal infection before 28 weeks of gestation. Additionally, re-testing during the third trimester of pregnancy for pregnant women at high risk of acquiring syphilis infection is recommended, along with testing of all women at delivery if they have not previously been tested [7].

The surveillance of congenital syphilis in the EU/EEA needs strengthening. Apart from four Member States not reporting congenital syphilis to TESSy, the current EU/EEA case definition is likely to underestimate the extent of syphilis vertical transmission in the region due to non-inclusion of pregnancy outcomes such as stillbirths and pregnancy losses [1]. Authors from France have reported that 27.3% (6/22) of infants identified with congenital syphilis by a reference centre between 2011 and 2018 were stillborn [8]. A revised version of the EU case definition for congenital syphilis could address this issue.

A recent analysis of four infants from mothers diagnosed with syphilis in pregnancy and managed by the clinicians in a hospital in Croatia as suspected congenital syphilis cases, indicated challenges in documenting laboratory criteria for a confirmed case of congenital syphilis. The authors indicated the need to revise the EU case definition and emphasised that reintroduction of universal antenatal testing for syphilis in Croatia is necessary [9]. Studies may also be needed that link syphilis in pregnant women with birth outcomes.

Public health implications

A global target for the elimination of congenital syphilis of ≤50 cases of congenital syphilis per 100 000 live births has been set by the World Health Organization (WHO), to be achieved by 2030 in 80% of countries [10]. Targets specific for the European region were defined by the WHO Regional Office for Europe following a broad multi-country consultation in 2021. The regional action plans for ending AIDS and the epidemics of viral hepatitis and sexually transmitted infections 2022–2030 indicate an interim 2025 target of ≤10 congenital syphilis cases per 100 000 live births and a 2030 target of ≤1 cases per 100 000 live births [11]. While the EU/EEA overall has already reached the 2025 interim target and most countries have maintained very low levels of vertical transmission over the past decade, there are still gaps in prevention that need to be addressed in several countries for them to reach the 2030 target.

To achieve the regional 2030 targets for congenital syphilis, particularly in EU/EEA countries that report higher numbers of cases, surveillance of congenital syphilis needs strengthening. Further development of congenital syphilis surveillance at the European level needs to be objective-driven. From 2024 onwards, ECDC will engage the STI network to revise the STI surveillance objectives, agree on updated general and disease-specific objectives, and develop surveillance standards specific to each STI under EU/EEA surveillance. This will also inform future discussions of possible revisions to the case definition.

Countries that currently do not collect data would benefit from beginning to document their status toward the elimination of vertical transmission of syphilis, especially given the current increases in syphilis notifications among heterosexual women and men observed in the EU/EEA. Collecting surveillance data that link syphilis-infected pregnant women to their birth outcomes can identify gaps in prevention and inform targeted interventions. The ascertainment of factors that determined each case of vertical transmission is essential to gain a more comprehensive understanding of the epidemiology of vertical transmission of syphilis, to identify gaps in prevention and to inform targeted interventions.

The upsurges in bacterial STIs across the EU/EEA are of concern and were discussed at meetings of the Health Security Committee (HSC) in 2024. An HSC opinion on this issue was published in January 2025[1], outlining public health actions to deal with the increases in STIs at EU/EEA and Member-State levels [12].

[1] https://health.ec.europa.eu/publications/opinion-health-security-committee-sexually-transmitted-infections_en

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