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Annual Epidemiological Report

November 2018

Early infectious syphilis in Ireland, 2017

Key Facts

- There were 398 confirmed cases of early infectious syphilis (EIS) notified in 2017
- The notification rate increased to 8.4 per 100,000 population; a 31% increase since 2016 (6.4/100,000)
- 96% of cases were among males
- The median age was 34 years (range:17-71 years)
- The highest age-specific rates in both males and females were among 25-29 year olds, at 56.5 per 100,000 population and 4.6 per 100,000 population, respectively
- The majority (74%) of cases were reported by HSE East
- Where mode of transmission was recorded, 87% of cases were in men who have sex with men (MSM)
- Where HIV status was recorded, 38% of EIS cases were co-infected with HIV
- Where syphilis reinfection status was recorded, 7% of cases were consistent with syphilis reinfection

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Introduction

Syphilis is an infectious disease caused by the bacterium *Treponema pallidum.* Syphilis is usually transmitted by sexual contact, and can also be transmitted from mother to child *in utero.*

Syphilis infection is divided into stages (primary, secondary, early latent, late latent and tertiary infection). Primary, secondary and early latent syphilis are sexually infectious and are collectively termed early infectious syphilis (EIS). Individuals with late latent or tertiary syphilis are not sexually infectious.

If untreated, syphilis infection will progress. Symptoms of syphilis in adults vary by stage and can range from painless lesions (chancres) and eruptions on mucous membranes and skin during the primary and secondary phases (3-11 weeks following infection), to more severe symptoms in the tertiary phase and for babies born to mothers with untreated syphilis. [1] Further details on syphilis can be found in the syphilis factsheet at https://www.sexualwellbeing.ie.

The earlier an infection is diagnosed and treated, the greater the chance of preventing onward transmission, however individuals with primary and secondary syphilis do not always experience clinical symptoms, therefore may not seek treatment.

Data collection

In Ireland, EIS is notifiable under the Infectious Disease Regulations. [2] Case based data on syphilis has been collected in Ireland since 2000, with all cases reported via the Computerised Infectious Disease Reporting (CIDR) system from mid-2013 onwards.

The case definition for EIS has evolved in recent years. In January 2014, the case definition was updated so that only laboratory diagnosed EIS and re-infections of syphilis became notifiable; cases with no evidence of current infection were no longer notifiable (see Appendix 1 for case definition). Laboratory diagnosed notifications were reviewed, staged, and subsequently deactivated in the CIDR system by Public Health Departments if they did not meet the EIS case definition, as determined by clinical assessment.

A subsequent review of notifications made by HSE East during quarter one of 2014 found that 47% of laboratory diagnosed notifications had to be later deactivated, a task that was time consuming for both STI clinics and Public Health Departments, and had a time lag of up to six months following initial notification.

In July 2016, the laboratory criteria were refined and the notification process was simplified, leading to fewer notifications of cases that did not meet the case definition, and more timely data to inform the response on the increase in EIS amongst men who have sex with men (MSM). Since July 2016, laboratories are requested to notify any new case of EIS that fits one or more of the updated laboratory criteria listed in Appendix 2, and any syphilis re-

infection meeting the laboratories own internal criteria. All new cases notified are assumed to be EIS (stage of infection not otherwise specified) until the enhanced form is received. This more sensitive case definition was expected to increase the total number of cases reported from 1st July 2016 onwards. The syphilis data collection forms used from January 2014 and July 2016 onwards are shown in Appendix 3 and 4 respectively.

Syphilis enhanced forms are completed by the practice or clinic where syphilis was first identified and provided to Departments of Public Health who enter data onto CIDR. In 2017, forms were completed for 65% of cases; the proportion completed differed among HSE areas (range: 44%-100%).

There were 411 notifications of syphilis in Ireland during 2017. Of these, 13 were notified as possible EIS and are excluded from this analysis as they do not meet the laboratory notification criteria. Twenty one cases that were diagnosed in 2017 and retrospectively notified in 2018 are also excluded from the overall analysis but are discussed towards the end of this report, on page 14.

Epidemiology

Cases and notification rates

There were 398 notifications of EIS in Ireland during 2017; the notification rate (NR) increased by 31% to 8.4 per 100,000 population, when compared to 2016 (n=305; NR 6.4/100,000) (Figure 1). The increase in EIS cases notified in 2017 should be interpreted with caution, and may be partially explained by an update to the laboratory criteria and procedure for notifying EIS which increased the sensitivity of reporting from July 2016 onwards, discussed further on page 14.

The rate of increase in EIS notifications between 2016 and 2017 was higher than that seen between 2015 (5.6/100,000) and 2016.

Four cases of neurosyphilis were reported in 2017, an increase from three in 2016. A summary of EIS cases diagnosed in 2013-2017 is shown in Table 1.

In 2017, the NR among males increased to 16.2 per 100,000 male population compared to 12.5 per 100,000 in 2016 and 11.0 per 100,000 in 2015. The rate among females increased slightly, to 0.7 per 100,000, compared to 0.4 per 100,000 in 2016 and 2015.

Figure 1: Notification rate of early infectious syphilis by sex in Ireland, 2000-2017

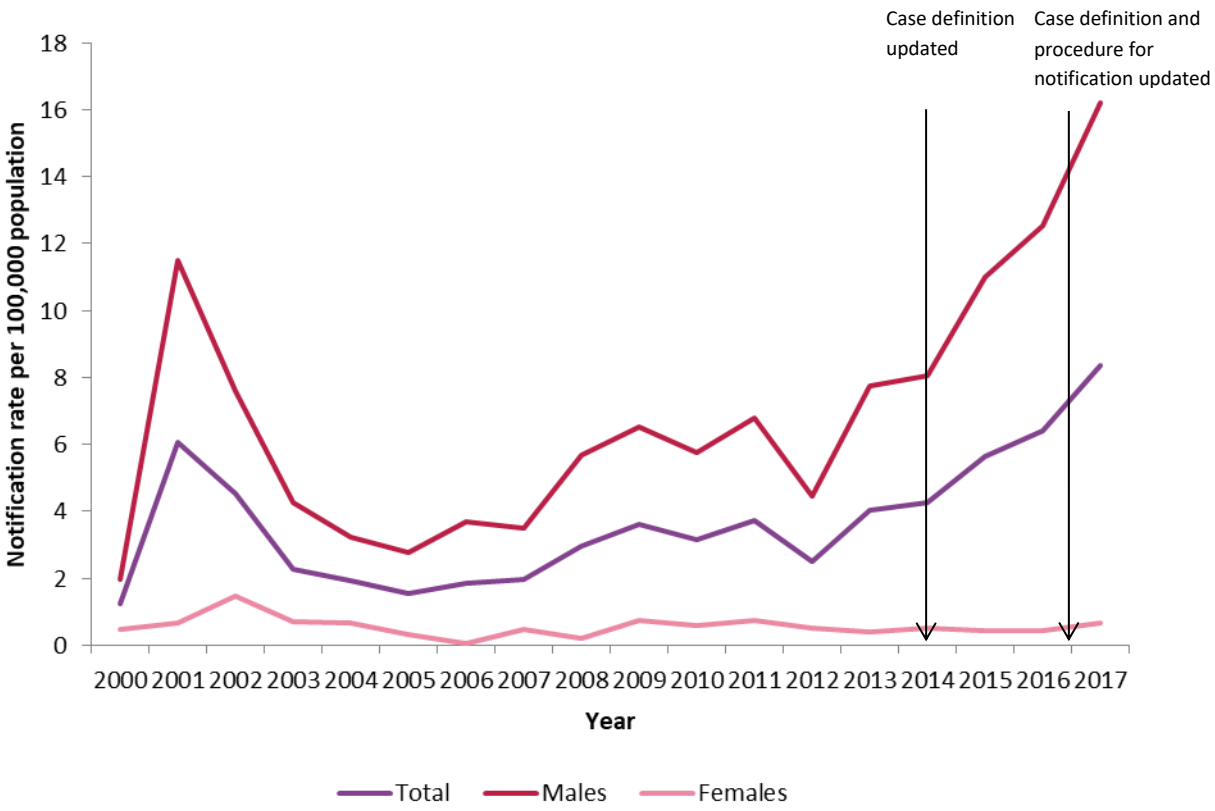


Table 1 Summary of trends in early infectious syphilis in Ireland, 2013-2017

		2013	2014	2015	2016	2017
		n (%)	n (%)	n (%)	n (%)	n (%)
Total number of cases		185	202	269	305	398
Rate per 100,000 population		4.0	4.4	5.9	6.4	8.4
Stage of infection	Primary syphilis	85 (45.9)	119 (58.9)	135 (50.2)	N.A.	N.A.
	Secondary syphilis	53 (28.6)	40 (19.8)	60 (22.3)	N.A.	N.A.
	Early latent syphilis	47 (25.4)	43 (21.3)	74 (27.5)	N.A.	N.A.
Sex	Males	176 (95.1)	190 (94.1)	259 (96.3)	295 (96.7)	382 (96.0)
	Females	9 (4.9)	12 (5.9)	10 (3.7)	10 (3.3)	16 (4.0)
	Male to female ratio	20	16	26	30	24
Age	Median age (years)	33	32	33	33	34
	Age range (years)	19-73	19-70	20-65	18-73	17-71
Probable mode of transmission	Men who have sex with men (MSM)	119 (64.3)	142 (70.3)	221 (82.2)	222 (72.8)	250 (62.8)
	Heterosexuals	22 (11.9)	36 (17.8)	33 (12.3)	29 (9.5)	36 (9.0)
	Mother to child	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.3)
	Unknown	44 (23.8)	42 (11.9)	15 (5.6)	54 (17.7)	111 (27.9)
Syphilis in pregnancy	Diagnosed in pregnancy	1	3	1	2	4
	Rate per 1,000 births	0.01	0.04	0.02	0.03	0.06
Region of birth	Ireland	77 (41.6)	100 (49.5)	124 (46.1)	143 (46.9)	139 (34.9)
	Abroad	64 (34.6)	75 (37.1)	118 (43.4)	99 (32.5)	130 (32.7)
	Unknown	44 (23.8)	27 (13.4)	27 (10.0)	63 (20.7)	129 (32.4)
Probable country of infection	Ireland	93 (50.3)	109 (54.0)	193 (71.8)	178 (58.4)	184 (46.2)
	Abroad	22 (11.9)	44 (21.7)	39 (14.5)	30 (9.8)	40 (10.1)
	Unknown	70 (37.8)	49 (24.3)	37 (13.4)	97 (31.8)	174 (43.7)
HIV status	Positive	55 (29.7)	50 (24.8)	78 (29.0)	104 (34.1)	106 (26.6)
	Negative	89 (48.1)	133 (65.8)	165 (61.3)	136 (44.6)	171 (43.0)
	Unknown	41 (22.2)	19 (9.4)	26 (9.7)	65 (21.3)	121 (30.4)
Symptomatic	Yes	71	60	96	107	103
	% where known	50.7	33.5	37.0	46.9	41.9
	No	69	119	163	121	144
	% where known	49.3	66.5	63.0	53.1	54.5
Syphilis reinfection	Yes	18 (9.7)	14 (6.9)	10 (3.7)	22 (7.2)	25 (6.3)

N.A., data on stage of infection not collected from July 2016 onwards

HSE area

Cases were reported from all HSE areas with the majority (74%) reported in HSE East (Table 2).

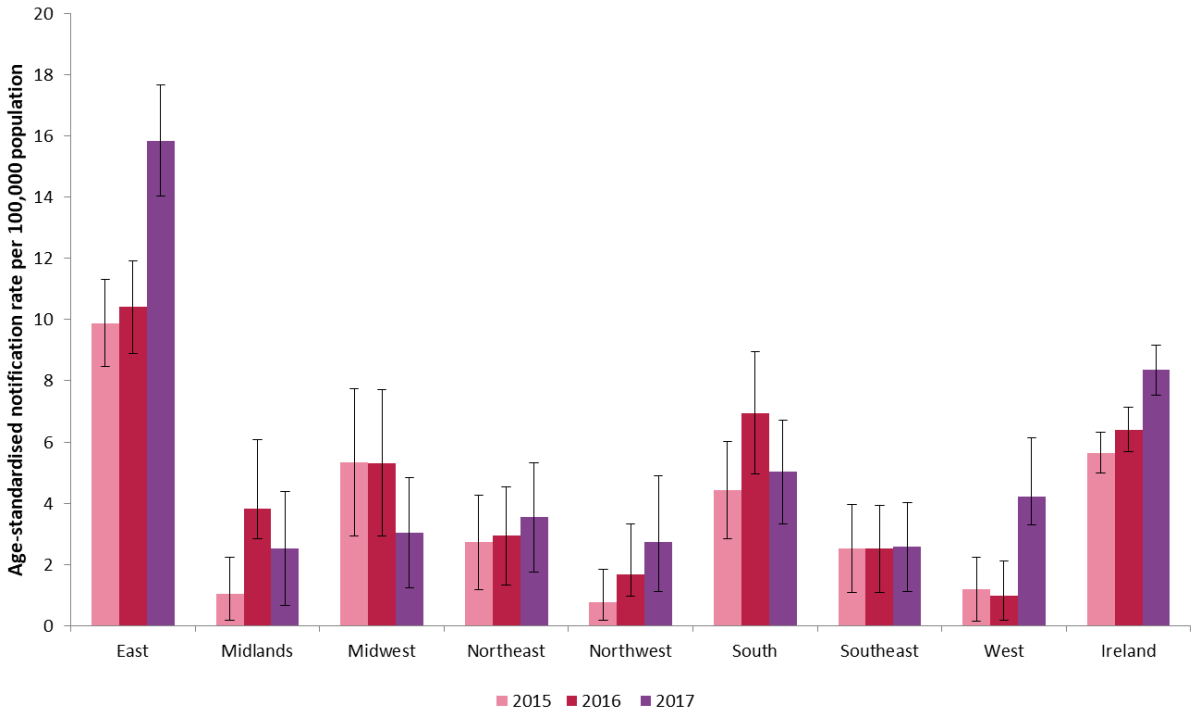
Data on HSE area should be interpreted with caution. HSE area is based on the clinic and not the patient's address for the majority of cases. Consequently, rates and numbers of cases by HSE area reflect the location of STI services as well as differences in reporting practices by clinics and clinicians from one area to another. A list of STI clinics is available at https://www.sexualwellbeing.ie/.

Table 2: Notifications of early infectious syphilis in Ireland by HSE area in Ireland, 2017

	East	Midlands	Midwest	Northeast	Northwest	Southeast	South	West
Number of notifications	295	7	11	15	6	12	34	18
% of total notifications	74.1	1.8	2.8	3.8	1.5	3.0	8.5	4.5

The age-standardised notification rate (ASNR) was significantly lower than the national rate for all HSE areas except for HSE East (Figure 2). The ASNR in HSE East was 15.8/100,000 population, a 52% increase from 2016 and significantly higher than the national rate of 8.4 per 100,000 population. A significant increase was also seen for HSE West, from 1.0 per 100,000 population in 2016 (n=4) to 4.2 per 100,000 population in 2017 (n=18).

Figure 2: Age-standardised notification rate of early infectious syphilis by HSE area in Ireland, 2015-2017



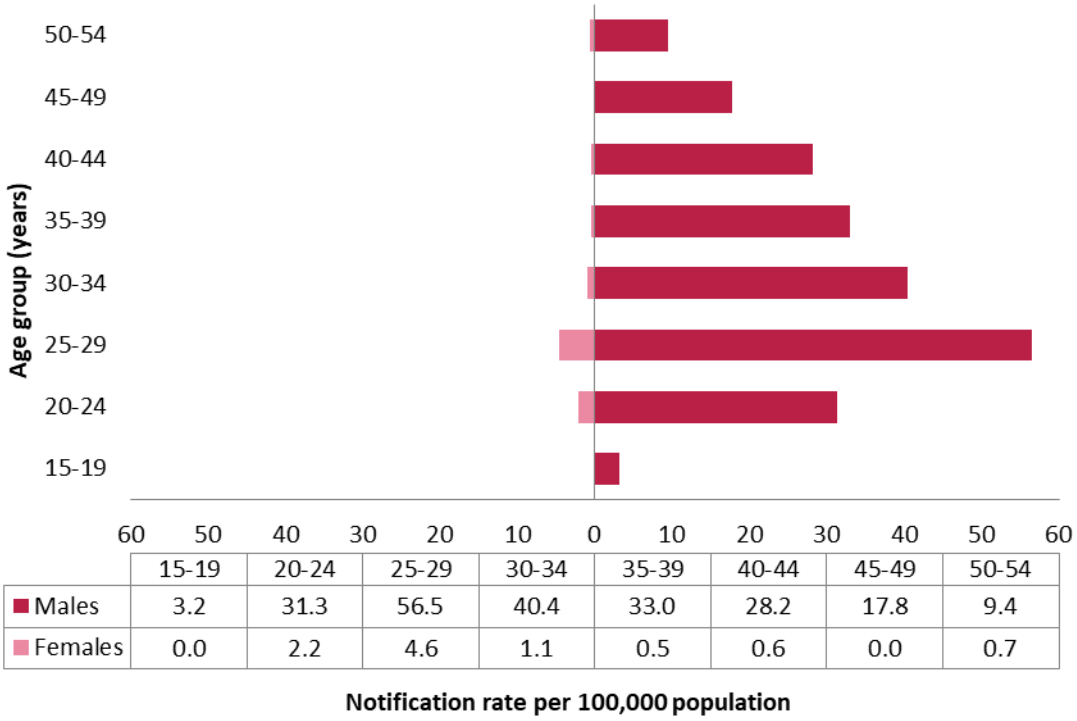
Age and sex

Ninety-six percent (n=382) of cases were among males and four percent (n=16) were among females, giving a male to female ratio of 24:1, a decrease from 30:1 in 2016.

Thirteen percent of cases were reported in young people aged 15 to 24 years old, an increase from 11% in 2016. The median age was 34 years overall (range: 17-71 years); 34 years in males (range: 17-71 years) and 28 years in females (range: 21-58 years).

The highest age-specific rate in 2017 was in 25-29 year olds (29.9 per 100,000 population). The highest rate in males was in 25-29 year olds (56.5 per 100,000 population) and in females was also in 25-29 year olds (4.6 per 100,000 population) (Figure 3).

Figure 3: Rate of early infectious syphilis by sex and age group in Ireland, 2017*



	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
Males	3.2	31.3	56.5	40.4	33.0	28.2	17.8	9.4
Females	0.0	2.2	4.6	1.1	0.5	0.6	0.0	0.7

*Excludes cases for individuals aged over the age of 55 (n=26).

Antenatal syphilis

Information on the number of pregnant women screened for syphilis is not collected in Ireland, therefore it is not possible to report data as a positivity rate per 1,000 pregancies. In total, four of 16 females diagnosed with EIS were pregnant at the time of diagnosis, giving a notification rate of 0.06 antenatal cases per 1,000 live births, an increase on the rate of 0.03 per 1,000 live births in 2016 (see technical note 7 for source of information on births).

Of the four cases, information on gestation was not reported for two, one was identified through antenatal screening in the first trimester and one was identified during labour (see congenital syphilis for further details).

Congenital syphilis

Congenital syphilis was reported in one male infant who was diagnosed at birth, at an estimated gestation of 32-34 weeks. The infant's mother was visiting Ireland from abroad when she went into labour and had not been treated for syphilis during pregnancy. The infant was treated at birth in Ireland and was referred for further follow up upon return to the home country.

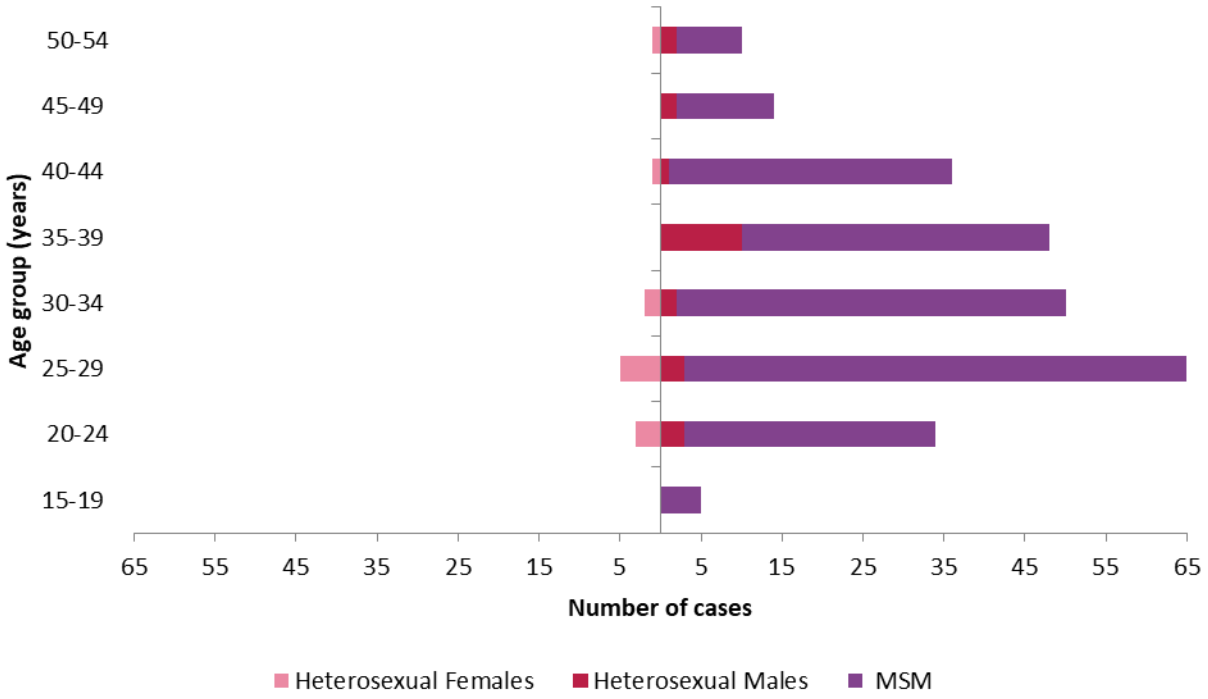
Mode of transmission

Of the 398 EIS cases in 2017, 250 (63%) were among MSM and 36 (9%) were among heterosexuals (12 female and 24 male) and one case was transmitted from mother to child. Mode of transmission was unknown for 28% (n=111) of cases, an increase from 18% in 2016. Where mode of transmission is known, the most common age group among MSM and heterosexual females was 25-29 years, and among heterosexual males was 35-39 years (see Figure 4 and Table 3 which describe EIS cases by mode of transmission).

The notification rate among MSM increased by 13% to 287.6 per 100,000 population in 2017 from 255.4 per 100,000 population in 2016 (Figure 5). Additionally, there was a large increase in the percentage of male cases for whom mode of transmission was missing (28% in 2017, up from 18% in 2016 and 5% in 2015), see Figure 6. Interpretation of trends in mode of transmission is difficult given the increasing proportion of cases with missing data in 2016 and in 2017. In 2017, the male to female ratio of cases missing mode of transmission was equal to the overall male to female ratio (24:1).

The EIS notification rate among males continued to increase in 2017 to 26.4 per 100,000 population, from 20.4/100,000 in 2016 and 17.9/100,000 in 2015.

Figure 4: Number of early infectious syphilis cases by age group, sex and mode of transmission where known (n=286)[**], in Ireland, 2017



[**]Excludes 111 cases where mode of transmission is unknown and cases for individuals over the age of 55. Also excludes one case of mother to child transmission.

Table 3: Characteristics of individuals diagnosed with early infectious syphilis by mode of transmission where known, in Ireland, 2017[†]

		MSM	Heterosexual Males	Heterosexual Females
		n (%)	n (%)	n (%)
Total number of cases		250 (87. 1)	24 (8.4)	12 (4.2)
Age	Median age (years)	32	36	26
	Age range (years)	17-71	20-59	21-58
Country of birth	Ireland	102 (40.8)	12 (50.0)	6 (50.0)
	Abroad	104 (41.6)	6 (25.0)	0 (0.0)
	Unknown	44 (17.6)	6 (25.0)	6 (50.0)
Probable country of infection	Ireland	156 (62.4)	12 (50.0)	7 (58.3)
	Abroad	28 (11.2)	11 (45.8)	1 (8.3)
	Unknown	66 (26.4)	1 (4.2)	4 (33.3)
HIV status	Positive	79 (31.6)	3 (12.5)	0 (0.0)
	Negative	136 (54.4)	18 (75.0)	9 (75.0)
	Unknown	35 (14.0)	3 (12.5)	3 (25.0)
	HIV positive where HIV status is known	79 (36.7)	3 (14.3)	0 (0.0)

[†]Excludes 111 cases where mode of transmission is unknown and one case of mother to child transmission.

Figure 5: **Rate of EIS notifications in MSM per 100,000 population aged 18-64 years in Ireland, 2013-2017**

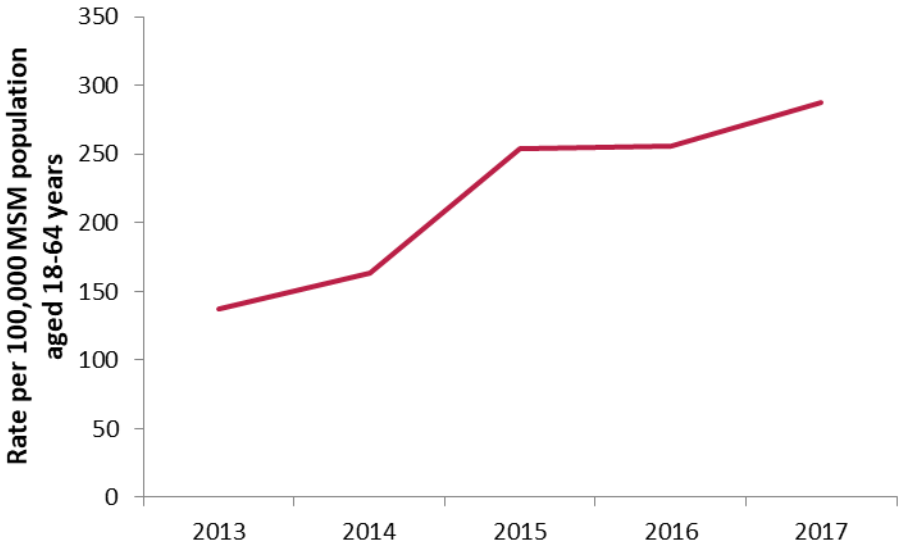
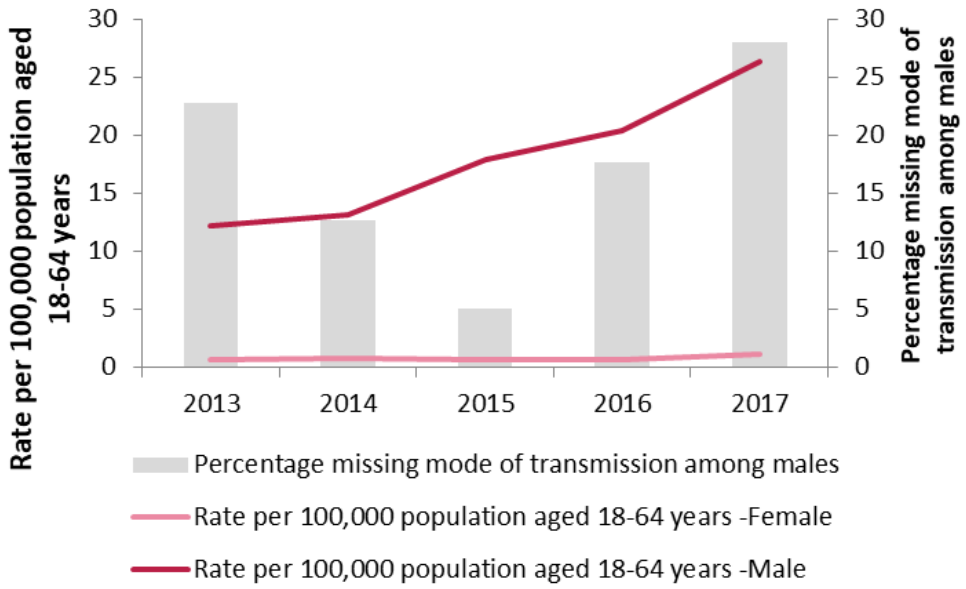


Figure 6: **Rate of EIS notifications in males and females per 100,000 population aged 18-64 years in Ireland, 2013-2017**



Country of birth

Country of birth was unknown for 32% (n=129) of cases, 35% (n=139) were born in Ireland and 33% (n=130) were born abroad. Of those born abroad, just under half (48%) originated from South America, 20% originated from Western Europe and 15% from Central or Eastern Europe.

Country of infection

Forty six percent (n=184) of individuals with EIS acquired their infection in Ireland, a decrease compared to 58% in 2016, however the proportion of cases with unknown country of infection increased to 44% in 2017, compared to 30% in 2016, which makes analysis of trends difficult.

HIV co-infection

Twenty seven percent (n=106) of individuals diagnosed with EIS were co-infected with HIV at the time of their EIS diagnosis, 43% were not infected with HIV and HIV infection status was unknown for 30% of cases.

All cases co-infected with HIV were in males, 21% (n=22) were aged 29 years or younger, 43% (n=45) were aged 30-39 years and 28% (n=30) were aged 40-49 years.

Year of HIV diagnosis was reported for 99 cases and was unknown for seven. Fifteen percent (n=15) were newly diagnosed with HIV in 2017, 9% (n=10) in 2016 and 17% (n=18) in 2015.

Seventy five percent (n=79) of cases were in MSM, 3% (n=3) were in heterosexuals and mode of transmission was unknown for 23% (n=24) of cases.

The overall proportion of EIS cases among MSM who were co-infected with HIV was 32% (n=79), compared to 39% in 2016 and 30% in 2015, however mode of transmission was not reported for a large proportion of cases in 2017 therefore trends in mode of transmission are difficult to interpret.

Other sexually transmitted co-infections

Case-based data on STIs (except ano-genital warts and non-specific urethritis) have been notified via CIDR by all HSE areas since 2013. As a result, individuals can be identified on CIDR as having more than one STI across different diseases.

Among patients diagnosed with EIS in 2017, there were 104 cases of STIs other than HIV diagnosed during 2017 (Table 4).

Since full patient identifiers were not provided for all cases on CIDR, the true figure is likely to be higher. In addition, the large volume of notifications in HSE East and the use of more automated processes for processing notifications in CIDR which do not allow for de-duplication of cases reported more than once, may have contributed to an under-estimate of other infections in cases of EIS in HSE East.

Table 4: Number of STI, hepatitis B/C and HIV notifications in 2017 among EIS cases diagnosed in Ireland in 2017[††]

Disease	Number of notifications
Chlamydia trachomatis infection	41
Gonorrhoea	49
Hepatitis B (acute and chronic)	0
Hepatitis C[†††]	6
Herpes simplex (genital)	3
Lymphogranuloma venereum	3

[††]Patients may be counted more than once in this table.
[†††] Excludes two cases where mode of transmission was not reported.

Syphilis reinfection

Twenty five (6%) cases were reported as syphilis re-infection in 2017 (7% where known), higher than the number reported in recent years (Table 1). The majority of cases that were consistent with syphilis reinfection were reported by HSE East (n=17), followed by HSE Northeast (n=3) and HSE Midwest (n=3).

Service where syphilis first identified

Seventy one percent (n=284) of EIS cases were identified at a dedicated STI clinic, compared to 72% in 2016, and 19% of EIS cases were identified in general practice, compared to 18% in 2016. The majority of cases among MSM were identified at an STI clinic, whereas the majority of cases among heterosexuals were identified in general practice (see Table 5).

Table 5: Early infectious syphilis cases by mode of transmission and service where syphilis first identified in Ireland, 2017

Service	MSM		Heterosexual		Unknown		MTCT*		Total	
	n	%	n	%	n	%	n	%	n	%
Antenatal	0	0.0	4	11.1	0	0.0	0	0.0	4	1.0
Dedicated STI clinic	195	78.0	14	38.9	75	67.6	0	0.0	284	71.4
General practice	41	16.4	15	41.7	21	18.9	0	0.0	77	19.3
Infectious disease clinic	2	0.8	1	2.8	3	2.7	0	0.0	6	1.5
Other	10	4.0	2	5.6	10	9.0	1	100.0	23	5.8
Unknown	2	0.8	0	0.0	2	1.8	0	0.0	4	1.0
Total	250	100.0	36	100.0	111	100.0	1	100.0	398	100.0

*MTCT, Mother to child transmission

Retrospective notifications in 2018

There were 24 cases of EIS that were notified retrospectively during 2018 (up to 10th September), a higher number than were notified retrospectively during 2017 (n=6). Of the 24 cases, 21 were diagnosed in 2017, the remainder were diagnosed prior to 2017. The majority of retrospective notifications were made by HSE East where one laboratory experienced delays in notifying cases of syphilis reinfection due to a laboratory IT issue, which is now resolved.

The annual epidemiological report for EIS is based on the date that a case is notified to CIDR, therefore the 2017 report does not include cases that were retrospectively notified in 2018; these cases will be included in the 2018 report. However due to the high number of retrospective notifications in 2018, an additional analysis was conducted, of all cases diagnosed during 2017, including cases notified retrospectively. The following data are provisional, cases notified retrospectively during 2018 have not yet been validated.

Including the retrospectively notified cases, there were 413 cases of confirmed EIS diagnosed in 2017, a rate of 8.7 per 100,000 population. Trends in sex, age and mode of transmission were similar to that reported above, however based on provisional data, the proportion of cases coinfected with HIV was slightly higher at 28% (40% where known) and the proportion of cases that were consistent with syphilis reinfection was higher, at 8% (9% where known).

Discussion

The notification rate of EIS increased by 31% in 2017, to 8.4 per 100,000 population, the highest rate on record since enhanced surveillance of syphilis began in 2000.

Provisional data up to 3rd November 2018 show a further increase in EIS notifications diagnosed in 2018, to 408 cases, 22% higher compared to the number reported for the same period in 2017 (n= 334), (6% higher when adjusted for 24 cases that were notified retrospectively).

The increase in EIS notifications in 2017 was mostly in males, a 30% increase in the rate of notifications compared to 2016. There were also more cases notified in females in 2017, however these numbers are low and should be interpreted with caution.

Recent changes to the case definition and to the notification procedure however make longer term trends difficult to analyse. The number of EIS cases in Ireland may have been underestimated prior to July 2016 due to the requirement at that time for completion of the enhanced surveillance form by clinicians before a notified case would be included in national reporting as EIS. In the first half of 2016, only 52% of forms were received (compared to 61% in 2015 and 73% in 2014), therefore the true number of cases may have been higher than reported. From July 2016 onwards, this procedure changed, along with

the case definition, so that all cases meeting a new, more sensitive, case definition, are reported, even if the enhanced form has not yet been received, resulting in more accurate and timely data on the number of EIS cases, but less enhanced data for individual cases.

In 2017, the proportion of cases with completed enhanced forms was 65%. Information from enhanced forms is crucial to interpreting trends in EIS transmission in Ireland and the increase in EIS notifications in 2017 highlights the need for strengthening surveillance. This is particularly important for HSE East, which is the centre of transmission among MSM and where 59% of forms were completed, and for HSE West, where a particular increase in cases was seen in 2017, and where 44% of forms were completed.

Where mode of transmission was known, the number of EIS cases in MSM increased by 13% in 2017, when compared to 2016. Most (73%) cases among MSM were reported by HSE East, highlighting that this area continued to be the most common area of transmission among MSM in Ireland. Mode of transmission was not reported for 28% of cases in 2017, up from 18% in 2016 and 6% in 2015.

The proportion of EIS cases that were HIV positive at the time of their EIS diagnosis did not increase in 2017, however a higher proportion of cases were missing data on HIV status in 2017 (30%) when compared to previous years (21% in 2016, 10% in 2015).

Interpretation of trends of EIS in Ireland in 2017 is further complicated by 21 cases of EIS that were diagnosed in 2017 but retrospectively notified in 2018. When retrospective notifications were included in the analysis, the proportion of cases coinfected with HIV was 28%, and the proportion of cases that were consistent with syphilis reinfection was 8%. Of the 33 cases with syphilis reinfection, where known, 79% were HIV positive. This emphasises the importance of regular STI testing among HIV positive MSM. Individuals with multiple syphilis reinfections may play an important role in syphilis transmission [4].

The increases seen in Ireland in 2017 have also been seen elsewhere. Latest data from Public Health England show a continued increase of EIS cases among males, to 24.5 per 100,000 population in 2017 (up 19% from 2016), and also an increase among females, to 1.5 per 100,000 population (up 29% from 2016). Amongst MSM in England, there was a 17% increase in the number of EIS cases notified in 2017 when compared to 2016, continuing the increasing trend of EIS among MSM. [5]

Latest data for the United States also show a continued increase in primary and secondary syphilis during 2017, to 9.5 cases per 100,000 population, up 11% from 2016. [6] This increase was largely attributable to an increase among males, and in particular among MSM (up 9% from 2016), but a continued increase was also seen amongst females (up 25% from 2016). Concurrently, the rate of congenital syphilis in the United States increased by 44% in 2017, to 16.2 cases per 100,000 live births. The increasing rate of congenital syphilis in the United States has paralleled the increasing rate of primary and secondary syphilis among women during 2013-2017. The slight increase in EIS amongst females in Ireland during 2017, and in particular those of reproductive age, highlights the importance of surveillance of EIS amongst females.

Technical notes

1. Data for this report were extracted from CIDR on 10th September 2018, and were correct at the time that data were extracted. Information from previous years is updated on an ongoing basis in CIDR, therefore data in this report may be updated in future reports.
2. While efforts are made to remove duplicate records from these data, it is not always possible to link and remove all duplicate records and some patients or disease events may be counted more than once.
3. Percentages are rounded up in the text and provided to one decimal place in tables.
4. The counties covered by each HSE area are as follows: HSE East (E): Dublin, Kildare & Wicklow; HSE Midlands (M): Laois, Longford, Offaly & Westmeath; HSE Midwest (MW): Clare, Limerick & N. Tipperary; HSE Northeast (NE): Cavan, Louth, Meath & Monaghan; HSE Northwest (NW): Donegal, Leitrim & Sligo; HSE South (S): Kerry & Cork; HSE Southeast (SE): Carlow, Kilkenny, S. Tipperary, Waterford & Wexford; HSE West (W): Galway, Mayo & Roscommon.
5. Age-standardised notification rates were calculated using the direct method in which the national population was taken as the standard population. Population data were taken from Census 2016. Data were aggregated into the following age groups for the analysis: 0-4 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years and ≥65 years.
6. The notification rate per 100,000 MSM population was 6% of the Irish male population aged between 18 and 64 years (Census 2016), as estimated by the Healthy Ireland survey, which is a nationally representative survey. [3]
7. Rate per 1,000 births was calculated using total number of births in 2017, reported by the Central Statistics Office https://www.cso.ie/multiquicktables/quickTables.aspx?id=vsa02_vsa09_vsa18. Data were downloaded on 24th September 2018, are provisional and subject to revision.

Further information

- Previous years' reports are available at http://www.hpsc.ie/a-z/hivstis/sexuallytransmittedinfections/syphilis/ and at http://www.hpsc.ie/a-z/hivstis/sexuallytransmittedinfections/publications/stireports/
- Keep up to date with HIV and STIs in Ireland at http://www.hpsc.ie/a-z/hivstis/sexuallytransmittedinfections/publications/stireports/stiweeklyreports/

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Report prepared by: **Melissa Brady and Derval Igoe, HPSC**

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Appendices

Appendix 1: Syphilis case definition, January 2014

Syphilis
(*Treponema pallidum*)

Clinical criteria
A case may be asymptomatic or present with:

A. Primary syphilis
Any person with one or several (usually painless) chancres in the genital, perineal, anal area, or mouth, or pharyngeal mucosa, or elsewhere

B. Secondary syphilis
Any person with at least one of the following:

- Diffuse maculo-papular rash often involving palms and soles
- Generalised lymphadenopathy
- Condyloma lata
- Enanthema
- Alopecia diffusa
- Ocular manifestations of early syphilis
- Neurological manifestations of early syphilis

C. Early latent syphilis (<1 year)

- Positive syphilis serology, no symptoms or signs of early syphilis and a negative reference syphilis screening test within previous 12 months.

Laboratory criteria
At least one of the following laboratory tests:

- Demonstration of Treponema pallidum in appropriate lesions, exudates or tissues by dark-ground microscopic examination
- Demonstration of Treponema pallidum in appropriate lesions, exudates or tissues by PCR
- Detection of Treponema pallidum antibodies (total antibodies e.g. TPHA, TPPA , CIA, or EIA) and additionally detection of Tp-IgM antibodies (e.g. IgM ELISA or immunoblot or 19S-IgM-FTA-abs) or cardiolipin non-Tp IgM (e.g. RPR, VDRL)

Epidemiological criteria:
NA

Case classification:
Possible:
NA
Probable:
NA
Confirmed: Any person meeting the clinical criteria for early syphilis, who also meets the laboratory criteria for case confirmation

Appendix 2: Syphilis case definition, July 2016

Syphilis
(*Treponema pallidum*)

Clinical criteria
A case may be asymptomatic or present with:

- **A.** Primary syphilis
  Any person with one or several (usually painless) chancres in the genital, perineal, anal area, or mouth, or pharyngeal mucosa, or elsewhere
- **B.** Secondary syphilis
  Any person with at least one of the following:
  - Diffuse maculo-papular rash often involving palms and soles
  - Generalised lymphadenopathy
  - Condyloma lata
  - Enanthema
  - Alopecia diffusa
  - Ocular manifestations of early syphilis
  - Neurological manifestations of early syphilis
- **C.** Early latent syphilis (<1 year)
  Positive syphilis serology, no symptoms or signs of early syphilis and a negative reference syphilis screening test within previous 12 months.

Laboratory criteria
For new cases, at least one of the following:

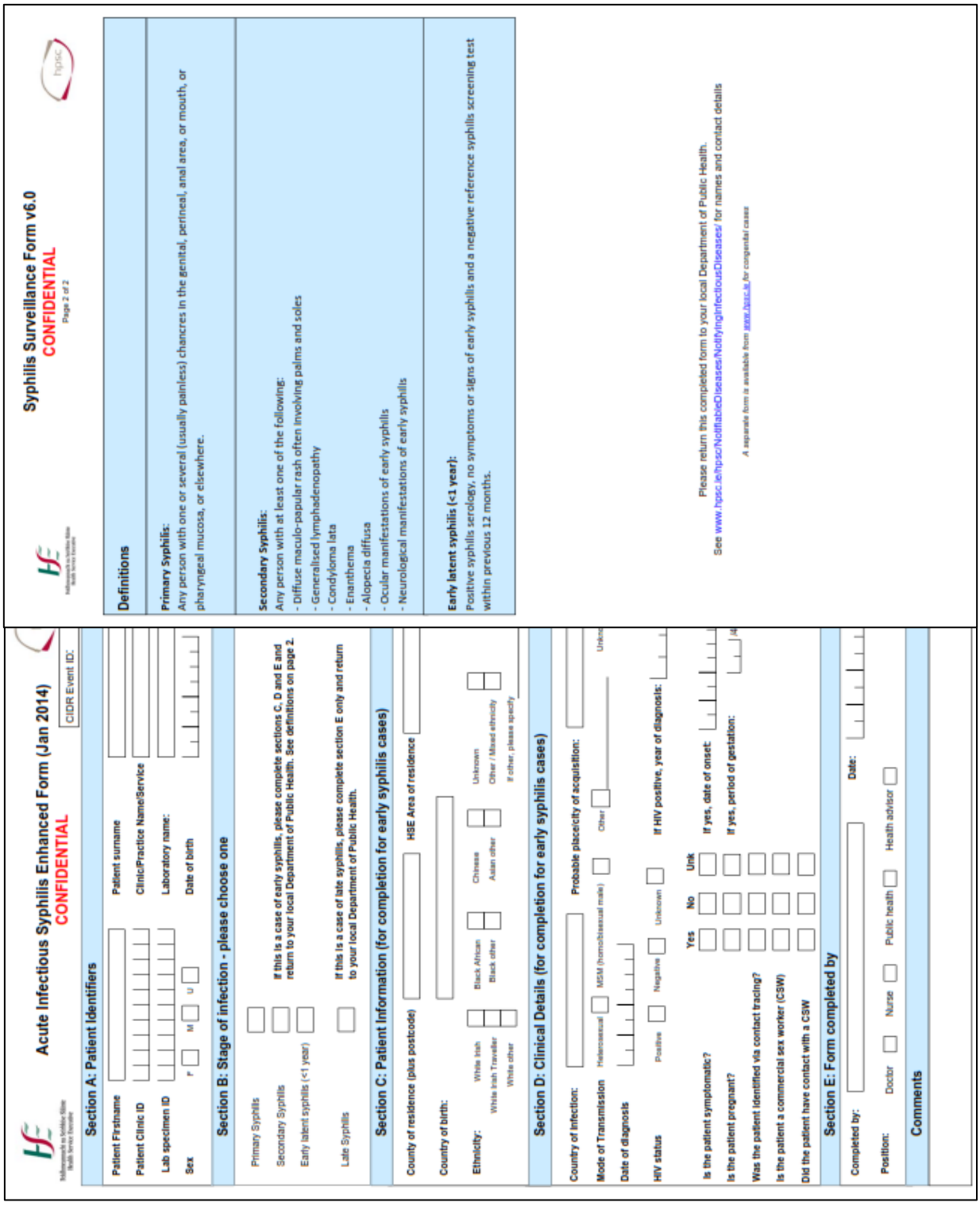
- Demonstration of treponemes in lesions, exudates or tissues from clinically appropriate sites by dark-ground microscopy
- Demonstration of treponemes in exudates or tissues from clinically appropriate sites by PCR
- Detection of Treponema pallidum antibodies (total antibodies) using EIA and TPHA/ TPPA and additionally detection of Tp-IgM antibodies (e.g. IgM ELISA or immunoblot or 19S-IgM-FTA-abs)
- Detection of Treponema pallidum antibodies (total antibodies) using EIA and TPHA/ TPPA and additionally detection of cardiolipin non-Tp IgM with RPR titre of >=1:16

For re-infections, laboratories should use their own internal criteria.

Epidemiological criteria:
NA

Case classification:
Possible:
NA
Probable:
NA
Confirmed:
Any person meeting the clinical criteria for early syphilis, who also meets the laboratory criteria for case confirmation

Appendix 3: Syphilis enhanced surveillance form, January 2014



Acute Infectious Syphilis Enhanced Form (Jan 2014)
CONFIDENTIAL
CIDR Event ID:

Section A: Patient Identifiers
Patient Firstname
Patient surname
Patient Clinic ID
Clinic/Practice Name/Service
Lab specimen ID
Laboratory name:
Sex F M U
Date of birth

Section B: Stage of infection - please choose one
Primary Syphilis
Secondary Syphilis
If this is a case of early syphilis, please complete sections C, D and E and return to your local Department of Public Health. See definitions on page 2.
Early latent syphilis (<1 year)
Late Syphilis
If this is a case of late syphilis, please complete section E only and return to your local Department of Public Health.

Section C: Patient Information (for completion for early syphilis cases)
County of residence (plus postcode)
HSE Area of residence
Country of birth:
Ethnicity: White Irish; White Irish Traveller; White other; Black African; Black other; Chinese; Asian other; Unknown; Other / Mixed ethnicity (If other, please specify)

Section D: Clinical Details (for completion for early syphilis cases)
Country of infection:
Probable placeicity of acquisition:
Mode of Transmission: Heterosexual; MSM (homosexual male); Other; Unkno
Date of diagnosis
HIV status: Positive; Negative; Unknown
If HIV positive, year of diagnosis:

	Yes	No	Unk	
Is the patient symptomatic?				If yes, date of onset:
Is the patient pregnant?				If yes, period of gestation: /4
Was the patient identified via contact tracing?				
Is the patient a commercial sex worker (CSW)				
Did the patient have contact with a CSW				

Section E: Form completed by
Completed by:
Date:
Position: Doctor; Nurse; Public health; Health advisor

Comments

Definitions

Primary Syphilis:
Any person with one or several (usually painless) chancres in the genital, perineal, anal area, or mouth, or pharyngeal mucosa, or elsewhere.

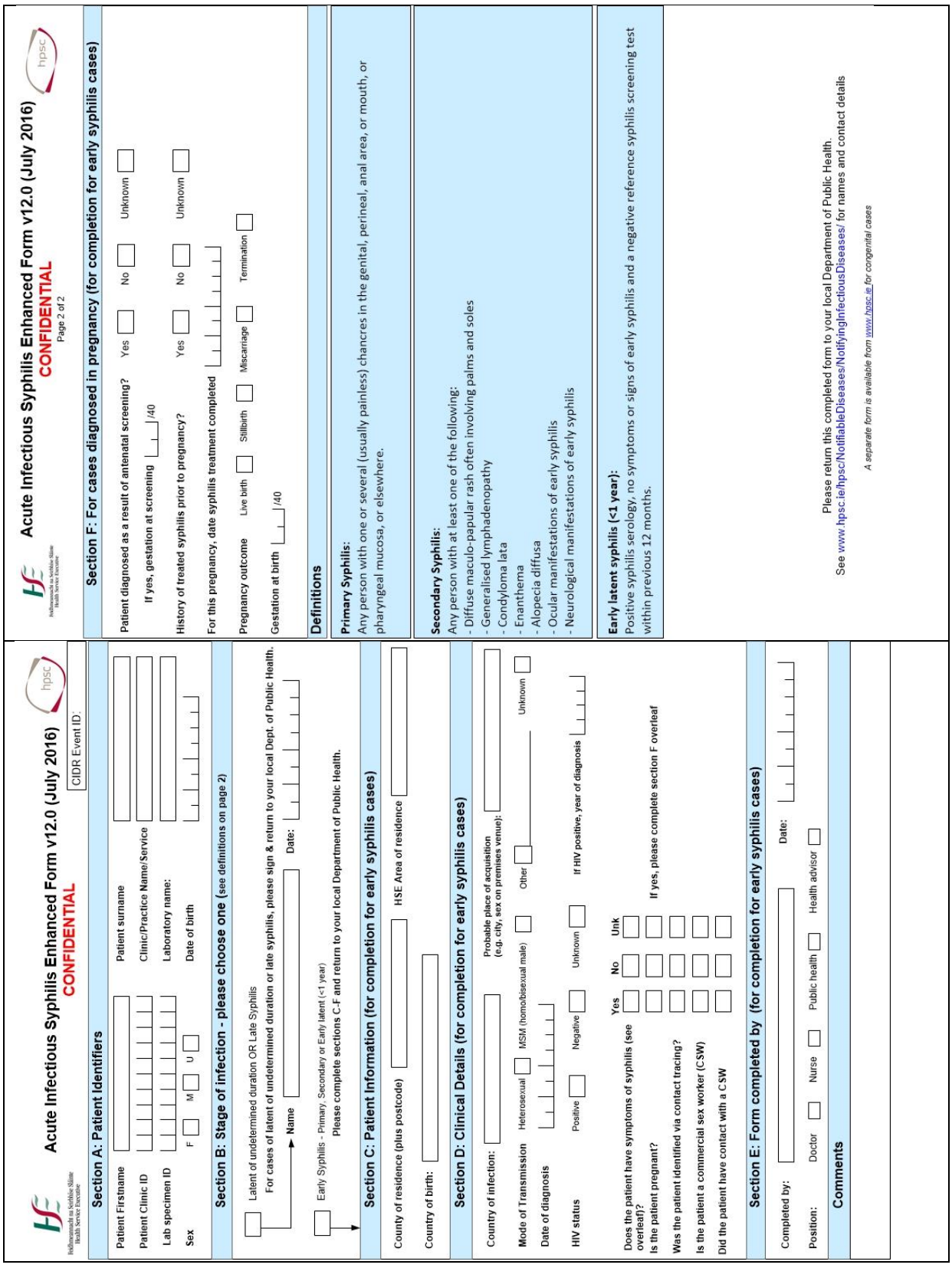
Secondary Syphilis:
Any person with at least one of the following:
- Diffuse maculo-papular rash often involving palms and soles
- Generalised lymphadenopathy
- Condyloma lata
- Enanthema
- Alopecia diffusa
- Ocular manifestations of early syphilis
- Neurological manifestations of early syphilis

Early latent syphilis (<1 year):
Positive syphilis serology, no symptoms or signs of early syphilis and a negative reference syphilis screening test within previous 12 months.

Syphilis Surveillance Form v6.0
CONFIDENTIAL
Page 2 of 2

Please return this completed form to your local Department of Public Health.
See www.hpsc.ie/hpsc/NotifiableDiseases/NotifyingInfectiousDiseases/ for names and contact details
A separate form is available from www.hpsc.ie for congenital cases

Appendix 4: Syphilis enhanced surveillance form, July 2016



Acute Infectious Syphilis Enhanced Form v12.0 (July 2016)
CONFIDENTIAL
CIDR Event ID:

Section A: Patient Identifiers

Patient Firstname
Patient surname
Patient Clinic ID
Clinic/Practice Name/Service
Lab specimen ID
Laboratory name:
Sex F M U
Date of birth

Section B: Stage of infection - please choose one (see definitions on page 2)

Latent of undetermined duration OR Late Syphilis
For cases of latent of undetermined duration or late syphilis, please sign & return to your local Dept. of Public Health.
Name
Date:
Early Syphilis - Primary, Secondary or Early latent (<1 year)
Please complete sections C-F and return to your local Department of Public Health.

Section C: Patient Information (for completion for early syphilis cases)

County of residence (plus postcode)
HSE Area of residence
Country of birth:

Section D: Clinical Details (for completion for early syphilis cases)

Country of infection:
Probable place of acquisition (e.g. city, sex on premises venue):
Mode of Transmission Heterosexual MSM (homo/bisexual male) Other Unknown
Date of diagnosis
HIV status Positive Negative Unknown If HIV positive, year of diagnosis

	Yes	No	Unk
Does the patient have symptoms of syphilis (see overleaf)?			
Is the patient pregnant?			
Was the patient identified via contact tracing?			
Is the patient a commercial sex worker (CSW)			
Did the patient have contact with a CSW			

If yes, please complete section F overleaf

Section E: Form completed by (for completion for early syphilis cases)

Completed by:
Date:
Position: Doctor Nurse Public health Health advisor

Comments

Acute Infectious Syphilis Enhanced Form v12.0 (July 2016)
CONFIDENTIAL
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Section F: For cases diagnosed in pregnancy (for completion for early syphilis cases)

Patient diagnosed as a result of antenatal screening? Yes No Unknown
If yes, gestation at screening /40
History of treated syphilis prior to pregnancy? Yes No Unknown
For this pregnancy, date syphilis treatment completed
Pregnancy outcome Live birth Stillbirth Miscarriage Termination
Gestation at birth /40

Definitions

Primary Syphilis:
Any person with one or several (usually painless) chancres in the genital, perineal, anal area, or mouth, or pharyngeal mucosa, or elsewhere.

Secondary Syphilis:
Any person with at least one of the following:
- Diffuse maculo-papular rash often involving palms and soles
- Generalised lymphadenopathy
- Condyloma lata
- Enanthema
- Alopecia diffusa
- Ocular manifestations of early syphilis
- Neurological manifestations of early syphilis

Early latent syphilis (<1 year):
Positive syphilis serology, no symptoms or signs of early syphilis and a negative reference syphilis screening test within previous 12 months.

Please return this completed form to your local Department of Public Health.
See www.hpsc.ie/hpsc/NotifiableDiseases/NotifyingInfectiousDiseases/ for names and contact details

A separate form is available from www.hpsc.ie for congenital cases