



Public Health  
England

Protecting and improving the nation's health

# **Tracking the syphilis epidemic in England: 2010 to 2019**

An update on progress towards the  
Syphilis Action Plan prevention priorities

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# Acknowledgements

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# Introduction

Cases of syphilis in England have increased considerably in recent years: 2019 was the year with the highest number of diagnoses since the 1940s, with a 10% increase compared to 2018 (1, 2). Public Health England (PHE) published the Syphilis Action Plan in June 2019 bringing together existing recommendations for PHE and partner organisations to address the continued increase in syphilis diagnoses (3). This report examines the epidemiology of syphilis in England between 2010 and 2019 and assesses progress towards priorities identified under the 4 Syphilis Action Plan prevention pillars (Table 1). Key data presented in this report are being developed into local authority-level metrics to support local service delivery and to track progress made in the control of syphilis in the coming years. These local metrics will be published in 2021. In the meantime, updated rates of infectious syphilis diagnoses by regional and local authority geographies can be found in the [Sexual and Reproductive Health Profiles](#) (4).

This report presents analyses of data from multiple sources and is structured around the 4 prevention pillars of the Syphilis Action Plan (Table 1). Key messages from these analyses include:

- there are 2 distinct but interlinked epidemics among MSM and heterosexual men and women
- the rate of increase in cases among MSM has slowed since 2017, but numbers remain high, highlighting the ongoing need for sustained targeted interventions
- testing frequency in MSM has increased since 2017, but further efforts are needed to ensure transmission decreases
- there has been a marked increase in syphilis among heterosexuals, particularly in UK-born heterosexual women; further understanding of risk behaviours that facilitate transmission in these sexual networks is needed
- it is too early to tell if there is a true increase in congenital syphilis; ongoing monitoring will be vital in understanding the rates of screen positive women requiring treatment in pregnancy, and the numbers of congenital syphilis cases seen by clinicians
- partner notification, or contact tracing, is an effective intervention to identify and treat new syphilis cases among sexual contacts of individuals diagnosed with syphilis, both in heterosexuals and MSM

**Table 1. The PHE Syphilis Action Plan Prevention Pillars and associated sections of this report\***

<b>Report Section</b>	<b>Content and metrics</b>	<b>Surveillance data sources</b>	<b>PHE Syphilis Action Plan (2019) (3)</b>
Section 1: Overview of syphilis epidemiology in England	Trends in syphilis diagnoses in sexual health services and in blood donors	GUMCAD Blood donor data	-
Section 2: Syphilis in men who have sex with men (MSM)	Trends in syphilis diagnoses numbers and rates, testing frequency and proportion testing positive by HIV status and risk categorisation	GUMCAD	Pillar 1: Increase testing frequency of high-risk MSM and re-testing of syphilis cases after treatment
Section 3: Syphilis in heterosexuals and during pregnancy, and congenital syphilis	Trends in syphilis diagnoses numbers and rates, antenatal screening coverage, screen-positive rates in pregnant women, cases of congenital syphilis	GUMCAD ISOSS	Pillar 3: Maintain high antenatal screening coverage and vigilance for syphilis throughout antenatal care
Section 4: Partner notification	Trends in syphilis diagnoses among notified partners, and partner notification ratio in MSM and heterosexuals	GUMCAD	Pillar 2: Deliver partner notification to BASHH standards
Section 5: Progress in targeted control interventions	Update on health promotion and prevention activities from across the system.	-	Pillar 4: Sustain targeted health promotion

\*GUMCAD - GUMCAD STI Surveillance System. Blood donor data for NHS Blood and Transplant (NHSBT) provided by the NHSBT/PHE Epidemiology unit. ISOSS - Integrated Screening Outcomes Surveillance Service, from PHE Infectious diseases in pregnancy screening programme (IDPS). BASHH - British Association of Sexual Health and HIV.

## Section 1: overview of syphilis epidemiology in England

In this section, we present an overview of the epidemiology of syphilis in England between 2010 to 2019, analysing data from sexual health services (SHS) and blood donor screening and updating and integrating previous analyses (1, 3). This report focuses on the infectious stages of syphilis (primary, secondary and early latent) unless specified otherwise. Key findings include:

- syphilis diagnoses have tripled in the last 10 years, with increases seen across all population groups examined
- although the increase is widespread, new infections are concentrated in large urban centres, with highest rates in 2019 in London, Brighton and Hove, Blackpool, Manchester and Salford
- syphilis disproportionately affects gay, bisexual and other men who have sex with men (MSM), who accounted for 78.4% of new diagnoses in 2019
- although numbers are lower relative to MSM, syphilis diagnoses among heterosexuals are increasing rapidly, and rose sharply between 2018 and 2019
- heterosexual cases are younger and more geographically dispersed than MSM cases
- people of Black ethnic backgrounds experience the highest rate of diagnosis
- the rate of confirmed syphilis test results among blood donors has risen among both men and women, suggesting increasing prevalence in the general population

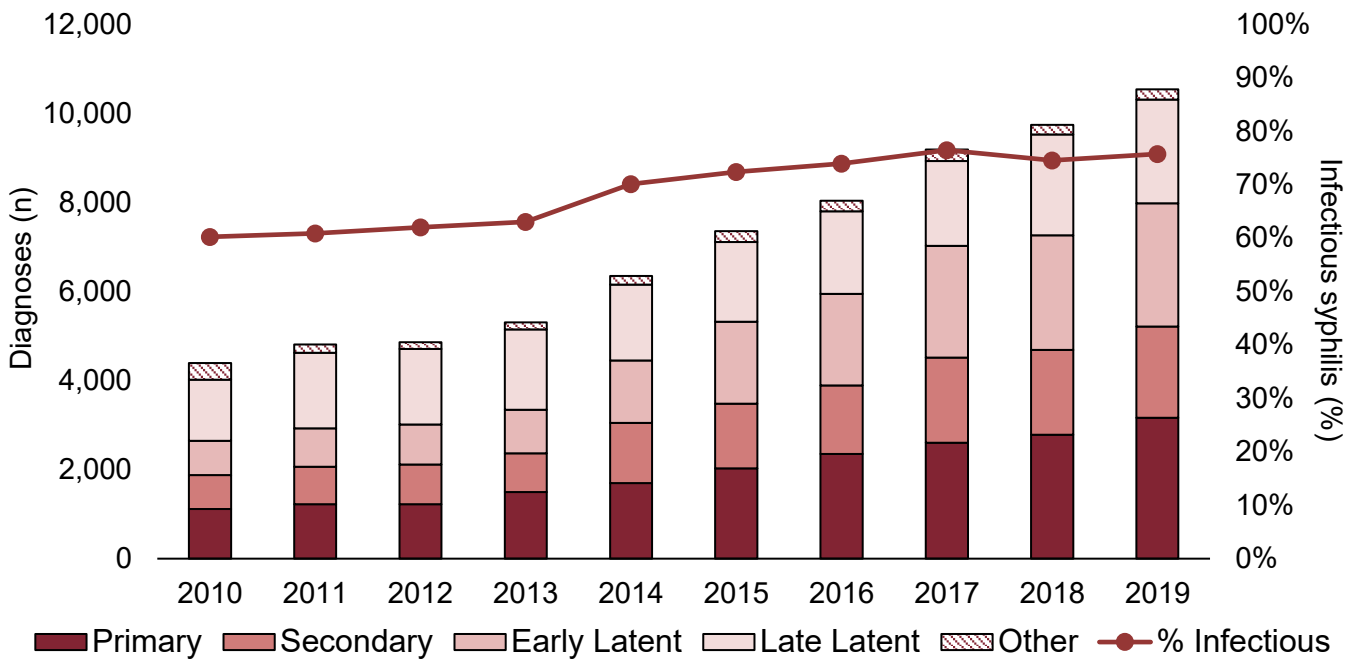
### Trends by clinical stage

Annual diagnoses of infectious syphilis have tripled in the past 10 years, increasing from 2,648 diagnoses in 2010 to 7,982 in 2019. This increase was steepest between 2013 and 2017 (110% increase), with a 10% increase between 2018 and 2019 (Figure 1).

In 2019, infectious syphilis accounted for 75.7% (7,982/10,540) of all syphilis diagnoses; this proportion has remained constant in recent years. The proportion of diagnoses that were early latent stage increased from 17.5% (771/4,394) in 2010 to 26.3% (2,770/10,540) in 2019. Late latent syphilis accounted for 22.1% (2,325/10,540) of all diagnoses in 2019. Complications of syphilis represented 2.2% of the total (n=233), of which 192 were neurosyphilis and 41 were cardiovascular syphilis.

Complications of syphilis may be underreported as cases with cardiovascular and neurosyphilis are likely to present in clinical settings other than sexual health services (SHS) and therefore not be recorded in STI surveillance systems. New codes for otosyphilis and ocular syphilis have been introduced, and reported for the first time in 2019 (2). Analysis of these data will be presented in future reports.

**Figure 1. Number of syphilis diagnoses by clinical stage of infection and the percentage of infectious diagnoses, 2010 to 2019, England\***



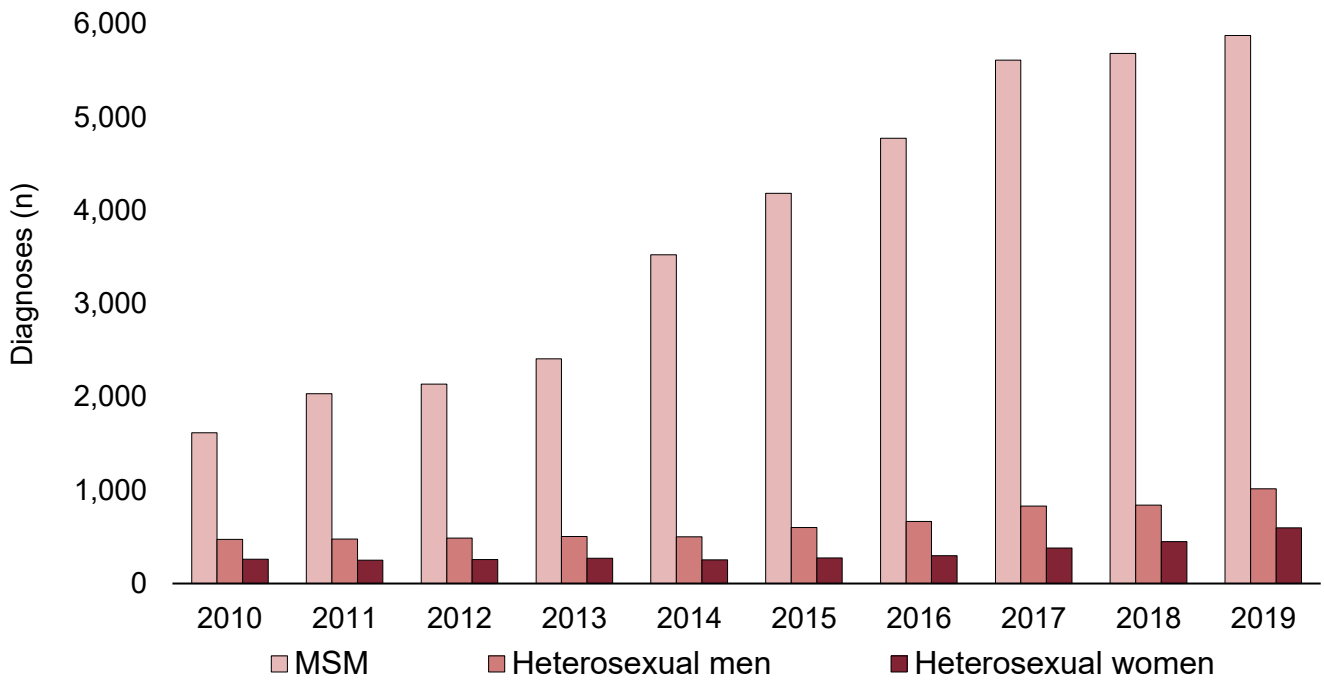
\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Other includes neurological syphilis and cardiovascular syphilis as diagnosed in sexual health services, which are an underrepresentation of diagnoses seen in other settings. Breakdowns provided in other sections of this report. Details can be found within the [STI data tables](#) (1).

## Trends by gender and sexual orientation

Syphilis disproportionately affects gay, bisexual and other men who have sex with men (MSM). In 2019, MSM represented 78.4% of infectious syphilis diagnoses, followed by heterosexual men (13.5%) and heterosexual women (8.0%).

Diagnoses among MSM increased by 247% between 2010 and 2017, and by 3.4% between 2018 and 2019 (Figure 2). Diagnoses among heterosexual men and women increased steadily between 2010 and 2019 and rose by 21% and 33% respectively in the last year. In 2019, 21.5% of all syphilis diagnoses were reported in heterosexuals, a slight increase compared with previous years. The parallel rise in syphilis cases among MSM and heterosexuals suggests these epidemics are interlinked, potentially facilitated through behaviourally bisexual men, including heterosexually identifying MSM (HI-MSM) (3, 5).

**Figure 2. Number of infectious syphilis diagnoses by gender and sexual orientation, 2010 to 2019, England\***

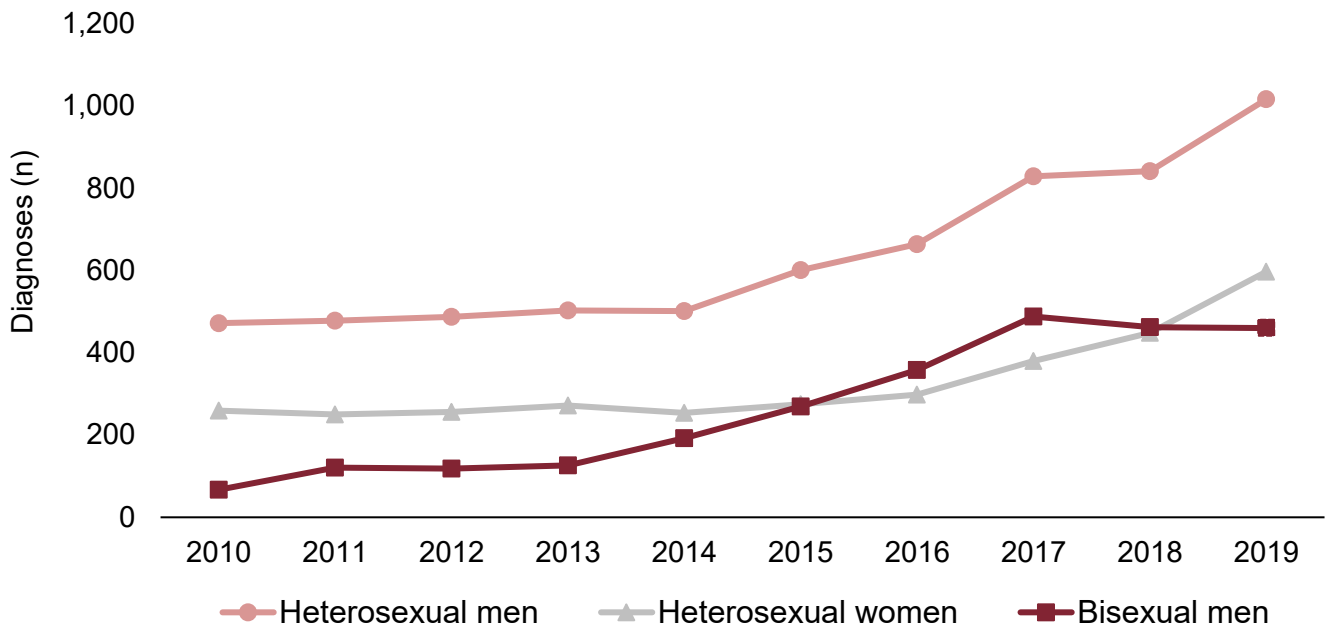


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Details can be found within the [STI data tables \(1\)](#).

Reports of infectious syphilis diagnoses among behaviourally bisexual men started increasing in 2013, with subsequent increases among heterosexual men and women (Figure 3). Diagnoses among bisexual men increased by 265% between 2013 and 2017, then declined slightly and stabilised in 2019, similar to the trend seen among MSM generally (Figures 2 and 3).



**Figure 3. Number of infectious syphilis diagnoses by gender and sexual orientation, 2010 to 2019, England\***

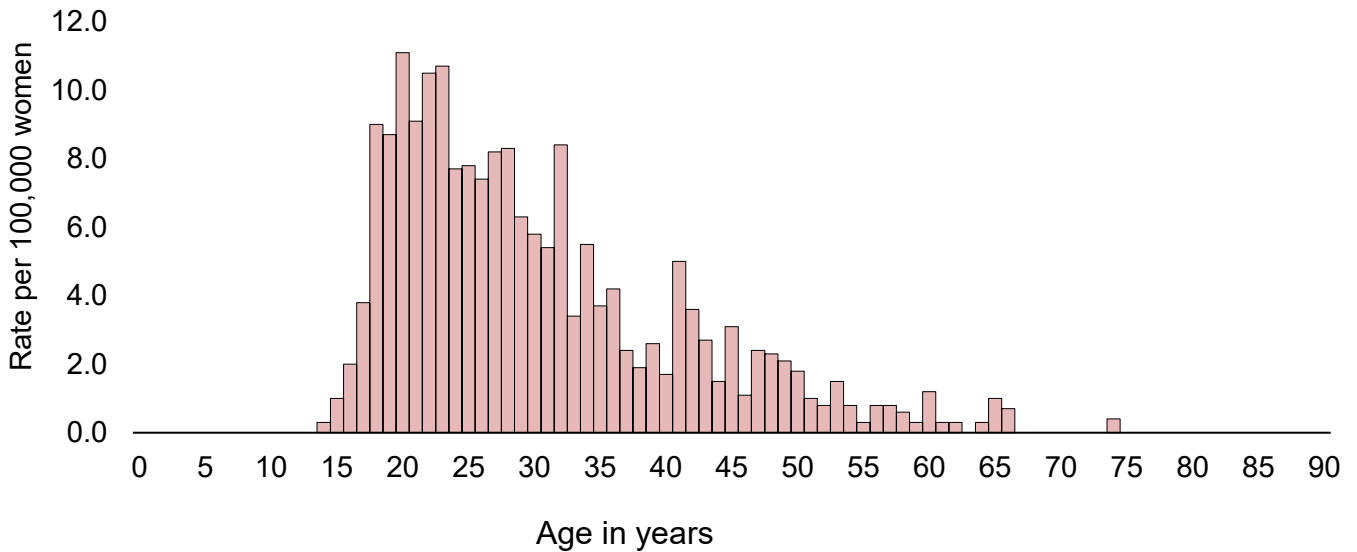


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Data sourced from [GUMCAD STI surveillance system](#). Details can be found within the [STI data tables](#) (1).

## Syphilis diagnoses by age

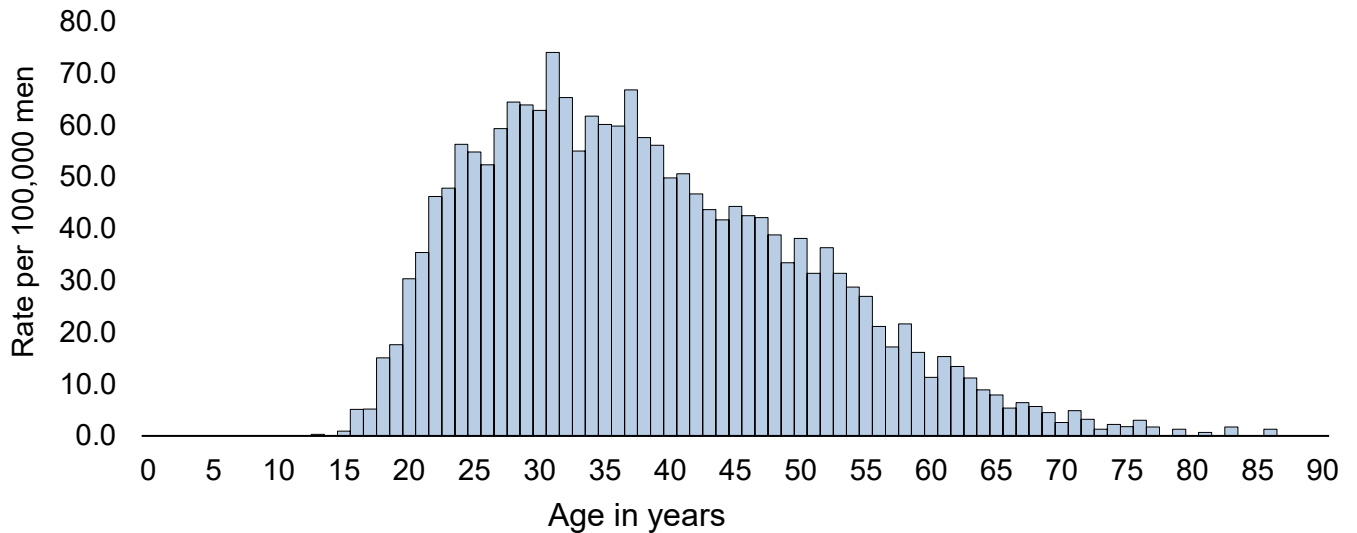
The age distribution of infectious syphilis diagnoses varies by gender and sexual orientation (Figures 4 to 6). Among women, rates per 100,000 are highest at younger ages (18 to 23 years) and in 2019 peaked at 11.1 per 100,000 women aged 20 years (Figure 4). In contrast, the rates among men peak in the early 30s (74.0 per 100,000 men, 31 years) (Figure 5).

**Figure 4. Rates of infectious syphilis diagnoses by single year of age among women per 100,000 women, 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender is known. Includes all women regardless of sexual orientation.

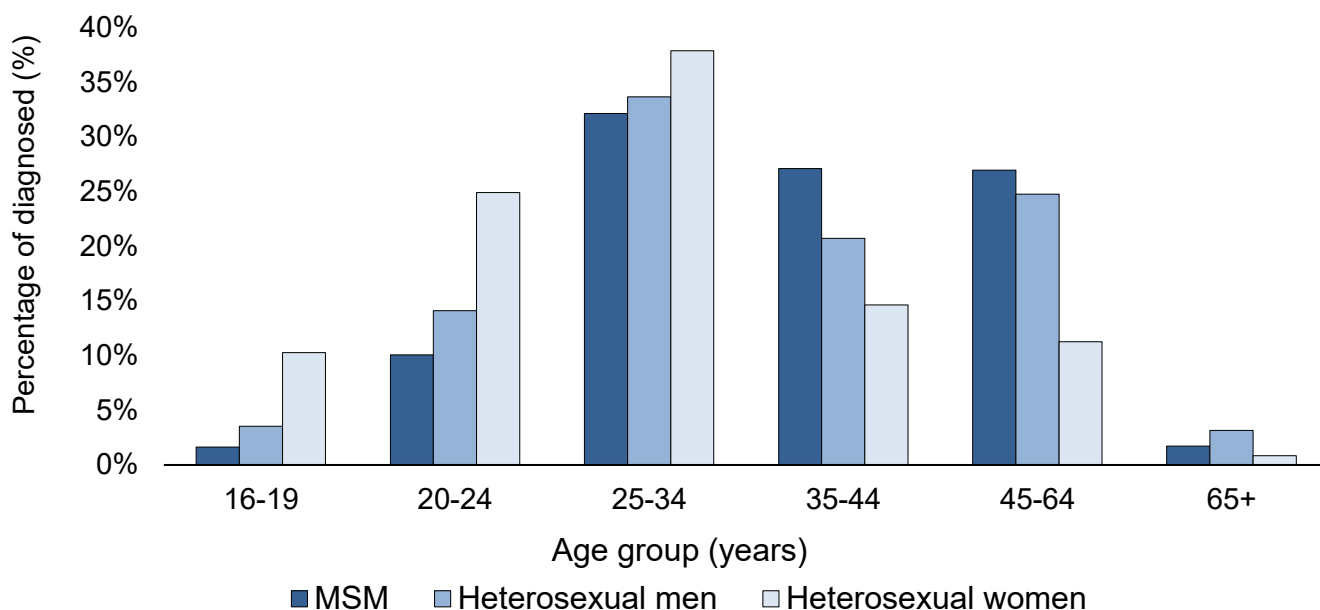
**Figure 5. Rates of infectious syphilis diagnoses by single year of age among men per 100,000 men, 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender is known. Includes all men regardless of sexual orientation.

For MSM and heterosexual men and women in 2019, the largest proportion of diagnoses occurred in those aged 25 to 34 years (Figure 6). In contrast to heterosexual women, a high proportion of diagnoses among heterosexual men and MSM occurred in older age groups (35 to 64 years) and the distribution followed a similar pattern.

**Figure 6. Percentage of infectious syphilis diagnoses by gender and sexual orientation and by age group, 2019, England\***

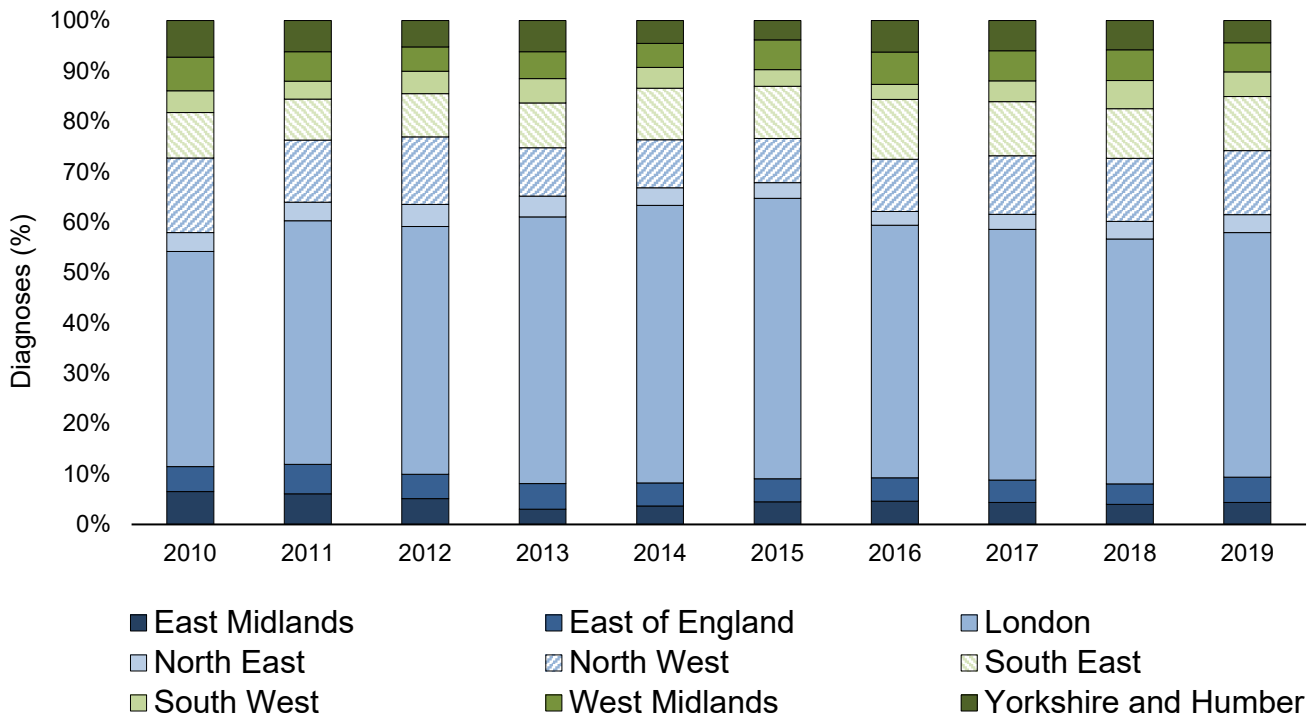


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender, sexual orientation and age are known. MSM – men who have sex with men. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Details can be found within the [STI data tables](#) (1).

## Geographic distribution

Infectious syphilis diagnoses are concentrated in London and other large urban areas (Figures 7 and 8). In 2019, 48.6% (3,786/7,793) of all diagnoses were made among London residents, with relatively high numbers also in the North West (12.7%, n=990) and South East (10.7%, n=835) (Figure 7).

**Figure 7. Percentage of infectious syphilis diagnoses by PHE Centre area of residence, 2010 to 2019, England\***

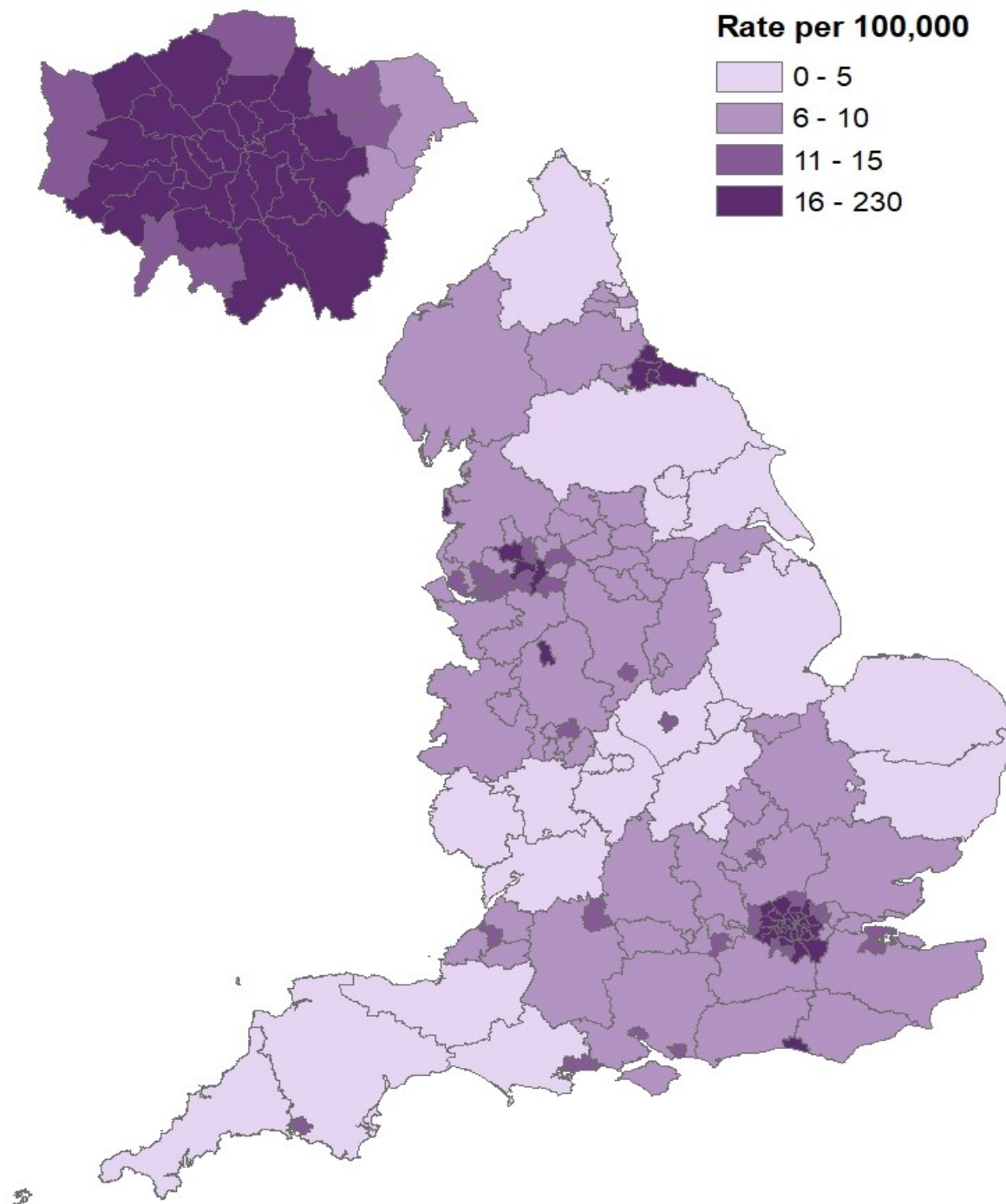


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. PHE centre areas are the centres as of December 2019. Excludes individuals who reside outside of England, or where patient residence is unknown. Data sourced from [GUMCAD STI Surveillance System](#).

Figure 8 presents population rates of syphilis by Upper-Tier Local Authority (UTLA) in 2019 and illustrates particularly high rates in London, Blackpool, Manchester, Salford and Brighton. Rates of syphilis diagnoses have remained stable or increased in every UTLA in England (4).

This concurs with previous spatiotemporal analyses that revealed 4 endemic areas accounting for 60% of all diagnoses: London, Brighton, Manchester and Blackpool (5). A further 9% of cases were seen in clusters and foci that were time-limited and the remainder (31%) were sporadic (5). Within London, syphilis cases are concentrated in inner London boroughs (6).

**Figure 8. Rates of new infectious syphilis diagnoses made in sexual health services by Upper-Tier Local Authority (UTLA) of residence, 2019, England\***



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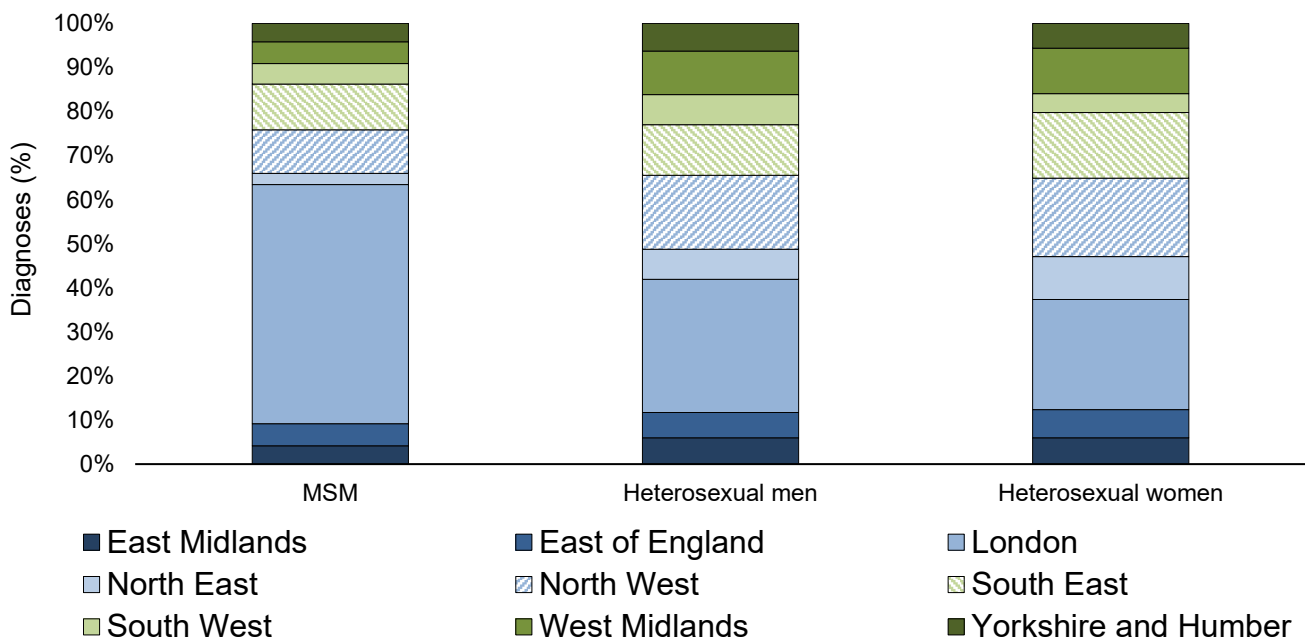
\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Excludes individuals who reside outside of England, or where patient residence is unknown. Data sourced from GUMCAD STI Surveillance System. Crown Copyright and database right 2020. Upper-Tier Local Authority (UTLA) rates are available on the [Sexual and Reproductive Health profiles](#).

## Geographical distribution by gender and sexual orientation

The spatial distribution of infectious syphilis varies across gender and sexual orientation (Figures 9 to 11). However, this might partly reflect the distribution of MSM living in London or other large urban areas (7).

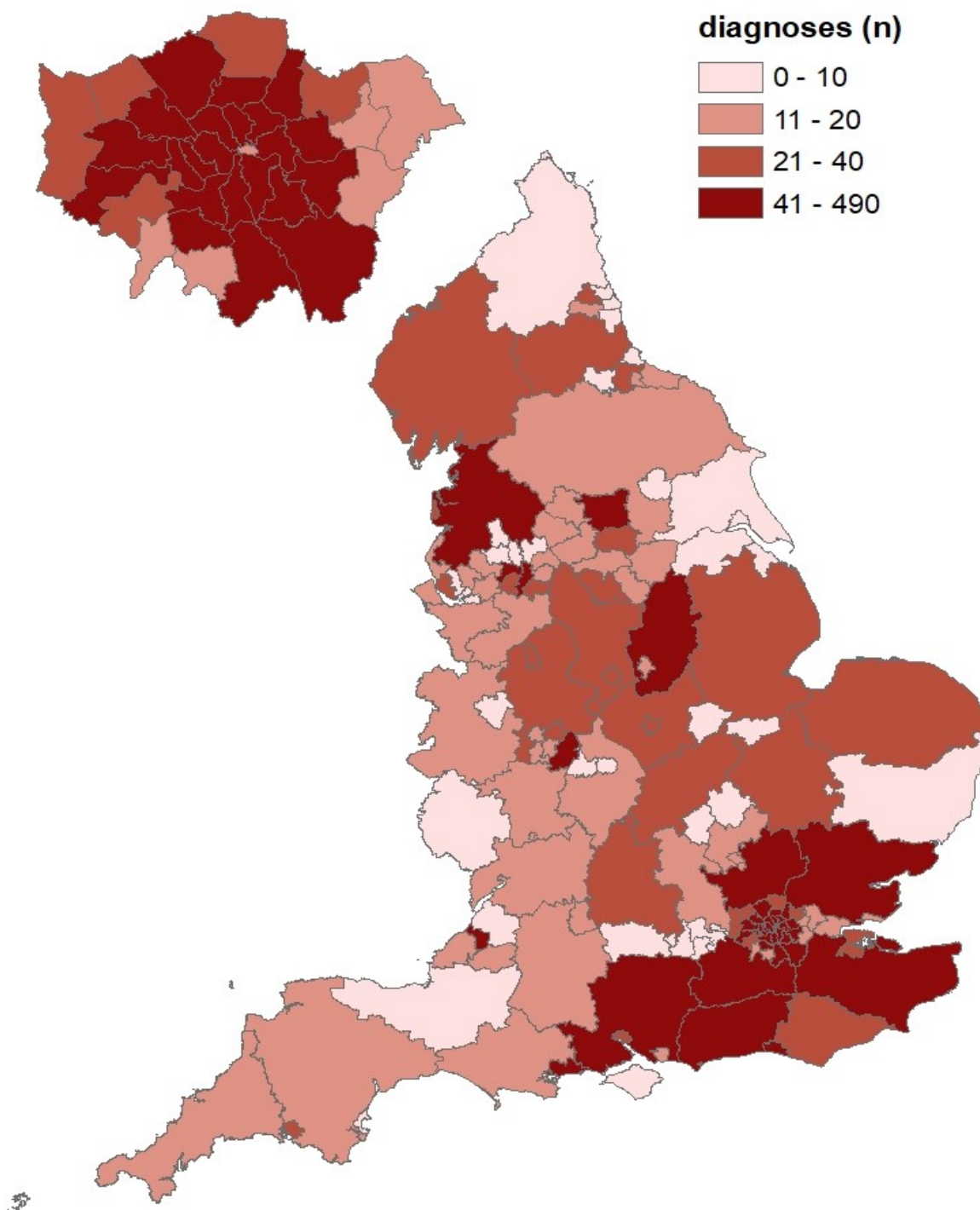
In 2019, 54.3% (n=3,121) of diagnoses among MSM were in London residents, compared with 30.2% (n=297) and 25.0% (n=146) of diagnoses in heterosexual men and women, respectively (Figure 9). However, there is some overlap: the largest proportions of syphilis diagnoses among MSM and heterosexuals were in the South East, North West, and London (Figures 9 to 11). The proportion of diagnoses among heterosexual men and women in the West Midlands (9.9% and 10.3% respectively) and the North East (6.8% and 9.8% respectively) was higher compared to that of MSM (4.9% and 2.5% respectively). Figures 10 and 11 show the number of infectious syphilis diagnoses among MSM and heterosexuals by UTLA.

**Figure 9. Percentage of infectious syphilis diagnoses by PHE Centre area of residence, gender, and sexual orientation, 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender, sexual orientation and area of residence is known. Women who have sex with women are excluded due to small numbers (n=17 for 2019). PHE centre areas are the centres as of December 2019. Data sourced from [GUMCAD STI Surveillance System](#).

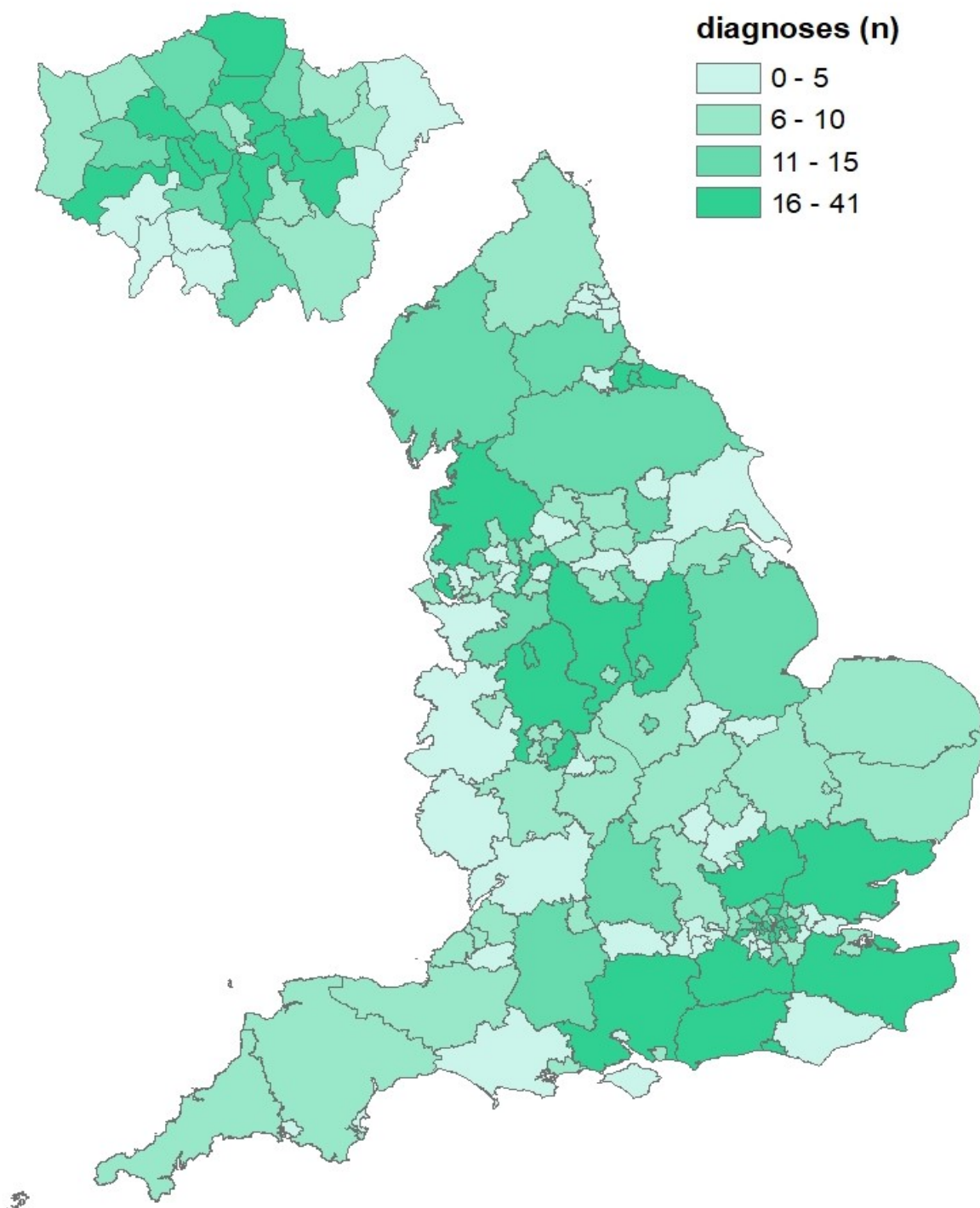
**Figure 10. Number of infectious syphilis diagnoses in MSM by Upper-Tier Local Authority (UTLA) of residence, 2019, England\***



*Contains Ordnance Survey Data © Crown Copyright*

\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender, sexual orientation and residence is known. MSM – men who have sex with men. Data sourced from GUMCAD STI Surveillance System. Crown Copyright and database right 2020.

**Figure 11. Number of infectious syphilis diagnoses in heterosexuals by Upper-Tier Local Authority (UTLA) of residence, 2019, England\***



*Contains Ordnance Survey Data © Crown Copyright*

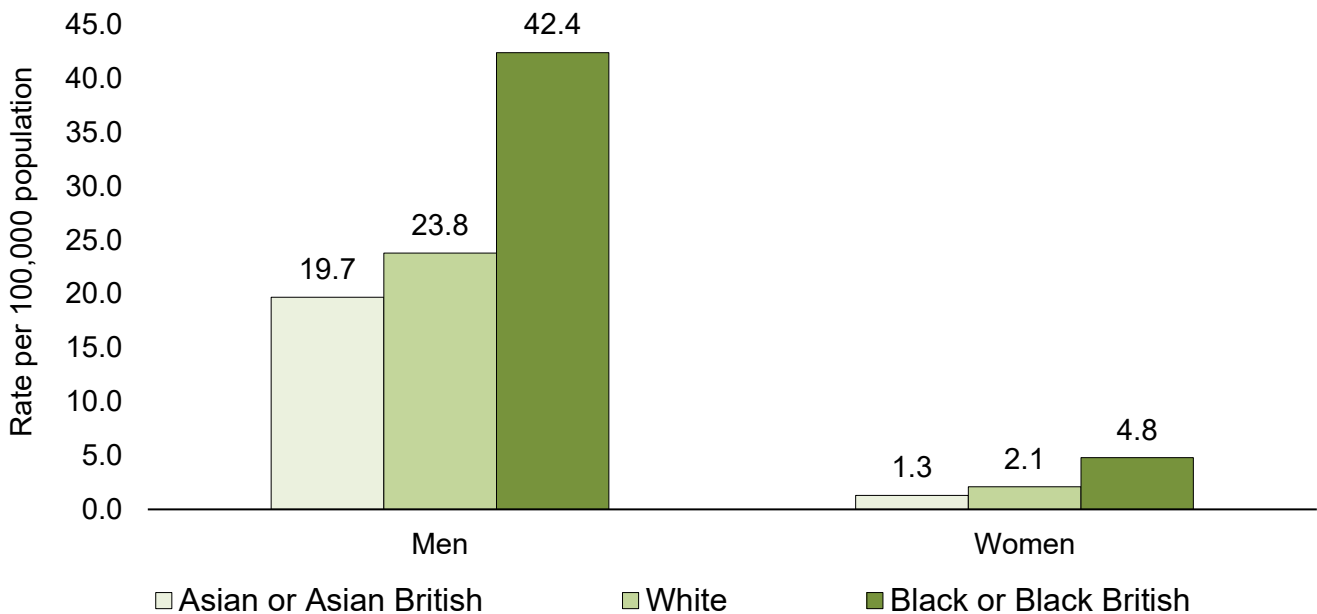
\* Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender, sexual orientation and residence is known. Data sourced from GUMCAD STI Surveillance System. Crown Copyright and database right 2020.



## Trends by ethnicity and region of birth

In 2019, most infectious syphilis diagnoses were made among people of white ethnic background (n=5,786, 82.9%), as in previous years. However, both in men and women, people of Black or Black British background had higher rates of syphilis than those of Asian or Asian British, or White backgrounds (Figure 12).

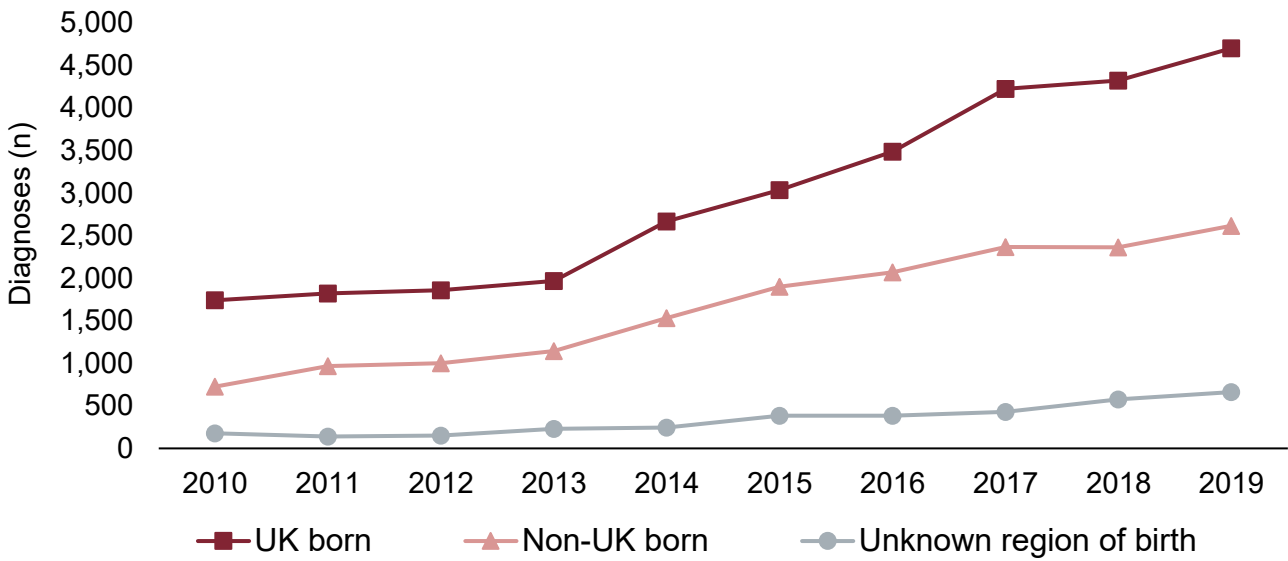
**Figure 12. Rate of infectious syphilis per 100,000 population by gender and ethnic group, 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Mixed and Other groups not included due to small numbers and heterogeneity within the groups. ONS population denominators by ethnicity have been static since 2011. These rates should be interpreted with caution. Rates for each disaggregated ethnic group are not shown due to small numbers. Analysis excludes diagnoses of syphilis made in individuals with 'unknown' ethnicity or gender. Details can be found within the [STI data tables \(1\)](#).

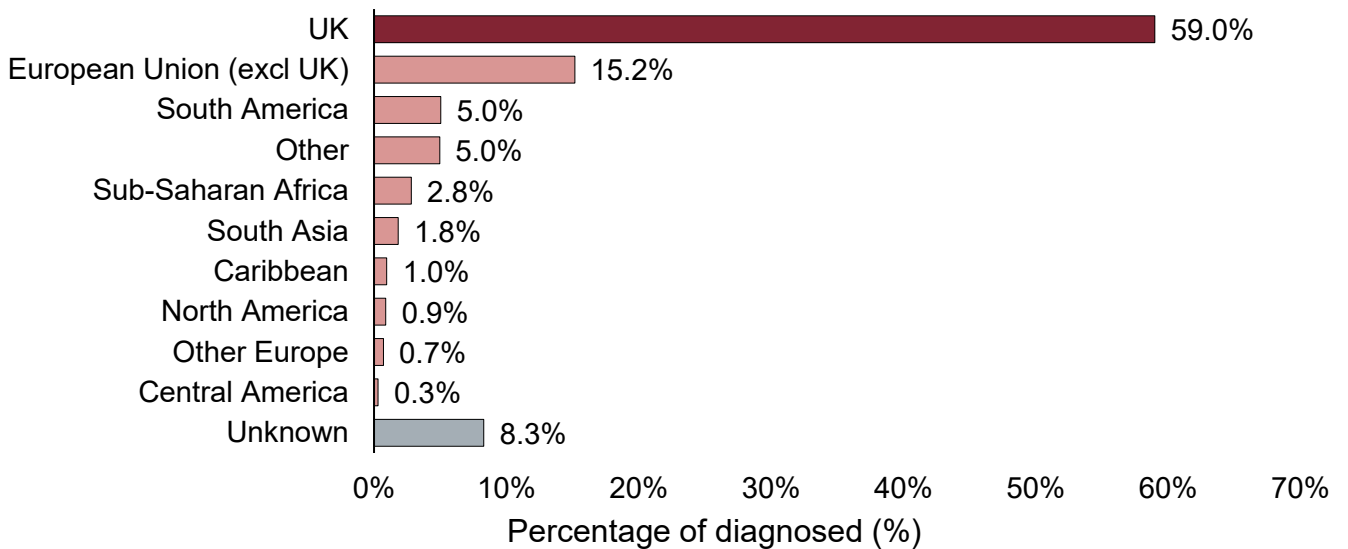
In 2019, most infectious syphilis diagnoses were among people born in the UK (n=4,703, 59.0%) compared to those not born in the UK (n=2,617, 32.7%) or of unknown region of birth (n=662, 8.3%) (Figure 13). The number of infectious syphilis diagnoses increased rapidly from 2013 to 2019 both for those born in the UK (139% increase) and those not born in the UK (129% increase). In 2019, among those who were not born in the UK the most common place of birth was the European Union (15.2%) followed by South America (5.0%) (Figure 14).

**Figure 13. Number of infectious syphilis diagnoses by region of birth, 2010 to 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Details can be found within the [STI data tables](#) (1).

**Figure 14. Percentage of infectious syphilis diagnoses by region of birth, 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses.

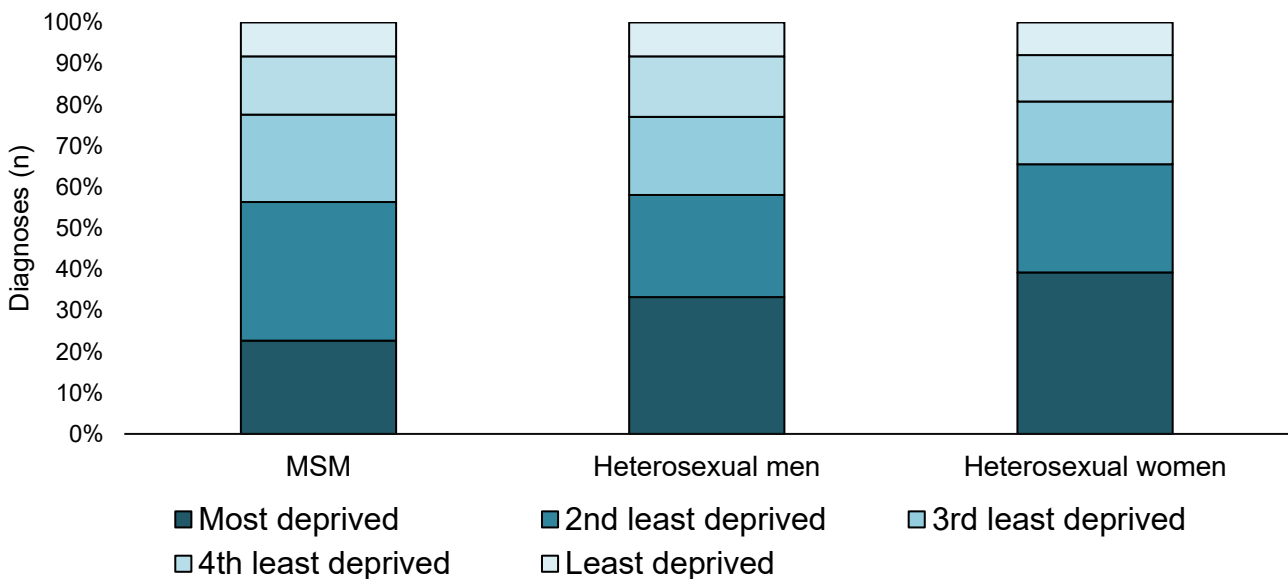
## Syphilis and inequalities

Data presented in the preceding sections illustrate the unequal distribution of syphilis across population groups in England. In addition to disparities by age, sexual orientation, ethnicity and geography, previous analyses have found a linear relationship between syphilis rates and socioeconomic deprivation (8).

Spatiotemporal analyses using surveillance data have shown that 9% of syphilis diagnoses belong to time-limited clusters (5). Case reports from investigations of clusters and outbreaks frequently describe socially vulnerable individuals with complex needs (9-12). Similarly, a review of congenital syphilis cases in the UK (2010 to 2015) observed that social circumstances of mothers varied and some included injecting drug use, sex work and imprisonment, or challenges accessing healthcare due to cultural barriers (13). Understanding how these inequalities influence and impact on the transmission of syphilis is key to improving prevention.

In 2019, 22.7% of infectious syphilis diagnoses were made among MSM in the most deprived quintile, compared with 33.2% and 39.3% for heterosexual men and women, respectively (Figure 15).

**Figure 15. Percentage of infectious syphilis diagnoses by IMD quintile in LSOA of residence, gender and sexual orientation, 2019, England\***



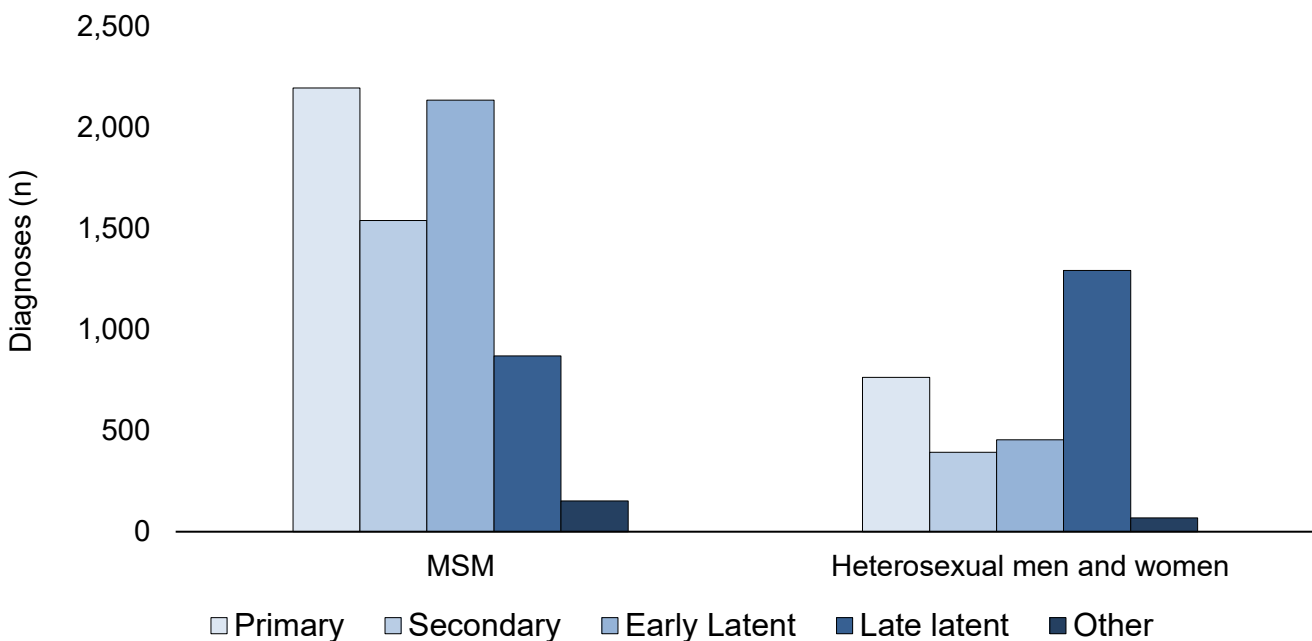
\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender, sexual orientation and area of residence is known. Women who have sex with women are excluded due to small numbers (n=17 for 2019). IMD – Index of Multiple Deprivation. LSOA – Lower Layer Super Output Area. Data sourced from [GUMCAD STI Surveillance System](#).

## Late latent syphilis by gender and sexual orientation: implications for surveillance and control

Late latent syphilis is asymptomatic and non-infectious, however, if left untreated it can lead to significant individual morbidity and mortality from cardiovascular and neurological disease (13). It can also potentially be transmitted vertically during pregnancy (14). Late latent syphilis represents new diagnoses in asymptomatic patients in whom infection is believed to have been acquired 2 or more years prior to diagnosis (14). Diagnoses in which the exposure is believed to have occurred within the last 2 years are classified as early latent. Ascertaining the time of infection in asymptomatic patients with no testing history is challenging: without prior testing and clear sexual history, healthcare providers cannot confidently classify asymptomatic syphilis as early or late. From a clinical perspective, late latent syphilis requires longer durations of treatment to clear the infection (14). In these cases, providers tend to err in the side of caution to avoid undertreating late latent syphilis, and thus prevent complications.

The proportion of new syphilis diagnoses that are classified as late latent varies by gender and sexual orientation: in 2019, 43% (n=1,293) of diagnoses among heterosexual men and women were reported as late latent, in contrast with 13% (n=871) of those among MSM (Figure 16). The reverse pattern is seen for early latent syphilis. This likely reflects different health-seeking behaviour across groups, particularly testing frequency (see Sections 2 and 3 of this report for detail).

**Figure 16. Number of syphilis diagnoses gender and sexual orientation and stage, 2019, England\***



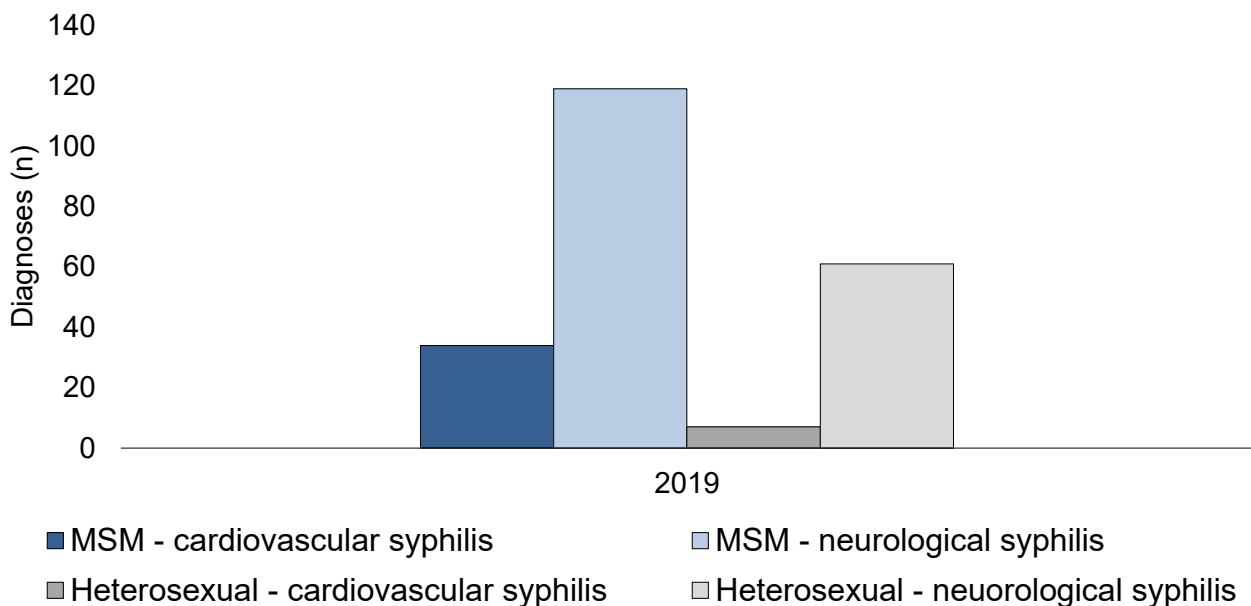
\*Other includes neurological syphilis and cardiovascular syphilis as diagnosed in sexual health services, which are an underrepresentation of diagnoses seen in other settings. Analysis for diagnoses in which gender and sexual orientation are known. Women who have sex with women are excluded due to small numbers (n=17 for 2019). MSM-Men who have sex with men. Details can be found within the [STI data tables](#) (1).

## Complications of syphilis diagnosed in sexual health services

Neurological syphilis and cardiovascular syphilis are complications arising from untreated syphilis infections (13). Recent changes in surveillance including the introduction of new codes for otosyphilis and ocular syphilis in 2019 make it difficult to compare syphilis complications over time (1). Additionally, people with complications from syphilis are more likely to present to GPs and hospitals than to SHS, therefore complications are likely underreported.

Although complications tend to occur years after infection, neurological syphilis can occur in early stages. Among attendees to SHS, neurological syphilis was diagnosed more often than cardiovascular syphilis (Figure 17). The proportion of people with syphilis who have complications is similar between MSM and heterosexuals. In 2019, there were more syphilis complications reported in GUMCAD among people who were born in the UK (n=124) than in people who were born outside of the UK (n=75).

**Figure 17. Number of syphilis complications diagnosed in sexual health services among MSM and heterosexuals by type of complication, 2019, England\***



\*Analysis for diagnoses in which gender and sexual orientation are known. MSM-Men who have sex with men. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Includes syphilis complications diagnosed in sexual health services only, as reported in [GUMCAD STI surveillance system](#).

## Syphilis among blood donors

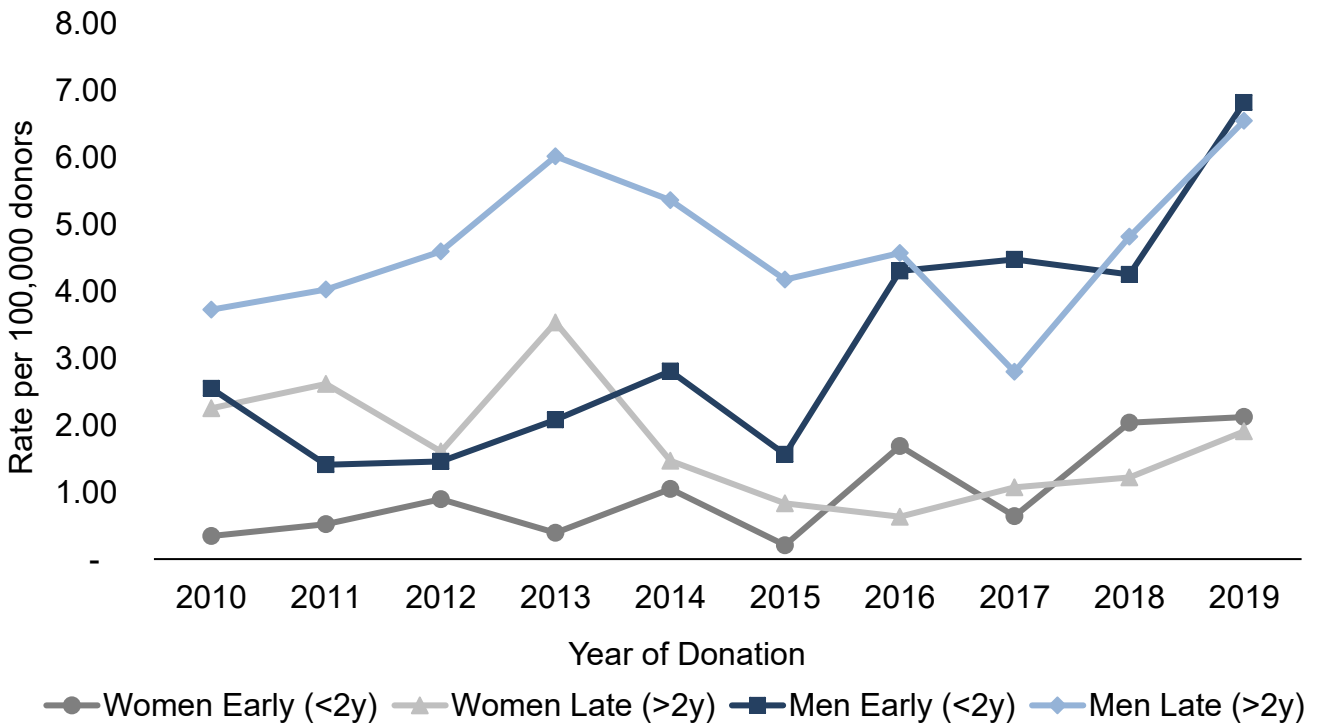
Confirmed cases of syphilis in blood donors give insight into underlying infection trends in the general population. Donors in England are voluntary, unpaid individuals aged 17 and over, and selected to be at low risk of blood-borne infections. Recent changes in policies recommending individualised risk-based assessments were announced in 2020 (15). However, data presented in this section include data that span a range of deferral policies for MSM (policies that disqualified groups of MSM from donating blood). Consequently, rates of syphilis among blood donors presented here do not fully represent rates of syphilis in the general population.

NHS Blood and Transplant (NHSBT) screens all blood donations made in England for treponemal antibodies indicating syphilis. Reactive (screen positive) donations are rejected and undergo further confirmatory testing including IgM and rapid plasma reagin (RPR) test. Since 2016, people wishing to donate in England have been advised not to give blood if they have a history of syphilis to avoid people making unusable donations. There have been no reported cases of syphilis transfusion transmissions in the UK since reporting began in 1996, but syphilis screening is useful to monitor behaviour and compliance.

When donations are confirmed antibody positive, donors are invited for a telephone post-test discussion to obtain a history and refer for follow up. Donors disclosing a history of treatment at their post-test discussion were excluded from these data (n=172). Those with unknown infection status were assigned to the late category (n=66), which may over-estimate the rate of untreated late infection.

In 2019, 10 women and 25 men were antibody positive and classified as likely to have early syphilis (acquired within 2 years and untreated), while 10 women and 24 men were likely to have late syphilis (acquired more than 2 years prior and untreated). In 2019, 15% and 17% of early and late cases among men reported sex with men. The rates of confirmed positive syphilis cases in blood donors increased for early and late syphilis among men between 2010 and 2019 (Figure 18).

**Figure 18. Rate of confirmed positive syphilis cases in blood donors per 100,000 donors by gender and early or late stage, 2010 to 2019, England\***



\*Blood donor data for NHS Blood and Transplant (NHSBT) provided by the NHSBT/PHE Epidemiology unit. Confirmed positives have been separated into less than 2 years and more than 2 years to increase comparability to 'infectious/early' and 'latent/late' syphilis in other figures. <2y - syphilis acquired within 2 years of detection and untreated. >2y - syphilis acquired more than 2 years prior to detection and untreated.

## Section 2: syphilis in MSM

Pillar 1 of the Syphilis Action Plan identified gay, bisexual and other MSM as a population at high risk for syphilis. This group requires targeted efforts, including increased testing frequency and monitoring outcomes in those being diagnosed with syphilis (3). Actions to control syphilis in this group need to be targeted to groups with higher syphilis rates, including those living with HIV (2), high-risk MSM (HR MSM, such as those having condomless sex with new or casual partners) (3), or those using HIV pre-exposure prophylaxis (PrEP), due to possible risk compensation (16-18). Additionally, heterosexually-identifying MSM (HI-MSM) need targeted health promotion since they might be at heightened risk of syphilis but reluctant to access sexual health services, and as a result may be less aware of their risk of acquiring STIs (3).

In alignment with Pillar 1 of the Syphilis Action Plan, this section presents trends in syphilis diagnoses, rates, testing frequency, and proportion positive among MSM who attend SHS, assessing trends by HIV status and proxied risk behaviour. Future iterations of this report will monitor outcomes and follow-up testing of individuals treated for syphilis using surveillance data, as well as present results from new behavioural specifications of the GUMCAD STI Surveillance System which will support identifying HR MSM, HI-MSM, and MSM using PrEP (19).

Key findings in this section include:

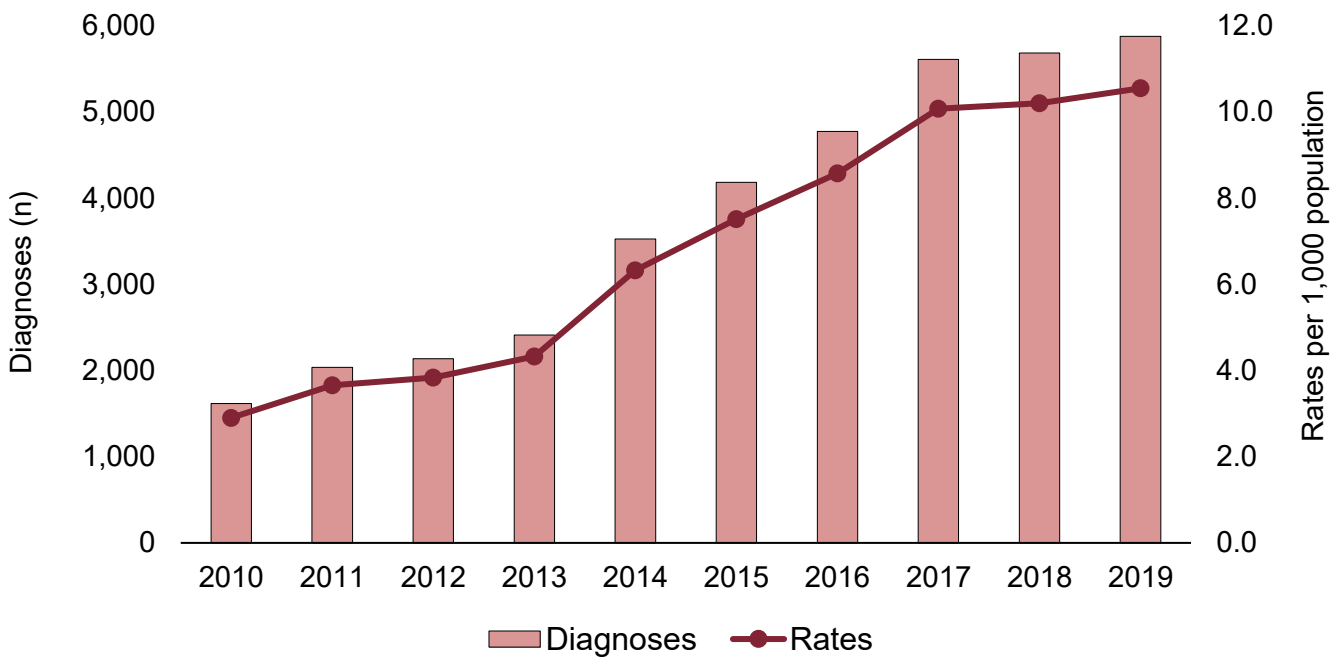
- syphilis diagnoses among MSM have increased rapidly in the last 10 years, with >10 per 1,000 MSM being diagnosed in SHS annually since 2017
- testing frequency for syphilis in MSM has increased: 80% of those attending SHS in 2018 were tested for syphilis at least once in the following year, and 33% tested more frequently
- despite encouraging progress, both testing uptake and frequency need to be strengthened further to meet recommended standards (14)
- syphilis rates among MSM living with HIV are very high: in 2019, those who were positive had over 5 times the rate of syphilis than those who were HIV negative or of unknown HIV status
- those living with HIV appear to be testing less frequently in SHS than MSM who are negative or of unknown status, partly due to testing in separate HIV care services
- syphilis rates are climbing disproportionately among those who are HIV negative or unknown HIV status, particularly in HR MSM, with diagnoses increasing by 20.7% in this group between 2018 and 2019
- in the last decade, HR MSM who are HIV negative or unknown HIV status have emerged as a group with rapidly increasing numbers of syphilis diagnoses; these men are also testing more frequently, but below recommended standards (14)



## Trends in rates and diagnoses

Syphilis diagnoses among MSM increased rapidly between 2010 and 2017. Although the increase slowed from 2017, the 5,875 new diagnoses in 2019 (Figure 19), are the highest number of annual diagnoses in the last decade. Population rates increased from 2.9 to 10.5 diagnoses per 1,000 MSM from 2010 to 2019.

**Figure 19. Number of infectious syphilis diagnoses and rates per 1,000 population among MSM, 2010 to 2019, England\***

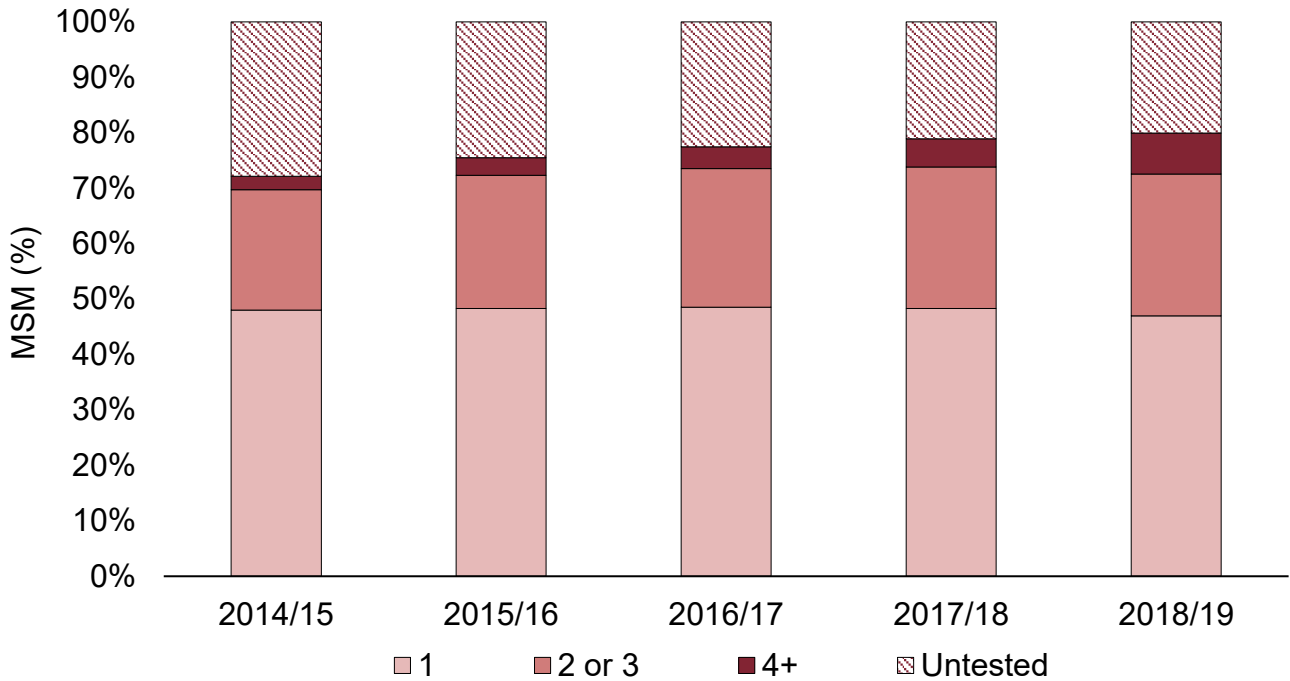


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. Rates by sexual orientation and HIV status have been calculated using 2018 Office for National Statistics population estimates for all years.

## Trends in testing and proportion positive

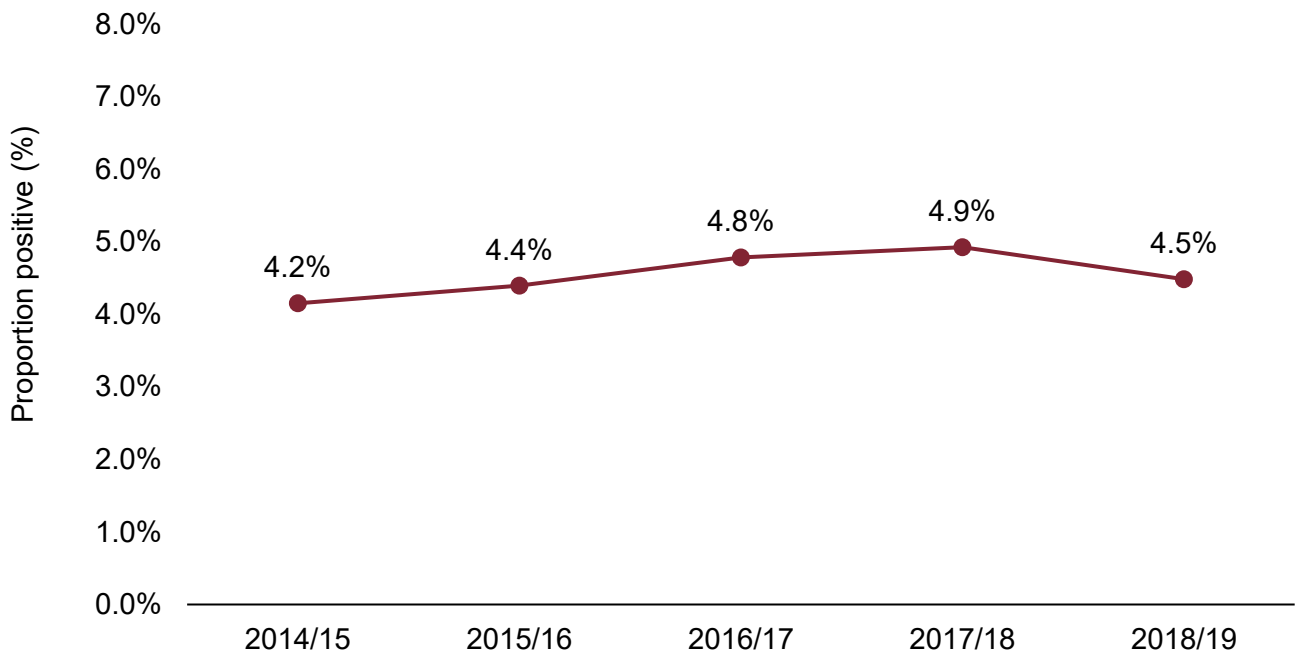
Among SHS attendees, the proportion of MSM who test for syphilis each year has increased from 72.2% between 2013 and 2014 to 80.0% between 2018 and 2019 (Figure 20). Repeat testers, or individuals who test more than once in a year, have increased from 24.2% between 2013 and 2014 to 33.0% between 2018 and 2019. In the same period, MSM who test 4 or more times in a year have increased from 2.5% to 7.4%; this is below recommended standards for MSM (14). The proportion of people tested who had a positive test showed little variation over 5 years, with an increase from 4.2% to 4.9% between 2014 and 2017. However, the proportion positive declined to 4.5% between 2018 and 2019 (Figure 21).

**Figure 20. Testing frequency among MSM, 2014 to 2019, England\***



\*Testing frequency is calculated as the number of times an individual test for syphilis in the 365 days following their first attendance in a calendar year. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known. MSM – men who have sex with men.

**Figure 21. Proportion positive among MSM, 2014 to 2019, England\***



\*Proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known. MSM – men who have sex with men.

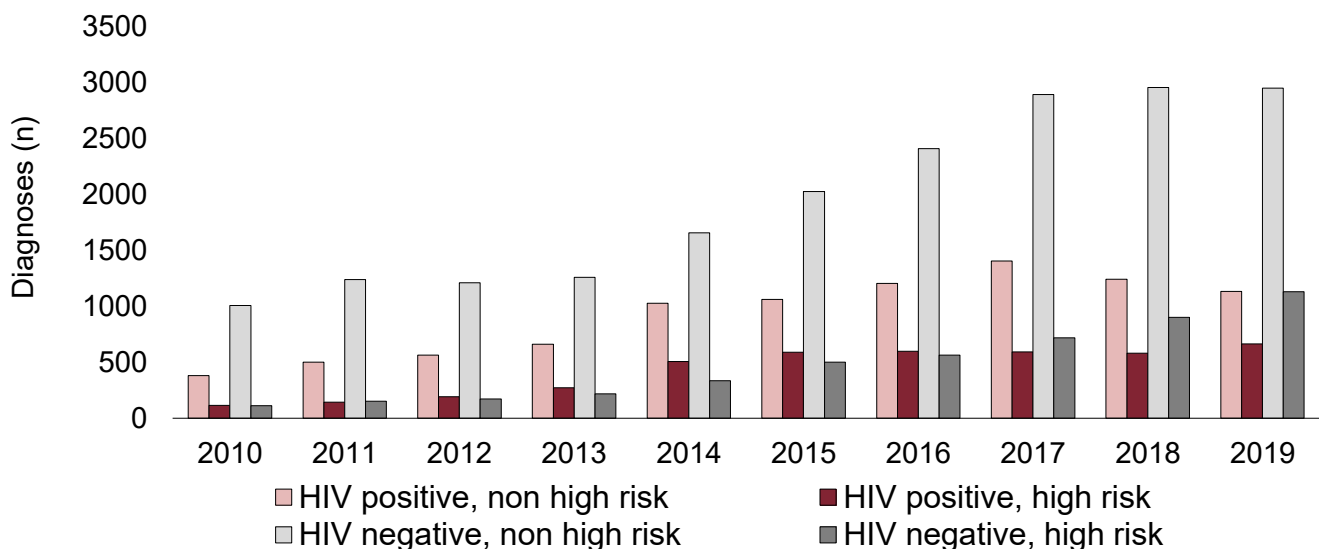
## Trends by HIV status and risk behaviours

The implementation and scale-up of HIV prevention in the last decade might have affected the epidemiology of syphilis among MSM (Figure 22). To report this change and identify areas for strengthening targeted control interventions, analyses in this section include:

- analyses in MSM by HIV status, classified as living with HIV, and HIV negative or undiagnosed
- analyses in MSM by risk categorisation, using history of a bacterial STI in the last year as a proxy for condomless sex and multiple sex partners, which increase the risk for syphilis (high-risk MSM, abbreviated as HR MSM). New behavioural specifications in GUMCAD have been progressively implemented since 2019 and will allow measuring sexual behaviour directly in future iterations of this report (19)
- combined analyses by HIV status and risk categorisation, with a focus on HR MSM who are HIV negative or unknown HIV status, to proxy the need for PrEP and associated risk compensation, which could result in an increase of syphilis in this group. Direct analyses on the incidence of syphilis in individuals using PrEP in England will be presented in 2021 as part of results from the PrEP Impact Trial (16)

When interpreting these analyses, it is important to consider that increases in the number of STI diagnoses in the past decade have led to an increase in the number of MSM who are classified as HR MSM (2). In contrast, effective HIV prevention including treatment as prevention (TasP) and HIV pre-exposure prophylaxis (PrEP) have led to a decrease in the number of new HIV infections and led to a plateau in the number of MSM living with HIV (20).

**Figure 22. Number of infectious syphilis diagnoses among MSM by HIV status and risk categorisation, 2015 to 2019, England\***

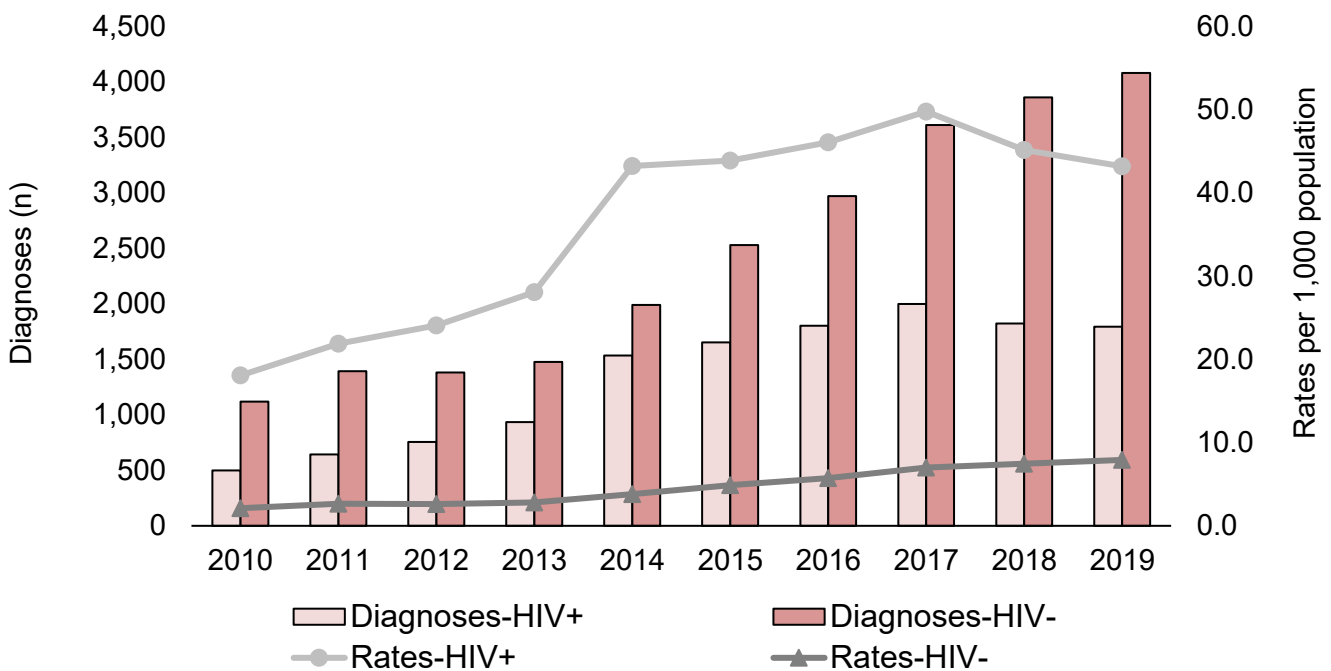


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM—men who have sex with men. HIV negative includes those with unknown HIV status. High risk - men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

## Trends by HIV status

In 2019, 30.5% of all syphilis diagnoses in MSM were among those living with HIV. There were 43.2 diagnoses per 1,000 MSM living with HIV compared to 7.9 diagnoses per 1,000 among those who were HIV negative or unknown HIV status (Figure 23). Between 2010 and 2019, syphilis diagnoses increased in both MSM living with diagnosed HIV (by 260.4%) and those who were HIV negative or unknown HIV status (by 264.6%). Within this overall rise, however, syphilis diagnoses among MSM living with HIV have slightly decreased since 2017, with a 10.2% decrease in 2019 (n=1,795) compared to 2017 (n=1,998). In contrast, diagnoses among those who are HIV negative or unknown HIV status increased by 13.0% between 2017 (n=3,612) and 2019 (n=4,080).

**Figure 23. Number of infectious syphilis diagnoses and rates per 1,000 population among MSM by HIV status, 2010 to 2019, England\***

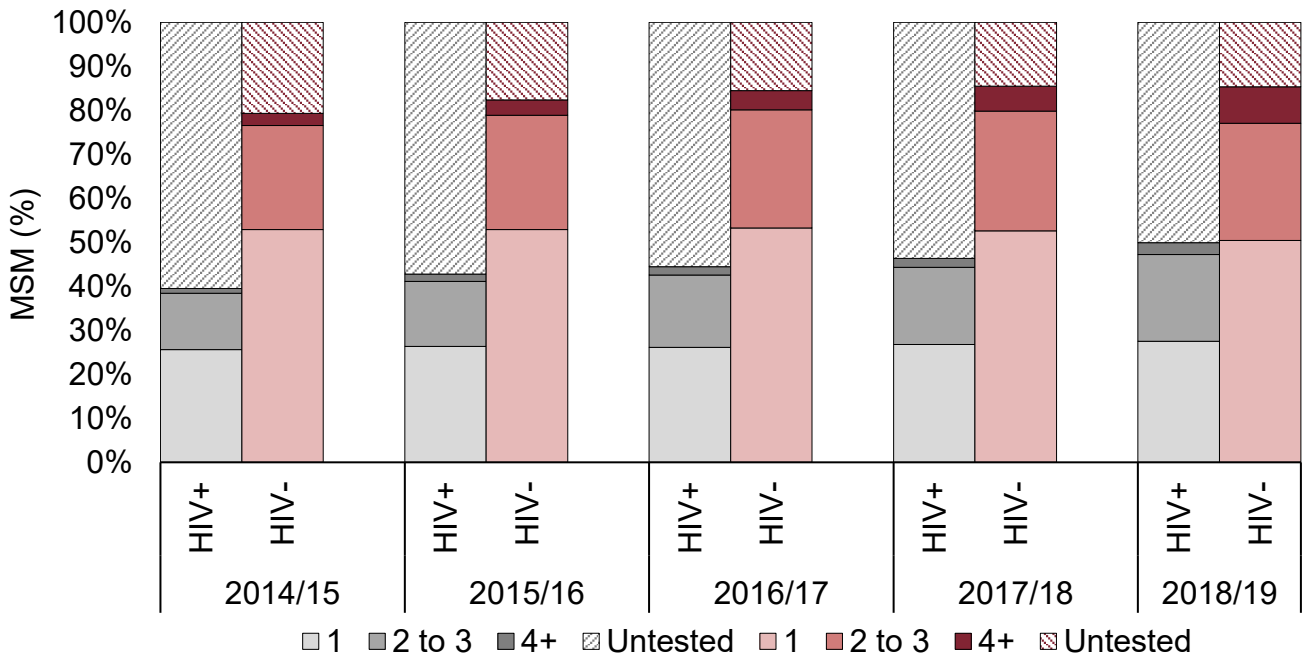


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. HIV negative includes those with unknown HIV status. Denominators for rates of HIV positive MSM are the number of MSM seen for HIV care that reside in England, and can be found in the [HIV data tables](#). Denominators for rate of HIV negative MSM are the number of MSM (Office of National Statistics population statistics – 2018 estimates for all years) minus the number of HIV positive MSM.

Annual testing and repeat testing (having more than one syphilis test in a 365-day period) have increased in both MSM living with HIV and MSM who were HIV negative or unknown HIV status (Figure 24). Among MSM attending SHS who were HIV negative or unknown HIV status, the proportion tested at least once increased from 79.3% between 2014 and 2015 to 85.4% between 2018 and 2019. Repeat testing in this group also increased steadily, with 34.9% testing more than once and 8.3% testing 4 or more times between 2018 and 2019. Among

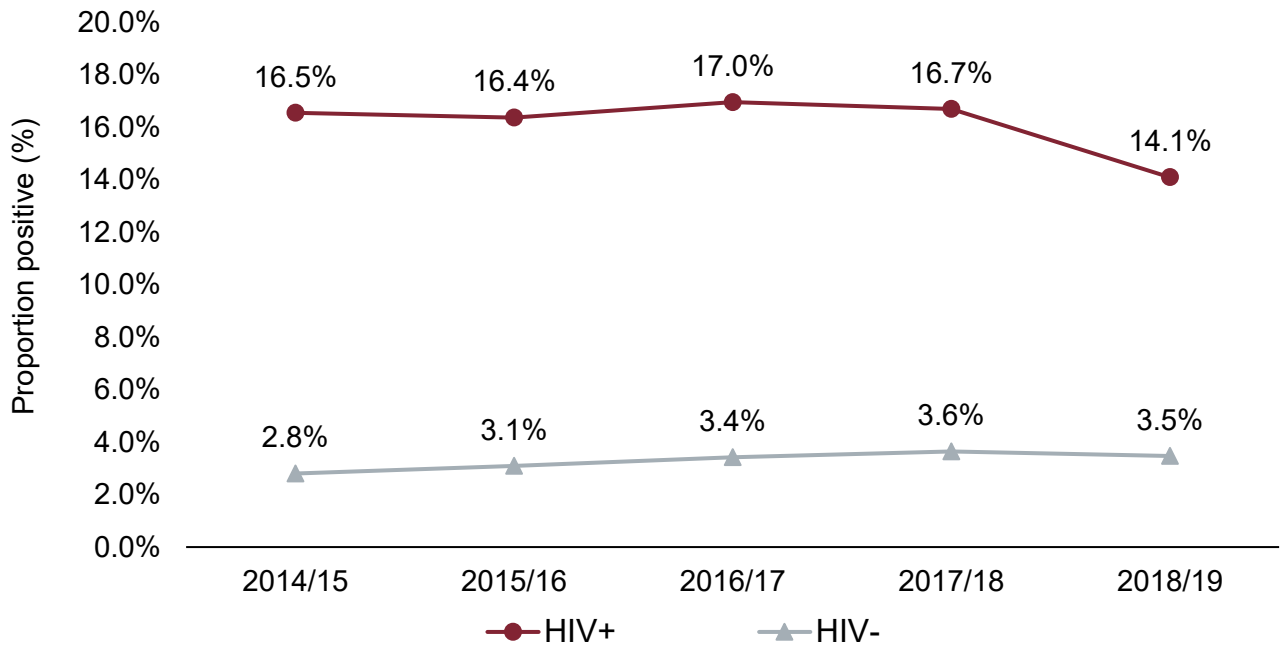
those living with HIV, testing increased from 39.5% between 2014 and 2015 to 49.9% between 2018 and 2019. The proportion positive among MSM living with HIV who tested for syphilis, remained consistent from 2014 and 2015 to 2017 and 2018, followed by a drop from 16.7% to 14.1% between 2018 and 2019 (Figure 25). Of note, surveillance data from SHS do not include STI tests among people living with diagnosed HIV made in separate HIV services.

**Figure 24. Testing frequency for syphilis among MSM by HIV status, 2014 to 2019, England\***



\*Testing frequency is calculated as the number of times an individual tests for syphilis in the 365 days following their first attendance in a calendar year. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known. MSM – men who have sex with men. HIV negative includes those with unknown HIV status.

**Figure 25. Proportion positive for syphilis among MSM by HIV status, 2014 to 2019, England\***

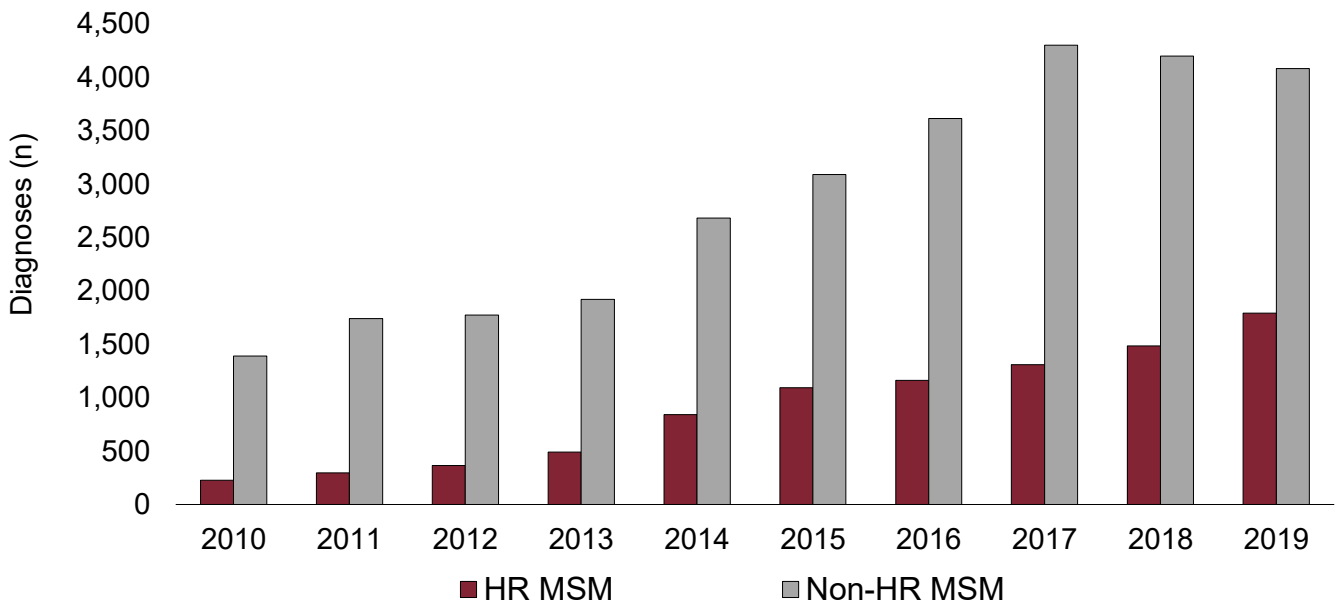


\*Proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patients gender and sexual orientation are known. MSM – men who have sex with men. HIV negative includes those with unknown HIV status.

### Trends by risk category

The number of syphilis diagnoses among HR MSM increased by 20.7% between 2018 (n=1,485) and 2019 (n=1,793) (Figure 26). In contrast, following a steep increase between 2013 and 2017, the number of syphilis diagnoses among lower risk MSM (non-HR MSM) decreased by 2.8% between 2018 (n=4,199) and 2019 (n=4,082). However, it is important to recognise that non-HR MSM represent higher absolute numbers of syphilis diagnoses: in 2019, 69.4% (4,082/5,875) of new diagnoses in MSM were made among non-HR MSM (Figure 22). These men also represent a higher proportion of total attendees at SHS.

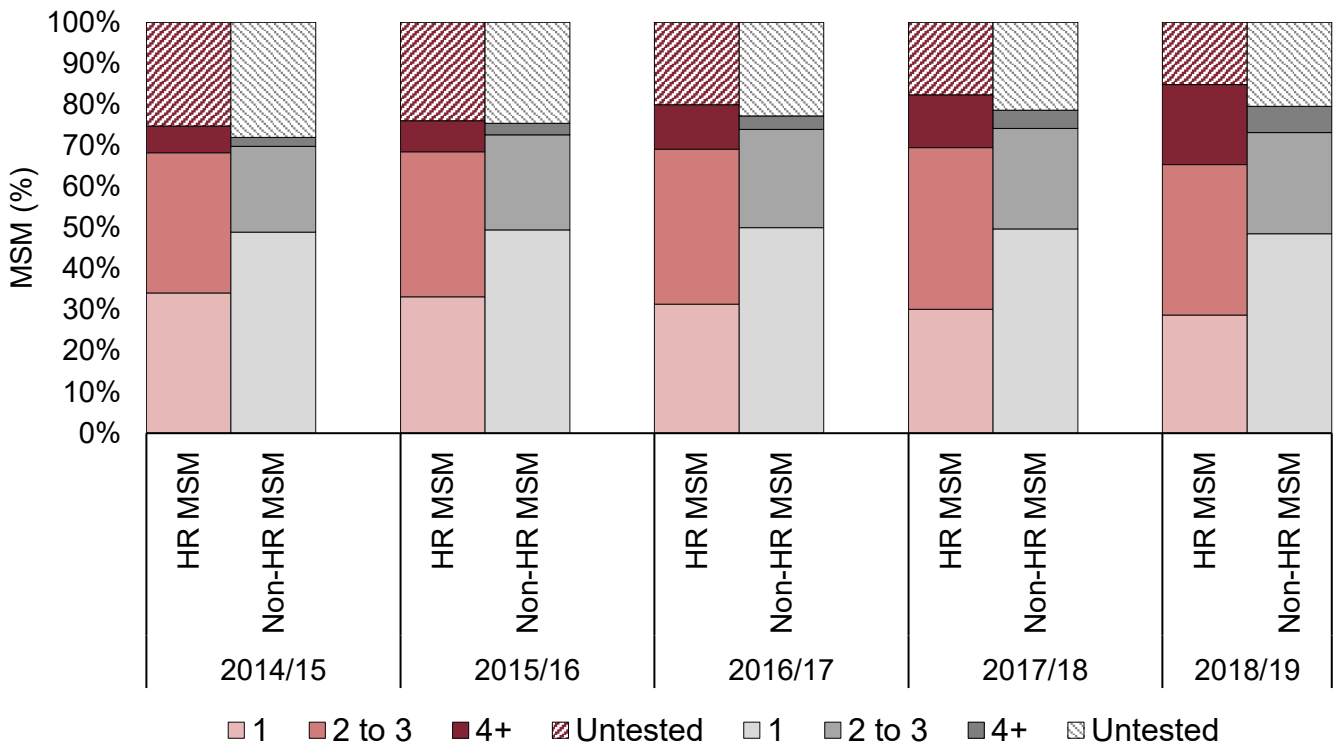
**Figure 26. Number of infectious syphilis diagnoses among MSM by risk categorisation, 2010 to 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. HR MSM - men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

Syphilis testing among MSM increased between 2014 and 2015 and between 2018 and 2019 irrespective of risk group: those who were tested at least once per year in SHS increased from 74.8% to 84.8% in HR MSM and from 72.0% to 79.5% in non-HR MSM (Figure 27). Repeat testing also increased among HR MSM: between 2018 and 2019, 56.1% tested more than once and 19.5% tested 4 or more times. A smaller proportional increase in repeat testing was also seen in non-HR MSM, with 31.0% tested more than once, and 6.4% tested 4 or more times between 2018 and 2019. Among MSM who tested at least once, the proportion positive decreased between 2017 and 2018 to 2018 and 2019 for both HR MSM (10.3% to 9.3%) and non-HR MSM (4.5% to 4.0%) (Figure 28).

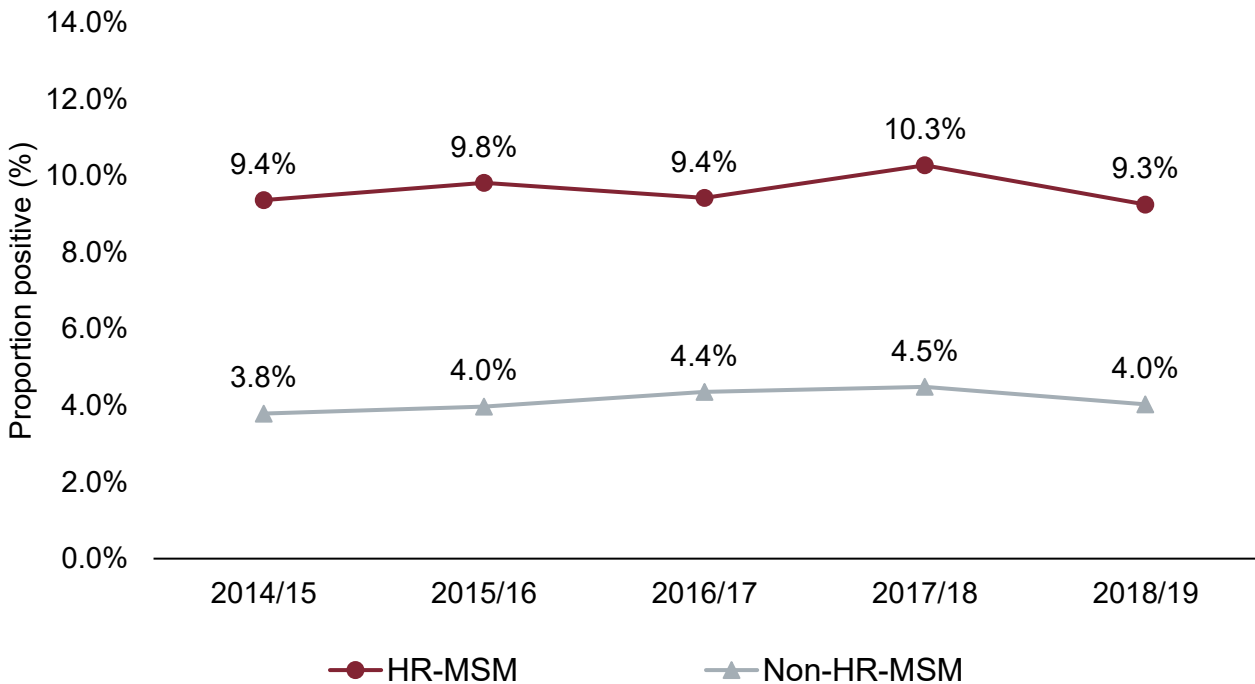
**Figure 27. Testing frequency for syphilis among MSM by risk categorisation, 2014 to 2019, England\***



\*Testing frequency is calculated as the number of times an individual tests for syphilis in the 365 days following their first attendance in a calendar year. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known. MSM – men who have sex with men. HR MSM-men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.



**Figure 28. Proportion positive for syphilis among MSM by risk categorisation, 2014 to 2019, England\***

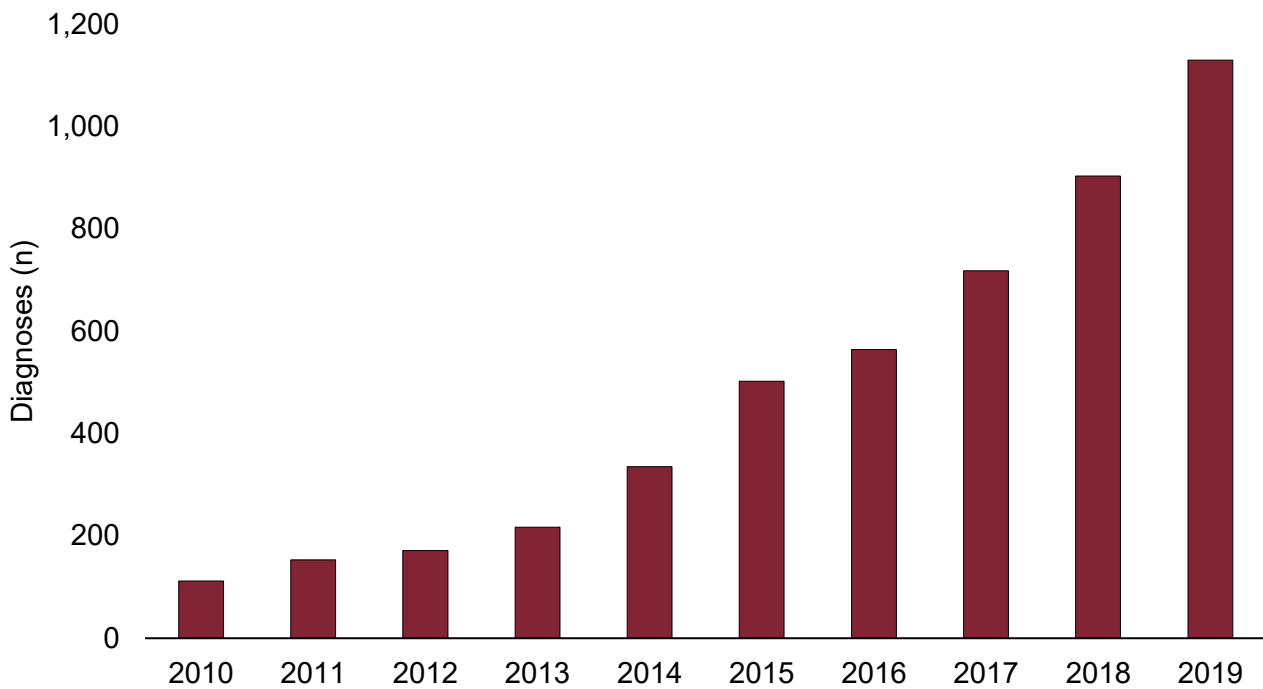


\*Proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known. MSM – men who have sex with men. HR MSM-men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

### Trends among HR MSM who are HIV negative or unknown HIV status

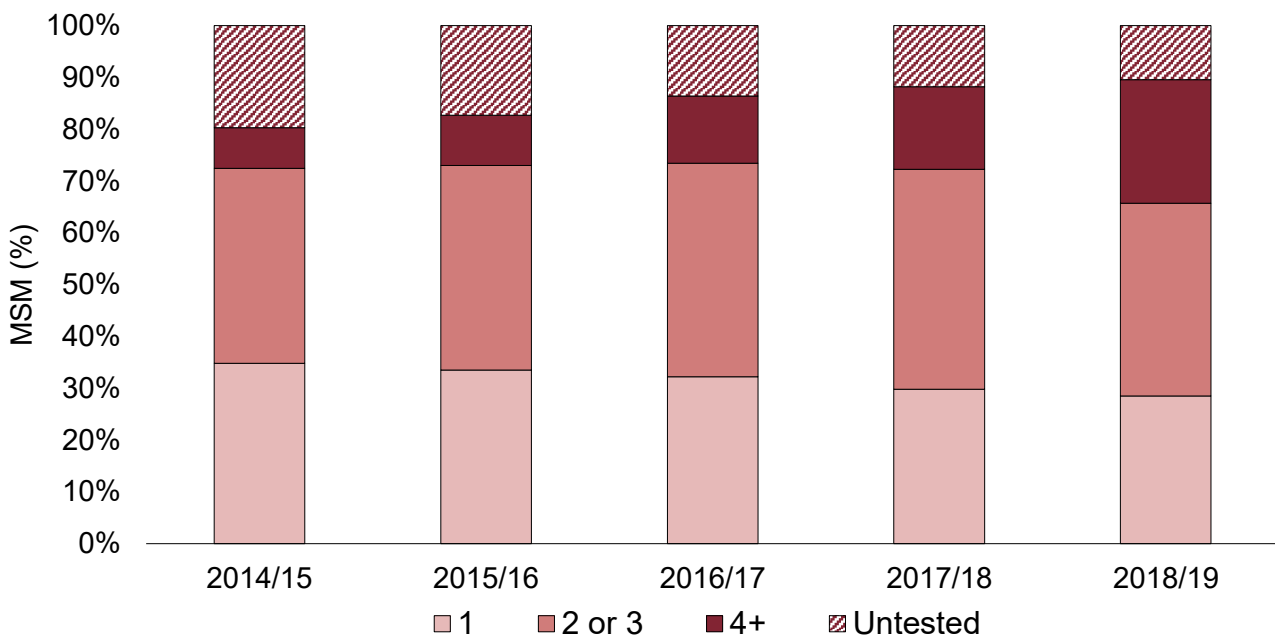
The number of syphilis diagnoses among HR MSM who are HIV negative or unknown HIV status increased by 909% between 2010 (n=112) and 2019 (n=1130) (Figure 29). Those who were tested at least once per year in SHS increased from 80.3% between 2014 and 2015 to 89.5% between 2018 and 2019; the rise was attributable to more repeat testing with 61.1% testing more than once and 23.8% testing 4 or more times between 2018 and 2019 (Figure 30). Among HIV negative or unknown HIV status HR MSM who have tested, the proportion positive has increased from 4.9% between 2014 and 2015, to 7.1% between 2018 and 2019 (Figure 31).

**Figure 29. Number of infectious syphilis diagnoses among HIV negative or unknown HIV status HR MSM, 2010 to 2019, England\***



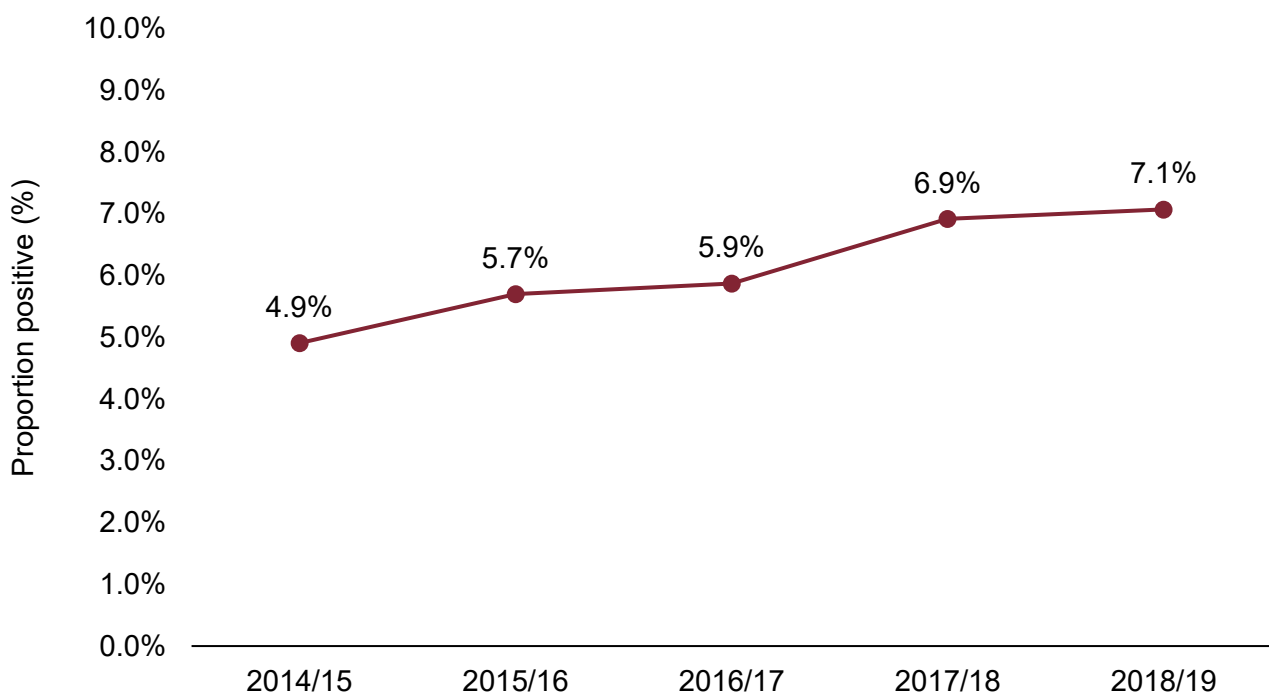
\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. HIV negative includes those with unknown HIV status. HR MSM-men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

**Figure 30. Testing frequency for syphilis among HIV negative or unknown HIV status HR MSM, 2014 to 2019, England\***



\*Testing frequency is calculated as the number of times an individual tests for syphilis in the 365 days following their first attendance in a calendar year. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient's gender and sexual orientation are known. HIV negative includes those with unknown HIV status. HR MSM-men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

**Figure 31. Proportion positive for syphilis among HIV negative or unknown HIV status HR MSM, 2014 to 2019, England\***



\*Proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient's gender and sexual orientation are known. HIV negative includes those with unknown HIV status. HR MSM-men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

## Section 3: syphilis in heterosexuals, pregnancy, and congenital syphilis

Pillar 3 of the Syphilis Action Plan focuses on maintaining high antenatal screening coverage and vigilance for syphilis throughout antenatal care, to control maternal and congenital syphilis. This section of the report is focused on the epidemiology of syphilis in heterosexual women and men, as well as metrics of syphilis in pregnancy and congenital syphilis. The metrics for syphilis in pregnancy and congenital syphilis are provided in collaboration with Integrated Screening Outcomes Surveillance Service (ISOSS). This service provides outcome data as a part of the Infectious Diseases in Pregnancy Screening (IDPS) programme for HIV, hepatitis B and syphilis in pregnancy, as well as for cases of congenital rubella syndrome.

Antenatal screening should be maintained in line with IDPS programme standards, with 95% coverage being acceptable, and 99% being achievable. Systematic population screening for syphilis in pregnancy should be recommended for all pregnant women, regardless of previous test results and treatment. A re-offer of screening to any woman who initially declines should be made by the screening team by 20 weeks gestation, or within 2 weeks if the woman is  $\geq 24$  weeks gestation. Women who screen positive for syphilis should be invited to attend for a screening assessment by the screening team within 10 working days of the result being made available by the laboratory. A referral to SHS is required for prompt clinical assessment and review of test results to determine true syphilis status and requirement for treatment, in accordance with BASHH guidelines (14). Additionally, the Syphilis Action Plan recommends that partners of pregnant women who screen positive should be encouraged to attend SHS for a full STI screen and epidemiological treatment for syphilis (3).

Key findings in this section include:

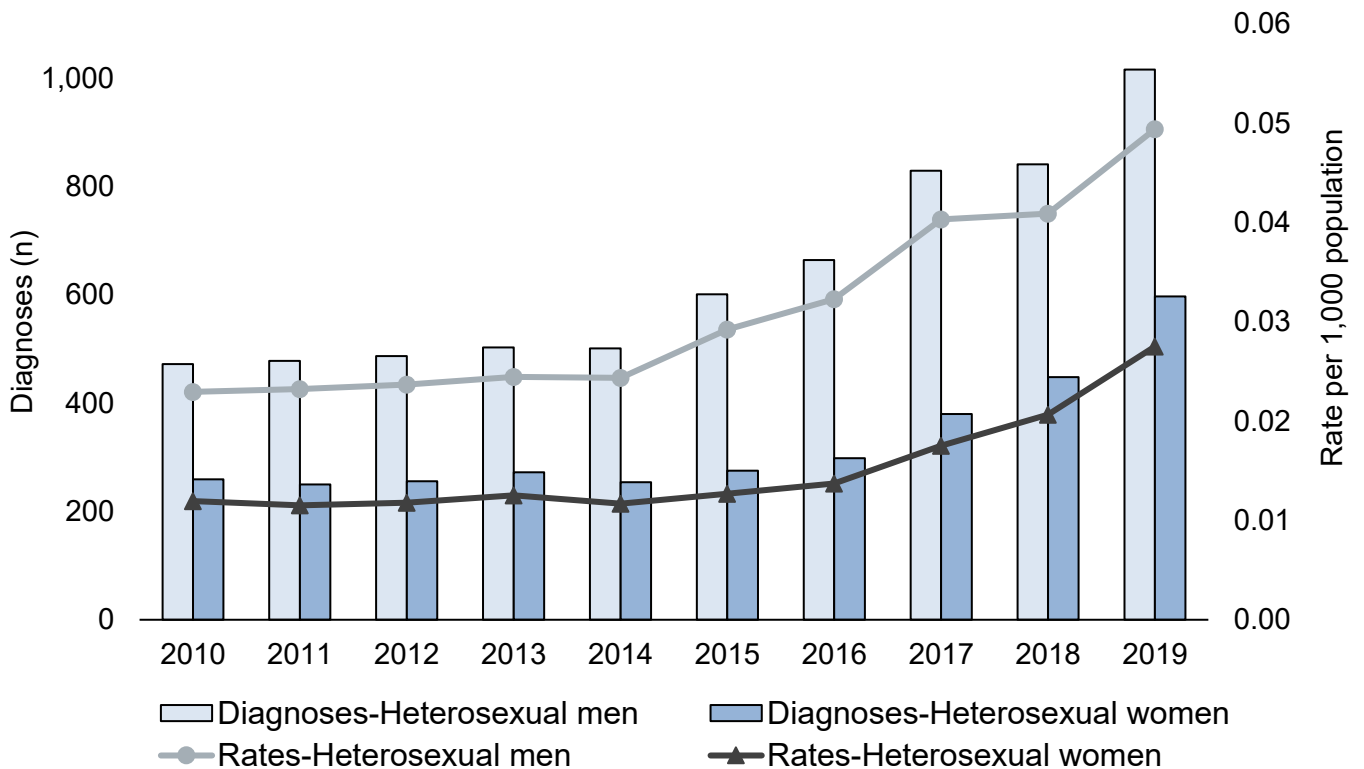
- infectious syphilis diagnoses increased rapidly among heterosexual men and women in the last decade, with an increase of 20.1% and 33.3% from 2018 to 2019, respectively
- in SHS, the proportion of heterosexual women who receive no syphilis test is 25.2% higher compared to heterosexual men, possibly due to lower perception of risk among women
- the proportion of heterosexual men and women who test positive for syphilis is increasing, although this is notably lower than the proportion positive among MSM
- antenatal screening coverage in pregnant women remains consistently high and above national standards, with 99.7% of pregnant women screened between 2018 and 19
- while screening coverage is high, the rate of screen-positive syphilis among pregnant women requiring treatment slightly increased from 0.56 per 1,000 women between 2016 and 2017 to 0.69 per 1,000 women between 2018 and 2019

- it is too early to tell if rates of congenital syphilis are increasing, and continued monitoring by ISOSS will be essential in understanding any trends

### Trends among heterosexual men and women in SHS

There has been a rapid increase in infectious syphilis in heterosexual men and women in recent years, with an increase in the number of diagnoses of 20.1% and 33.3% between 2018 and 2019, respectively (Figure 32). As discussed in Section 1, the rise in heterosexual syphilis may be due to links between heterosexual and MSM sexual networks. Accordingly, the number of infectious syphilis diagnoses in heterosexual men are consistently higher than those in heterosexual women: in 2019, diagnoses in heterosexuals were 70.2% higher in men compared to women. New behavioural specifications in GUMCAD should improve the identification of HI-MSM in SHS from 2020 onwards (19).

**Figure 32. Number of infectious syphilis diagnoses and rates per 1,000 population among heterosexual men and women, 2010 to 2019, England\***

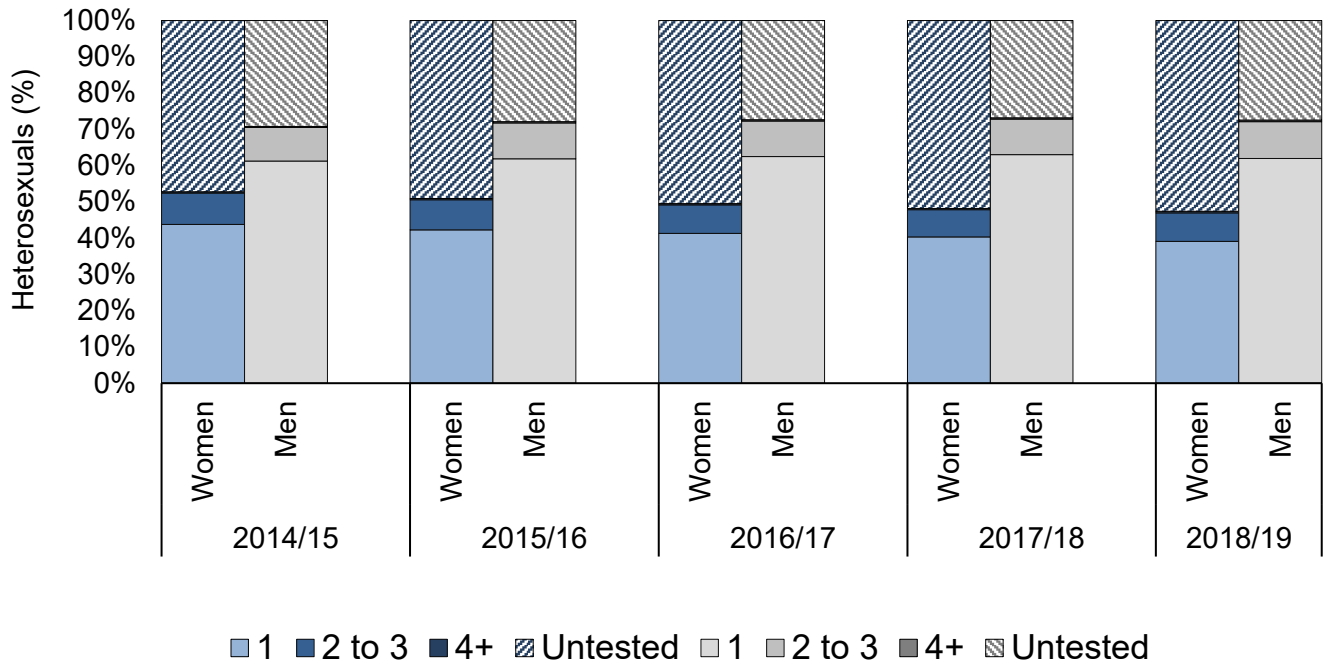


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. Rates by sexual orientation have been calculated using 2018 Office for National Statistics population estimates for all years.

Both heterosexual men and women are less likely to receive more than one syphilis test in a year compared with MSM, which likely reflects testing guidelines in this group. A full sexual health screen should be offered to heterosexuals when clinically appropriate and especially when attending SHS (3). The proportion of heterosexual women accessing SHS who receive no syphilis test is 25.2% higher compared to heterosexual men (Figure 33). Among those who were tested for syphilis, the proportion positive increased from 0.13% to 0.22% among

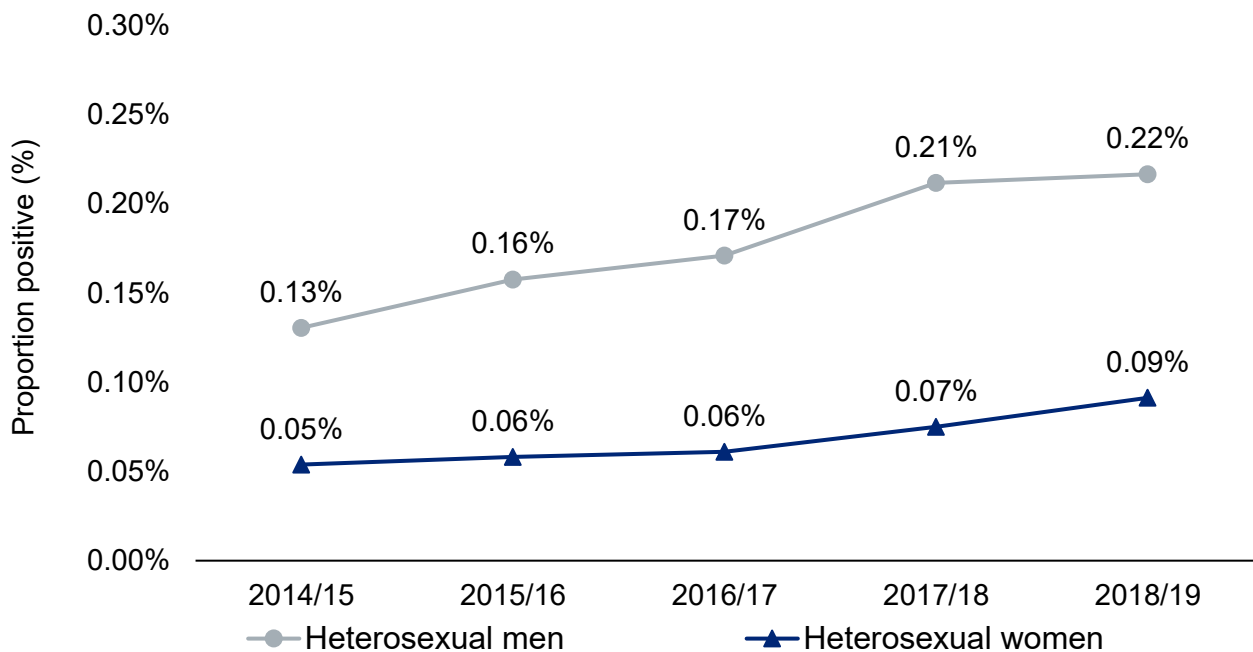
heterosexual men and 0.09% to 0.15% among heterosexual women, in the period starting between 2014 and 2015 through to 2018 and 2019 (Figure 34).

**Figure 33. Testing frequency for syphilis among heterosexual men and women, 2014 to 2019, England\***



\*Testing frequency is calculated as the number of times an individual tests for syphilis in the 365 days following their first attendance in a calendar year. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known.

**Figure 34. Proportion positive for syphilis among heterosexual men and women, 2014 to 2019, England\***

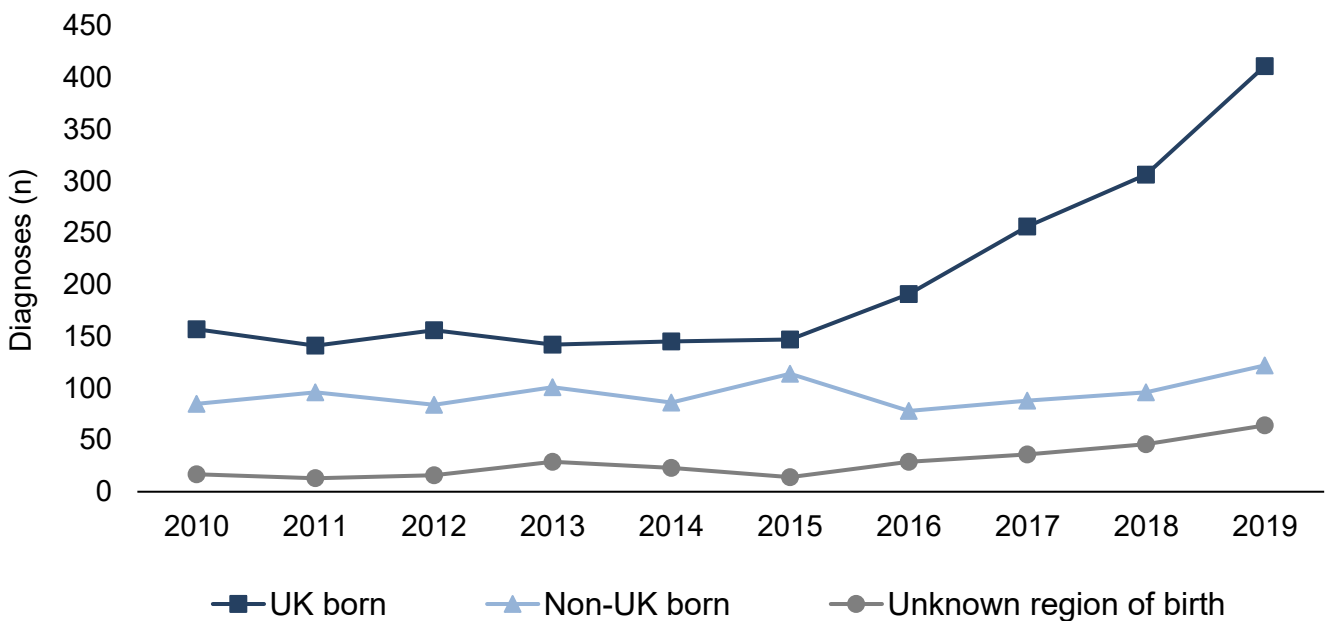


\*Proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period. Metric only available until 2018/19 due to incomplete follow-up time for attendees in 2019. Analysis of tests in which the patient’s gender and sexual orientation are known.

### Trends among heterosexual women by region of birth

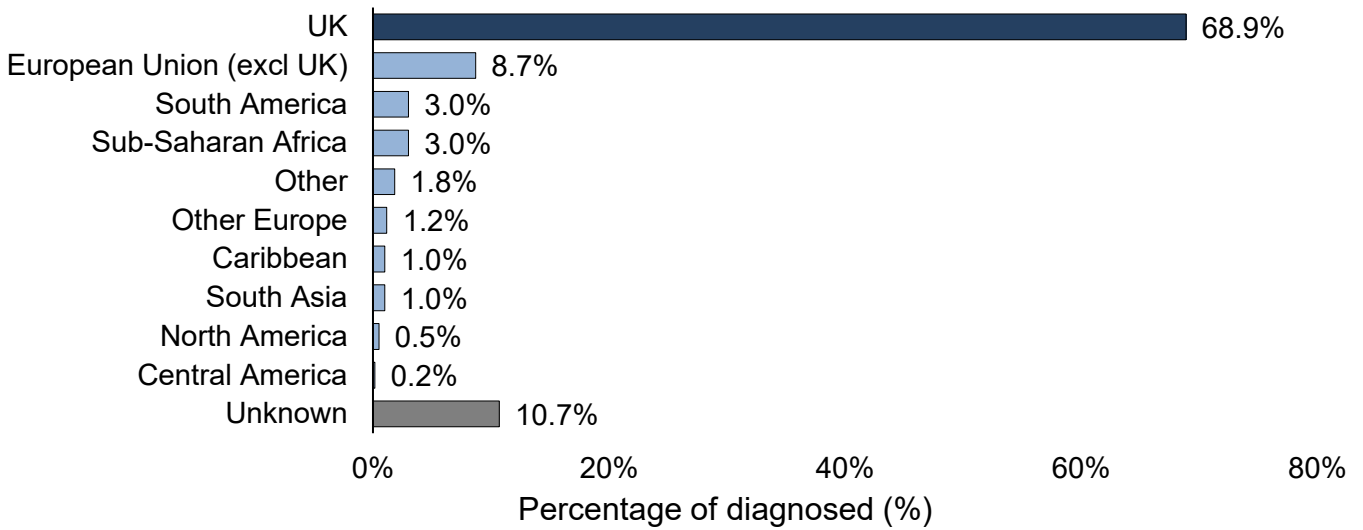
Infectious syphilis diagnoses among UK born women have increased rapidly since 2015, with 68.9% of diagnoses in women in 2019 being made in this group. The number of women diagnosed with infectious syphilis who were UK born increased by 179.6% between 2015 and 2019 (Figure 35). The number of infectious syphilis diagnoses among women not born in the UK increased only slightly, by 7.0% from 2015 to 2019. Among women not born in the UK, the highest number of infectious syphilis diagnoses in 2019 was in women born in the European Union (excluding the UK) (8.7%) followed by Sub-Saharan Africa (3.0%) (Figure 36).

**Figure 35. Number of infectious syphilis diagnoses among women by region of birth, 2010 to 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses.

**Figure 36. Percentage of infectious syphilis diagnoses among women by region of birth, 2019, England\***

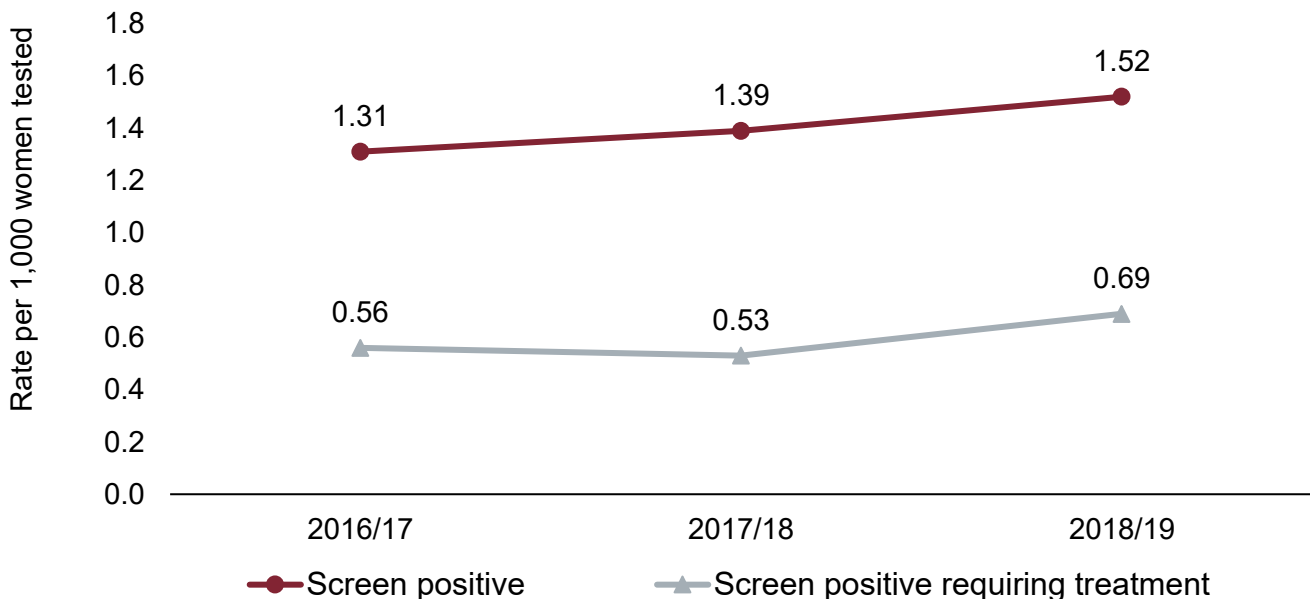


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses.

### Trends among pregnant women accessing antenatal care

Antenatal screening coverage for syphilis has been over 99% since between 2016 and 2017, with 99.7% between 2018 and 2019. Rates of syphilis infection in pregnant women have been rising slowly since 2016 (Figure 37). Women who screen positive include women who have active syphilis requiring treatment and women who have had previous infection who were adequately treated, it does not include women with false-positive results. The rate of women who screened positive and required treatment rose from 0.56 per 1,000 women between 2016 and 2017 to 0.69 per 1,000 women between 2018 and 2019.

**Figures 37. Rates of syphilis per 1,000 women tested among pregnant women, 2016 to 2019, England\***

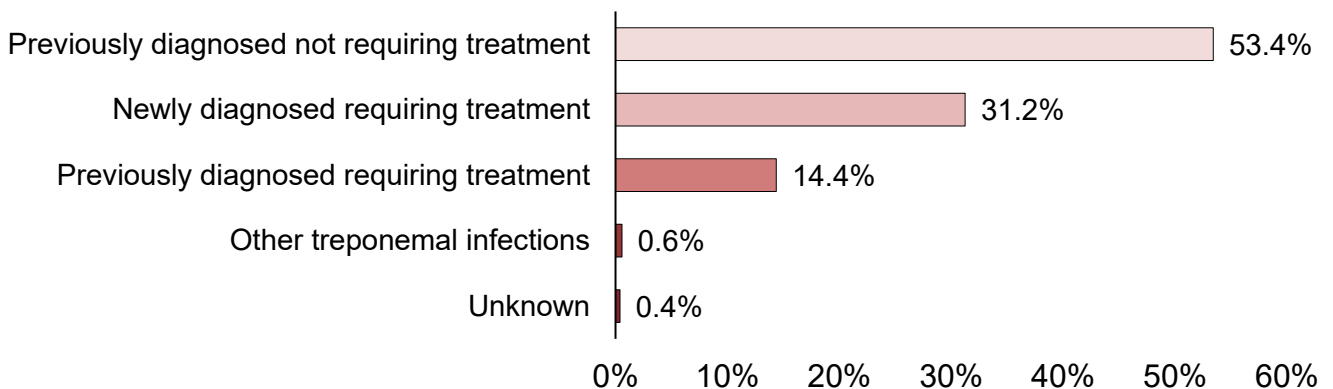




\*Data sourced from PHE Integrated Screening Outcomes Surveillance Service (ISOSS). This data shows that while screening coverage is high, the rate of screen-positive syphilis among pregnant women requiring treatment is increasing. Increasing syphilis rates among heterosexual women (Figure 34) may potentially increase the risk of incident exposure to syphilis in pregnancy even after antenatal screening has occurred.

Between 2018 and 2019, 53.4% (n=554) of screen-positive pregnant women were previously diagnosed not requiring treatment, however 31.2% (n=324) who were newly diagnosed required treatment, and 14.4% (n=149) were previously diagnosed but needed treatment (Figure 38).

**Figure 38. Percentage of syphilis screen-positive pregnant women by diagnosis and treatment history, England, 2018 to 2019\***



\* Data for congenital syphilis cases sourced from PHE Integrated Screening Outcomes Surveillance Service (ISOSS). There were no cases of congenital syphilis in the West Midlands.

### Trends in congenital syphilis

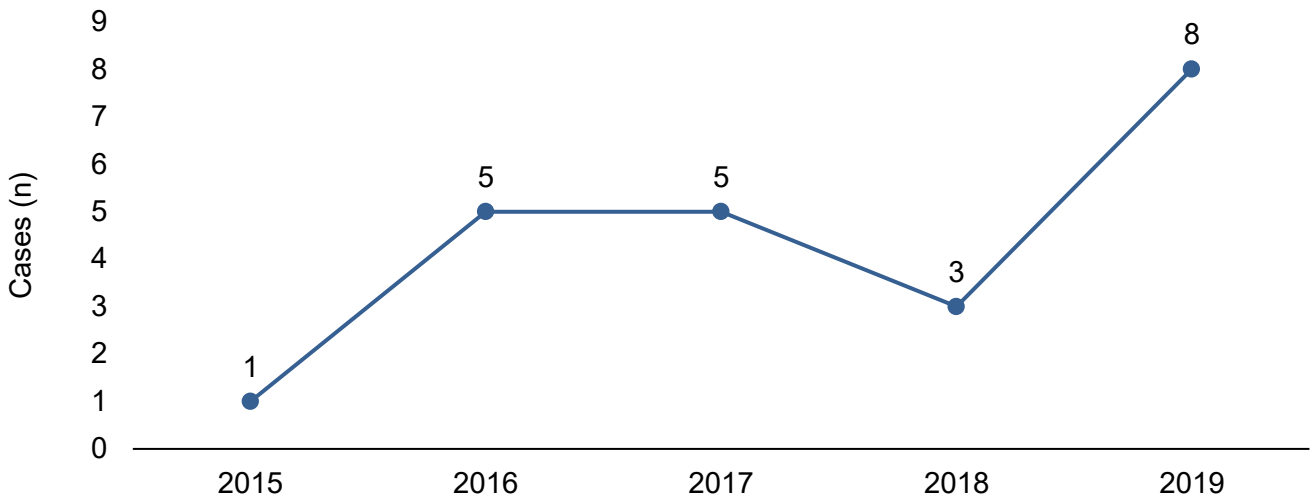
Pillar 3 of the PHE Syphilis Action Plan focuses on maintaining high antenatal screening coverage and vigilance for syphilis throughout antenatal care (3). The incidence of congenital syphilis in England is below the World Health Organization (WHO) elimination threshold ( $\leq 0.5/1000$  live births) (21). National surveillance of congenital syphilis was set up in 2019 with the aim to further reduce the burden of congenital syphilis (3).

Retrospective case reports of all confirmed and suspected cases of congenital syphilis born in England since 2015, have been reviewed by a multidisciplinary Clinical Expert Review Panel (CERP). This established the circumstances surrounding the transmission, identified any contributing factors and learning points. These discussions support the production of recommendations that feed into the IDPS maternity strand workstream and the pathway quality improvement initiative, commencing in 2021.

Interim findings from this review are reported here. Between January 2015 and August 2020, there were 66 cases of suspected or confirmed congenital syphilis in England reported to ISOSS, of which 25 (37.9%) were classified as confirmed cases. The highest number of cases occurred in 2019 (n=8) (Figure 39). It is too early to establish if there is a sustained increase in rates of congenital syphilis, and continuing surveillance will be vital in understanding any emerging trends. While antenatal screening coverage remains consistently high, there are

several recorded cases of women who tested negative at their initial screen in the first trimester but became infected with syphilis later in their pregnancy (22).

**Figure 39. Confirmed cases of congenital syphilis by year of birth, 2015 to 2019, England\***



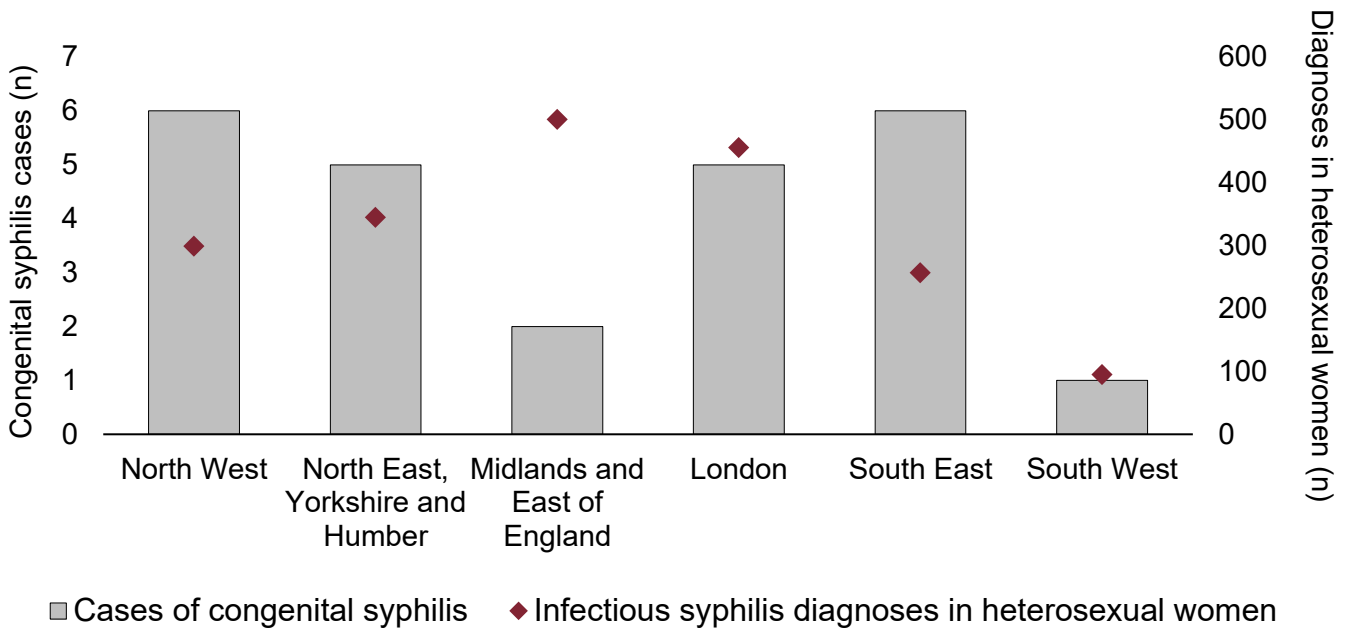
\*Data sourced from PHE Integrated Screening Outcomes Surveillance Service (ISOSS). Three cases of congenital syphilis have been preliminarily identified in 2020 (not shown); the review of these data is ongoing. Figures in 2019 included a multiple birth.

Results from the CERPs to date found that mothers of babies with congenital syphilis were mostly of white ethnicity, born in the UK or of Romanian nationality. Less than a third of women were diagnosed during the antenatal period through screening or attendance at SHS. Most women were diagnosed postnatally after their baby was tested or by SHS when they presented with symptoms, suggesting that they acquired infection after a negative screen. The CERPs highlighted important themes that may have contributed in cases including:

- social inequalities and chaotic lifestyles
- missed clinical presentation and delays into treatment
- late presentation for antenatal care and poor engagement with services

This review of congenital syphilis cases between 2015 and August 2020 found the highest number in the South East and the North West (n=6 each), followed by London and the North East, Yorkshire and Humber (n=5 each) (Figure 40). As this was a retrospective review it is possible that numbers, particularly in the earlier period may be underreported.

**Figure 40. Confirmed congenital syphilis cases and infectious syphilis diagnoses in heterosexual women by regional breakdowns, 2015 to August 2020, England\***



\*PHE centre areas are the centres as of December 2019. Excludes individuals who reside outside of England, or where patient residence is unknown. Data sourced from Public Health England Integrated Screening Outcomes Surveillance Service. Includes 3 cases of congenital syphilis identified in 2020.

## Section 4: partner notification in sexual health services

Pillar 3 of the Syphilis Action Plan focuses on delivering partner notification (PN) to BASHH standards (23-25). Partner notification is the process of providing access to specific forms of healthcare for sexual contacts who may have been at risk of infection from an index case (23). Notifying partners is an effective control intervention to ensure testing and treatment provision, however interventions must continue to adapt to consider the different ways in which people meet sexual partners (3).

In this report, the metrics for measuring PN are the proportion of notified partners who tested positive following a syphilis test, and the partner notification ratio. The PN ratio compares the number of attendances at SHS in a calendar year made by patients reported as a notified contact of a sexual partner diagnosed with syphilis, and the number of infectious syphilis diagnoses made in the same calendar year. A value of 1.0 is the target, which indicates that for every index case one partner has been notified and attended SHS. However, this needs to be interpreted with caution as some index cases may have multiple partners, which we currently cannot measure, therefore this metric does not measure the effectiveness of PN. New behavioural specifications of GUMCAD STI Surveillance System will support identifying the number of sex partners of an index patient (19).

Key findings in this section include:

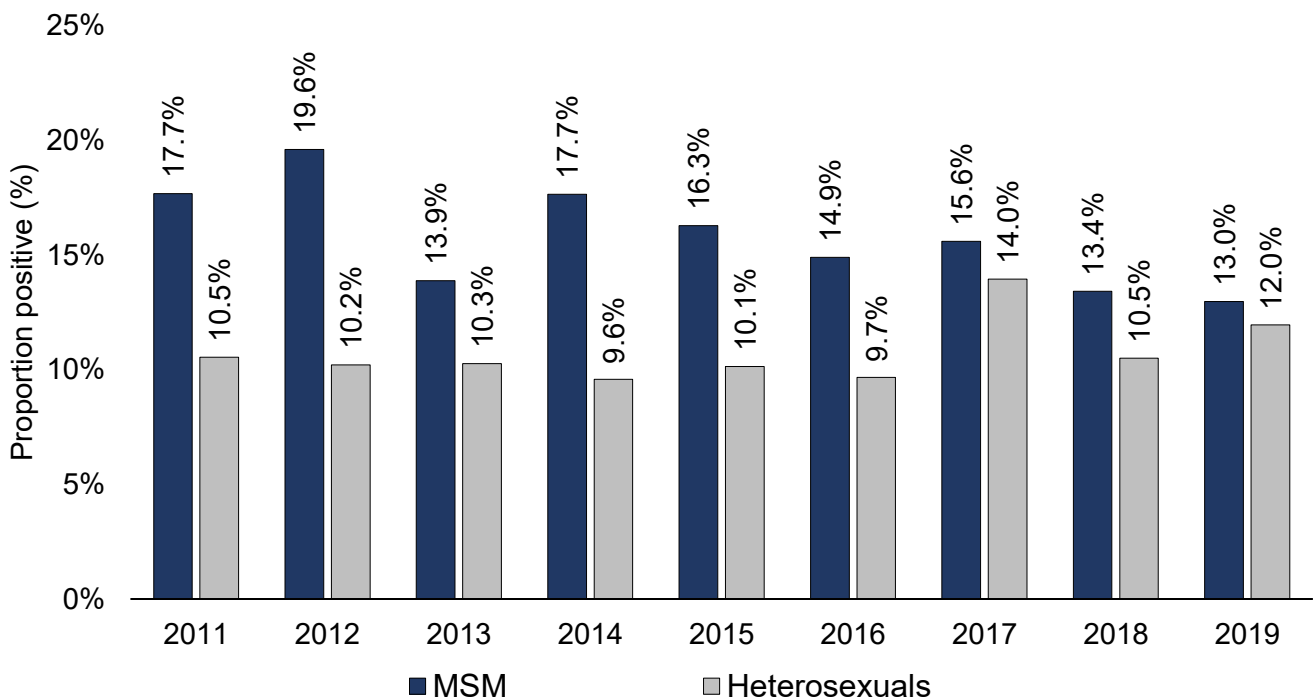
- the proportion positive among notified partners in heterosexuals (12.0%) is much higher than among heterosexual men and women in the general SHS attending population (0.22% men and 0.09% women), indicating PN is highly effective in identifying new syphilis cases in heterosexuals
- the proportion positive among notified partners in MSM (13.0%) is comparable to MSM living with HIV (14.1%) and HR MSM (9.3%), suggesting that both targeted testing for at-risk groups and PN are needed for case identification
- the PN ratio for MSM appears to be increasing from 0.33 in 2011 to 0.65 in 2019
- in heterosexuals, 0.85 partners per index case attended SHS following notification in 2019, a slight decrease from 1.0 in 2016

## Proportion positive in notified partners attending SHS

The proportion positive indicates positive syphilis tests among individuals who attended SHS because they were a notified partner of a person diagnosed with syphilis. The proportion positive was similar across MSM and heterosexuals in 2019, with 13.0% and 12.0% of notified partners diagnosed with infectious syphilis, respectively (Figure 41). The proportion positive among notified partners in MSM is comparable to the proportion positive among MSM living with HIV (14.1%, Figure 25) and HR MSM (9.3%, Figure 28). In contrast, the proportion positive among notified partners in heterosexuals is much higher than the proportion positive in general among heterosexuals (0.22% men and 0.09% women, Figure 34).

This contrast highlights the opportunity for earlier identification of new syphilis cases among heterosexuals through partner notification, compared to widespread testing. For MSM, partner notification identifies a comparable proportion of cases to targeted testing of at-risk groups.

**Figure 41: Proportion positive among notified partners of patients diagnosed with infectious syphilis by gender and sexual orientation, 2011 to 2019, England\***

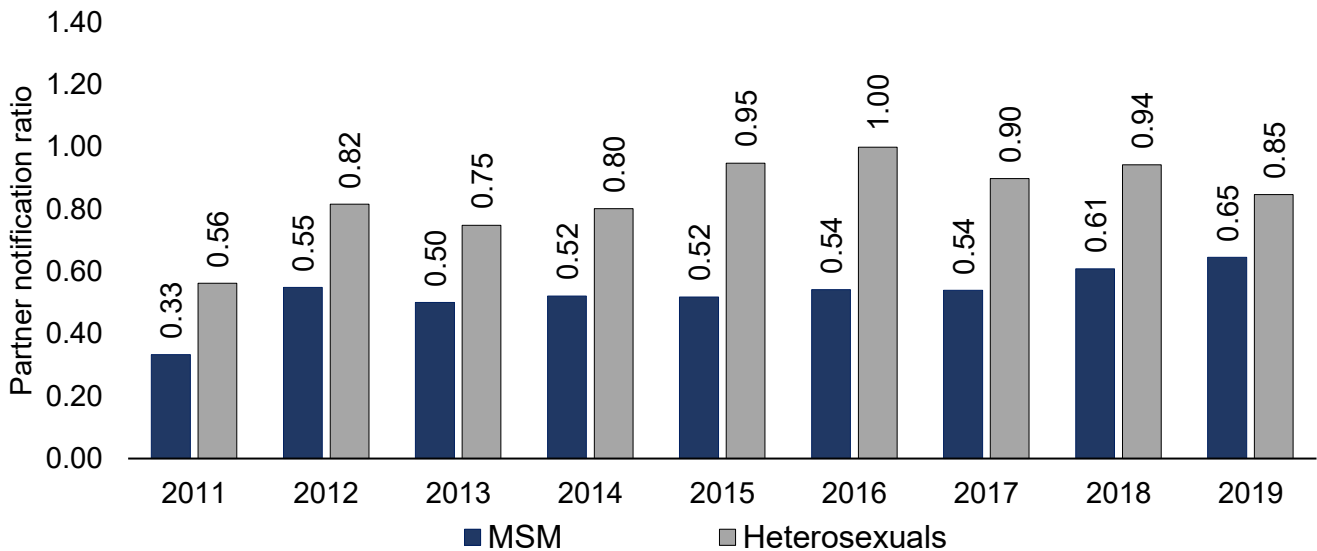


\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Proportion positive is the proportion of people who test positive for syphilis in the 42 days after attending SHS as a notified partner.

## Partner notification ratio

Figure 42 shows trends of partner notification by gender and sexual orientation. The PN ratio has increased for MSM from 0.33 in 2011 to 0.65 in 2019 (Figure 42). The PN ratio has also increased for heterosexuals, although after reaching 1.00 in 2016 the ratio decreased to 0.85 in 2019. While the PN ratio appears high for heterosexuals, especially in 2016, there are some limitations to this metric, for example, if the average number of partners increases over time, the number of available partners who attend SHS per index case should also increase. Additionally, this metric needs to be interpreted with caution for heterosexuals as they have higher proportion of late latent syphilis diagnoses (see Section 1 of this report), which are not included in the denominator of the ratio.

**Figure 42: Partner notification ratio for syphilis by gender and sexual orientation, 2011 to 2019, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. Analysis for diagnoses in which gender and sexual orientation are known. MSM – men who have sex with men. Women who have sex with women are excluded due to small numbers (n=17 for 2019). Partner notification ratio is the ratio between the number of attendances of people who attended SHS as notified partners and the number of syphilis diagnoses.

## Partner notification and BASHH standards

Partner notification outcomes are measured against BASHH standards (23). For primary syphilis, PN includes the notification of all sexual contacts since, and in the 3 months prior to, the onset of symptoms. For secondary and early latent syphilis, the look back period is 2 years or more, depending on availability of information about previous syphilis serology (14). The new GUMCAD specification includes new data items to allow services and their commissioners to monitor performance against the BASHH standards (19).

Recommended metrics for evaluation of partner notification include:

- the percentage of index cases documented as offered at least one discussion, which may be a telephone discussion, for the purpose of PN with a healthcare worker with the appropriate documented competency (performance standard 97%)
- the percentage of index cases having the outcome of (an) agreed contact action(s), or the decision not to contact, documented for all contacts (performance standard 97%)
- the number of all contacts of index cases whose attendance at a Level 1, 2 or 3 sexual health service was documented as reported by the index case, or by a healthcare worker, within 4 weeks of the date of the first PN discussion.
- the number of all contacts of index cases whose attendance at a Level 1, 2 or 3 sexual health service was documented as verified by a healthcare worker, within 4 weeks of the date of the first PN discussion

Previous evaluations of these standards have been reported via audits of SHS led by the BASHH National Audit Group. The latest of these was conducted in 2017 (26), and identified only 2 (recommended treatment and PN) of these 4 standards were met (19).

## Section 5: progress in targeted control interventions

Over the past few years, several prevention activities coordinated by PHE with stakeholders have attempted to address the rise of syphilis in England through health promotion that seeks to increase awareness and testing. These activities have mostly focused on groups with greater sexual health needs, including MSM. This section provides an update on current activities.

### National HIV self-sampling service - Including opt-out syphilis testing

The national HIV self-sampling service was established in 2015. In November 2019, a new service specification for the framework introduced an option for local commissioners to include syphilis testing for their areas. Currently, across all self-sampling kits tested in the first 6 months, 78% of individuals opted to include syphilis testing.

### HIV Prevention England - National HIV Testing Week

HIV Prevention England (HPE) is the national HIV prevention programme for England. It delivers a nationally co-ordinated programme of HIV prevention work with UK-based black African people and with MSM. One of HPE's objectives is to raise awareness of the role of sexually transmitted infections (STIs) in the context of HIV acquisition and transmission. HPE organises the National HIV Testing week designed to promote regular testing. Through this event, residents of all local authorities in England can order a free HIV and syphilis self-sampling test kit. Over 12,000 HIV tests were ordered through the Self-Sampling service during the 2019 National Testing week, with 87% also opting to include syphilis tests. Due to COVID-19, National HIV Testing Week 2020/21 is now planned for February 2021.

### HIV Prevention England - Breaking the Chain Campaign

The social distancing measures introduced to combat the transmission of COVID-19 have presented an opportunity to diagnose and treat STIs such as HIV and syphilis. PHE is supporting the 56 Dean Street 'Breaking the Chain' campaign via HIV Prevention England and <https://Freetesting.HIV>, the national HIV and syphilis self-sampling service. PHE opened <https://Freetesting.HIV> from 5 June 2020 so that residents of all local authorities in England could order a free self-sampling kit. PHE committed to supplying 10,000 free HIV tests, including syphilis opt-out testing throughout the promotional period (ended 3 July 2020). PHE is



also providing co-ordination and leadership of the public health system through liaison with local authorities, professional bodies and the Association of Directors of Public Health (ADPH) to ensure that campaign activity is as effective as possible.

## PHE Sexual Health, Reproductive Health and HIV Innovation Fund project: Long Time No Syphilis, Phase II (London)

Long Time No Syphilis (LTNS) is a project currently funded by the PHE Sexual Health, Reproductive Health and HIV Innovation Fund, running until March 2021. LTNS is the first community-developed syphilis awareness education programme, modelled on existing HIV PrEP peer-education including the UK awareness programme PrEPster. LTNS aims to address syphilis knowledge gaps among populations at risk and frontline staff in the community. The pilot (phase I), funded through crowdfunding, involved the development of a website, social media content, limited outreach models, and printed materials. The pilot also promoted the e-service of Sexual Health London (SHL), targeting people with HIV and HIV PrEP users in London.

LTNS Phase II (funded by PHE) is building on the pilot through the development of targeted and measurable health promotion interventions, as well as training of frontline workers. Targeted health promotion interventions include expanding the e-service promotion pilot to all regions of England, targeting online buyers of HIV PrEP via sellers, targeted activity through relationships with dating apps, and clinic-based activity to target HIV positive MSM.

During Q1 2020 (April to June) (coinciding with the COVID-19 lockdown) the project began to promote online syphilis testing in London and the East Midlands and expanded the campaign to other regions by mid-July. Initial data showed a slow but significant uptake of syphilis testing during this period, and the completion rate in London (kits ordered and returned) appear to be higher than the norm. During Q1 (April to June) the project partnered with London Metropolitan University to translate the campaign's website into 8 languages to improve accessibility.

## Terrence Higgins Trust (THT) East of England Syphilis Banana campaign

In response to the increased number of syphilis diagnoses in the East of England, a collaborative initiative was developed by PHE East of England, together with all 12 local authority sexual health commissioners, NHS partners and Terrence Higgins Trust (THT). The initiative ran from 21st February to 14th April 2020, focusing on prevention and control of syphilis in the region and had 2 main aims. The first was to improve syphilis surveillance and the second to raise awareness among health professionals and at-risk populations. To target

health professionals, a letter and briefing note were circulated, and presentations were delivered at numerous events. Communication aimed at gay, bisexual and other men who have sex with men (MSM) used social media campaigns delivered through specific MSM dating apps, social media and display advertising. This aimed to raise awareness of recent increase in syphilis diagnoses, promote recognition of symptoms and encourage prompt testing and treatment.

Overall, there were nearly 900,000 impressions or views of the information during the campaign period. Views of the THT campaign page led individuals to local authority or NHS information, resulting in a total of 1,309 referrals to sexual health services. MSM specific dating apps also had good click through rates, with the most successful being Facebook and Grindr. The campaign received extremely positive feedback from local Directors of Public Health, regional PHE colleagues and charity partners.

## PHE IDPS programmes syphilis action plan: maternity strand quality improvement project 2020 to 2025

This is a national quality improvement project led by PHE Infectious Diseases in Pregnancy Screening (IDPS) programme for pregnant women with syphilis and their newborn babies in England.

The project objectives are to:

- carry out a full review of the current syphilis antenatal screening and neonatal pathways
- develop a multi-disciplinary care pathway for women who screen positive in pregnancy and their babies
- ensure robust surveillance of screening programme outcomes through the PHE IDPS ISOSS
- review information given to women, their families and the professionals caring for them
- develop a toolkit for professionals to utilise to optimise the delivery of care
- disseminate information to all stakeholders using roadshows, forums, professional publications and digital media, including a 'negative now' campaign to raise awareness of sexual health in pregnancy and protecting women and their babies from all infections in pregnancy.

# Technical notes

## Data sources

### GUMCAD STI Surveillance data

Data on STI tests and diagnoses are submitted by SHS to the GUMCAD STI Surveillance System. The GUMCAD STI Surveillance System was established in 2008 as an electronic surveillance system to collect disaggregated, patient-level data on STI tests and diagnoses from specialist SHS. From 2012, GUMCAD was expanded to also include reporting from all commissioned non-specialist SHS. Most STI diagnoses are made in specialist SHS, but the expansion resulted in an increase in reported diagnoses of some STIs between 2012 and 2014.

### Blood donor data

Blood donations are routinely tested for several blood-borne infections upon donation, including syphilis. Because of donor selection, trends of syphilis among blood donors approximate the incidence of syphilis among lower-risk groups in the general population. Figures are presented as rates per 100,000 donors and as numbers per year, sub-grouped by sex. Donors can only attend once per quarter as the minimum donation interval is 12 weeks for whole blood and may be recounted if they donate in a different quarter. Because of this, if a donor donates in 2 consecutive quarters (and is not syphilis positive), they may be counted >1 time in the denominator. 'Late' syphilis is labelled as past infection in the blood services database; 'infectious' syphilis is labelled as current infection.

Between 2013 and 2019, NHS Blood and Transplant (NHSBT) performed serological screening on blood donation samples for *Treponema pallidum* at 2 testing centres with 82% of donations screened using *Treponema pallidum* haemagglutination (TPHA) and 18% of donations screened using *Treponema pallidum* particle agglutination assay (TPPA). Confirmatory testing for repeat reactive samples was performed using 2 enzyme immunoassays (EIA), followed by TPHA titration, quantitative Rapid plasma reagin (RPR) and IgM EIA. Donors with a confirmed positive result are offered a post-test discussion by telephone with a member of the NHSBT clinical team to discuss their donation testing results, history and refer them to GUM.

### Data from PHE Infectious Diseases in Pregnancy Screening Programme

Data on maternal syphilis screening and diagnoses of congenital syphilis from 2010-2020 were derived from surveillance undertaken by the PHE Infectious diseases in pregnancy screening programme (IDPS). From 2020, these will both be reported from the PHE IDPS Integrated Screening Outcomes Surveillance Service (ISOSS)

## Definitions

### Syphilis stages

Early stages of syphilis include primary, secondary and early latent syphilis. Early stages are referred to collectively as 'infectious syphilis'. Early latent syphilis is defined as asymptomatic positivity to a syphilis diagnostic test within 2 years of acquisition. Late latent syphilis is defined as asymptomatic positivity to a syphilis diagnostic test after 2 years of transmission. Due to the need for prior negative test results to ascertain whether latent syphilis is early or late, clinical judgement determines if patients with no treatment history are managed and treated as having early or late latent syphilis. Other syphilis includes neurosyphilis and cardiovascular syphilis.

### Sexual orientation and gender

Men include transgender (trans) men; women include transgender (trans) women. The GUMCAD STI Surveillance System is being updated to include more detailed information on gender identity, including those who identify as non-binary (not exclusively male or female). In this report, data reported with an 'unknown' gender and/or sexual risk by sexual health services may be included in the test or diagnosis total. Men reported with an unknown sexual orientation have been excluded from the heterosexual and MSM analyses. Bisexual orientation is not recorded consistently in GUMCAD prior to 2020, therefore there might be some misclassification. Women reported with an unknown sexual orientation have also been excluded from heterosexual analyses. Similarly, attendances reported with an unknown ethnicity have been excluded from the ethnicity analysis.

### High risk MSM

High risk MSM (HR MSM) are men who have sex with men who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

## Data analysis and presentation

For most outputs, and unless otherwise stated:

- Data are presented by calendar year (January to December)
- Data represent the number or rate of diagnoses reported, including individuals diagnosed with separate episodes of syphilis more than once within a year.
- Data presented by geography is based on the patient's residence
- Number of diagnoses include infectious (primary, secondary, early latent) syphilis only, excluding late latent syphilis

## Rate calculations

Rates have been calculated using ONS population estimates generated annually based upon the 2011 census. The population data for 2019 were taken from the 2019 ONS population estimate which was released on 6th May 2020. Population estimates by sexual orientation are available for 2018 only. Ethnicity-specific population data are the latest available, derived from mid-2011 ONS experimental data. Rates by sexual orientation and HIV status were calculated as the number of infectious syphilis diagnoses made in SHS in a calendar year divided by total population estimates using ONS 2018 data, only in subpopulations where these denominators were available.

## Testing frequency and proportion positive metrics

Metrics include:

- testing frequency is calculated as the number of times an individual tests for syphilis in the 365 days following their first attendance in a calendar year
- proportion positive is the proportion of people who test positive for syphilis in the 365 days after their first attendance in a calendar year, among those who tested for syphilis in that period

Both metrics are only available until between 2018 and 2019 due to incomplete follow-up time for attendees in 2019. A limitation of testing frequency and test positivity metrics is that these do not consider MSM who attend different SHS. A previous patient questionnaire demonstrated that MSM individuals tend to re-attend their 'usual clinic'; approximately 87% of surveyed MSM nationally stated they re-attend their usual clinic (27). In London, where there are more clinics in a smaller geographical area, this proportion is likely to be smaller. GUMCAD data reported by clinics is pseudonymised and thus cannot be deduplicated across clinics.

## Partner notification metrics

We defined a partner notification ratio as the ratio between the number of attendances of people who attended SHS as notified partners and the number of syphilis diagnoses in a calendar year. A ratio of one would indicate that, on average, for each syphilis diagnosis, there was one notified partner of the case who attended SHS.

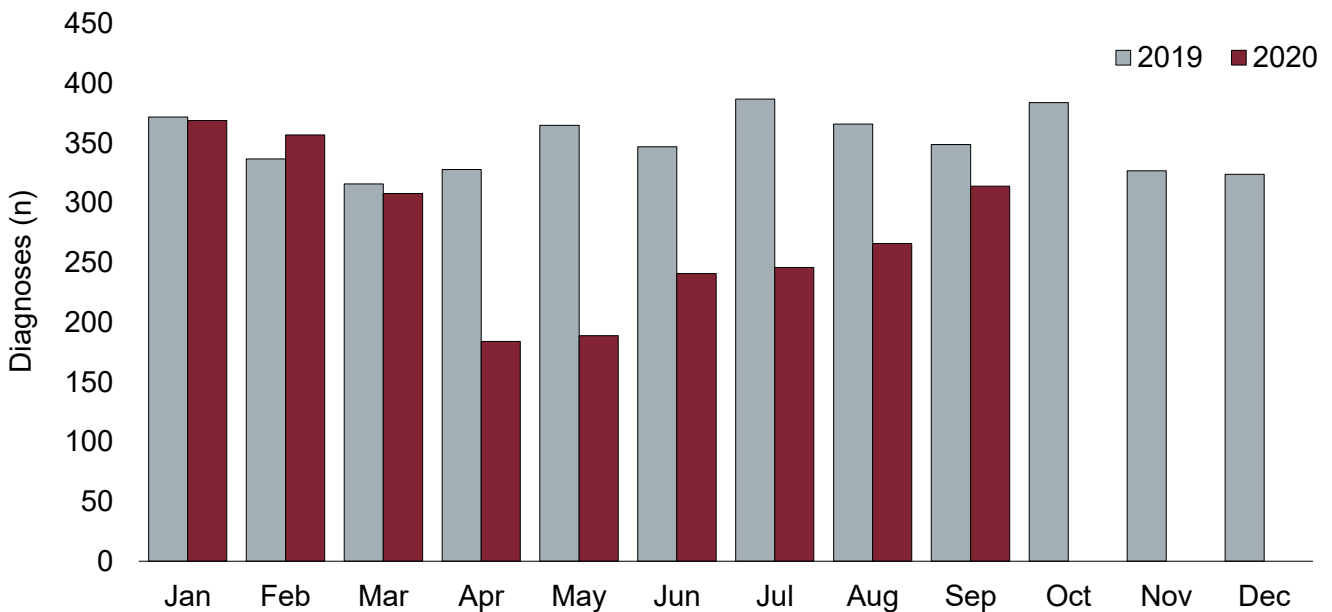
A limitation of this metric is that it cannot not differentiate between bisexual, homosexual, or heterosexual identifying MSM. Heterosexual-identifying MSM may be contributing to the PN outcomes in heterosexual groups, and bisexual men may contribute differently to the PN outcomes for the MSM group.

# Appendix 1 – Real-time syphilis surveillance during COVID-19

Appendix 1 presents data from January 2019 to September 2020, to explore the impact of COVID-19 on infectious syphilis diagnoses. This report includes data from GUMCAD up to the end of the third quarter of 2020. GUMCAD data is only available at the end of each quarter. Data for 2020 does not include all clinics, therefore the data presented here is only for clinics that submitted data in both 2019 and 2020.

The data from GUMCAD shows that the number of syphilis diagnoses in 2020 decreased from January (n=369) to April (n=184) before increasing again until the end of the third quarter (n=314) (Figure A1).

**Figure A1. Infectious syphilis diagnoses in SHS, January 2019 to September 2020, England\***



\*Infectious syphilis is defined as primary, secondary, and early latent syphilis diagnoses. SHS – sexual health services. Similar data up to June 2020 can be found in the report: [The impact of the COVID-19 pandemic on prevention, testing, diagnosis and care for sexually transmitted infections, HIV and viral hepatitis in England](#)

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