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Sexually transmitted infections and screening for chlamydia in England, 2017

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The annual official statistics data release (data to December 2017)

Key points

- In 2017, there were 422,147 diagnoses of sexually transmitted infections (STIs) made in England, around the same number that was reported in 2016
- There were 7,137 diagnoses of syphilis reported in 2017, a 20% increase relative to the year prior and a 148% increase relative to 2008
- There were 44,676 diagnoses of gonorrhoea reported in 2017, a 22% increase relative to the year prior; this is of concern given the recent emergence of extensively drug resistant *Neisseria gonorrhoeae*
- There were 441 diagnoses of first episode genital warts in 15 to 17 year old girls in 2017, a 90% decrease relative to 2009; this decrease is largely due to the high coverage National HPV Immunisation Programme in school-aged girls
- Over 1.3 million chlamydia tests were carried out and over 126,000 chlamydia diagnoses were made among young people aged 15 to 24 years
- Between 2016 and 2017 there was an 8% decline in the number of chlamydia tests, continuing the trend of the previous year; most of this decrease in testing took place in sexual and reproductive health (SRH) services, where chlamydia testing has fallen by 61% since 2015, likely reflecting a reduction in service provision
- There were 2,361 fewer chlamydia diagnoses made among 15 to 24 year olds in 2017 than in 2016, a reduction of 2%
- The impact of STIs remains greatest in young heterosexuals 15 to 24 years; black ethnic minorities; and gay, bisexual and other men who have sex with men (MSM).

Key messages and recommendations

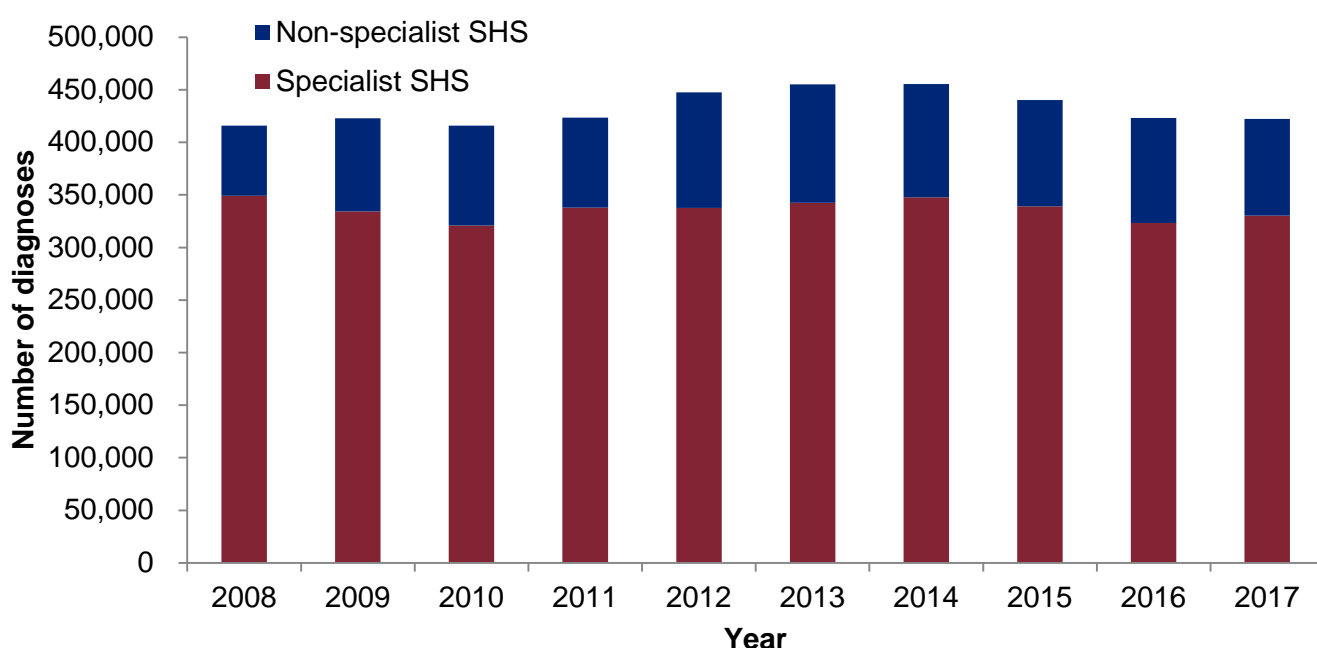
- Strengthened local and national services for the prevention, diagnosis, treatment, and care of STIs need to be delivered to the general population as well as focus on groups with greater sexual health needs, including young adults, black ethnic minorities and MSM
- Local authorities need to enable young women to be tested for chlamydia when they access contraceptive services
- An informed and positive attitude to sexual health will be enhanced by statutory, high-quality relationship and sex education (RSE) in secondary schools; RSE will also equip young people with the skills to maintain their sexual health and overall wellbeing
- Immunisation for human papillomavirus in young girls and MSM as well as immunisation against hepatitis A and hepatitis B in MSM will reduce the risk of infection with these viruses
- Consistent and correct use of condoms can significantly reduce risk of STIs. The availability of condoms should be promoted through media campaigns as well as through local services including condom distribution schemes
- Regular testing for HIV and STIs is essential for good sexual health:
 - anyone under 25 who is sexually active should be screened for chlamydia annually, and on change of sexual partner
 - MSM should test annually for HIV and STIs and every three months if having condomless sex with new or casual partners
 - black ethnic minority men and women should have an STI screen, including an HIV test, annually if having condomless sex with new or casual partners
- Open-access to services that provide rapid treatment and partner notification can reduce the risk of STI complications and infection spread.

Overall trends in diagnoses and attendances in England

In 2017, there were 422,147 new STI diagnoses made at sexual health services* (SHSs) in England. Of these, the most commonly diagnosed STIs were chlamydia (203,116; 48% of all new STI diagnoses), first episode genital warts (59,119; 14%), gonorrhoea (44,676; 11%), and non-specific genital infections ([NSGI] 33,473; 8%).

Compared to 2016 (figure 1), the total number of new STIs diagnosed in 2017 remained relatively stable (0.3% decrease from 423,352 to 422,147). Trends in diagnoses of common STIs over the last decade are presented in Appendix figures 1 and 2.

Figure 1. Number of new diagnoses of sexually transmitted infections[†], 2008–2017, England



[†] Data from routine specialist and non-specialist sexual health services' surveillance returns to Public Health England.

Data on the overall annual number of STIs from 2012 onwards are not directly comparable to those from previous years due to improvements in the surveillance of STIs (see 'Data interpretation' section of the Appendix for further details).

* Sexual health services (SHSs) include both specialist (level 3) and non-specialist (level 1 & 2) SHSs. Specialist SHSs refers to genitourinary medicine (GUM) and integrated GUM/sexual and reproductive health (SRH) services. Non-specialist SHSs refers to SRH services, young people's services, online sexual health services, termination of pregnancy services, pharmacies, outreach and general practice, and other community-based settings. Further details are provided in the BASHH/MEDFASH Standards for the Management of STIs (Appendix B): <http://www.medfash.org.uk/uploads/files/p18dtqli8116261rv19i61rh9n2k4.pdf>.

Between 2016 and 2017, there were decreases in the number of diagnoses of NSGI (10%; from 37,028 to 33,473) and of genital warts (7%; from 63,458 to 59,119). The sustained decrease in genital warts is largely due to the substantial declines in younger women, the majority of whom would have received the quadrivalent HPV vaccine when aged 12 or 13 years.

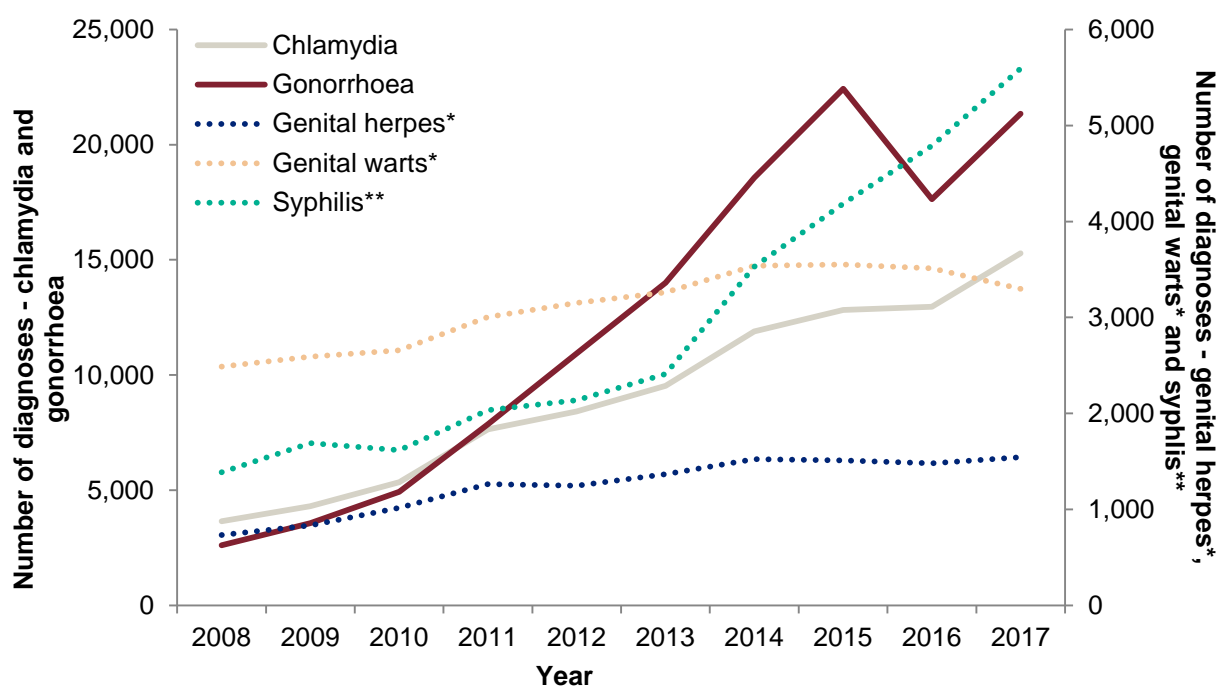
The decreases in NSGI and genital warts diagnoses were offset by large increases in gonorrhoea (22%; from 36,577 to 44,676) and syphilis (primary, secondary and early latent stages) diagnoses (20%; from 5,955 to 7,137) over the same period. The number of syphilis diagnoses in 2017 was the largest annual number reported since 1949 and is consistent with the increasing trend seen in recent years: since 2008, syphilis diagnoses have risen by 148% (from 2,874 to 7,137), mostly among gay, bisexual or other men who have sex with men (referred to collectively as 'MSM').

The total number of attendances at SHSs nationally increased 3% between 2016 and 2017 (from 3,227,254 to 3,323,275), continuing the increasing trend over the past five years: between 2013 and 2017, there was a 13% increase in the number of attendances (from 2,940,779). Similarly, the total number of sexual health screens (tests for chlamydia, gonorrhoea, syphilis and HIV) increased over this time period (18%; from 1,513,288 in 2013 to 1,778,306 in 2017). While there were increases in both attendances and testing nationally, there is some variability regionally with small (2-5%) declines in attendances at SHSs in the East Midlands, North East and South West PHE Centre areas between 2016 and 2017; these regional variations can be explored using the STI testing rate indicator on PHE's [Sexual and Reproductive Health Profiles](#).

Gay, bisexual and other men who have sex with men

Of the 50,032 new STI diagnoses in MSM in 2017, gonorrhoea (43%; 21,346) and chlamydia (31%; 15,284) were the most common. Between 2016 and 2017 (figure 2), there were large increases in diagnoses of gonorrhoea (21%; from 17,626 to 21,346), chlamydia (17%; from 12,626 to 14,765) and syphilis (17%; from 4,789 to 5,592). The increases in these three bacterial STIs continue the trend of the past decade; this increasing trend may be due to better detection of chlamydia and gonorrhoea in the earlier part of the decade [1], as well as an increase in the number of condomless, anal intercourse partners as a result of behaviours such as HIV sero-adaptive behaviours, group sex facilitated by geosocial networking applications, and 'chemsex' [2,3]. However, since 2015, there has been a marked decrease in new HIV diagnoses in MSM as a result of improvements in HIV testing and time to treatment, as well as private access to HIV pre-exposure prophylaxis [4, 5].

Figure 2. Number of new diagnoses of selected sexually transmitted infections in gay, bisexual and other men who have sex with men attending sexual health services[†], 2008–2017, England



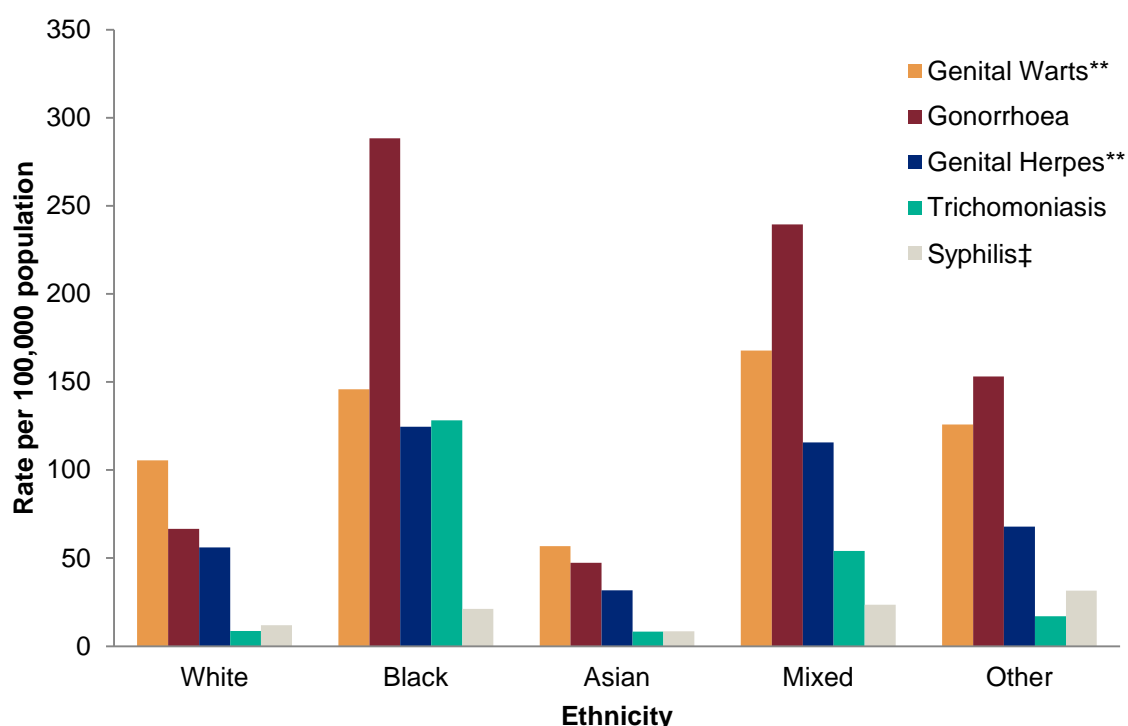
[†] Data from routine specialist and non-specialist sexual health services' returns to the GUMCAD STI Surveillance System.

* First episode; ** Primary, secondary and early latent.

STI distribution by ethnicity

The highest population rates of STI diagnoses are among people of black ethnicity (figure 3), but this varies considerably among black ethnic minority (BME) groups. Black Caribbean and black non-Caribbean/non-African (hereafter: 'any other black background') people have the highest diagnosis rates of many STIs of all ethnic groups, while black Africans have relatively lower rates [6,7]. Data from a national probability sample indicate that men of black Caribbean or any other black backgrounds are most likely to report higher numbers of recent sexual partners and concurrent partnerships; this, coupled with assortative sexual mixing patterns, may be maintaining high levels of bacterial STIs in these communities [8].

Figure 3. Rates of selected sexually transmitted infection (STI) diagnoses* by ethnicity and STI, 2017, England



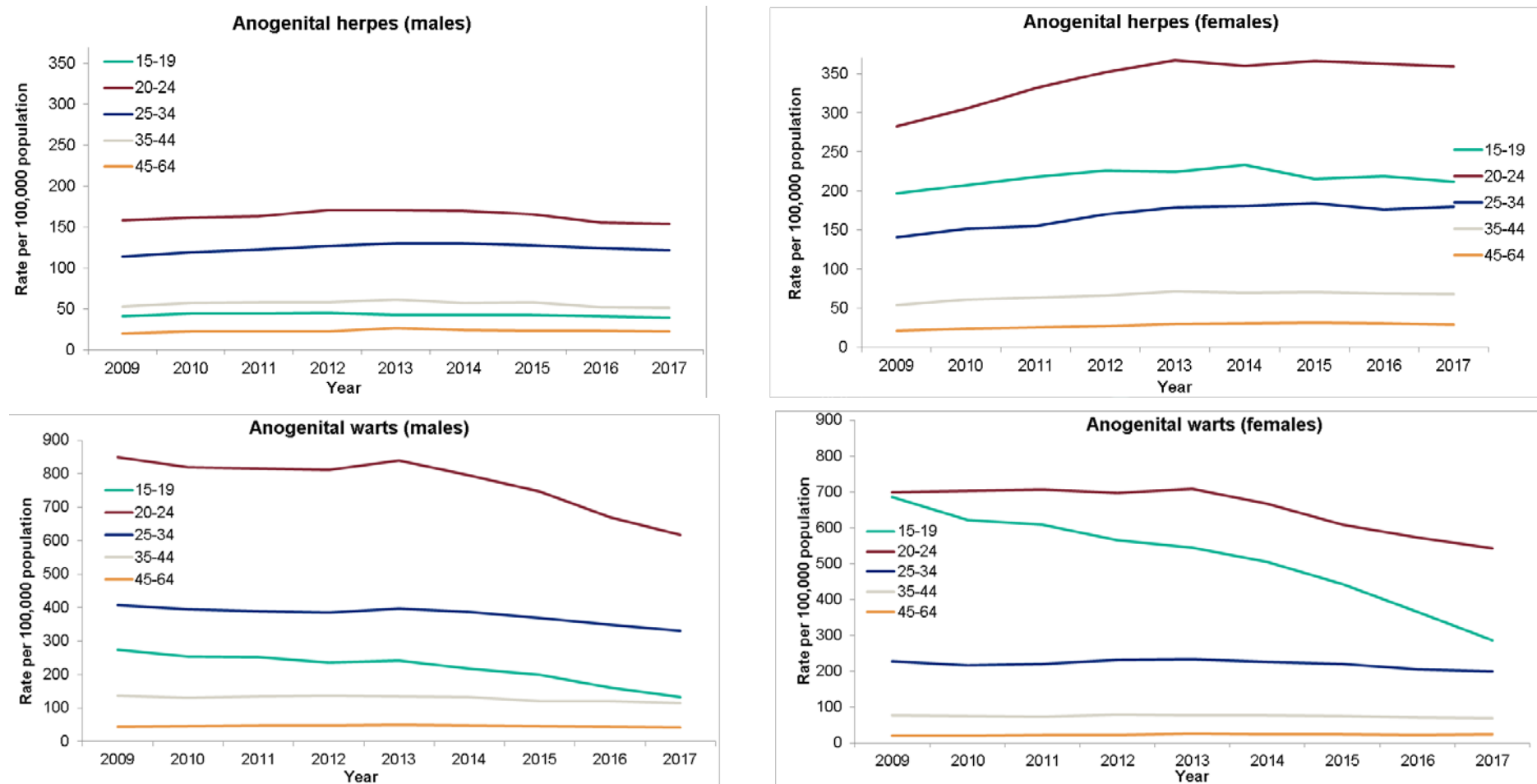
* Data from routine specialist and non-specialist sexual health services' returns to the GUMCAD STI Surveillance System; ** First episode; ‡ Primary, secondary and early latent.

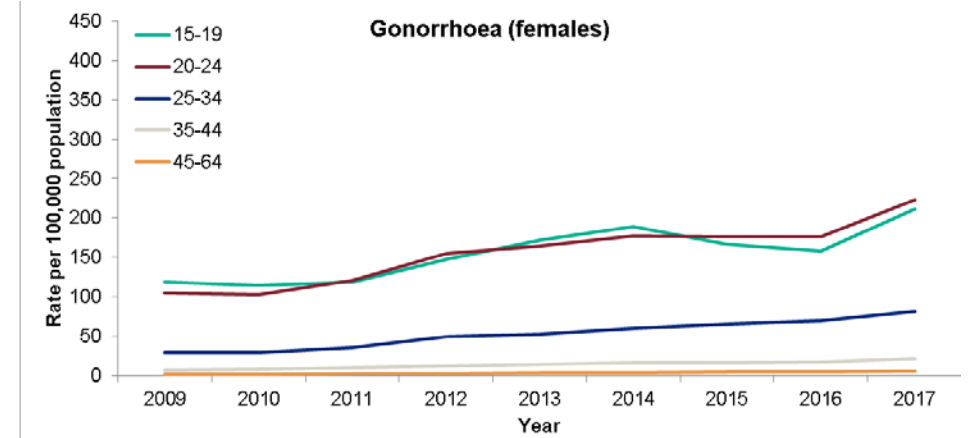
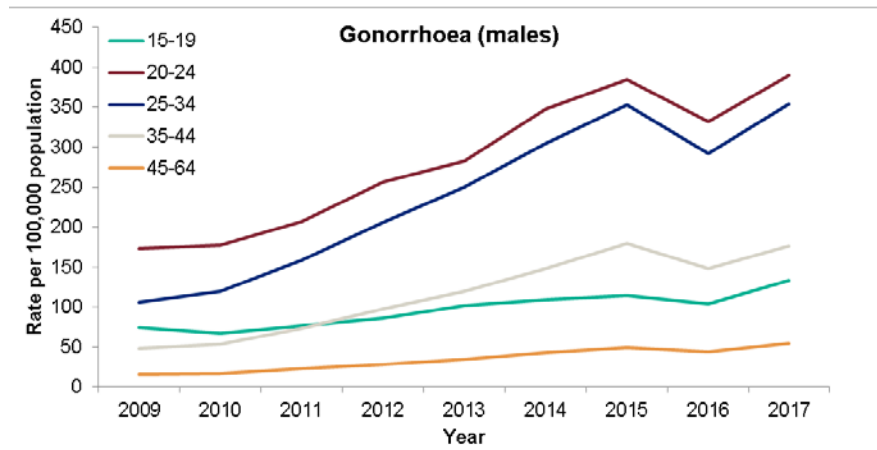
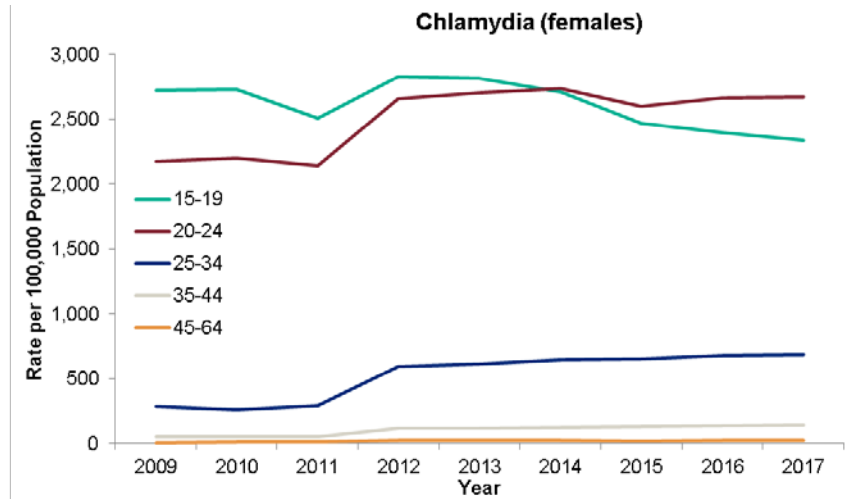
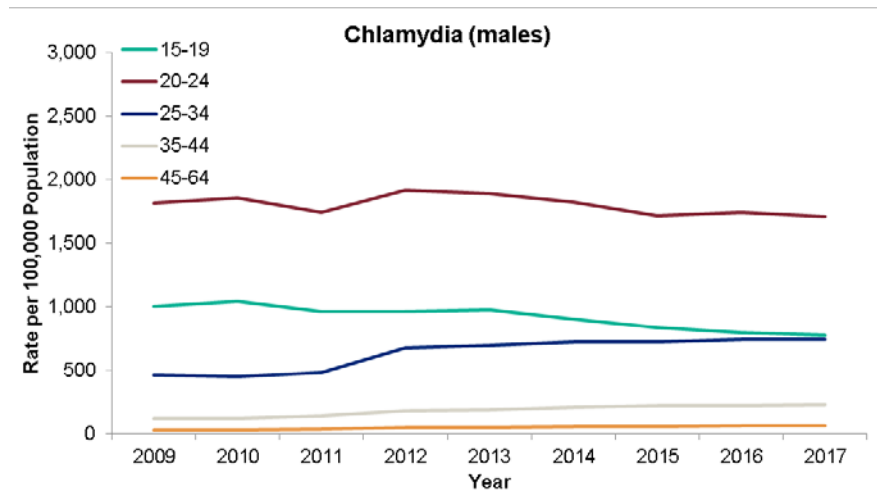
Young people and STIs

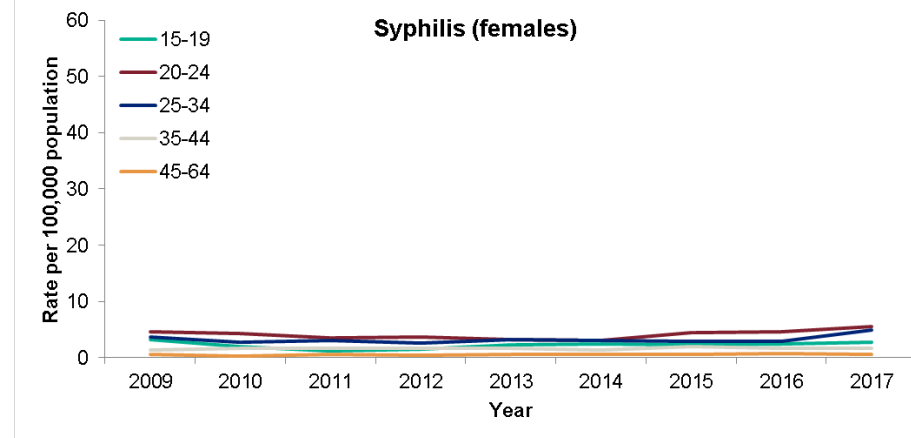
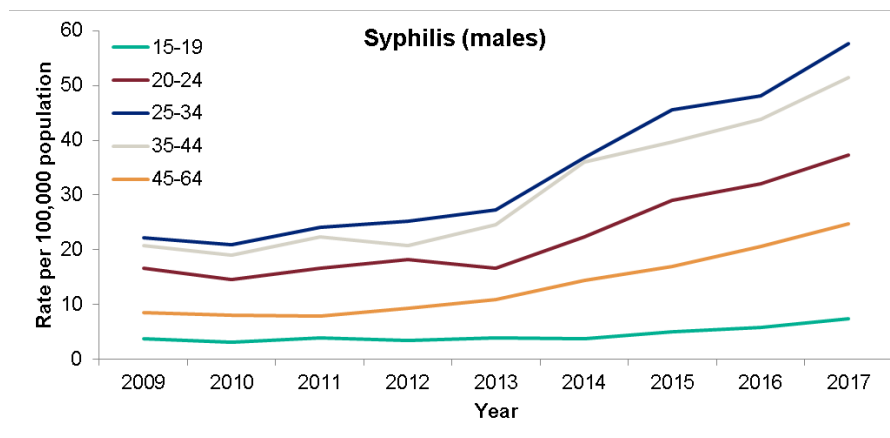
Young people experience the highest diagnosis rates of the most common STIs (figure 4) and this is likely due to greater rates of partner change among 16 to 24 year old people [9]. Young women are more likely to be diagnosed with an STI than their male counterparts; this may be due to a greater uptake of chlamydia screening through the National Chlamydia Screening Programme (NCSP), which targets those aged 15 to 24 years, as well as disassortative sexual mixing between younger women and older male partners [10,11]. Between 2016 and 2017, there was a large increase in diagnoses of gonorrhoea (27%; from 8,887 to 11,261) and syphilis (22%; from 228 to 278), however syphilis is still rarely diagnosed in young people.

Among 15 to 24 year olds, there has been a sharp decline in the rate of first episode genital warts diagnoses (figure 4). In 2017, the rate of genital warts diagnoses among females aged 15 to 17 years attending specialist SHSs, most of whom would have been offered the quadrivalent HPV vaccine (protecting against HPV types 16,18, 6 and 11) when aged 12-13 years old, was 89% lower compared to 2009 (48.7 vs 436.5 per 100,000 population). A decline of 70% (20.1 vs 66.7 per 100,000 population) was seen in same aged heterosexual males over this time period, suggesting substantial herd protection.

Figure 4. Rates of new sexually transmitted infection diagnoses among people attending sexual health services[†] by age-group and gender, 2009-2017, England







Note: Diagnoses of anogenital herpes and anogenital warts only include first episode diagnoses, while diagnoses of syphilis include primary, secondary and early latent syphilis.

† Data from routine specialist and non-specialist sexual health services' returns to the GUMCAD STI Surveillance System and also, for chlamydia only, routine non-specialist sexual health services' returns to the National Chlamydia Screening Programme (2009-2011) and the CTAD Chlamydia Surveillance System (2012-2017).

National Chlamydia Screening Programme

National data

The NCSP provides opportunistic screening to sexually active young people aged 15 to 24 years with the aim of increasing the detection of chlamydia and reducing the prevalence of associated sequelae. In 2017, over 1.3 million chlamydia tests were carried out in England among young people aged 15 to 24 years. Assuming one test per person, an estimated 28% of young females and 11% of young males were tested for chlamydia. A total of 126,828 chlamydia diagnoses were made among this age group, equivalent to a detection rate of 1,882 per 100,000 population.

The number of chlamydia tests fell by 8% between 2016 and 2017, a continuation of a decline in testing numbers since 2013 (table 1). The number of diagnoses fell by 2% between 2016 and 2017, also continuing the downward trend over the last five years. The number of diagnoses per 100,000 people aged 15 to 24 years are reported as part of the Public Health Outcomes Framework. This measure is referred to as the chlamydia detection rate. The detection rate declined between 2013 and 2015, and then stabilised (figures 5-6). These changes in the detection rate are predominantly a result of a decline in test coverage since 2013. Data quality improvements contributed to some of the data changes up to 2014. The stabilisation of the chlamydia detection rate reflects a small increase in test positivity.

While the largest proportion of chlamydia tests and diagnoses takes place in specialist SHS (table 1), the decline in testing over the past five years has mainly taken place in non-specialist SHSs (figure 7). The largest change in chlamydia screening between 2016 and 2017 took place in SRH services, where tests fell by 42% and diagnoses fell by 37%. These falls continue existing trends in SRH, where tests fell by 61% relative to 2015, and likely reflect changing service provision. The high rate of positivity suggests that these services provide testing to higher risk populations.

Tests and diagnoses from GPs, pharmacies, and termination of pregnancy (ToP) services also fell between 2016 and 2017. Tests from 'other' settings have continued to fall, reflecting ongoing data quality improvement work and likely reductions in outreach services.

The falls in testing in the above services have only been partially compensated for by increases in online sexual health services. Since 2015, the CTAD surveillance system has identified NHS/LA commissioned tests ordered through an internet service. Use of this coding has increased year on year, and 132,006 tests and 11,888 diagnoses were reported in 2017. Positivity remains high in these services (9%) suggesting that they are reaching at risk populations effectively (table 1)

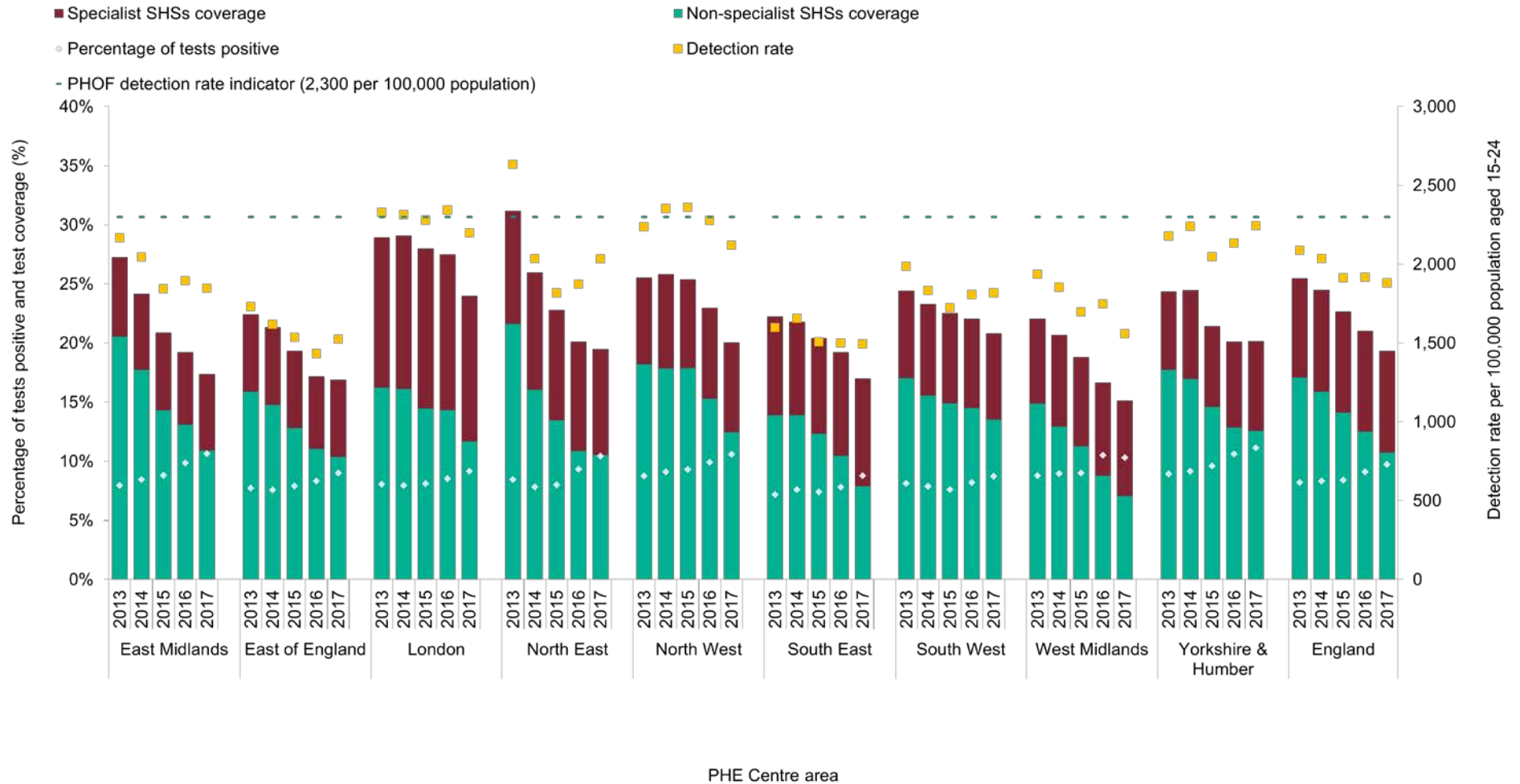
The percentage of tests that are positive was highest in specialist SHSs. This is expected as patients attending these services are more likely to be symptomatic than those attending non-specialist SHSs. SRH services positivity was 11.3%, comparable to positivity in specialist SHS settings (table 1).

Table 1. Chlamydia tests, diagnoses, and test positivity* among 15 to 24 year olds by test setting, 2016-2017, England

| Test setting | Tests | | | | Diagnoses | | | | Tests positivity (%) | |
|-----------------|------------------|-------------|------------------|-------------|----------------|-------------|----------------|-------------|----------------------|-------------|
| | 2016 | | 2017 | | 2016 | | 2017 | | 2016 | 2017 |
| | Number | %of total | Number | %of total | Number | %of total | Number | %of total | | |
| Specialist SHSs | 575,663 | 40.6% | 579,083 | 44.5% | 64,198 | 49.7% | 68,335 | 53.9% | 11.2% | 11.8% |
| GP | 272,660 | 19.2% | 257,919 | 19.8% | 17,239 | 13.3% | 17,444 | 13.8% | 6.3% | 6.8% |
| SRH | 168,340 | 11.9% | 97,098 | 7.4% | 17,488 | 13.5% | 10,931 | 8.6% | 10.4% | 11.3% |
| Internet | 121,730 | 8.6% | 132,006 | 10.1% | 10,316 | 8.0% | 11,888 | 9.4% | 8.5% | 9.0% |
| ToP | 22,411 | 1.6% | 21,890 | 1.7% | 1,425 | 1.1% | 1,403 | 1.1% | 6.4% | 6.4% |
| Pharmacy | 14,335 | 1.0% | 13,030 | 1.0% | 1,304 | 1.0% | 1,277 | 1.0% | 9.1% | 9.8% |
| Other | 223,801 | 15.8% | 182,602 | 14.0% | 15,699 | 12.2% | 14,003 | 11.0% | 7.0% | 7.7% |
| Unknown | 18,896 | 1.3% | 19,021 | 1.5% | 1,520 | 1.2% | 1,547 | 1.2% | 8.0% | 8.1% |
| Total | 1,417,836 | 100% | 1,302,649 | 100% | 129,189 | 100% | 126,828 | 100% | 9.1% | 9.7% |

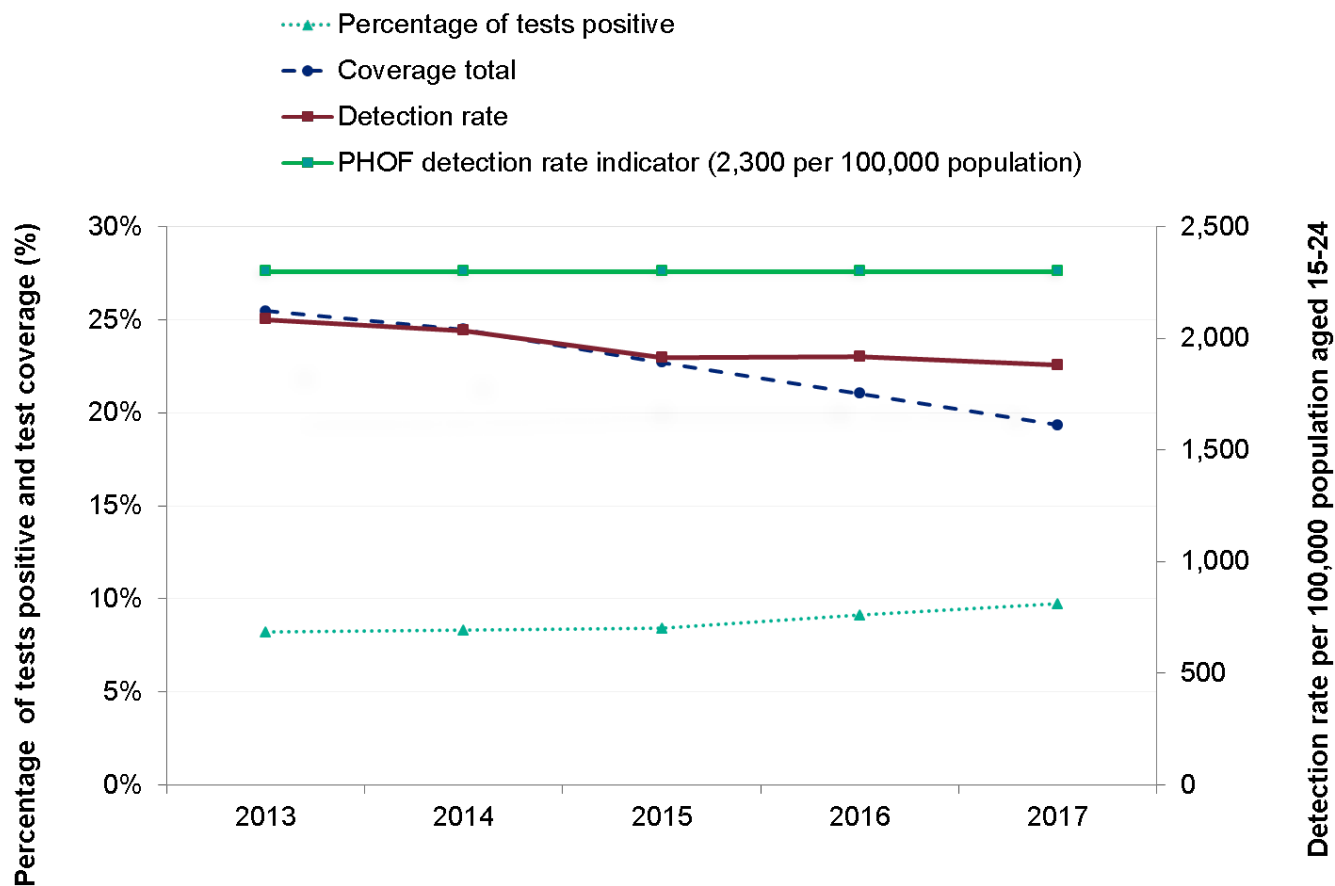
* Data from specialist and non-specialist sexual health (including community based) services (SHSs) GP: General practice; SRH: Sexual and reproductive health service; ToP: Termination of pregnancy service.

Figure 5. Chlamydia testing coverage, detection rates and percentage of tests positive* among 15 to 24 year olds by PHE Centre area, 2013-2017, England



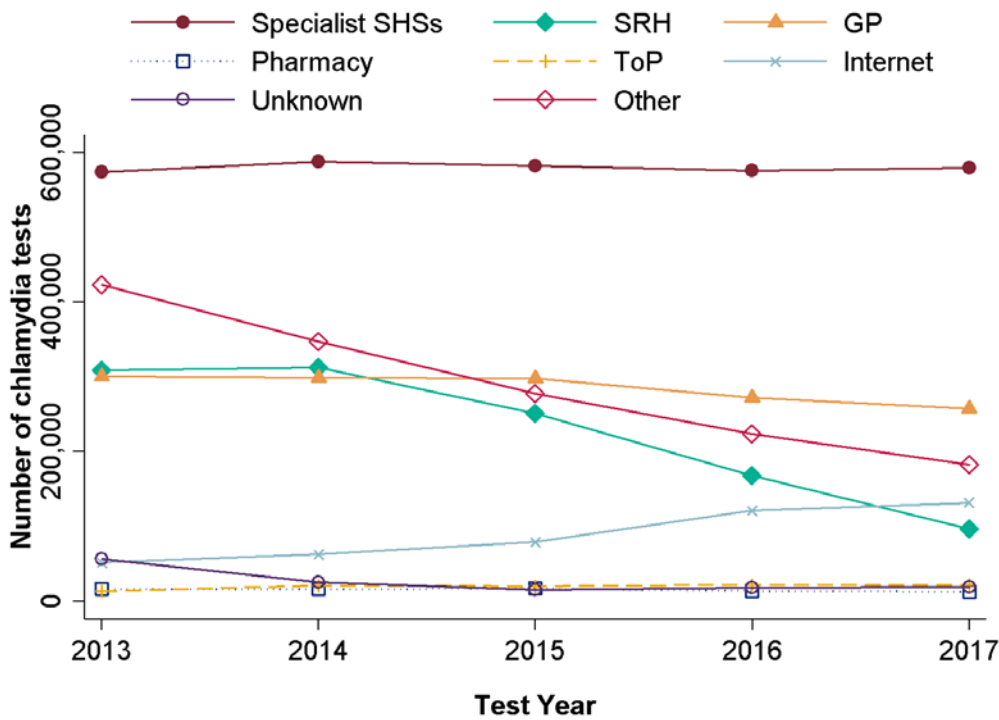
* Data from specialist and non-specialist sexual health (including community based) services

Figure 6. Chlamydia testing coverage, detection rates and percentage of tests positive* among 15 to 24 year olds, 2013-2017, England



* Data from specialist and non-specialist sexual health (including community based) services

Figure 7. Chlamydia tests* among 15 to 24 year olds by test setting, 2013-2017, England



* Data from specialist and non-specialist sexual health (including community based) services

Geographic variation

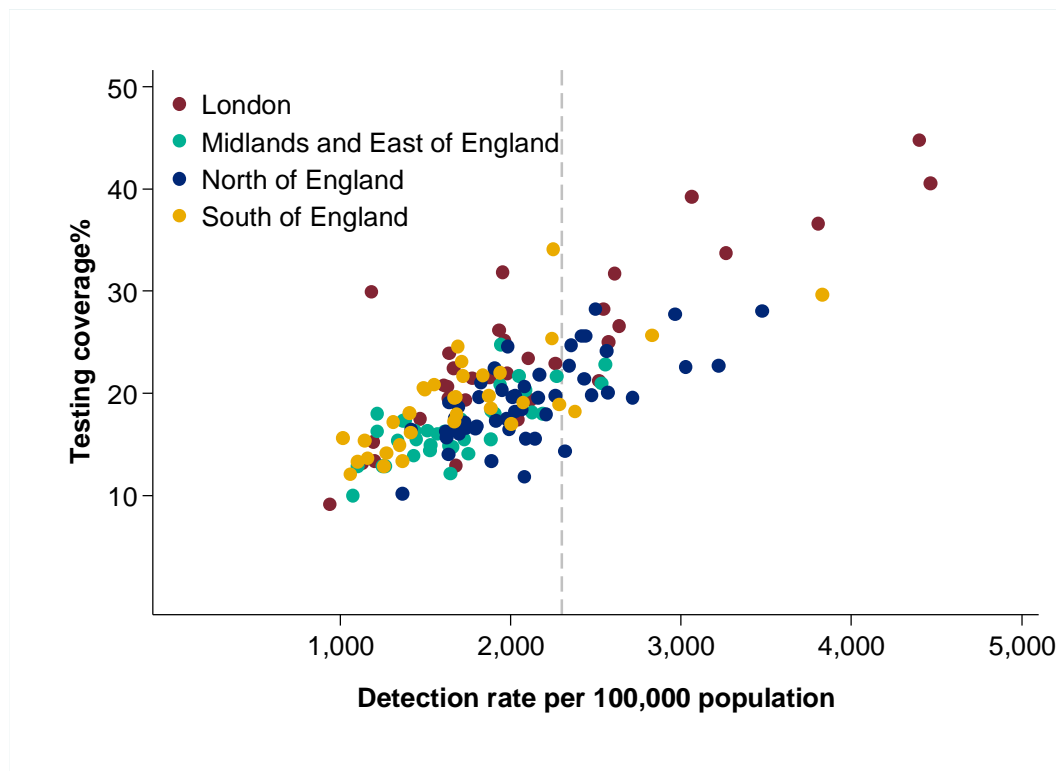
Chlamydia testing coverage, detection rate and test positivity varied by PHE Centre area of residence (figure 5). In 2017:

- The percentage of young people tested for chlamydia ranged from 15% in West Midlands to 24% in London.
- Test positivity ranged from 8% in the South West to 11% in Yorkshire and Humber.
- The detection rate per 100,000 population ranged from 1,494 in South East to 2,199 in London.

Chlamydia detection rates exhibit considerable geographic variation by upper tier local authority (UTLA) (figures 8-10). The median UTLA detection rate was 1,855 per 100,000 population aged 15 to 24 years (IQR 1,563-2,179). Differences in detection rate could be due to differences in chlamydia testing coverage (figure 8) or service delivery.

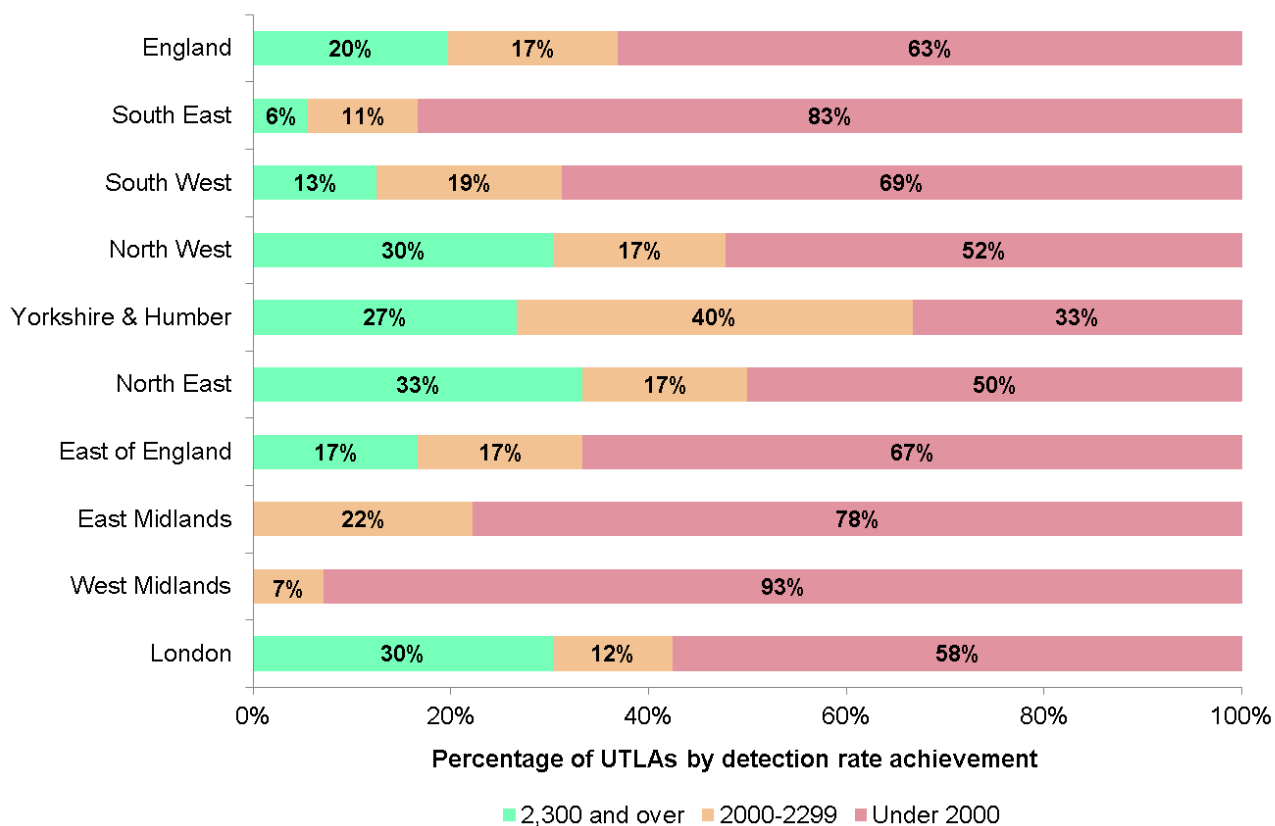
The percentage of UTLAs who achieved a detection rate of 2,300 or above dropped from 22% to 20% between 2016 and 2017. The proportion of UTLAs meeting the detection rate recommendation varies by PHE Centre area from 0% to 33% (figure 9). PHE continues to work towards improving chlamydia control with local areas not reaching the recommended 2,300 diagnoses per 100,000 population.

Figure 8. Chlamydia detection rate and testing coverage among 15 to 24 year olds by UTLA of residence, 2017, England



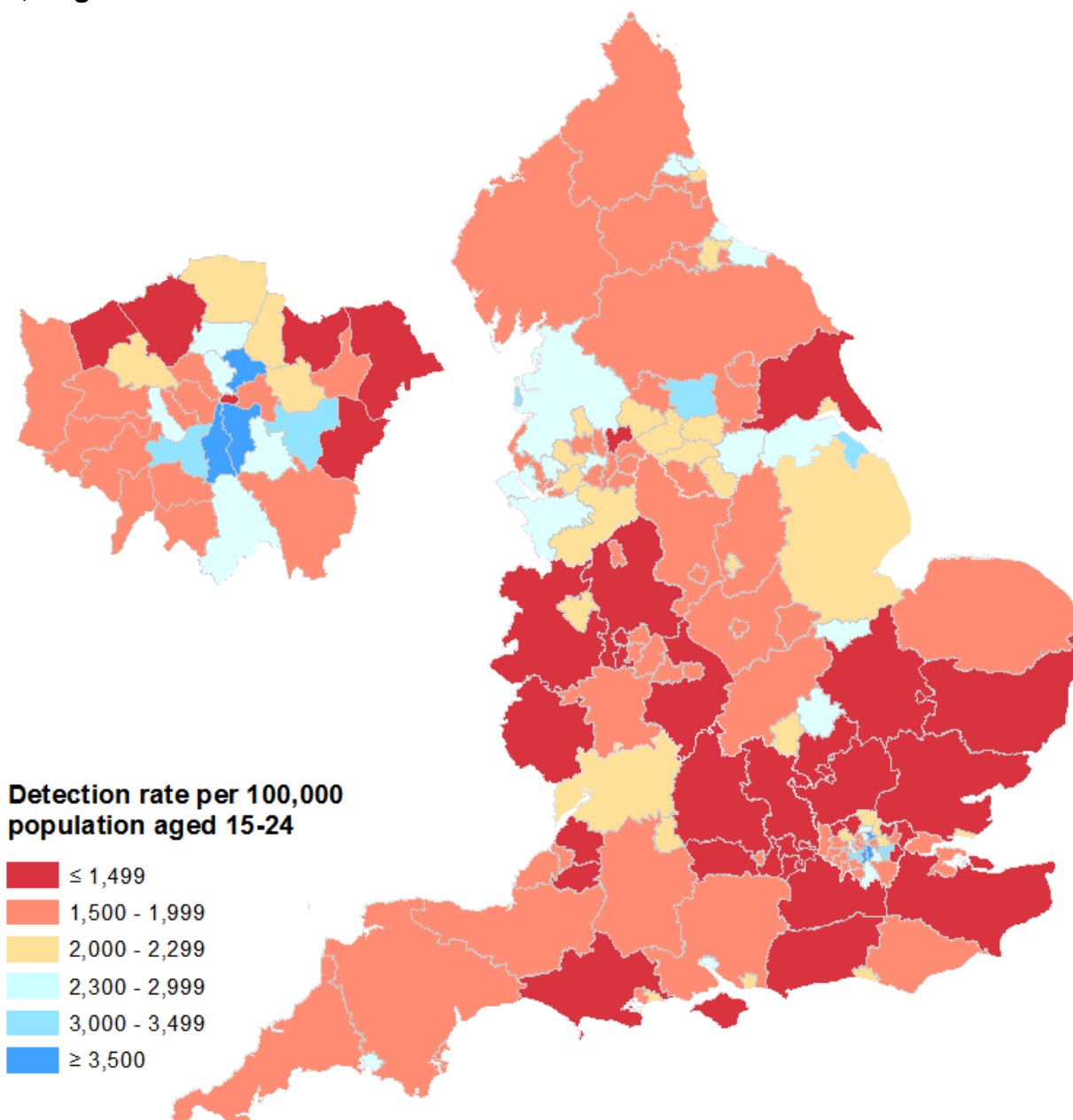
* Data from specialist and non-specialist sexual health (including community based) services

Figure 9. Variation in UTLA achievement of the chlamydia detection rate by PHE Centre area and England, 2017



* Data from specialist and non-specialist sexual health (including community based) services

Figure 10. Chlamydia detection rates* among 15 to 24 year olds by UTLA of residence, 2017, England and London PHE Centre areas



*Data from specialist and non-specialist sexual health (including community based) services

Conclusions

The overall number of STI diagnoses remained stable between 2016 and 2017. Levels of transmission remain very high and there was a marked increase in bacterial STI diagnoses in MSM. The large increase in gonorrhoea diagnoses between 2016 and 2017 is concerning due to the ongoing circulation of high-level azithromycin resistant gonorrhoea [12]. Additionally, the first detected case of extensively drug resistant *Neisseria gonorrhoeae* with resistance to ceftriaxone and high-level resistance to azithromycin, the two antibiotics used as front-line dual therapy, was detected in the UK in March 2018 [13]. Soon after two cases with similar antimicrobial resistance profiles were later detected in Australia [14]. All three cases were associated with travel to south-east Asia but, to detect any further importations or local circulation of similar multi-drug resistant strains, clinical laboratories should continue to refer *N. gonorrhoeae* isolates with resistance to ceftriaxone or azithromycin to the PHE Reference Bacteriology at PHE Colindale for confirmation. General Practitioners are reminded to refer all suspected cases of gonorrhoea to specialist SHSs for appropriate management [15].

The impact of STIs remains greatest in young heterosexuals 15 to 24 years, black ethnic minorities and MSM, and PHE is conducting and managing a number of initiatives to address this inequality in poor sexual health. Access to high quality information is essential for good sexual health and PHE has funded an on-line resource (<https://sexwise.fpa.org.uk/>) and a telephone helpline (<https://sexwise.fpa.org.uk/where-to-get-help/helplines>) to provide advice on contraception, pregnancy and STIs. Additionally, statutory, high-quality relationship and sex education at all secondary schools will equip young people with the information and skills to improve their sexual health [16-18]. Condom use, an effective method to reduce the risk of STIs, can be promoted through national and local media campaigns as well as distributed through local services. To improve the sexual health of young people, PHE recently launched a health promotion campaign to promote condom use and positive sexual relationships among 16 to 24 year olds (<https://www.nhs.uk/protect-against-stis-use-a-condom/home>). The vast majority of areas in England have condom schemes which distribute condoms to young people (mostly under 20 years of age) through a variety of outlets with an estimated coverage of 6% in under 20 year olds [19].

The early diagnosis and treatment of STIs is a key intervention for their prevention and control. The NCSP promotes testing for chlamydia, the most common bacterial STI, in sexually active young people annually or on change of partner. Given the large drops in testing and the high positivity of women within SRH services it is likely that some infected women are going undiagnosed. To help local areas improve their chlamydia detection rate in 15 to 24 year olds, PHE developed the chlamydia care pathway (CCP) to outline comprehensive case management for an episode of chlamydia testing, diagnosis and treatment [20]. CCP support is delivered through facilitated workshops, the aim of which is to create action plans for how services might be improved or resources redistributed to most effectively identify infected individuals.

The continued reduction in genital warts is associated with the high coverage of HPV vaccination in adolescent girls through the National HPV Immunisation Programme. While young heterosexual men stand to benefit from female only HPV vaccination through herd protection, this is not necessarily the case for MSM. As a result, a targeted HPV vaccination pilot programme for MSM ran from June 2016 to end March 2018 in 42 specialist SHSs and HIV clinics across England (<https://www.gov.uk/government/publications/hpv-vaccination-pilot->

for-men-who-have-sex-with-men-msm). The experience of this pilot supported the decision to proceed to a phased national rollout of targeted HPV vaccination for MSM attending specialist SHSs and HIV clinics, from April 2018. While a national impact on genital warts in this population is not expected to be seen for some time, HPV vaccination of MSM will provide direct protection against HPV infection with the aim of reducing the incidence of genital warts and HPV-related cancers.

A number of HIV prevention activities can also have an impact on STI control and promote safer sexual behaviours. HIV Prevention England (<http://www.hivpreventionengland.org.uk/>) has been contracted to deliver, on behalf of PHE, an HIV prevention programme aimed at MSM, black Africans and other BME populations. This programme promotes, among other behaviours, condom use and awareness of STIs. Furthermore, in October 2017, the PrEP Impact trial was launched at specialist SHSs in England (<https://www.prepimpacttrial.org.uk/>) [21, 22]. The trial is planned to last three years and enrol 10,000 participants from communities most affected by HIV. This extension of the national HIV prevention programme is likely to have a significant impact on the incidence of HIV. Lastly, PHE will publish an Action Plan, with recommendations for PHE and partner organisations, to address the continued increase in syphilis diagnoses in England.

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Appendix

Sexually transmitted infection (STI) testing in England

Sexual health services (SHSs) offer free, open-access HIV and STI testing, diagnosis and management services. The National Chlamydia Screening Programme (NCSP) offers opportunistic screening of sexually active young people aged 15 to 24 years and is mainly delivered through primary care (general practices and pharmacies), sexual and reproductive health (SRH) services (including termination of pregnancy services) and specialist SHSs.

Tests performed in specialist SHSs and SRH services are assumed to be a combination of symptomatic tests and asymptomatic screens, while tests performed elsewhere are assumed to largely be asymptomatic screens. The term 'test' is used herein to signify both asymptomatic screens and symptomatic tests.

Local areas should work towards a chlamydia detection rate of at least 2,300 per 100,000 population among 15 to 24 year olds, the recommended level for this Public Health Outcomes Framework (PHOF) indicator. Data from CTAD and GUMCAD are used by the NCSP to monitor progress towards the recommended PHOF indicator level.

Data sources – reporting services

This report presents data on the recent trends and epidemiology of STIs in England. It was compiled using data on STI tests and diagnoses made in specialist and non-specialist SHSs, defined as follows:

- Specialist (level 3) services: genitourinary medicine (GUM) services and integrated GUM/SRH services
- Non-specialist (level 1 and 2) services: SRH services, young people's services, online sexual health services, termination of pregnancy services, pharmacies, outreach and general practice, and other community-based settings.

Details on the levels of sexual health service provision are provided in Appendix B of the Standards for the Management of STIs (British Association for Sexual Health and HIV/Medical Foundation for HIV and Sexual Health):

<http://www.medfash.org.uk/uploads/files/p18dtqli8116261rv19i61rh9n2k4.pdf>.

Data sources – surveillance systems

Data on STI tests and diagnoses are submitted by SHSs to the GUMCAD STI Surveillance System. Data on chlamydia tests and diagnoses are submitted by laboratories to the CTAD Chlamydia Surveillance System. Both of these surveillance systems are managed by Public Health England and, in combination, provide a comprehensive picture of STI trends in England. These systems are detailed below:

- **STI surveillance:** Before 2009, STI diagnosis data were collected on an aggregated, paper-based form: the KC60 statistical return. 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 SHSs. From 2012, GUMCAD was expanded to include reporting from all commissioned non-specialist SHSs.
- **Chlamydia surveillance:** Before 2012, chlamydia diagnosis data was sourced from the NCSP core data return and the non-NCSP non-GUM aggregate data return. In 2012 the CTAD Chlamydia Surveillance System was established as a universal disaggregate dataset that collects chlamydia data from all laboratories commissioned by LAs or the NHS to carry out chlamydia testing. This report includes the chlamydia data from tests and diagnoses occurring in non-specialist (level 1 & 2) SHSs.

Data content and definitions

- Trends in 'New STIs' are discussed in this report. 'New STIs' include the following: chancroid, chlamydia, donovanosis, gonorrhoea, genital herpes (first episode), HIV, lymphogranuloma venereum, molluscum contagiosum, *Mycoplasma genitalium*, non-specific genital infection, pediculosis pubis, pelvic inflammatory disease & epididymitis, scabies, *Shigella flexneri*, *Shigella sonnei*, *Shigella* spp (unspecified), syphilis (primary, secondary & early latent stages), trichomoniasis, and genital warts (first episode).
- Male includes transgender (trans) men; Female includes transgender (trans) women. GUMCAD will be enhanced by 2019 to routinely collect more detailed information on gender identity, including from those who do not identify as exclusively male or female (non-binary). In this report, data reported with an unknown gender and/or sexual risk may be included in the data total.
- Males reported with an unknown sexual orientation have been excluded from the heterosexual and MSM analyses. Females 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.
- Rates have been calculated using ONS population estimates generated annually based upon the 2011 census. Rates for 2017 have been calculated using 2016 population estimates as 2017 data are not yet available. Ethnicity-specific population data are the latest available, derived from mid-2011 ONS experimental data.

Missing data

- CTAD: Leeds general infirmary laboratory did not submit data for Q3 (July – September) 2016. This will affect the data for the areas where this laboratory is commissioned for chlamydia testing.
- GUMCAD: Numbers have been adjusted to account for unavailable GUMCAD data in Q4 2017 (data from enhanced GPs are not adjusted).

Data interpretation

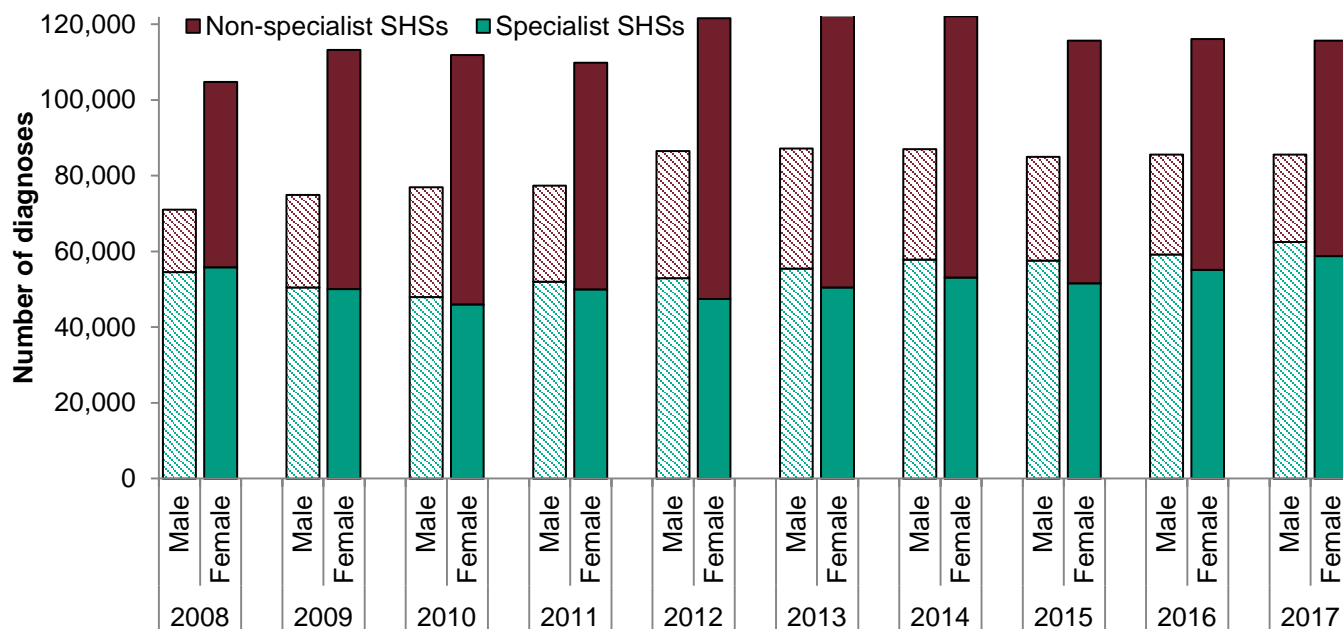
Changes in surveillance have occurred that may affect STI trends over time:

- Chlamydia test and diagnosis data from non-specialist SHS between 2004 and 2011 (from NCSP & NNNG services) only include those aged 15 to 24 years whereas the CTAD Chlamydia Surveillance System includes all age-groups. Therefore, chlamydia data in non-specialist SHS from 2012 onwards are not directly comparable to data from previous years.
- From 2012, all chlamydia cases presenting to specialist SHSs that were previously diagnosed at other services are no longer included in the chlamydia diagnosis totals, in order to prevent double counting of diagnoses. As a result of this, the recommended level for the PHOF indicator chlamydia detection rate was revised down from 2,400 to 2,300 per 100,000 population in 15 to 24 year olds
- The 'New STI diagnoses' group was expanded in 2015 to include STI diagnoses that were not previously reported via GUMCAD (*Shigella* spp and *Mycoplasma genitalium* infections). Therefore, data from 2015 are not directly comparable to data from previous years.
- GUMCAD reporting was expanded in 2012 to include non-specialist SHSs. Most STI diagnoses are made in specialist SHSs, but this expansion resulted in an increase in reported diagnoses of some STIs between 2012 and 2014.

Resources on the PHE website

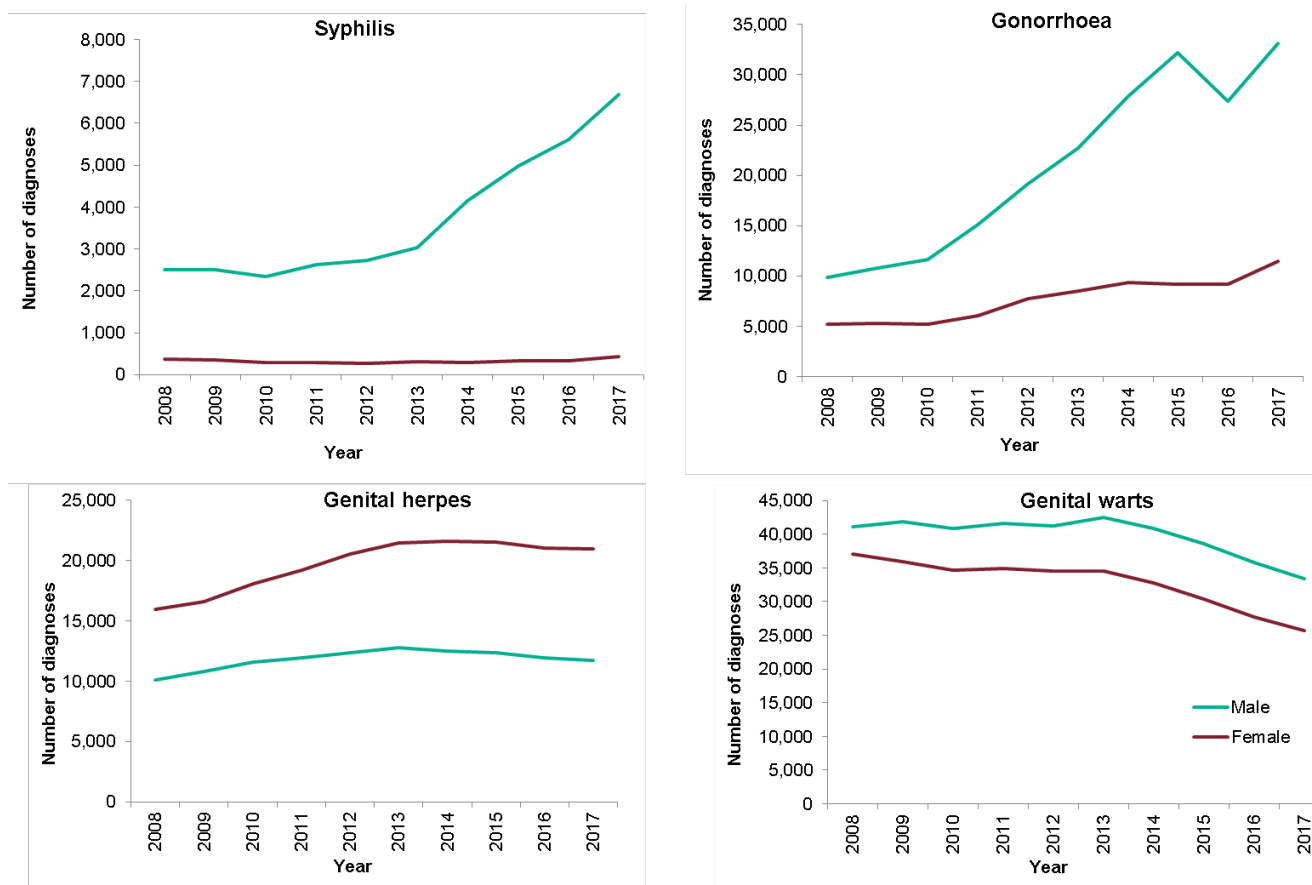
- Further STI data are available on the PHE STI annual data tables web page in the form of tables, an infographic, and a slide set:
<https://www.gov.uk/government/statistics/sexually-transmitted-infections-stis-annual-data-tables>
- Further data on chlamydia tests and diagnoses in 15 to 24 year olds are available on the PHE NCSP annual data tables web page:
<https://www.gov.uk/government/statistics/national-chlamydia-screening-programme-ncsp-data-tables>
- Interactive tables, charts, and maps showing local-area STI data are available on the Sexual and Reproductive Health Profiles: <http://fingertips.phe.org.uk/profile/sexualhealth>
- Further information on the GUMCAD and CTAD surveillance systems is available at <https://www.gov.uk/genitourinary-medicine-clinic-activity-dataset-gumcadv2> and <https://www.gov.uk/government/collections/chlamydia-surveillance-data-screening-and-management>, respectively
- Further information on the Gonococcal Resistance to Antimicrobials Surveillance Programme is available at <https://www.gov.uk/government/publications/gonococcal-resistance-to-antimicrobials-surveillance-programme-grasp-report>
- Further information on trends in HIV diagnoses in the UK is available at: www.gov.uk/government/statistics/hiv-annual-data-tables, and <https://www.gov.uk/government/statistics/hiv-in-the-united-kingdom>
- The latest LGV surveillance data for the UK are available on the following web page: www.gov.uk/government/collections/lymphogranuloma-venereum-lgv-guidance-data-and-analysis
- The latest guidance and data on *Shigella* spp are available at: <https://www.gov.uk/government/collections/shigella-guidance-data-and-analysis>

Appendix Figure 1. New diagnoses of chlamydia at sexual health services* by gender and service type, 2008–2017, England



* Data from routine specialist sexual health services' returns to the GUMCAD STI Surveillance System and routine non-specialist sexual health services' returns to the CTAD Chlamydia Surveillance System.

Appendix Figure 2. New diagnoses of syphilis (primary, secondary and early latent), gonorrhoea, genital herpes (first episode) and genital warts (first episode) at sexual health services* by gender, 2008–2017, England



* Data from routine specialist and non-specialist sexual health services' returns to the GUMCAD STI Surveillance System.

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and are a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

About Health Protection Report

Health Protection Report is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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