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Sexually Transmitted Infections and Chlamydia Screening in England, 2016

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Key points

- In 2016, there were approximately 420,000 diagnoses of sexually transmitted infections (STIs) made in England, a decline of 4% compared to 2015
- There were 5,920 diagnoses of syphilis reported in 2016, a 12% increase relative to the year prior and the largest number of diagnoses reported since 1949
- There were 1,171 diagnoses of first episode genital warts in 15 to 17 year old girls in 2016, a 74% decrease relative to 2009
- Over 1.4 million chlamydia tests were carried out and over 128,000 chlamydia diagnoses were made among young people aged 15 to 24 years
- 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

- Statutory, high-quality relationship and sex education in secondary schools will equip young people with the skills to improve their sexual health and overall wellbeing
- Strengthened local and national prevention activities need to focus on groups at highest risk, including young adults, black ethnic minorities and MSM
- Consistent and correct use of condoms can significantly reduce risk of STIs
- Rapid, open access to treatment and partner notification can reduce the risk of complications and infection spread
- 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 a regular STI screen, including an HIV test, if having condomless sex with new or casual partners

Overall trends in diagnoses in England

In 2016, there were 417,584 new STI diagnoses made at sexual health services* (SHSs) in England. Of these, the most commonly diagnosed STIs were chlamydia (202,546; 49% of all new STI diagnoses), first episode genital warts (62,721; 15%), gonorrhoea (36,244; 9%), and non-specific genital infections ([NSGI] 36,774; 9%).

Trends in diagnoses of common STIs over the last decade are presented in appendix figures 1 and 2. Compared to 2015, the total number of new STIs diagnosed in 2016 decreased by 4% (from 436,928 to 417,584) and was associated with:

- a 12% decrease in gonorrhoea diagnoses (from 41,262 to 36,244) which followed a steady, rapid increase between 2008 and 2015 (175%; from 14,985 to 41,262)
- an 8% decrease in genital warts (from 68,444 to 62,721), consistent with the high coverage of Human Papillomavirus vaccination in adolescent females (see section “*Young People and STIs*”)
- a 13% reduction in NSGI diagnoses (from 42,250 to 36,774), likely due to greater usage of infection-specific diagnostic tests [1].

However, there was a 12% increase in syphilis diagnoses [primary, secondary and early latent stages] (from 5,281 to 5,920) between 2015 and 2016. The number of syphilis diagnoses in 2016 was the largest reported since 1949 and is consistent with the increasing trend seen in recent years: since 2012, syphilis diagnoses have risen by 97% (from 3,001 to 5,920), mostly associated with transmission in gay, bisexual or other men who have sex with men (MSM; see following section)

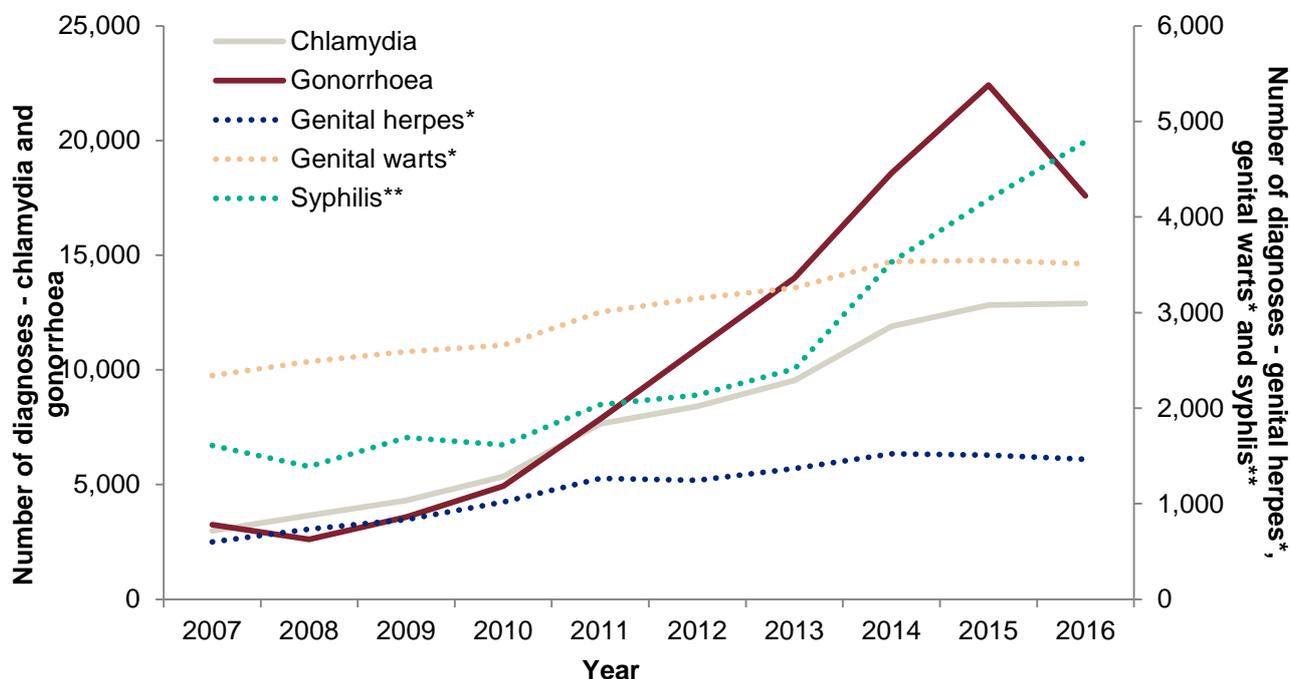
Gay, bisexual and other men who have sex with men

Of the 49,445 new STI diagnoses in MSM in 2016, gonorrhoea (36%; 17,584) and chlamydia (26%; 12,900) were the most common. Between 2015 and 2016, gonorrhoea diagnoses decreased 22% (from 22,419 to 17,584) while those of chlamydia remained relatively stable (1% increase from 12,828 to 12,900) (figure 1). In contrast, syphilis diagnoses increased 14% (from 4,185 to 4,788), possibly associated with HIV seroadaptive behaviours, as has been reported in STI outbreaks [2].

Despite the decrease in gonorrhoea diagnoses between 2015 and 2016, sustained transmission is of concern given the emergence and circulation of antimicrobial resistant strains of *Neisseria gonorrhoeae*, the bacterium which causes gonorrhoea [3-6]. The decline in gonorrhoea coincides with a 23% decrease (from 2,046 to 1,570) in HIV diagnoses in MSM attending SHSs between 2015 and 2016, likely due to improvements in HIV testing and time to anti-retroviral treatment, as well as private access to HIV pre-exposure prophylaxis [7,8].

* Sexual health services (SHS) 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). 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

Figure 1. Number of new diagnoses of selected sexually transmitted infections in gay, bisexual and other men who have sex with men attending sexual health services[†], 2007–2016, England

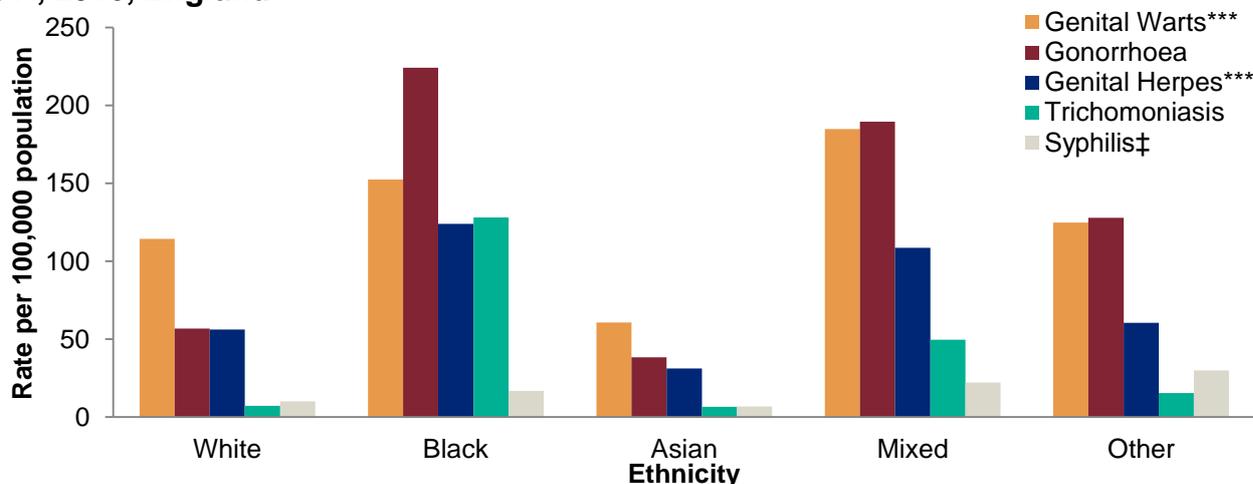


* First episode; ** Primary, secondary and early latent; † Data from routine specialist and non-specialist sexual health services' returns to the genitourinary medicine clinic activity dataset

STI distribution by ethnicity

The highest population rates of STI diagnoses are among people of black ethnicity (figure 2), especially those of black Caribbean ethnicity [9]. This sexual health inequality is likely the consequence of a complex interplay of cultural, socio-economic and behavioural factors [10,11].

Figure 2. Rates of selected sexually transmitted infection (STI) diagnoses* by ethnicity and STI, 2016, England

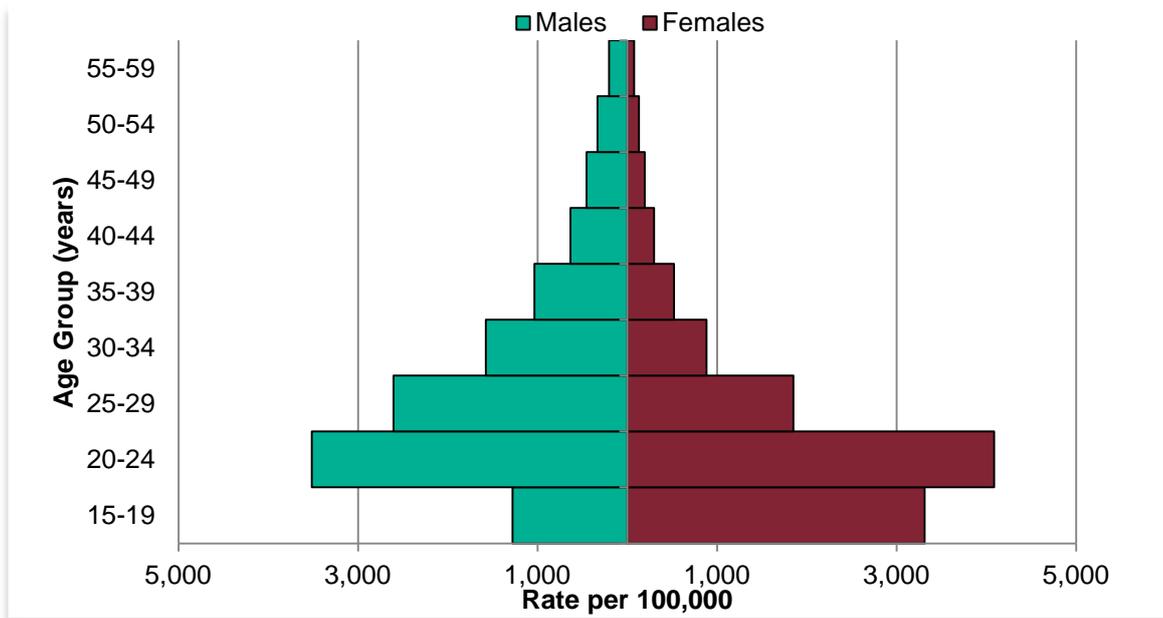


* Data from routine specialist and non-specialist sexual health services' returns to the genitourinary medicine clinic activity dataset. ** First episode. ‡ Primary, secondary and early latent

Young people and STIs

Young people, defined here as those aged 15 to 24 years, experience the highest STI diagnosis rates (figure 3). Compared to people aged 25 to 59 years, rates of STI diagnoses in this age-group are twice as high in men and seven times as high in women; these higher rates are likely due to greater rates of partner change among the younger age-group [12]. Among heterosexuals diagnosed in SHSs in 2016, 62% (66,701/107,715) with chlamydia, 50% (8,896/17,857) with gonorrhoea, 49% (28,540/58,058) with genital warts, and 42% (12,374/29,808) with genital herpes were aged 15 to 24 years. Between 2015 and 2016, there were small (2%) decreases in the number of diagnoses of gonorrhoea (from 9,120 to 8,896) and genital herpes (from 12,622 to 12,374) in young heterosexuals. In 2016, the rate of first episode 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 & 11) when aged 12-13 years old, was 72% lower compared to 2009 (121.5 vs 436.5 per 100,000 population). A decline of 62% (31.4 vs 83.4 per 100,000) was seen in same aged heterosexual males over this time period, suggesting substantial herd protection.

Figure 3. Rates of new sexually transmitted infection diagnoses among people attending sexual health services† by age-group and gender, 2016, England



† Data from routine specialist and non-specialist sexual health services' returns to the genitourinary medicine clinic activity dataset and routine non-specialist sexual health services' returns to the chlamydia testing activity dataset

Trends in chlamydia testing and diagnoses in young people are discussed in the following section.

National Chlamydia Screening Programme

National data

The National Chlamydia Screening Programme (NCSP) offers opportunistic screening of 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 2016, over 1.4 million chlamydia tests were carried out in England among young people aged 15 to 24 years. Assuming one test per person, an estimated 30% of young females and 12% of young males were tested for chlamydia. A total of 128,098 chlamydia diagnoses were made among this age group, equivalent to a detection rate of 1,882 per 100,000 population.

When considered by test setting, the largest proportion of chlamydia tests and diagnoses in England in 2016 were in specialist SHSs (table 1). Large numbers of tests and diagnoses also took place in GP and sexual and reproductive health (SRH) settings. The percentage of tests positive (test positivity) was highest in specialist SHSs, which is expected as patients attending these services are more likely to be symptomatic than those attending non-specialist SHSs (including community settings).

In recent years we have seen a rise in sexual health services offered online. In 2015 the CTAD surveillance system was amended to enable identification of NHS/LA commissioned tests ordered through an internet service. Use of this coding has increased throughout 2015 and 2016 and in total 112,979 tests and 9,615 diagnoses were reported in 2016. Internet test positivity was 8.5%, comparable to positivity in other test settings (table 1).

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

| Test setting | Tests | | Diagnoses | | Test positivity (%) |
|-----------------|------------------|------------|----------------|------------|---------------------|
| | Number | % of total | Number | % of total | |
| Specialist SHSs | 574,273 | 40.8% | 63,605 | 49.7% | 11.1 |
| GP | 267,548 | 19.0% | 16,844 | 13.1% | 6.3 |
| SRH | 177,675 | 12.6% | 18,379 | 14.3% | 10.3 |
| Internet | 112,979 | 8.0% | 9,615 | 7.5% | 8.5 |
| ToP | 21,537 | 1.5% | 1,369 | 1.1% | 6.4 |
| Pharmacy | 14,157 | 1.0% | 1,288 | 1.0% | 9.1 |
| Other | 220,967 | 15.7% | 15,482 | 12.1% | 7.0 |
| Unknown | 18,816 | 1.3% | 1,516 | 1.2% | 8.1 |
| Total | 1,407,952 | | 128,098 | | 9.1 |

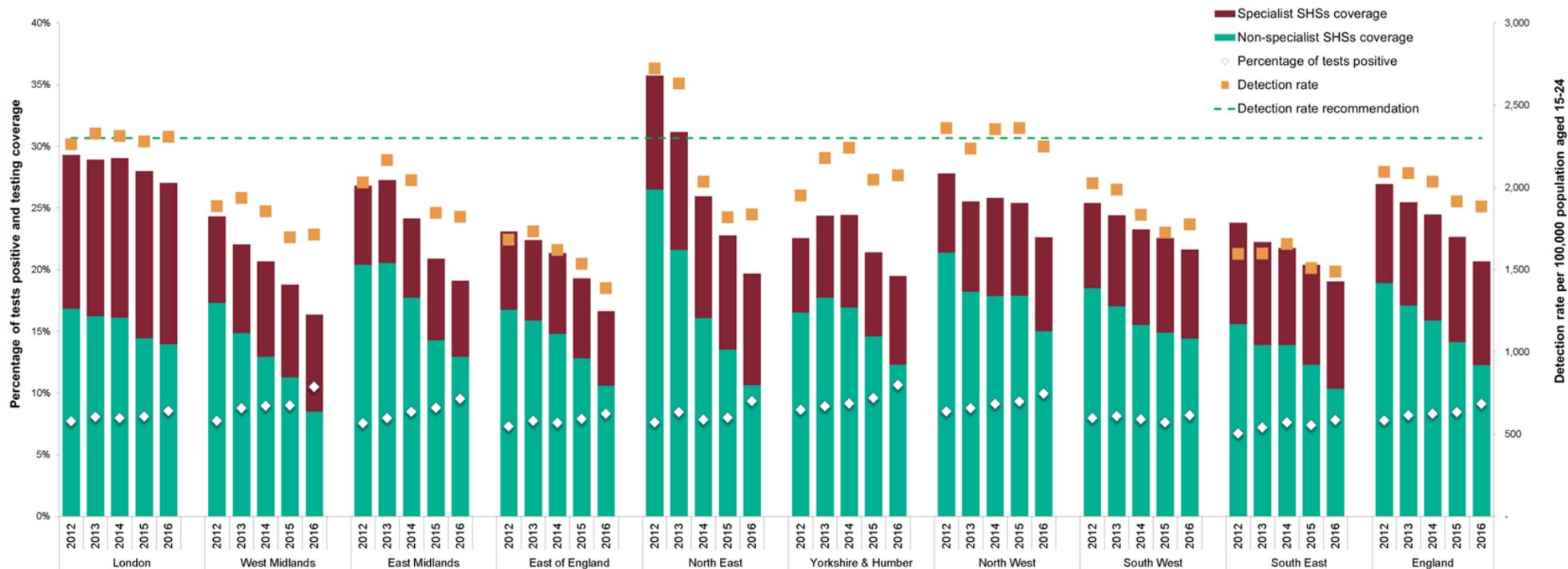
* Data from specialist and non-specialist sexual health (including community based) services (SHSs)
GP: General practice; SRH: Sexual and reproductive health service; ToP: Termination of pregnancy service

In the five years since CTAD was implemented there has been a decline in test coverage, a small rise in test positivity and a decline in the detection rate to 2015, stabilising in 2016 (figure 4). Changes seen in detection rate are a result of a combination of the following:

- i) Overall decline in test coverage 2012-2016: The total number of tests has declined over the past five years resulting in fewer chlamydia diagnoses. The overall decline in test coverage is attributable to fewer tests in non-specialist SHSs (figure 5).
- ii) Improvements in data quality: Improvements in coding of data by providers and laboratories prior to submission has resulted in a reduction in double counting of tests and diagnoses. This has contributed to the decline in coverage and detection rate seen 2012-2014. This does not affect the 2014-2016 declines as data indicate only a very small proportion (<4%) of diagnoses are likely to have been double counted in 2014 -2016.

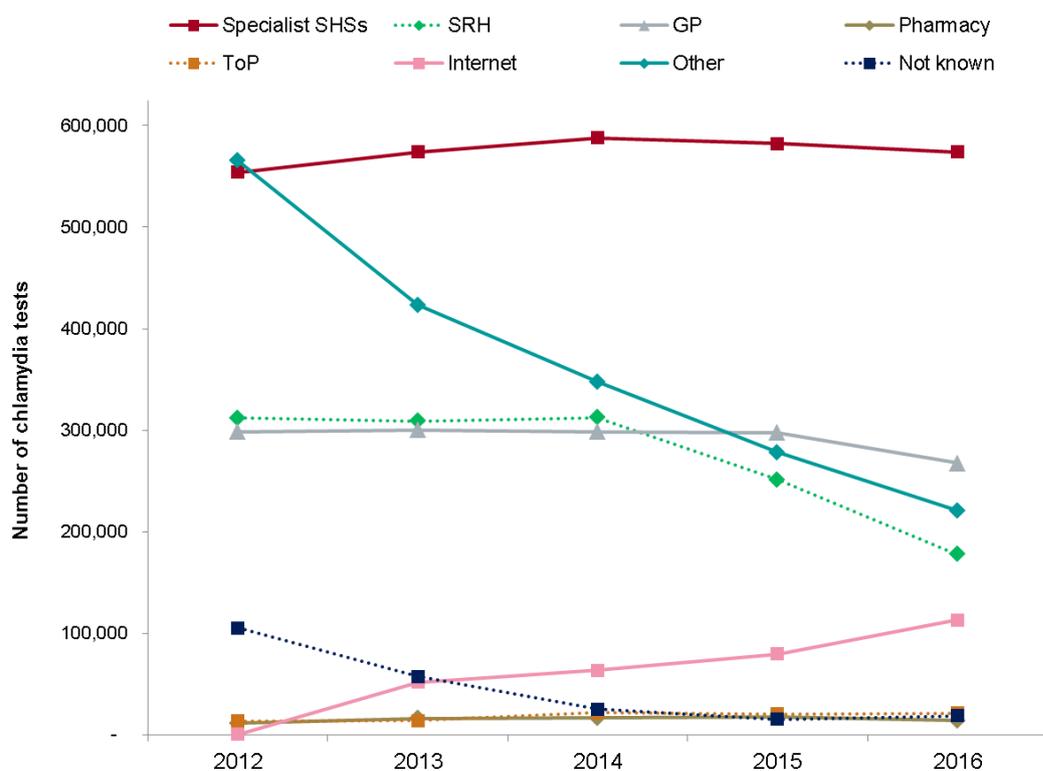
The 2016 figures show an overall 9% decline in the number of tests and a 2% decline in the number of diagnoses compared to 2015. The largest decline in tests and diagnoses was from SRH services, but tests and diagnoses from GPs and pharmacies also fell. The continued fall in tests from other settings reflects ongoing data quality improvement work to increase accuracy of testing service type reporting.

Figure 4: Chlamydia testing coverage, detection rates and percentage of tests positive* among 15 to 24 year olds by PHE Centre area, 2012 - 2016, England



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

Figure 5: Chlamydia tests* among 15 to 24 year olds by test setting, 2012 - 2016, 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 Public Health England (PHE) Centre area of residence (figure 4). In 2016:

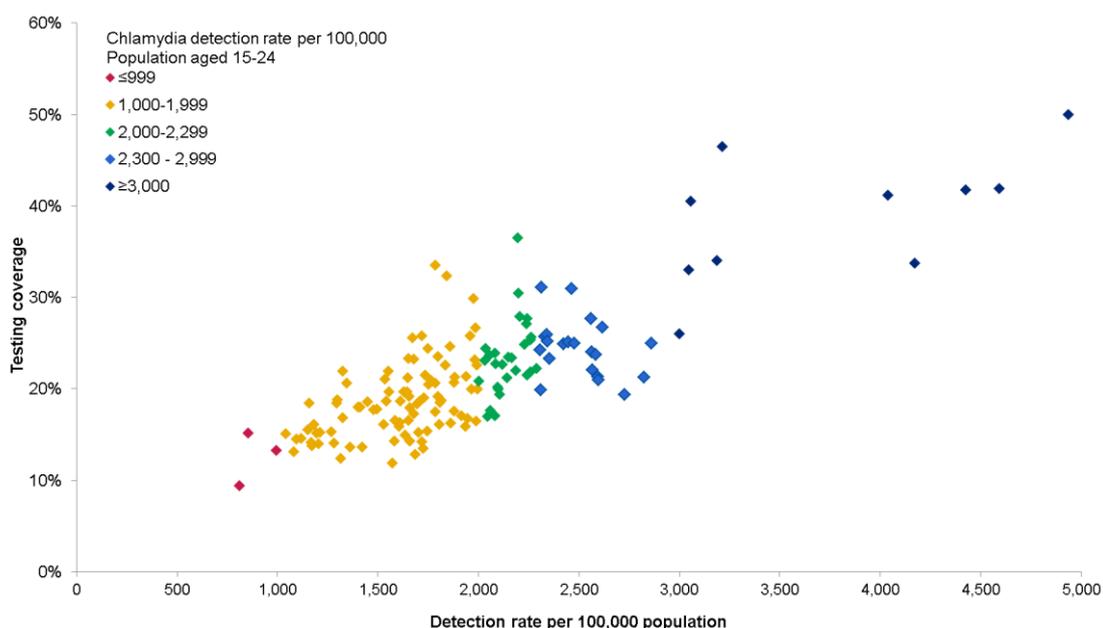
- The percentage of young people tested for chlamydia ranged from 16% in West Midlands to 27% in London.
- Test positivity ranged from 8% in the South East to 11% in Yorkshire and Humber.
- The detection rate per 100,000 population ranged from 1,387 in the East of England to 2,309 in London.

Chlamydia detection rates exhibit considerable geographic variation by upper tier local authority (UTLA) (figures 6-8). The median UTLA detection rate was 1,852 per 100,000 population aged 15-24 (IQR 1,602-2,231). Differences in detection rate could be due to:

- differences in testing coverage: chlamydia detection rate shows a strong relationship with chlamydia testing coverage at UTLA level (figure 6)
- heterogeneity in behavioural risk for chlamydia.

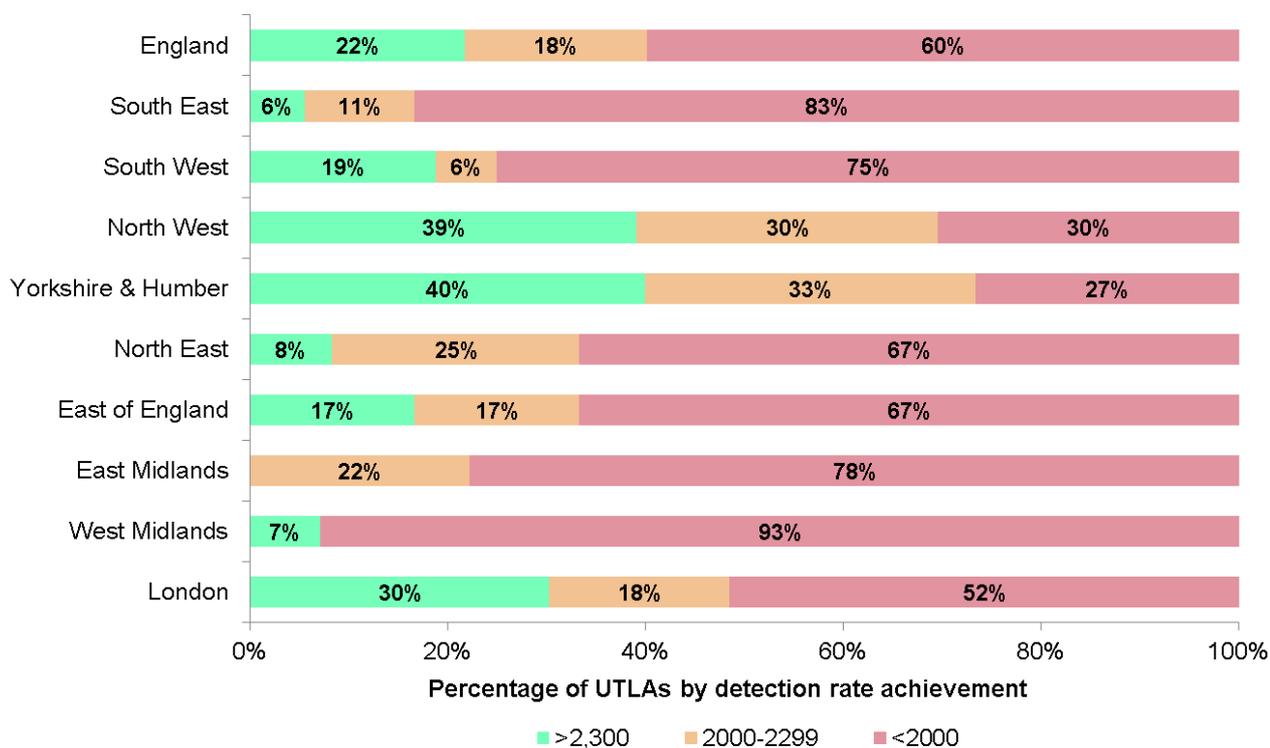
The percentage of UTLAs who achieved a detection rate of 2,300 or above has remained stable in 2015 and 2016 at 22%. The proportion of UTLAs meeting the detection rate recommendation varies by PHE Centre area from 0% to 40% (figure 7). PHE continues to work towards improving chlamydia control with local areas not reaching the recommended 2,300 diagnoses per 100,000 population.

Figure 6: Chlamydia detection rate and testing coverage among 15 to 24 year olds by UTLA of residence, 2016, England



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

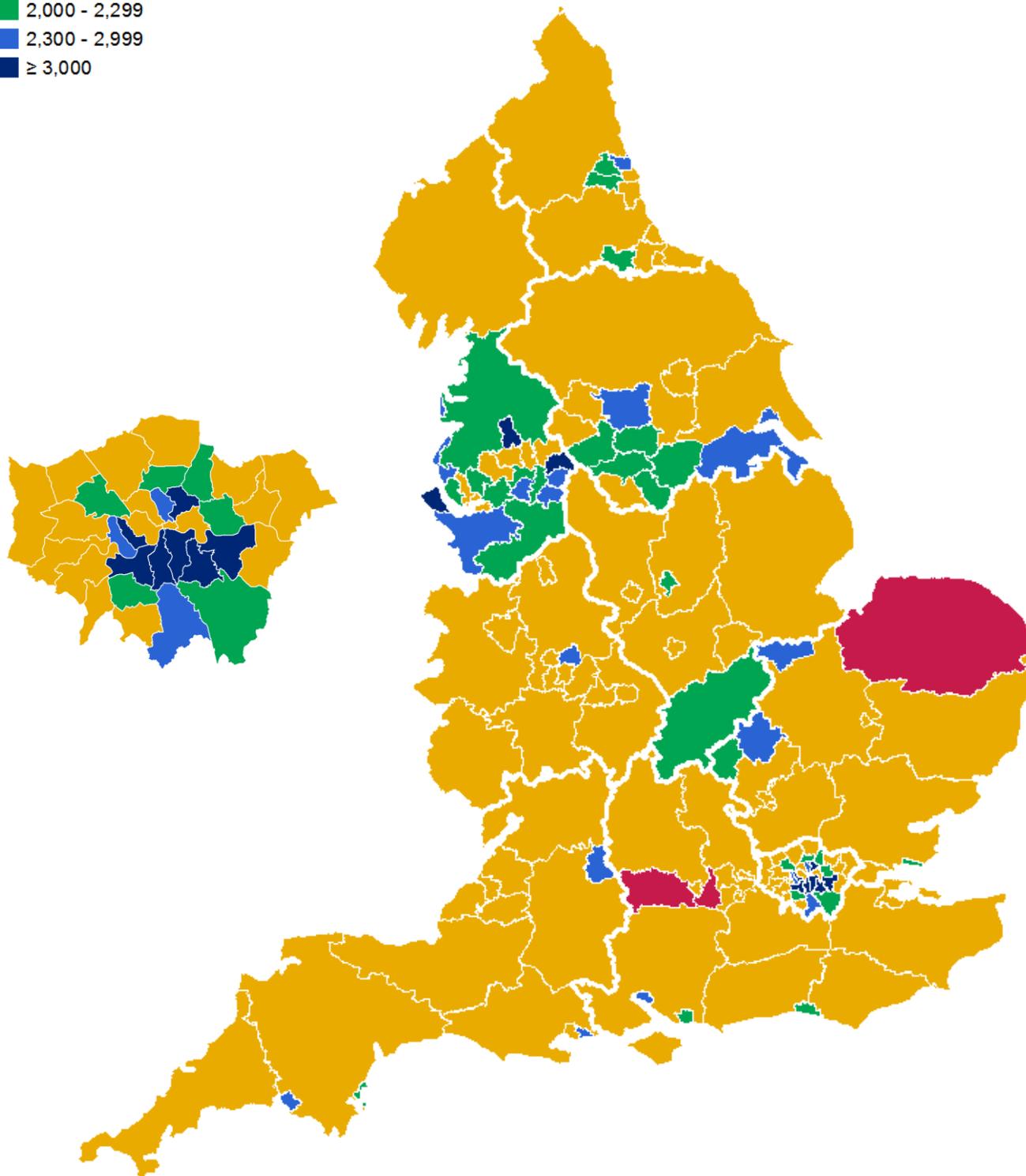
Figure 7: Variation in UTLA achievement of the chlamydia detection rate by PHE Centre area and England, 2016



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

Figure 8: Chlamydia detection rates* among 15 to 24 year olds by UTLA of residence, 2016, England and London PHE Centre areas

Detection rate per 100,000 population aged 15-24



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

Conclusions

While there was a small reduction in the overall number of new STIs in 2016, levels of transmission remain very high. The impact of STIs remains greatest in young heterosexuals 15 to 24 years, black ethnic minorities and MSM, and Public Health England (PHE) is conducting and managing a number of initiatives to address this inequality.

To improve the sexual health of young people, PHE is undertaking formative research for a health promotion campaign to promote condom use and positive sexual relationships among this population. 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 [13-15]. 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 [16]. 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 Vaccination 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 was introduced in England in 2016 to inform the potential national rollout of vaccination of MSM attending specialist SHSs and HIV clinics (<https://www.gov.uk/government/publications/hpv-vaccination-pilot-for-men-who-have-sex-with-men-msm>). 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.

HIV Prevention England (<http://www.hivpreventionengland.org.uk/>) have been contracted to deliver, on behalf of PHE, an HIV prevention programme aimed at MSM, black Africans and other black ethnic minorities. This will be delivered using system leadership and social marketing to promote HIV testing, condom use, awareness of STIs and other evidence-based HIV prevention interventions to these at-risk populations, as well as addressing stigma and discrimination. Also, in 2016, NHS England committed to funding a large three-year clinical trial of HIV pre-exposure prophylaxis (HIV-PrEP) through which at least 10,000 participants will be given this intervention [17,18]. This trial, which is supported by PHE, is scheduled to begin by the summer of 2017 and this extension of the national HIV prevention programme is likely to have a significant impact on the incidence of HIV.

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Appendix

Resources on the PHE website

Further STI data are available on the PHE website in tables (<https://www.gov.uk/government/statistics/sexually-transmitted-infections-stis-annual-data-tables>), and <https://www.gov.uk/government/statistics/national-chlamydia-screening-programme-ncsp-data-tables>) and in interactive maps on the recently launched *Sexual and Reproductive Health Profiles* (<http://fingertips.phe.org.uk/profile/sexualhealth>). The *Sexual and Reproductive Health Profiles* are presented using the Fingertips web tool and provide local-area data.

Further information on the GUMCADv2 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: <https://www.gov.uk/government/statistics/hiv-in-the-united-kingdom>.

Data sources

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 sexual health services (SHSs; see *statistical notes* for further details). Data are submitted from SHSs to the Genitourinary Medicine Clinic Activity Dataset (GUMCADv2) and from laboratories to the Chlamydia Testing Activity Dataset (CTAD), both of which are managed by Public Health England.

SHSs offer free, open-access HIV and STI testing, diagnosis and management services to anyone attending. 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), community 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 GUMCADv2 are used by the NCSP to monitor progress towards the recommended PHOF indicator level.

Statistical notes

1. Routine returns from the following sexual health services (referred to as 'SHSs' in the main text above) were considered in this report:

- i. Specialist (level 3) services: genitourinary medicine (GUM) services and integrated GUM/sexual and reproductive health (SRH) services
- ii. 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>.

2. Chlamydia testing and diagnosis data from non-specialist (level 1 & 2) SHSs are sourced from the Chlamydia Testing Activity Dataset (CTAD). Since 2009, data on STI diagnoses in specialist SHSs were collected through an electronic surveillance system, the Genitourinary Medicine Clinic Activity Dataset (GUMCADv2). During years prior to this, data were collected on an aggregated, paper-based form, the KC60 statistical return. From 2012, GUMCADv2 was expanded to include reporting from all commissioned non-specialist SHSs. Most STI diagnoses are made in specialist SHSs, but some increases in diagnoses may be due to the inclusion of data in 2012 then the scale up of reporting from non-specialist SHSs between 2012 and 2014.

3. 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.

4. 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).

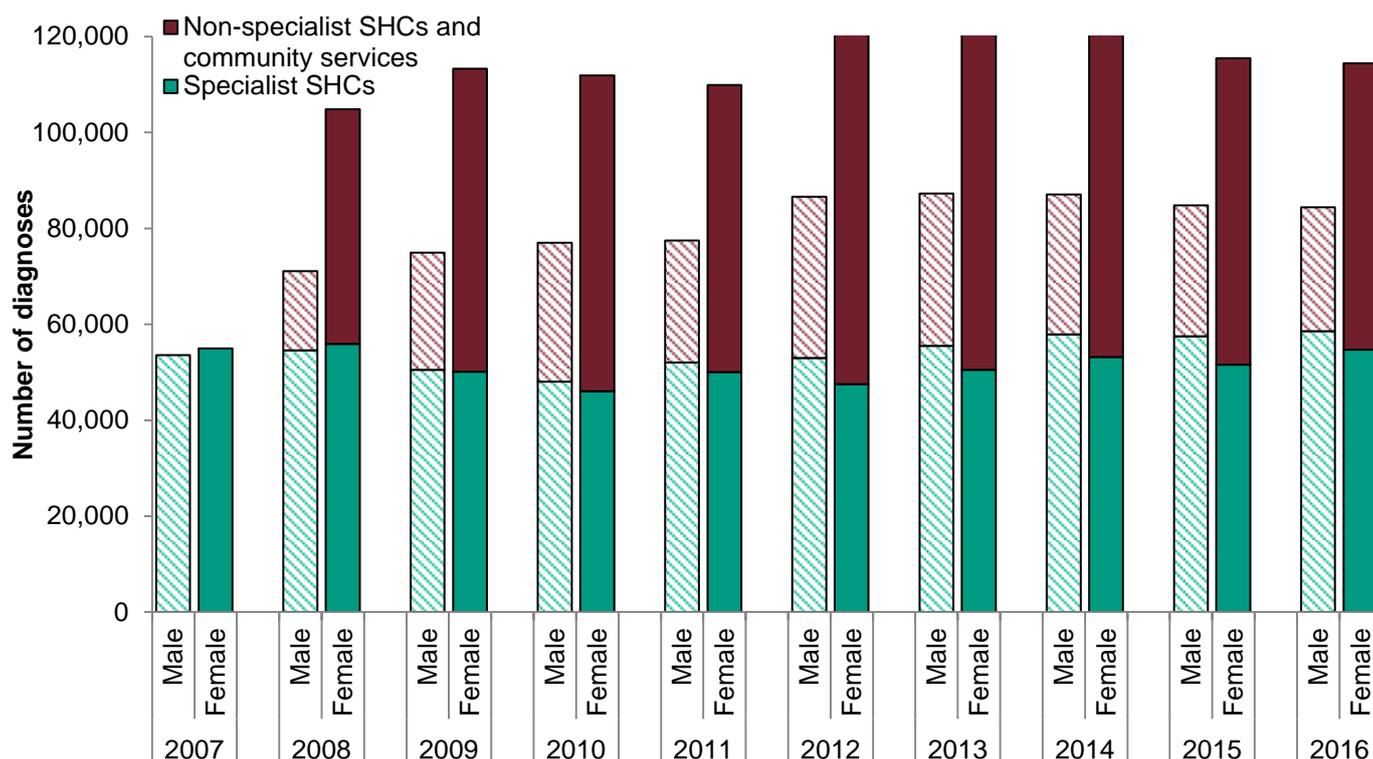
5. Several changes were made in 2012 to the way chlamydia data are reported. CTAD is a universal disaggregate dataset that comprises data on all LA or NHS-commissioned chlamydia testing carried out in England. CTAD replaced the NCSP core data return and the non-NCSP non-GUM aggregate data return. Statistical notes specific for chlamydia data are summarised below:

- From 2012, total chlamydia diagnoses reported include community chlamydia data from all age-groups, and not solely the NCSP target age group of 15 to 24 year olds (as in previous years).
- From 2012, all chlamydia cases presenting to GUM services that were previously diagnosed at other services are no longer included in the chlamydia diagnosis totals, in order to decrease double counting in the data. 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.

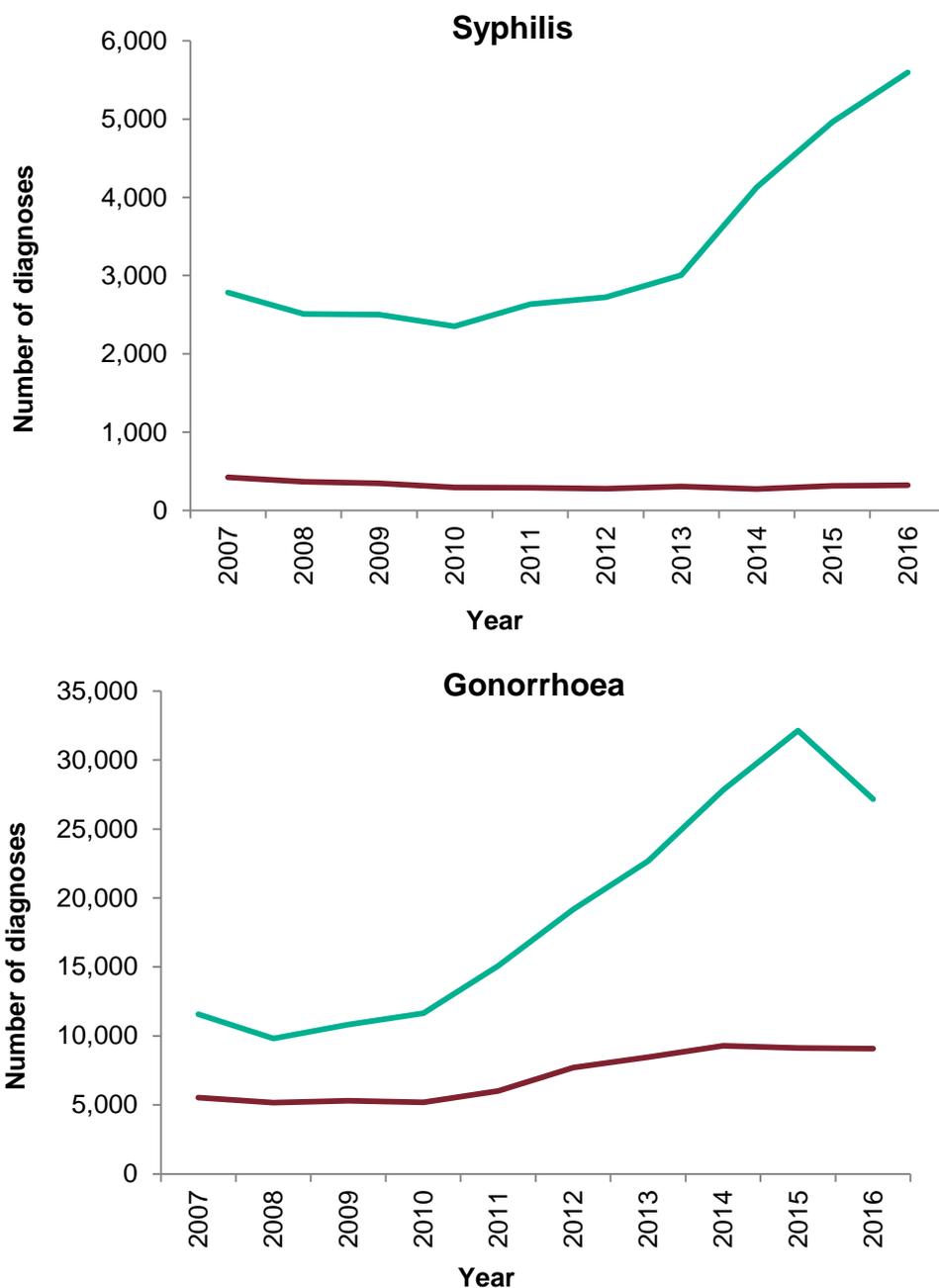
- Data include chlamydia tests and diagnoses among people accessing services located in England who are also resident in England.
- Data include tests where sex is reported as male, female, and unknown/unspecified.
- Data includes all screening tests, diagnostic tests and tests on contacts
- Where data on chlamydia are presented by testing venue, ‘Specialist SHSs’ also includes integrated GUM/SRH services.
- Missing data in CTAD: Leeds general infirmary laboratory did not submit data for Q3 (July – September) and Q4 (October – December) 2016. This will affect the data for the areas where this laboratory is commissioned for chlamydia testing.

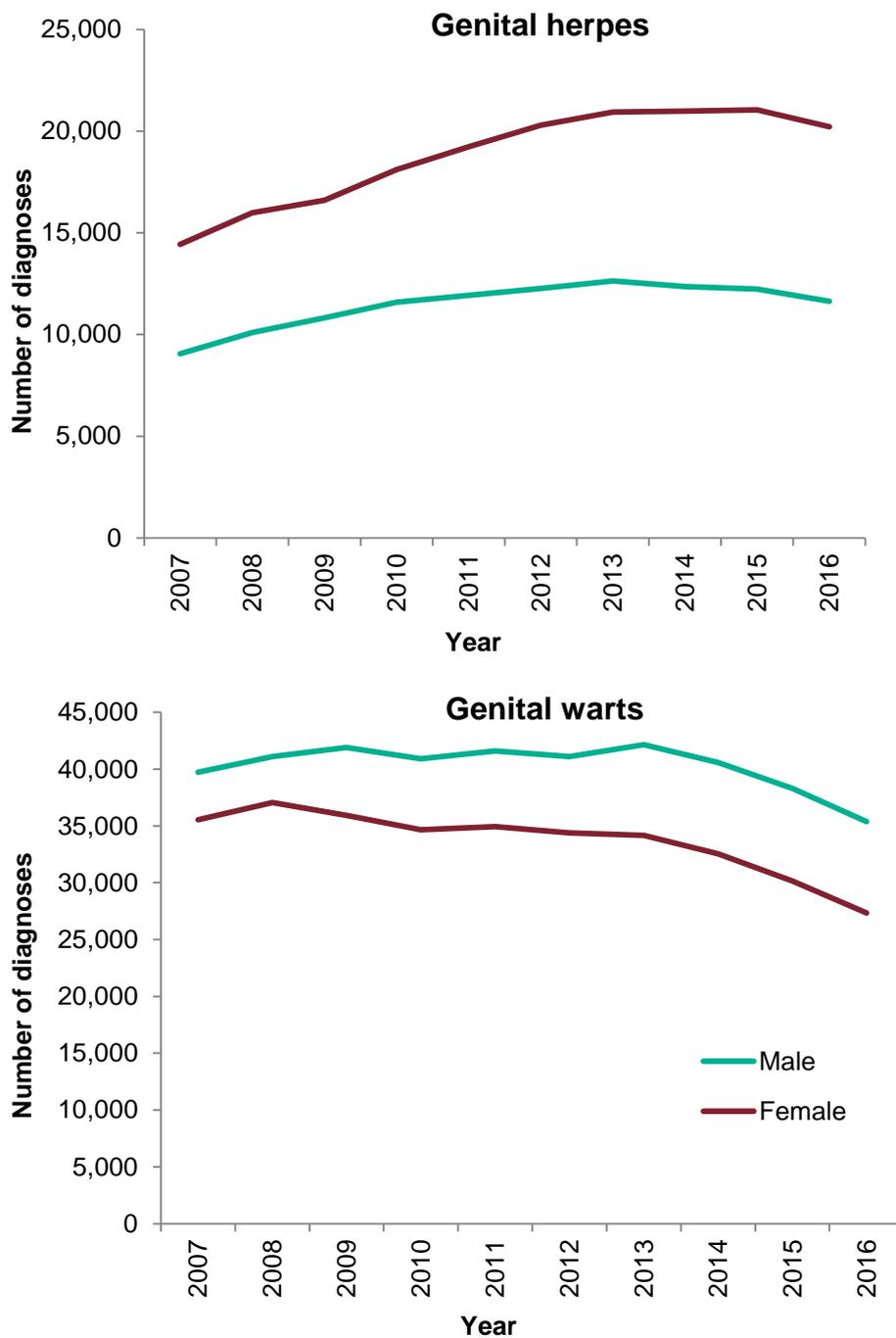
Appendix Figure 1. New diagnoses of chlamydia at sexual health services* by gender and service type, 2007–2016, England



* Data from routine specialist sexual health services’ returns to the genitourinary medicine clinic activity dataset and routine non-specialist sexual health services’ returns to the chlamydia testing activity dataset

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, 2007–2016, England





* Data for gonorrhoea, genital herpes, genital warts and syphilis diagnoses from routine specialist and non-specialist sexual health services' returns to the genitourinary medicine clinic activity dataset

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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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