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Trends of *Lymphogranuloma venereum* (LGV) in England: 2019

Health Protection Report
Volume 14 Number 23
9 December 2020

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Background

Lymphogranuloma venereum (LGV) is a preventable and treatable sexually transmitted infection (STI) caused by an invasive form of *Chlamydia trachomatis*. In England, infections are concentrated among men who have sex with men (MSM), where clinical presentation is most commonly proctitis and proctocolitis [1,2]. Previous outbreaks of LGV among MSM have been identified across Europe, as well as Australia and North America [3, 4].

Diagnosis rates of STI in MSM are higher among those living with HIV than those who are HIV negative or unknown status, and this is especially seen for LGV [5,6]. Additionally, in MSM, history of a bacterial STI in the past year is a predictor of higher risk of acquiring further STI including LGV and HIV [7,8]. These groups may need more targeted interventions, including health promotion and awareness, frequent testing for, and treatment of incident STI.

There is evidence that the number of LGV diagnoses being reported has increased in England, following a period of decline [3] and that changes in HIV prevention since 2017 may have facilitated a change in the epidemiology of LGV [9].

This report presents data from laboratory and GUMCAD STI surveillance systems to examine the epidemiology of LGV in England, updating the previous surveillance report containing data until 2016 [10]. Laboratory reports of LGV include specimens sent to the PHE National Reference Laboratory from clinics in England since 2004 as well as from 3 London hospital laboratories which have conducted in-house LGV testing using the PHE assay since 2015. The GUMCAD STI surveillance system is a mandatory, electronic, pseudonymised patient-level dataset for STIs and collects data on LGV testing, diagnoses and service use from all commissioned sexual health services in England. Additionally, an appendix to this report presents preliminary data from 2020 to assess the impact of COVID-19 and its related response measures on LGV surveillance data.

1. LGV reports by gender and sexual orientation

In 2019, 98.4% (1,076/1,094) of LGV reports from clinical data and 99.5% (1,133/1,139) from laboratory data in England were among men; diagnoses among women were rare (n=18 and n=6, respectively). The proportion of diagnoses among men has remained constant since 2005 [10]. Diagnoses among women will include transgender women and are also likely to reflect miscoded data. The remainder of this report includes further analysis of LGV records among men only.

In men, LGV diagnoses in England are almost exclusively among MSM: 94.8% (1,020/1,076) of clinical LGV diagnoses in 2019 were made in this group. In 2019, LGV diagnoses were reported in 29 men who identified as heterosexual and 27 men coded with an unknown sexual orientation. The STI surveillance specification launched in April 2019 [11], includes new data items to identify transgender individuals and men who self-identify as heterosexual but report sex with other men; these data were not available for the period under review in this report. To prevent underestimation of the burden of LGV among MSM, and to include any heterosexually identifying MSM, LGV in men in this report includes gay and bisexual MSM (referred to as MSM), heterosexual men and men with unknown sexual orientation.

2. LGV reports among men by data source

The number of LGV reports in England in 2019 was the highest since LGV re-emerged and UK-wide surveillance was initiated in 2003 [6]. Between 2018 and 2019, there was a 56.4% increase in reports in sexual health services (from 688 to 1,076) and a 32.7% increase in laboratory reports (from 854 to 1,133) of LGV in men (Figure 1). Prior to 2019, the number of LGV reports peaked in 2015, then declined until 2017 [3], but has since risen rapidly.

In the last decade, changes to national guidelines led to increases in LGV testing (see box below). Further to these changes, between 2015 and 2017 some large London clinics with a high throughput of LGV cases began testing asymptomatic MSM regardless of HIV status [3].

Changes in national guidelines for LGV testing (2010 to 2015)

2010 Chlamydia trachomatis UK testing guidelines [12]

- All MSM positive for rectal Chlamydia trachomatis with any rectal symptoms
- Contacts of confirmed LGV cases

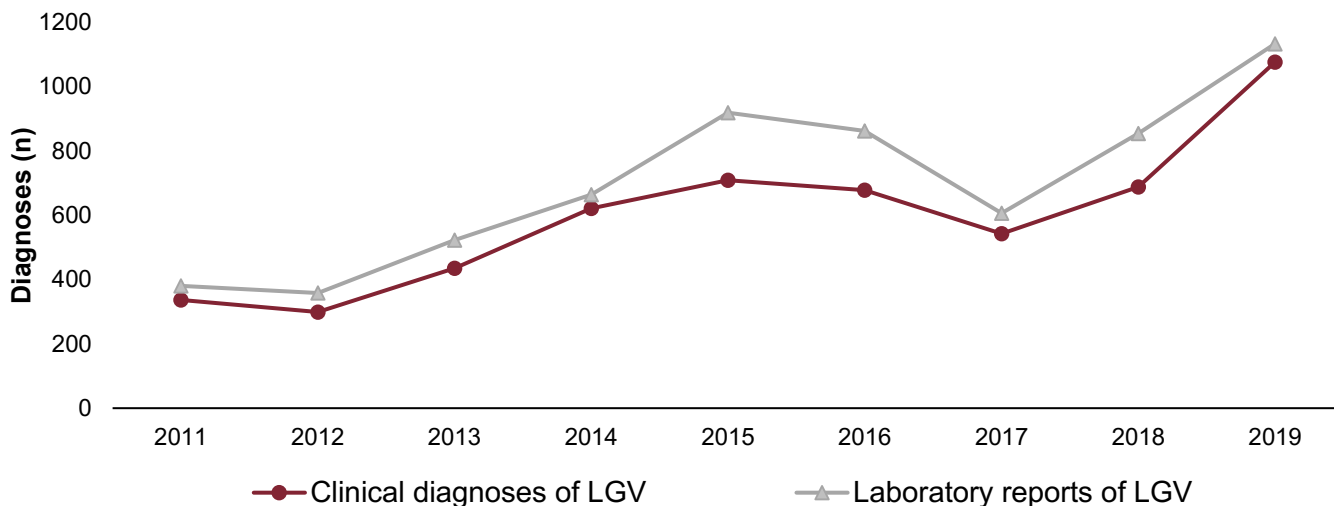
2013 UK National Guideline for the management of LGV [13]

- All individuals with Chlamydia trachomatis positive rectal and pharyngeal sites who exhibit symptoms consistent with LGV
- Contacts of confirmed LGV cases

2015 UK national guideline for the management of infection with Chlamydia trachomatis [14]

- All individuals with symptoms consistent with LGV
- All MSM living with HIV with positive CT at any site regardless of LGV symptoms.

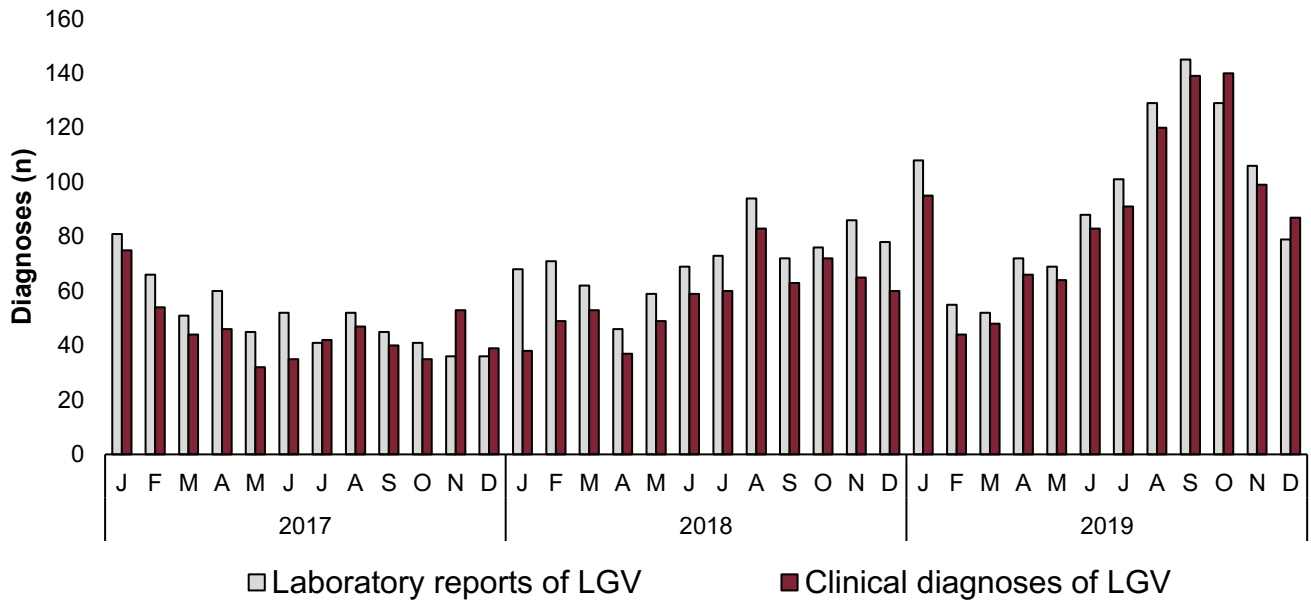
Figure 1. Number of LGV reports among men by data source,* 2011 to 2019, England



*Clinical diagnoses of LGV as reported in GUMCAD STI Surveillance System. Laboratory reports of LGV refer to combined data from CTAD Chlamydia Surveillance System and Modular Open Laboratory Information System (MOLIS).

The increase in the number of LGV reports in 2019 primarily occurred in the second half of the year, peaking between August and October (Figure 2).

Figure 2. Number of LGV reports among men per month by data source,* 2017 to 2019, England



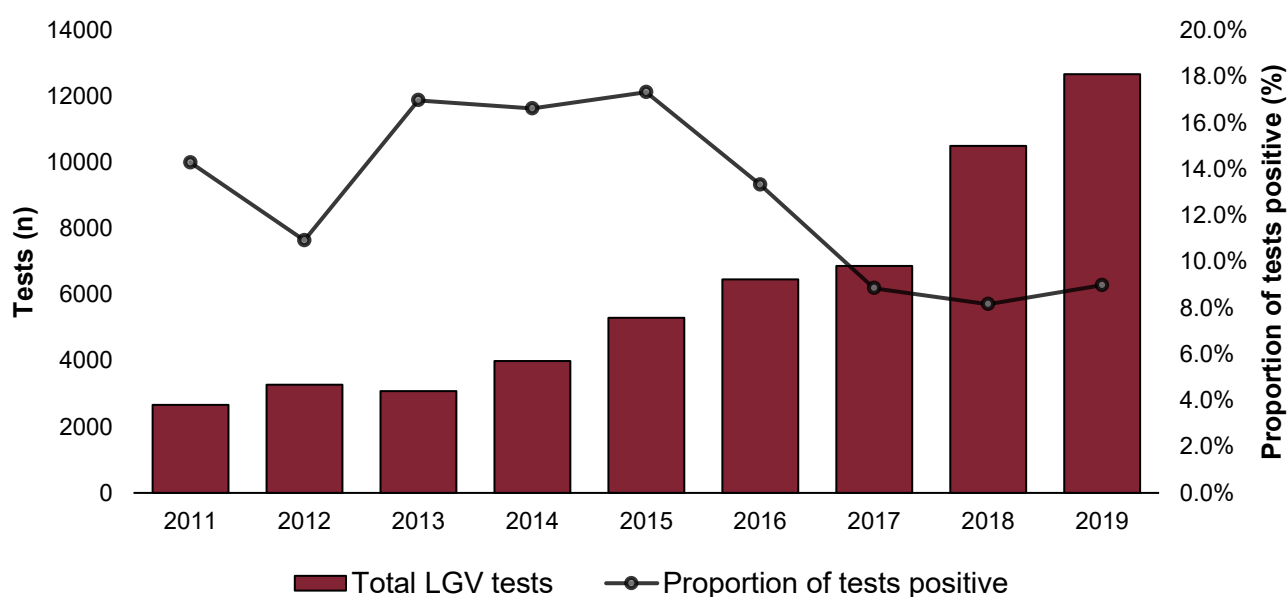
* Laboratory data refers to combined data from CTAD Chlamydia Surveillance System and MOLIS. MOLIS - Modular Open Laboratory Information System. GUMCAD - GUMCAD STI Surveillance System.

3. Trends in testing and proportion of tests positive

Between 2011 and 2019, the annual number of LGV tests performed in England among men has increased steadily, and likely follows changes to above-mentioned national management guidelines [15] and clinical practice [3] (Figure 3). The proportion of tests that were positive over time has varied, with a notable decline since 2015.

Between 2018 and 2019, there was a 20.7% increase in the number of LGV tests (from 10,502 to 12,674). While increased testing could partially explain the 32.7% increase in the number of LGV reports between 2018 and 2019 (Figure 1), there was also a corresponding increase in the proportion of LGV tests that were positive (from 8.2% to 9.0%) suggesting a true increase in LGV transmission between 2018 and 2019 (Figure 3).

Figure 3. Number of LGV tests and proportion of tests positive among men in laboratory data,* 2011 to 2019, England



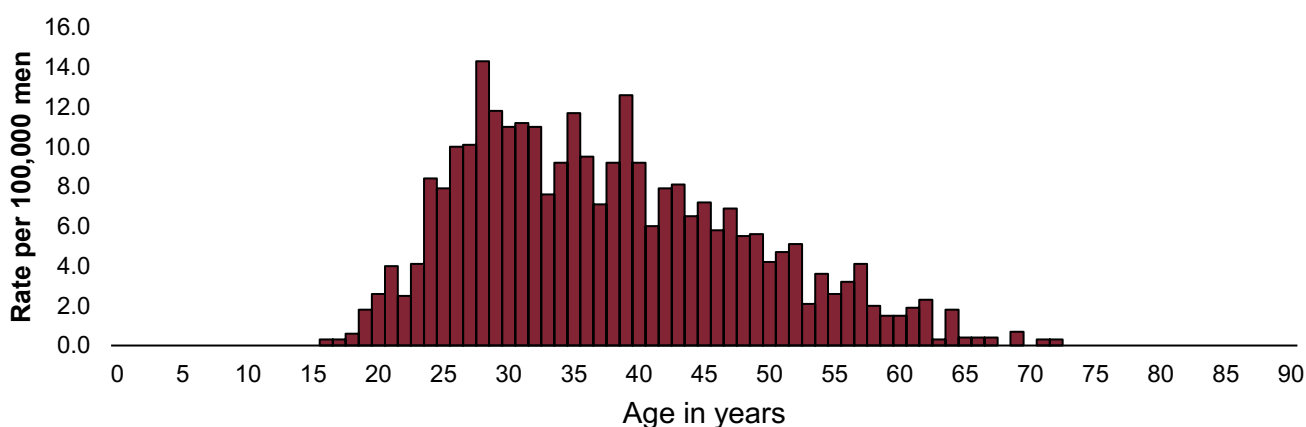
* Laboratory data refers to combined data from CTAD Chlamydia Surveillance System and MOLIS. MOLIS - Modular Open Laboratory Information System is used by the PHE Reference laboratory. Most laboratories outside of London refer samples to the PHE Reference laboratory for LGV diagnosis. Proportion of tests positive is calculated as the number of positive LGV tests per year divided by the total number of LGV tests per year. Data was deduplicated by patient and specimen identifiers and tests within 42 days of previous tests, regardless of test result.

4. Demographic characteristics

LGV reports among men by age group

Men aged between 25 to 44 years accounted for 66.3% (n=713) of all LGV reports in 2019 (median 36 years). Between 2018 and 2019, the number of LGV reports among men increased across all age groups under 65 years and by 46.4% (from 487 to 713) in those aged 25 to 44 years. The age distribution of LGV is shown by the rate of LGV per 100,000 men (Figure 4).

Figure 4. Rate of LGV reports among 100,000 men by age,* 2019, England

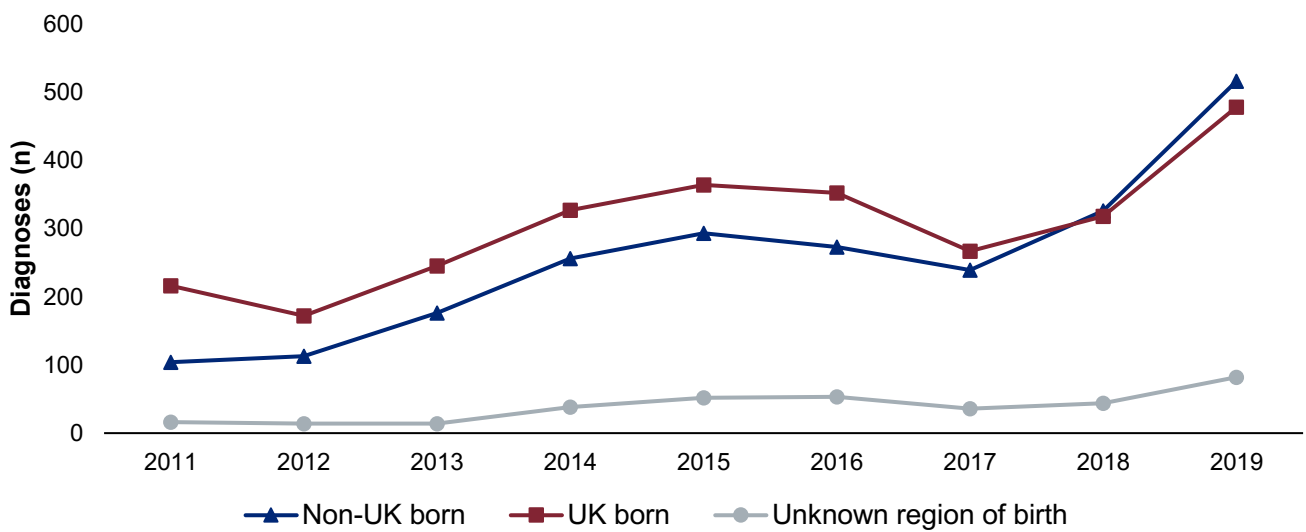


* Analysis using GUMCAD STI Surveillance System data.

LGV reports among men by region of birth

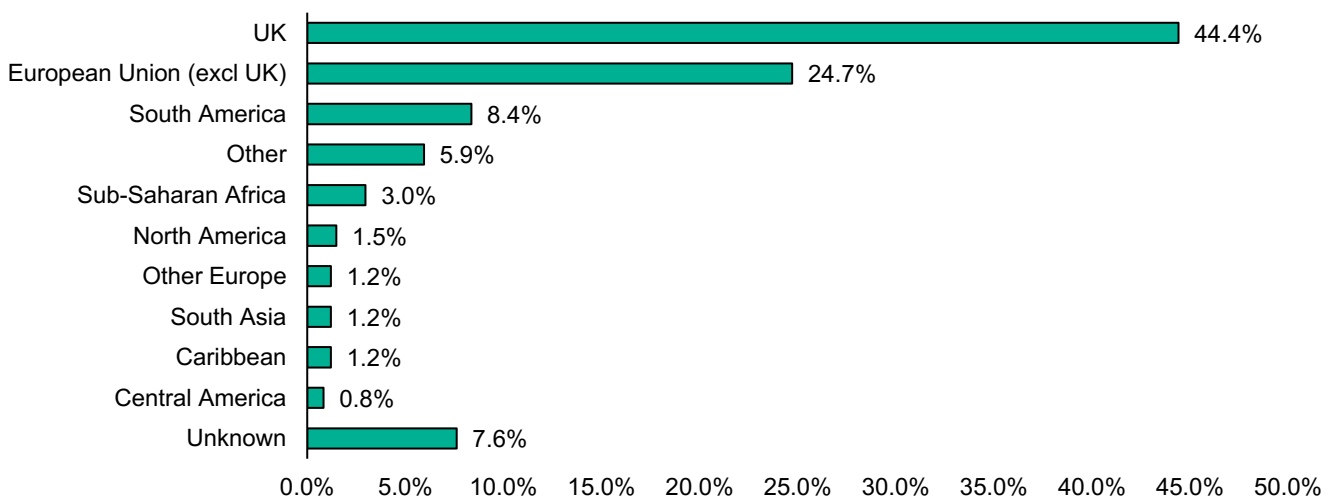
Between 2017 and 2019, increases in the number of LGV reports in non-UK born men were observed (239 to 516, 115.9% increase), as well as in UK-born men (267 to 478, 79.0% increase). In 2018, the number of LGV reports among those born in the UK was lower than those born outside the UK and this trend continued into 2019 (Figure 5). In 2019, 44.4% (478/1,076) of new LGV diagnoses were made among UK-born men. Men born in the European Union (excluding UK) or South America represented 24.7% (266/1,076) and 8.4% (90/1,076) of LGV diagnoses in 2019, respectively (Figure 6).

Figure 5. LGV reports among men by region of birth,* 2011 to 2019, England



* Analysis using GUMCAD STI Surveillance System data.

Figure 6. LGV reports among men by region of birth,* 2019, England

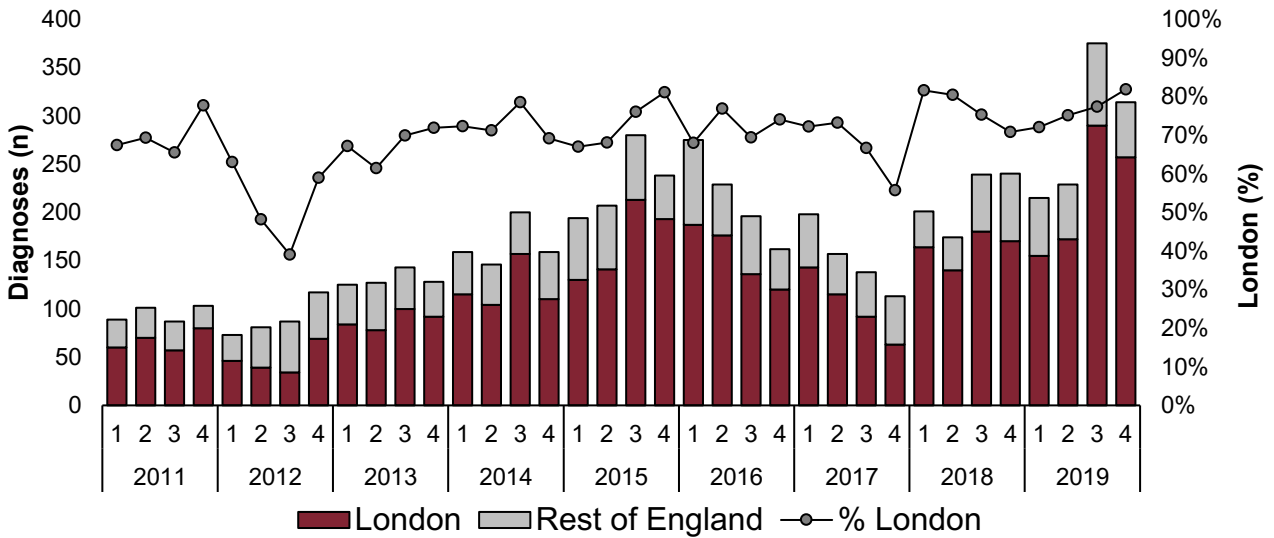


* Analysis using GUMCAD STI Surveillance System data.

LGV reports among men by geography

LGV reports are concentrated in London. Between 2018 and 2019, there was a 33.6% increase in the number of LGV reports from London (from 654 to 874), which accounted for 77% of all LGV reports in 2019 (Figure 7).

Figure 7. Number of laboratory reports of LGV among men per quarter by location of reporting laboratory,* 2011 to 2019, England



* Laboratory data refers to combined data from CTAD Chlamydia Surveillance System and MOLIS. MOLIS - Modular Open Laboratory Information System. Geographical breakdown is by geographical location of reporting laboratory, not patient residence.

Between 2018 and 2019, there were also notable increases in the number of LGV reports from the West Midlands (from 23 to 53, 130% increase), Yorkshire and Humber (from 19 to 39, 105% increase) and North West (from 53 to 98, 85% increase) (Figure 8).

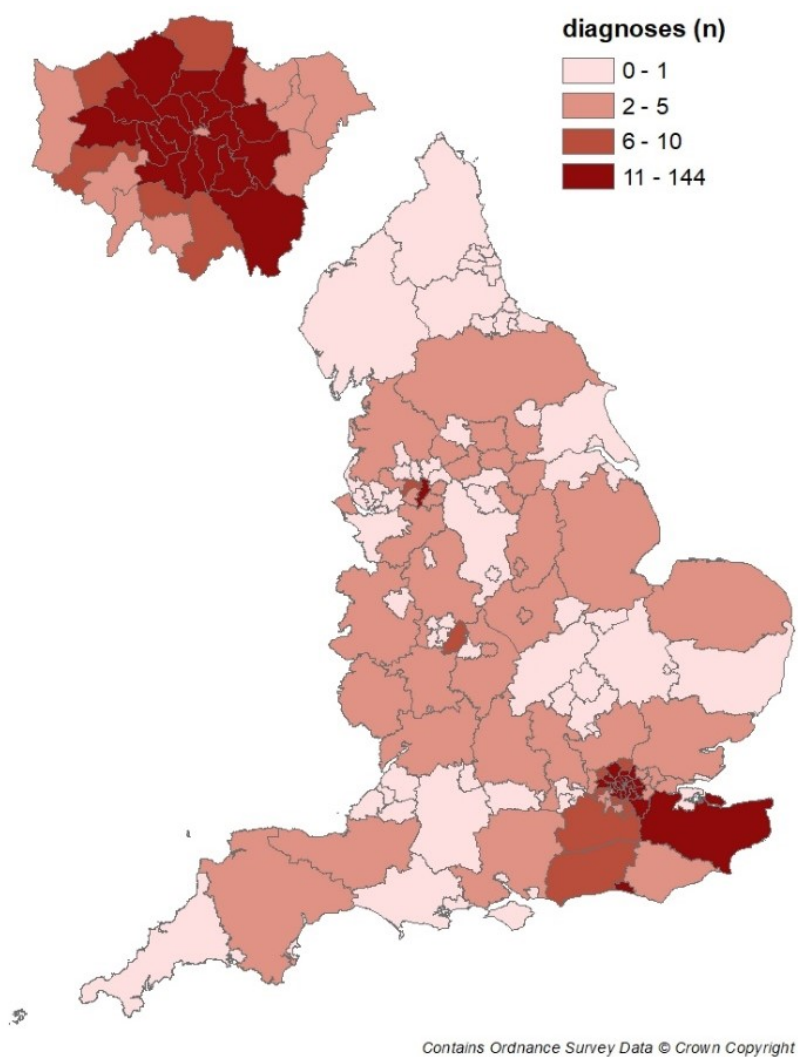
Figure 8. Number of laboratory reports of LGV in men by location of reporting laboratory* (excluding London), 2011 to 2019, England



* Laboratory data refers to combined data from CTAD Chlamydia Surveillance System and MOLIS. MOLIS - Modular Open Laboratory Information System. Geographical breakdown is by geographical location of reporting laboratory, not patient residence.

In 2019, the Upper Tier Local Authorities (UTLAs) with the highest number of LGV reports among men were in London: in Lambeth (n=144), Southwark (n=99) and Tower Hamlets (n=63). Outside London, the UTLAs with highest numbers of LGV reports among men were Manchester (n=22), Kent (n=14), and Brighton and Hove (n=13) (Figure 9). For the most part, this concentration is demographically driven, as these UTLAs correspond to those with a larger resident MSM population [16].

Figure 9. Number of LGV reports among men by Upper Tier Local Authority (UTLA) of residence,* 2019, England



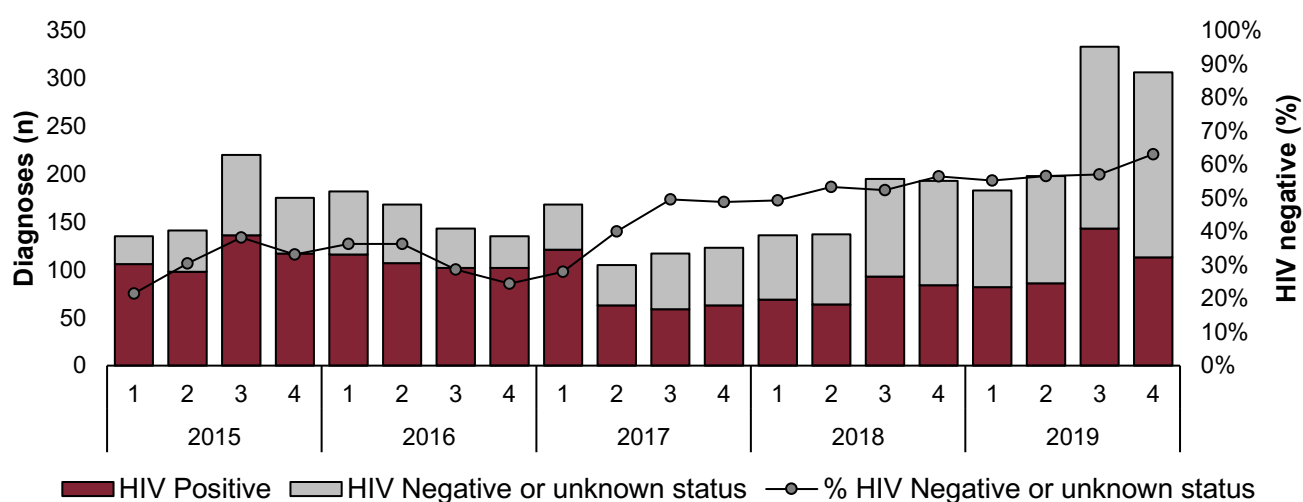
* Analysis using GUMCAD STI Surveillance System data. Crown Copyright 2020.

5. Clinical and risk characteristics of MSM

LGV in MSM by HIV status

Since 2017 there has been a steady increase in the proportion of cases that are HIV negative or of unknown status. Between the first and second half of 2019, there was an 80% increase in LGV reports among MSM who are HIV negative or of unknown status (from 213 to 383) (Figure 10).

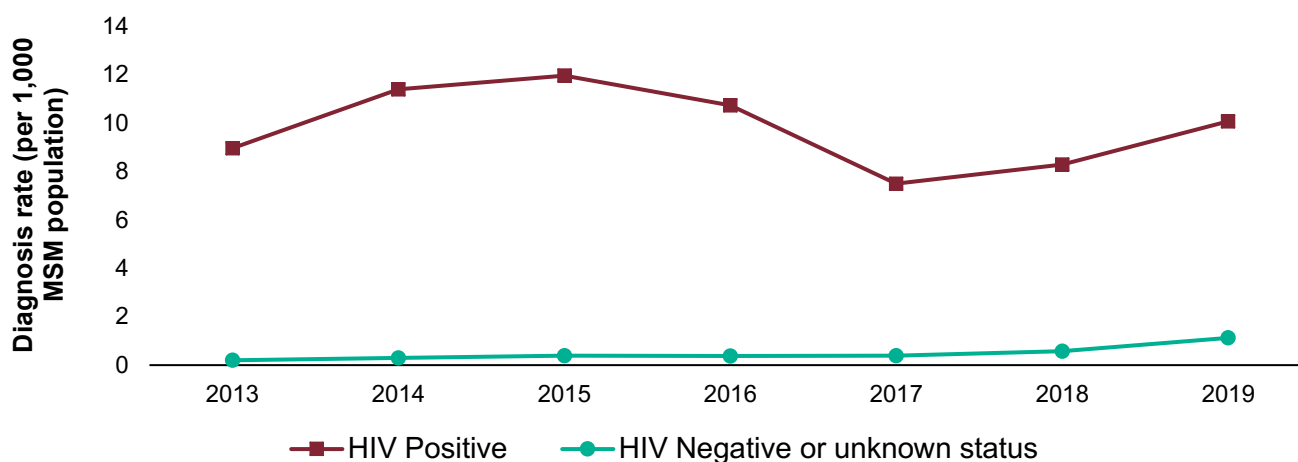
Figure 10. Number of LGV reports among men who have sex with men per quarter by HIV status,* 2015 to 2019, England



* Analysis using GUMCAD STI Surveillance System data. Analysis restricted to men who have sex with men (MSM) which includes men who were reported as being gay or bisexual. Men include transgender men.

For MSM who are HIV negative or of unknown status, LGV diagnosis rates have increased five-fold since 2013 and have increased more rapidly between 2018-19 (95% increase). However, the rate of LGV remains much higher among MSM living with HIV, and has increased by 22% between 2018-19, after a period of decline (Figure 11).

Figure 11. LGV diagnosis rates per 1,000 population among MSM by HIV status,* 2013 to 2019, England

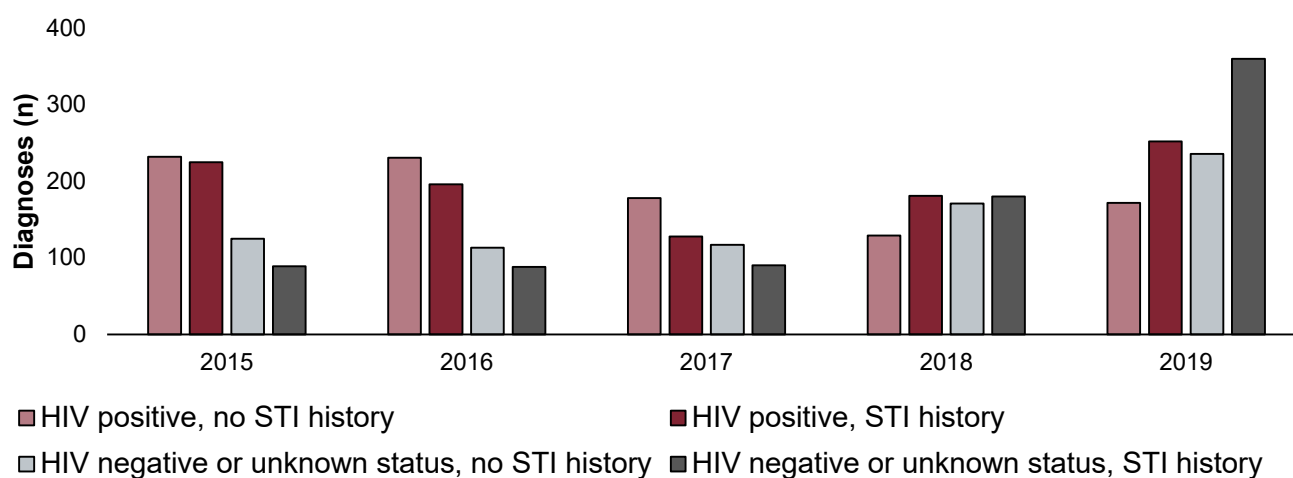


* Analysis using GUMCAD STI Surveillance System data. Analysis restricted to men who have sex with men (MSM) which includes men who were reported as being gay or bisexual. Men include transgender men. ONS population estimates based upon the 2018 estimates by sexual orientation. 2018 data used for all years and available for aged 16+ only. Number of HIV positive MSM calculated as the number of MSM seen for HIV care that reside in England (from 'Key Population groups HIV data tables': <https://www.gov.uk/government/statistics/hiv-annual-data-tables>). The number of MSM who are HIV negative or of unknown status calculated as the difference between the total number of MSM in England and number of HIV positive MSM in England.

LGV in MSM by HIV status and STI history

A focus on MSM with a history of STIs who are HIV negative or of unknown status is needed to inform targeted health promotion, given that this group is eligible for PrEP and might have different sexual behaviour, including condomless sex and multiple partners that increases their risk of further STIs including LGV [17]. Between 2015 and 2019, the number of LGV reports among MSM who are HIV negative or unknown status and who have had a bacterial STI in preceding year (STI history) has increased, with the largest increase seen between 2018 and 2019 (from 180 to 360, 100% increase) (Figure 12). In-depth analyses of incident STIs among MSM using PrEP will be available in 2021.

Figure 12. Number of LGV reports among MSM by HIV and history of STI,* 2015 to 2019, England



*Analysis using GUMCAD STI Surveillance System data. Analysis restricted to men who have sex with men (MSM) which includes men who were reported as being gay or bisexual. Men include transgender men. MSM with a history of STI are defined as MSM who have had a diagnosis of chlamydia, gonorrhoea or syphilis in the preceding year.

Conclusion

We report a rapid increase in LGV cases after a period of decline [3]. In 2019, the number of LGV cases in England was the highest reported since LGV re-emerged in the UK in 2003, with 1,133 laboratory reports of LGV among men in national laboratory surveillance systems. This rise in LGV sits within a context of increasing diagnoses of other bacterial STI in the UK [18], and has also been observed in other European countries, including the Netherlands [9], France [19] and Italy [20].

Surveillance data show that there is evidence of increased LGV transmission, as well as expanded testing. Although laboratory data show an increased number of tests for LGV between 2018 and 2019 (10,502 to 12,674), a parallel increase in the proportion of tests that were positive (8.2% to 9.0%) suggest that increased testing alone does not account for the increase in diagnoses seen.

The rise in LGV diagnoses occurred in the second half of 2019, predominantly in London but with increases also seen in other urban areas, particularly Brighton and Manchester. In 2019, the greatest number of LGV reports were among men who were not born in the UK. Of those men who were not UK-born, LGV cases were greatest among those born in the European Union (excluding the UK) and South America. Region of birth may have an influence on social and sexual networks and therefore transmission of STI [21].

Over 90% of cases are among gay, bisexual or other men who have sex with men (MSM). For MSM who are HIV negative or of unknown status, LGV diagnosis rates have increased five-fold since 2013 and have increased more rapidly between 2018-19 (95% increase). Increased LGV diagnoses among MSM who are HIV negative or of unknown status has also been described across Europe [9,20,22]. The increase in LGV among MSM who are HIV negative or of unknown status may reflect greater mixing between sexual networks as HIV interventions improve [23]. Between 2015 and 2019, the number of LGV reports among MSM who are HIV negative or of unknown status and who have had a bacterial STI in preceding year has increased, with the largest increase seen between 2018 and 2019 (from 180 to 360, 100% increase). This may indicate that increased access to HIV prevention is altering sexual risk behaviour [17].

Asymptomatic carriage among MSM could be sustaining LGV within these sexual networks. It has been previously reported that the rate of asymptomatic LGV infection in the UK had increased [19,24]. If this continues to be the case, this could partially explain the increased LGV reports in England.

Findings from this report cement the need for continued use of targeted control interventions including increasing health promotion and testing in populations with higher rates of LGV, as well as the opportunity to review national guidelines [13].

Technical notes

Data sources

Laboratory data up to and including August 2016 were sourced from PHE National Reference Laboratory (NRL) in London, where nationwide testing for LGV is centralised. Specimens being sent for testing at PHE NRL are captured in the Modular Open Laboratory Information System (MOLIS). From September 2016 onwards, in addition to the above source, LGV data presented in this report also includes data from 4 London clinics who undertake testing locally and submit data through the **CTAD Chlamydia Surveillance System**. This combined LGV data from CTAD Chlamydia Surveillance System and MOLIS is referred to as 'laboratory data' in this report. All laboratories in England use the same assay to diagnose LGV (PHE LGV assay).

Clinical and demographic data used in this report to show the distribution of LGV diagnoses by age, sexual orientation, ethnicity, HIV status, and history of a bacterial STI are sourced from **GUMCAD STI Surveillance System**, which has recorded LGV diagnoses since 2011. This includes LGV diagnoses made in specialist and non-specialist SHS, defined as:

- 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, internet 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).

Data presentation

Data are presented to follow calendar years (January to December), not financial years (April to March). In general, data represent the number of diagnoses reported and not the number of people diagnosed.

Data represent LGV diagnoses made in England only. For laboratory data, regional breakdowns represent laboratory location. Where regional breakdowns are by PHE region, these are centres as of December 2019. For GUMCAD STI Surveillance System data, geographical breakdowns represent patient residential location.

Diagnoses and tests obtained from all surveillance systems have been deduplicated by patient and specimen identifiers to obtain one diagnosis or test per patient within a 42-day period, regardless of test result.

Diagnosis rates for MSM are calculated as the number of people diagnosed with LGV divided by the number of MSM as per Office for National Statistics (ONS) population estimates based upon 2018 estimates by sexual orientation. Rates by HIV status were calculated as the number of MSM diagnosed with LGV by HIV status, divided by the ONS population estimates by HIV status using official statistics from [Key Population groups HIV data tables \(2020\)](#). 2019 estimates were calculated using 2018 denominators.

Coding of variables and definitions

Due to the infrequency of LGV among women and the likelihood that some women coded as having LGV result from a coding or data entry errors, analyses are restricted to men only unless otherwise stated.

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 as men or women).

Men who have sex with men (MSM) includes men who were reported as being gay or bisexual.

Having a bacterial STI in the year preceding an attendance to SHS is used as a proxy for sexual behaviour that increases the risk of STI including LGV, such as condomless sex and sex with multiple partners. In this report, MSM with a history of STI are defined as MSM who have had a diagnosis of chlamydia, gonorrhoea, or syphilis (primary, secondary or early latent) in the preceding year. Those who do not meet the definition for STI history are categorised as MSM having no STI history for a comparison category.

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Acknowledgements

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Hester Allen, Hannah Charles, Michelle Cole, Helen Fifer, Gwenda Hughes, Holly Mitchell, Hamish Mohammed, Dolores Mullen, Rachel Pitt, Mateo Prochazka, Katy Sinka, Alireza Talebi

Suggested citation

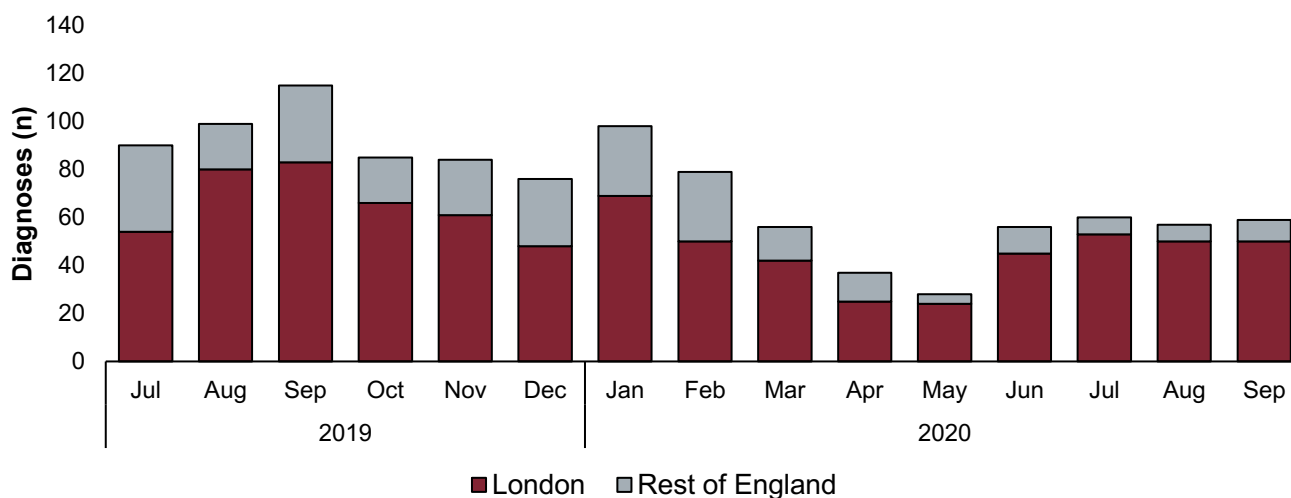
Charles H, Prochazka M, Sinka K, and contributors. Trends of *Lymphogranuloma venereum* in England: 2019. December 2020, Public Health England, London

Appendix: Real-time LGV surveillance during COVID-19

This appendix presents data from the second half of 2019 to September 2020, to explore the impact of COVID-19 on LGV reports.

In the second half of 2019, the average monthly number of LGV laboratory reports was 91; higher than in the first half of 2020 (see Figure 2 of main report). This exceedance continued into January and February 2020. There was a sharp decline in the number of LGV cases being reported from March to May 2020, likely due to the COVID-19 restrictions affecting both sexual and health seeking behaviours. LGV reports rebounded between June and September 2020, but this is yet to reach pre-lockdown levels. This increase in the number of cases between June and September 2020 was predominantly in London (Figure A1).

Figure A1. Number of LGV reports among men by location of reporting laboratory, July 2019 to September 2020, England



* Real-time analyses use cleaned and deduplicated laboratory data from SGSS (for London sites) and MOLIS (for the rest of England). MOLIS - Modular Open Laboratory Information System is used by the PHE Reference laboratory. SGSS - Second Generation Surveillance System.

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