



Public Health  
England

Protecting and improving the nation's health

# **Trends in HIV testing, new diagnoses and people receiving HIV-related care in the United Kingdom: data to the end of December 2019**

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## Introduction

This annual report reviews data for 2019 on new HIV diagnoses, people accessing care in the United Kingdom (UK) and HIV testing in England. It is associated with a set of [data tables and a slide set for presentations](#).

The data show that in 2019 the UK, nationally, met the Joint United Nations Programme on HIV and AIDS (UNAIDS) 90-90-90 targets for the third consecutive year, with London achieving the most significant improvements in diagnosis, treatment and viral suppression.

## Total new HIV diagnoses in the UK

The total number of people newly diagnosed with HIV continued to decrease in 2019 to 4,139 (1,139 females and 3,000 males [i]); a 10% fall from 4,580 in 2018 and a fall of 34% from a peak of 6,312 new diagnoses reported in 2014. In 2019, a total of 98,552 [ii] people (30,388 females and 68,088 males) were seen for HIV care in the UK. The number of deaths among people with HIV has remained stable with 622 deaths (498 males and 124 females) in 2019. This represents a crude mortality rate of 631 per 100,000 population living with diagnosed HIV infection.

The decline in new HIV diagnoses in recent years is largely driven by a steep fall in diagnoses among gay and bisexual men (GBM) [iii], from a peak of 3,214 in 2014 and 2,079 in 2018 to 1,700 diagnosed in 2019 (a 47% and 18% drop respectively). The steepest declines were observed among GBM of white ethnicity (2,550 in 2014, 1,425 in 2018 and 1,107 in 2019), born in the UK (1,869 in 2014, 950 in 2018 and 715 in 2019), aged 15 to 24 (449 in 2014, 299 in 2018 and 222 in 2019) and resident in London (1,542 in 2014, 830 in 2018 and 702 in 2019).

New HIV diagnoses among people who probably acquired HIV through heterosexual contact also declined to 1,559 in 2019; a 6% fall from 1,664 in 2018 and a fall of 33% from 2,336 in 2014. Among people who probably acquired HIV through injecting drug use, new HIV diagnoses remain stable and low at around 100 per year. Other transmission routes remain rare in the UK. Of the 61 people diagnosed in 2019 who acquired HIV through vertical transmission, 5 aged under 15 years were born in the UK.

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i) Male and female include trans men and trans women respectively

ii) Totals include individuals with gender not reported.

iii) We use the term 'GBM' since the positive voices survey indicates that of men who acquired HIV through sex between men, 92% identify as gay men and 7% identify as bisexual men. This means GBM may include a very small number of men who identify as heterosexual (0.7%)

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/857922/PHE\\_positive\\_voices\\_report\\_2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/857922/PHE_positive_voices_report_2019.pdf)

The transmission routes for 681 new HIV diagnoses in 2019 are currently undetermined; further information is awaited.

## Late HIV diagnoses

The UK surveillance definition of a late HIV diagnosis is a reported CD4 count <350 cells/mm<sup>3</sup> within 91 days of diagnosis. People diagnosed late with HIV are estimated to have been unaware of their infection for at least three to five years, increasing the likelihood of ill-health and premature death as well as onward transmission [1]. The overall number of persons diagnosed late decreased from 1,861 in 2015 to 1,279 in 2019; equivalent to 39% and 42% of all new diagnoses respectively. People diagnosed late in 2019 had a mortality rate of 23/1,000 (95% confidence interval (CI) 17/1,000 to 32/1,000) compared to 3/1,000 (95% CI 1/1,000 to 7/1,000) among those diagnosed promptly, an eight fold increased risk of death.

## HIV testing in England

HIV testing is essential so that everyone with an HIV infection can be offered lifesaving treatment, which also prevents onward HIV transmission. In order to effectively implement national HIV testing guidelines [2,3] it is important to identify where there are missed opportunities for testing and gaps in testing provision. Test coverage and positivity reflect testing practices as well as the underlying prevalence.

### Sexual health services [iv]

In 2019, 1,310,731 eligible attendees were tested for HIV in sexual health services (SHS), an increase of 6% since 2018. Most (77%) were tested in specialist SHS. Internet services [v] have expanded rapidly and tested 232,738 people for HIV in 2019, a 63% rise since 2018, constituting 18% of those tested at all SHS. The demographic profile of those using internet services compared to specialist SHS was similar in terms of ethnicity and sexual orientation. However, 81% of those using internet services were aged under 35 compared to 73% at specialist SHS.

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iv) Sexual health services (SHS) include both specialist (level 3) and non-specialist (level 1 and 2) SHS. Specialist SHS refers to genitourinary medicine (GUM) and integrated GUM/sexual and reproductive health (SRH) services. Non-specialist SHS refers to SRH services, young people's services, internet services, termination of pregnancy services, pharmacies, outreach and general practice, and other community-based settings. Further details on the levels of sexual healthcare provision are provided in the BASHH Standards for the Management of STIs (Appendix B):

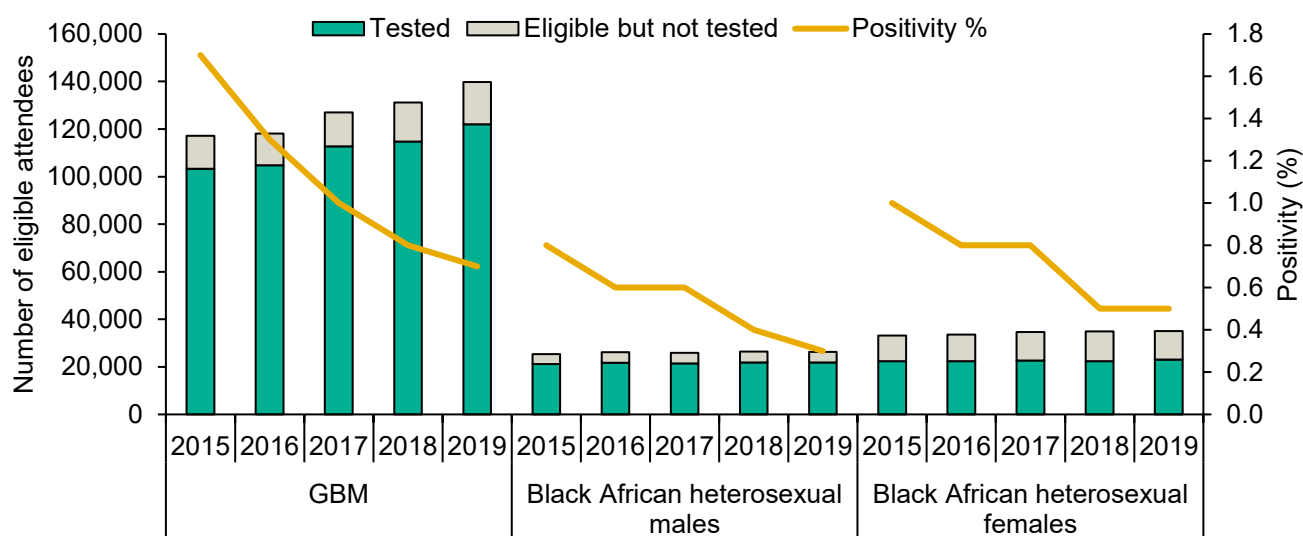
<https://www.bashh.org/aboutbashh/publications/standards-for-the-management-of-stis/>.

v) Internet services are classified as a non-specialist (L2) service reporting to GUMCAD.

## Specialist SHS

Of the 1,012,173 people tested for HIV in specialist SHS, 1,524 new diagnoses were made, an 11% decrease since 2018; overall HIV positivity remained at 0.2%. HIV test positivity increased with age; those aged over 50 accounted for nearly a fifth (19%) of new HIV diagnoses but only 7% of all people tested.

**Figure 1: Number of attendees tested for HIV and positivity among GBM and Black African heterosexual attendees at specialist SHS: England, 2015 to 2019**



An 18% increase in GBM [vi] tested for HIV was observed from 103,296 in 2015 to 122,010 in 2019. This represented 12% of everyone tested at specialist SHS. The 794 who tested positive accounted for 52% of all new HIV diagnoses in this setting. HIV positivity among GBM has continued to fall to 0.7% (Figure 1).

Most (85%) GBM newly diagnosed with HIV had not tested in the previous year [vii]. Test positivity was 1% in this group compared with 0.2% among those that had tested in the previous year. A half of the 30,193 GBM diagnosed with an anogenital bacterial STI [viii] in 2018, were tested for HIV over the following year [ix]. Test positivity in this group was 4%.

The number of Black African heterosexuals tested for HIV increased by 3% from 43,490 in 2015 to 44,907 in 2019. HIV test coverage was higher among Black African heterosexuals than among non-Black African heterosexuals (73% vs. 63%).

vi) Please note, the source of this information is the GUMCAD STI Surveillance System which uses the term MSM rather than GBM used in HIV surveillance systems.

vii) At the same service, as attendees cannot be linked between services.

viii) Excluding those with a concurrent HIV diagnosis.

ix) In the 90-365 days following diagnosis with an anogenital bacterial STI.

Among Black African heterosexuals, HIV test positivity among men continued to fall to 0.3% but remained at 0.5% among women. This testing identified 183 new HIV diagnoses among Black African heterosexuals.

Black African heterosexuals who were born in a country with a high diagnosed HIV prevalence had a higher HIV test positivity than those born elsewhere (0.7% vs 0.1%), and accounted for most (88%, 154/174) new diagnoses among Black African heterosexuals.

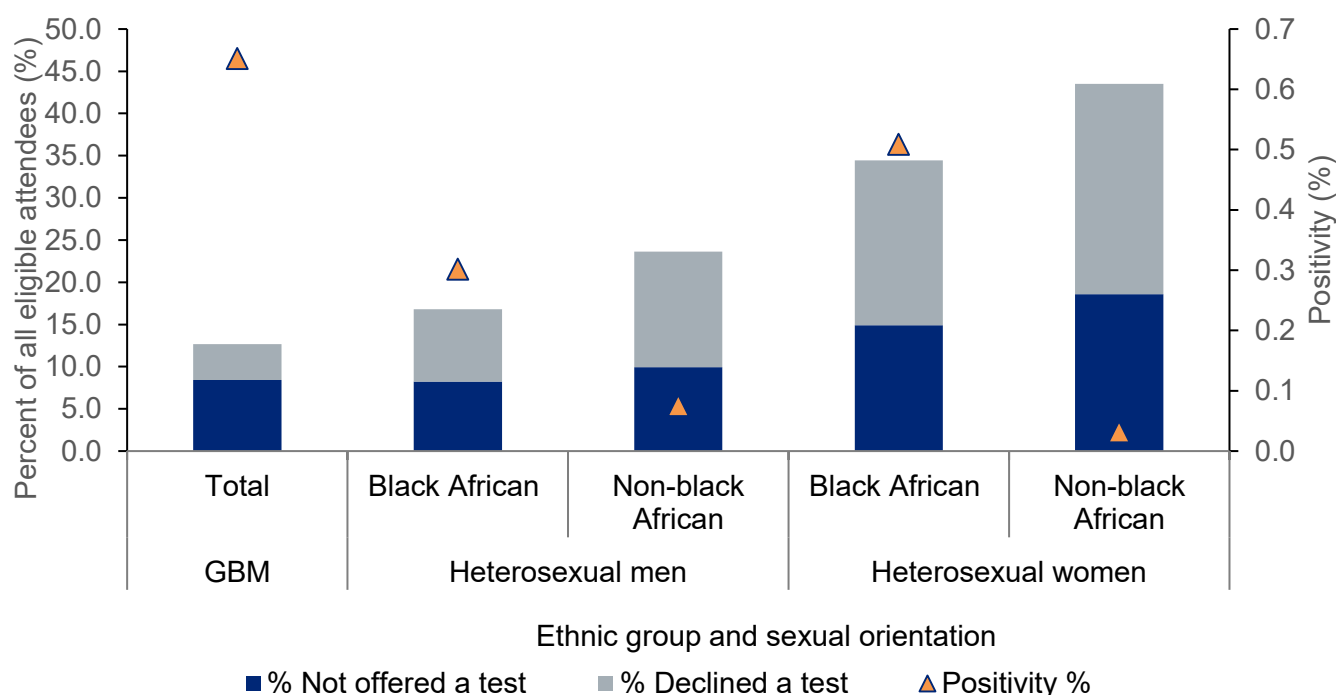
### Missed opportunities for HIV testing at specialist SHS

Overall coverage of HIV testing in specialist SHS was 65%. Of the 549,849 people not tested for HIV, 46% were not offered a test and the remainder declined testing.

Heterosexual women were more likely than heterosexual men to decline a test (25% vs 13%). Few GBM declined testing (4%), in contrast to 20% of Black African heterosexual women and 9% of Black African heterosexual men (Figure 2).

High rates of declined tests, in addition to the 15% of Black African heterosexual women who were not offered an HIV test, resulted in over a third of Black African heterosexual women attendees not being tested at specialist SHS. This may include some misclassification of attendances that are solely for reproductive care rather than STI related needs.

**Figure 2: Missed opportunities among people not tested for HIV at specialist SHS by ethnicity and sexual orientation: England, 2019**



## HIV testing outside SHS [x]

### Healthcare

Sentinel surveillance testing data is available for general practices (GPs) and hospitals [xi] [4]. HIV test positivity rates remained stable in GPs in extremely high diagnosed HIV prevalence areas (0.3%), and high and low diagnosed HIV prevalence areas (both 0.2%) [xii]. HIV test positivity was 0.6% in emergency departments and in-patient and out-patient secondary care settings.

### Prisons

All new arrivals and people transferring between prisons should be offered HIV tests [xiii] [5]. Between April and December 2019, 57,171 people were tested for HIV. The HIV test offer rate was 94% and test uptake was 46%. This testing identified 401 HIV infections (0.7% positivity).

### People who inject drugs

The national Survey of People Who Inject Drugs (PWID) [6] found that 81% (95% CI 79 to 82%) reported ever having an HIV test, and 39% (95%CI 37 to 41%) reported having a test within 2 years.

Many healthcare providers missed opportunities to test PWID for HIV. Among PWIDs who tested for HIV over 2 years ago, 73% (95%CI 69 to 77%) had seen a GP in the last year, for reasons other than for drug treatment.

HIV prevalence among PWID was 0.8% (95%CI 0.5 to 1.2%) and has remained relatively stable in England over the past decade. For the first time, the survey found that all PWID sampled in England who had antibodies to HIV were aware of their status (100%, 20/20).

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x) Due to pressures related to the coronavirus pandemic, HIV testing data for people diagnosed with TB and HIV self-testing kit data are not available. Limited HIV testing data are available for patients attending A&E and hospitals, community HIV testing services, and prisons.

xi) Data supplied by laboratories reporting to the Sentinel Surveillance of Blood Borne Viruses (SSBBV).

xii) Diagnosed HIV prevalence bands are based on the number of people diagnosed with HIV and accessing care at HIV outpatient clinics in a given year. They are expressed per 1,000 residents aged 15 to 59 years: low (less than 2 in 1,000), high (between 2 and 5 in 1,000) and extremely high (5 or more in 1,000).

xiii) HIV testing should be recommended to all prisoners including those already in prison unless: they have been tested in the last 12 months and have not subsequently put themselves at risk of infection; they have been tested and are positive; they are known to be HIV positive.

## Home and community

There were 25,514 self-sampling test kits returned via the national HIV self-sampling scheme [7] and 35,095 tests reported through PHE's 'Survey of HIV Testing in Community Settings' [xiv] [8]. Test reactivity was 0.5% in both services.

Compared to people testing through community services, those testing through the national HIV self-sampling scheme were more likely to be GBM (64% vs. 52%) and under the age of 25 years (33% vs. 28%); but less likely to be Black African (7% vs. 11%) or first-time testers (26% vs. 37%).

## Universal screening

HIV testing coverage for pregnant women in antenatal care remained high (>99%) and 676,542 women were tested in the 2018/19 financial year [9]. Test positivity was low (0.014%), with 13.9 per 100,000 women newly diagnosed with HIV during pregnancy. In 2019, 1,545,945 million blood donations were tested for HIV with 9 confirmed positive (0.6 per 100,000 donations) [10].

## Partner notification

HIV partner notification (PN) is a process in which contacts of people with HIV, either newly diagnosed or a person living with HIV with a detectable viral load, are identified and offered HIV testing [11]. In 2019, 1,705 people attended as a result of partner notification (PN) for HIV. Of these contacts, 84% (1,425) were tested on the day of their attendance and 65 new HIV diagnoses were made. The overall HIV test positivity of PN contacts was 4.6%, 30 times the HIV test positivity in specialist SHS (0.2%).

# Progress to eliminating HIV transmission

In 2018, the joint United Nations Programme on HIV and AIDS (UNAIDS) set a goal to eliminate HIV transmission by 2030 [xv]. In order to better track progress towards eliminating HIV transmission, this year for the first time we present new diagnoses figures separately for people who were previously diagnosed abroad and people whose first diagnosis was in the UK.

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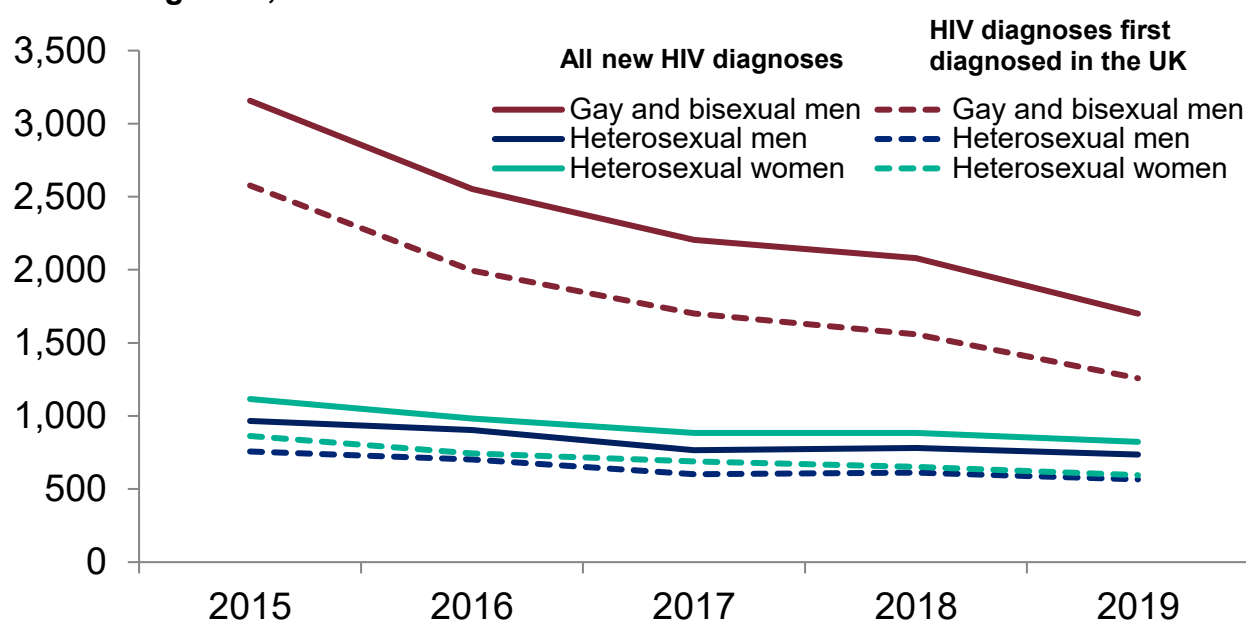
xiv) Pandemic pressures affected response to the community survey; 26/41 services responded this year.

xv) "UNAIDS has a vision of zero new HIV infections, zero discrimination and zero AIDS-related deaths, and a principle of leaving no one behind". They agreed to end AIDS as a public health threat by 2030 through meeting a series of Fast-Track commitments including treatment for all: 90–90–90, eliminating childhood AIDS, ensuring access to HIV prevention, championing the rights of girls, women and key populations, social protection and delivery by communities, financing the AIDS response and realising human rights <https://www.unaids.org/en/whoweare/about>.



Of the 4,139 new HIV diagnoses in the UK in 2019, about three quarters (76%, 3,165) were first diagnosed in the UK with the remaining (24%, 974) previously diagnosed abroad. Of the 1,700 new HIV diagnoses among GBM in 2019, 1,258 (74%) were first diagnosed in the UK. In 2019, of the 736 new HIV diagnoses among heterosexual men and 823 diagnoses among heterosexual women, 566 (77%) of men and 595 (72%) women were first diagnosed in the UK. The number of persons previously diagnosed abroad across all exposure groups have remained fairly steady over the past 5 years. In contrast, the number of GBM first diagnosed in the UK has halved whilst those among heterosexual men and women have fallen slightly (Figure 3).

**Figure 3: New HIV diagnoses in the UK by probable exposure group and location of first diagnosis, 2015 to 2019**



In 2019, after adjusting for missing information, an estimated 78% (980/1,258) of GBM first diagnosed in the UK probably also acquired HIV in UK [xvi]. The corresponding figures for heterosexual men and women were 65% (370/566) and 69% (410/595) respectively.

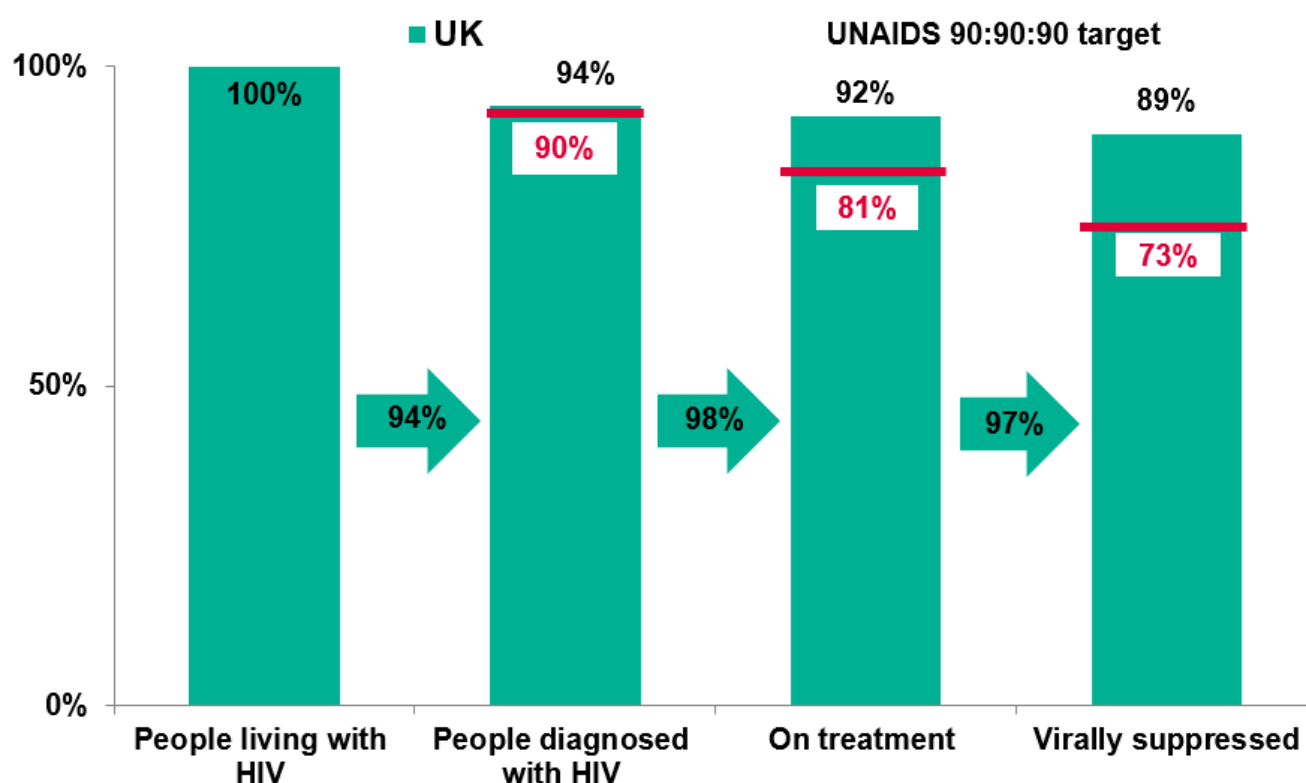
For GBM, incidence trends estimated using a CD4 back-calculation model [12] suggest a sustained decline since 2011, preceding the steep fall in new HIV diagnoses. During this period, the estimated number of incident infections in GBM in England declined by 80%, from an estimated peak of 2,700 (95% credible interval (CrI) 2,520 to 2,850) in 2011, to an estimated 540 (95% CrI 180 to 1,810) in 2019.

xvi) Among those born abroad, UK acquired figure are estimated by applying CD4 counts at diagnosis to modelled slopes of CD4 decline (within a separate seroconverter dataset) to estimate time of infection for an individual. The estimated time of infection is combined with information on country of birth and year of arrival to estimate country of residence at the time of infection. Derived from Rice B, Elford J, Yin Z, Delpech VC. A new method to assign country of HIV exposure among heterosexuals born abroad and diagnosed with HIV in the UK. AIDS 2012 26.

## UNAIDS 90-90-90 targets

In 2019, the UK met the UNAIDS 90-90-90 target nationally for the third consecutive year, with 94% of people living with HIV being diagnosed, 98% of those diagnosed being on treatment and 97% of those on treatment having an undetectable viral load (Figure 4). In London, the equivalent figures were 95%, 98% and 97%, meeting the 2030 95% 95% 95% targets [xvii] for the second consecutive year.

**Figure 4: Continuum of HIV care in the UK, 2019**



### People living with diagnosed and undiagnosed HIV infection

National estimates of the number of all people living with HIV in the UK, including those undiagnosed, are obtained from a complex statistical model (multi-parameter evidence synthesis (MPES)) fitted to census, surveillance and survey-type prevalence data [13,14].

In 2019, an estimated 105,200 (95% credible interval (CrI) 103,300 to 108,500) people were estimated to be living with HIV infection in the UK, of these, 6,600 (95% CrI 4,900 to 9,800) were estimated to be undiagnosed, equivalent to 6% (95% CrI 5 to 9%).

xvii) UNAIDS 2030 Targets:

[https://www.unaids.org/sites/default/files/media\\_asset/201506\\_JC2743\\_Understanding\\_FastTrack\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/201506_JC2743_Understanding_FastTrack_en.pdf)

The total number of GBM living with HIV was estimated at 50,300 (95% CrI 48,700 to 53,200). Fifty thousand (95% CrI 49,100 to 51,700) heterosexuals were estimated to be living with HIV.

In England, an estimated 96,200 (95% CrI 94,400 to 99,000) people were estimated to be living with HIV infection including 5,900 (95% CrI 4,400 to 8,700) with an undiagnosed HIV infection, also equivalent to 6% (95% CrI 5 to 9%) of the total.

Nearly twice as many people with undiagnosed HIV infection in England lived outside of London, 3,800 (95% CrI 2,600 to 6,200) compared to 2,100 (95% CrI 1,500 to 3,100) in London, equivalent to 7% (5 to 11%) and 5% (4 to 8%) respectively of people living with HIV. While credible intervals overlap, this was also the case for GBM, 1,000 (95% CrI 600 to 1,900) in London and 1,800 (95% CrI 800 to 4,000) outside London, and for heterosexual men and women, 1,000 (95% CrI 700 to 1,500) in London and 1,900 (95% CrI 1,500 to 3,000) outside London.

Overall the estimated number of people with undiagnosed HIV infection has fallen slightly from 7,500 (7%, 5,400 to 11,500) in 2018 to 6,600 (4,900 to 9,800) in 2019. The number of GBM living with undiagnosed HIV infection in England has more than halved since 2014 to 4,000 (2,300 to 7,600) in 2018 and 2,900 (95% CrI 1,600 to 5,300) in 2019. These figures are consistent with modelled estimates of undiagnosed HIV infections produced by the CD4 back-calculation for GBM, which fell from a peak of 8,200 (95% CrI 7,930 to 8,480) in 2011, to 6,970 (95% CrI 6,630 to 7,270) in 2014 and to 2,860 (95% CrI 1,460 to 6,040) in 2019. The estimated number of heterosexuals living with undiagnosed infection in the UK fell slightly from 3,200 (95% CrI 2,400 to 5,200) in 2018 to 3,100 (95% CrI 2,400 to 4,800) in 2019.

### **People receiving HIV treatment**

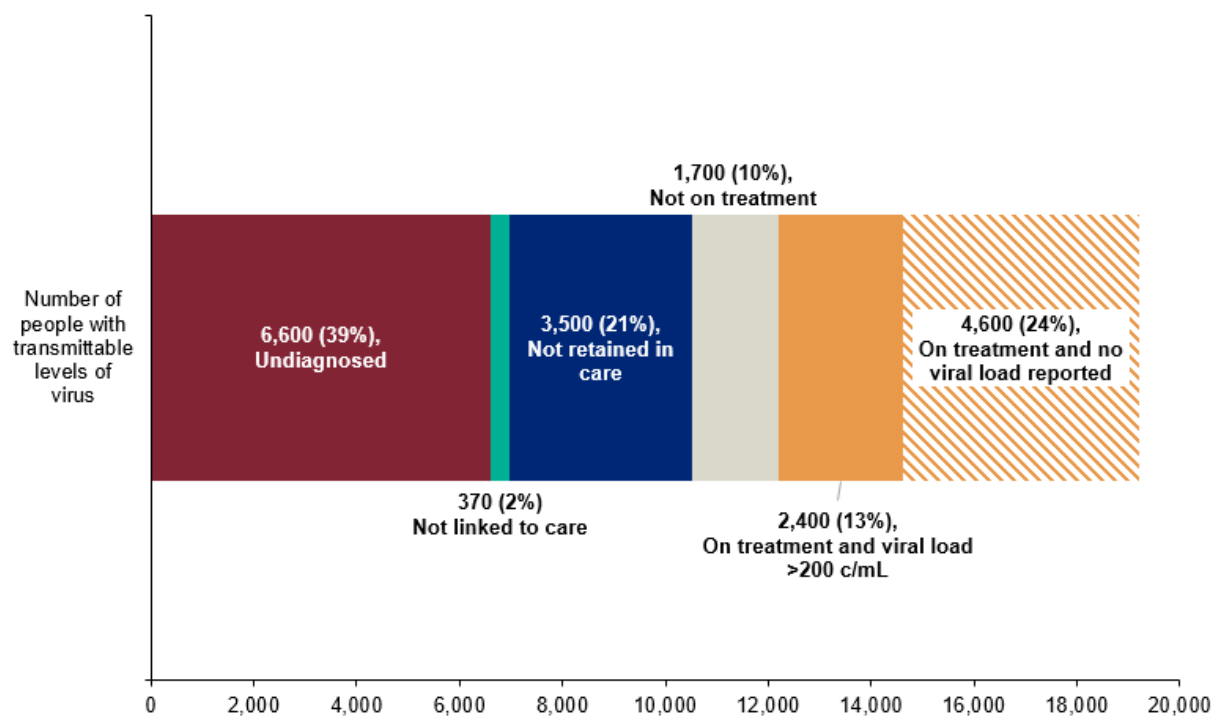
Lifesaving treatments and ongoing transmission means that the number of people seen for HIV care continues to rise; a 16% increase from 84,817 in 2014 and a 3% increase from 95,472 in 2018 to 98,552 in 2019. Almost all people engaged in HIV care were receiving antiretroviral therapy (ART), 98% (96,866) in 2019 (Figure 4).

People living with HIV who maintain an undetectable viral load cannot transmit the infection to their sexual partners [15]. In 2019, of people receiving ART where a viral load result was reported, 97% (Figure 4) were virally suppressed (defined as a viral load  $\leq 200$  copies per ml) in 2019. There was little geographical or demographic variation however viral suppression was lowest among people aged 15 to 24 years (91%), people who probably acquired HIV through injecting drug use (94%) and among people who probably acquired HIV through vertical transmission (89%). The continuing decline in new HIV diagnoses is encouraging and the very high ART coverage and viral suppressing overall is a major achievement.

### Number of people with transmittable levels of virus

In 2019, an estimated 14,600 to 19,200 people living with HIV had transmittable levels of virus, equivalent to 14% to 18% of people living with HIV. Overall an estimated 6,600 people with transmittable levels of virus remained undiagnosed whilst 10,100 were living with diagnosed HIV; and of these, 370 (2%) were first diagnosed in 2019 and not linked to care, 3,500 (21%) were not retained in care and 1,700 (10%) attended for care but were not receiving treatment. An additional 7,000 (56% of the diagnosed) had attended for care but had no evidence of viral suppression (the majority of whom had missing viral load data for two consecutive years) (Figure 5).

**Figure 5: Estimated number of people living with HIV who have transmittable levels of virus: UK, 2019**



## Discussion

The UK has made good, but uneven progress towards reducing HIV transmission. Estimates of undiagnosed HIV infection have fallen slightly, but in the UK, twice as many people live with undiagnosed HIV infection outside London compared to London. The fall in HIV incidence in GBM is matched by the halving of new HIV diagnoses first made in the UK among GBM between 2015 and 2019, but the fall in diagnoses first made in the UK among heterosexual adults was less apparent. Further work is needed to address the inequalities in the progress towards reducing undiagnosed infection and HIV transmission that exist in relation to exposure to HIV, geography and ethnicity.

HIV elimination can only be achieved by combination prevention; by bringing together prevention interventions such as high levels and frequency of HIV testing, pre-exposure prophylaxis (PrEP), rapid linkage to care and treatment, and support so people with diagnosed HIV attain viral suppression. While HIV testing coverage remains high in SHS, many Black African heterosexual women attendees are not tested. Health promotion services should aim to engage GBM and black Africans who may never have been tested for HIV, while primary and secondary healthcare services should routinely offer HIV tests according to NICE guidance. Frequent HIV testing and the offer of PrEP among those most at risk of HIV remains key to ending HIV transmission by 2030.

Once diagnosed, the high rates of treatment coverage and viral suppression in the UK mean further improvements can be maximised through focussing attention among those lost from care. This is likely to be particularly challenging during the COVID-19 pandemic given pressures on HIV and other health and social care services. PHE is working with collaborators to understand the impact of COVID-19 on HIV testing, diagnosis and HIV care and on the health of people living with HIV.

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