Public Health England

HIV and STIs in men who have sex with men in London

September 2014

About Public Health England

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Executive summary

Compared to the rest of the United Kingdom (UK), London has a higher proportion of men who have sex with men (MSM). MSM experience poor and worsening sexual health.

Despite representing less than an estimated 2% of the London adult population (3.8% of the male population), MSM constituted 24% of all London residents diagnosed with a new sexually transmitted infection (STI) in sexual health clinics in 2013.

- the burden of syphilis and gonorrhoea is particularly high among MSM. The sustained transmission of these infections indicates high levels of risky sexual behaviour among MSM. In 2013, 84% and 65%, respectively, of all cases in London were diagnosed in MSM

- MSM have much higher re-infection rates of gonorrhoea than heterosexuals

- in recent years there have been large increases in the numbers of syphilis and gonococcal infections in MSM. Between 2010 and 2013 the number of gonorrhoea diagnoses in MSM increased three fold (222% rise) and there was an 85% rise in syphilis diagnoses. For gonorrhoea, this is likely to be partly due to increased testing and improvements in diagnosis, including testing at extra genital sites, and the use of more sensitive tests

- antimicrobial resistance in gonorrhoea is also a concern, and is a greater problem among MSM compared to heterosexuals

- other STIs are also more common in MSM. For example, in 2013, 19% of all cases of *Chlamydia* infection diagnosed in London sexual health clinics were in MSM

Approximately 1 in 12 MSM in London are living with HIV and the number of MSM living with HIV in London has increased by 88% over the last 10 years to 15,552 in 2012. This is partly a result of much improved life expectancy due to effective treatment.

- over 50% of new diagnoses of HIV in London are among MSM and the numbers of new diagnoses are increasing, with the 1,451 diagnosed in 2012 representing a 12% rise since 2011

- a third of MSM in London are diagnosed late and one in five MSM with HIV in the UK are undiagnosed

- failure to prevent the 1,088 UK acquired infections in MSM diagnosed in London in 2012 has cost the health service an estimated £348 million in future direct health care costs

In the last decade other infections transmitted sexually have emerged as of particular concern in MSM.

- cases of lymphogranuloma venereum (LGV), which occurs almost exclusively in MSM, peaked in 2010. Diagnoses in London still accounted for over half of all cases in England in 2012

- new infections with hepatitis C are higher in HIV positive MSM compared to the general population, however the incidence appears to be declining. In 2011 approximately one fifth of cases of acute hepatitis B in London were acquired through sex between men

- *Shigella flexneri* infection is now endemic in MSM in London with an estimated excess of 171 cases in 2013 in adult males with no travel history, compared to adult females

MSM report high levels of risky sexual behaviour, including higher numbers of sexual partners and unprotected anal intercourse (UAI). This is despite the majority being reached by HIV prevention activity and having access to condoms.

Sero-adaptive behaviour, including selecting partners perceived to be of the same HIV sero-status, is complex and widespread. HIV positive men are more likely than HIV negative men to engage in risky sexual behaviour, including UAI, and they have higher levels of STIs, including gonorrhoea, syphilis, LGV and other infections such as *Shigella.* Sero-adaptive behaviour can also lead to HIV transmission when HIV negative men choose to have UAI with a partner who they believe is HIV negative, as significant numbers of MSM do not know that they are infected with HIV.

We lack robust and timely data on ‘chemsex’, a term describing sex that occurs under the influence of drugs. However, there is evidence that chemsex is associated with risky sexual behaviour and that MSM in London are more likely to use the common chemsex drugs, such as crystal methamphetamine (3.4% in the last 4 weeks), GHB/GBL (8.2%) and mephedrone (6.3%), than elsewhere in England. There is limited evidence that this is increasing. Injecting drugs is only reported by a minority of MSM, but is more likely in those who are HIV positive.

The majority of MSM appear to be engaged with sexual health services; most MSM have had an HIV test and HIV and STI screening is increasing. However, less than half of MSM have had

an HIV test in the last year. Encouraging regular and frequent testing to identify and treat HIV and STIs is important in interrupting the on-going transmission seen in this group.

Web-based interventions as well as some types of behavioural intervention show promise in HIV and STI prevention and behaviour modification in MSM.

On-going transmission of STIs and HIV is occurring despite evidence that MSM are accessing and engaging with services. This may in part be explained by high levels of unsafe sexual behaviour, especially UAI in the context of both sero-adaptive behaviour and recreational drug use. Tackling this is complex and challenging and a holistic life-course approach is needed. The worsening of sexual health in MSM in London despite widespread measures to prevent infection implies that further sustained action is needed to reverse this trend.

Recommendations

Improving sexual health in MSM should be made the highest sexual health priority in London.

Public Health England (PHE) have published a summary document on promoting the health and wellbeing of gay, bisexual and other men who have sex with men. When the Framework and Implementation Plan is published, it should be used to shape work in London to support MSM to enjoy long healthy lives, and create and sustain respectful and fulfilling social and sexual relationships.

Health and Wellbeing Boards and Directors of Public Health in all London Boroughs are advised to ensure that the needs of MSM, with respect to sexual health are considered within Health and Wellbeing Strategies and the Joint Strategic Needs Assessment.

Consideration should be given to the issue of the dynamic sexual health needs of MSM, as evidenced by the recent outbreak of *Shigella flexneri*. Local commissioners and providers are advised to be alert to new and emerging situations and should be prepared to enact a rapid and coordinated response. Novel outbreaks, such as that of *Shigella flexneri* warrant swift campaigns to promote awareness in both MSM and health care providers.

To improve our understanding of the local needs of MSM, local authorities are advised to include sexual orientation in routine data collection systems.

It is advised that sex and relationship education include non-judgemental discussion of same-sex relationships. Personal, social and health education (PSHE) that addresses self-esteem is also crucial to all children's confidence and in building confident adults who take fewer risks (including sex, drugs and alcohol). Education should include information on how alcohol and drug use impacts on decisions about sex, including negotiation of safer sex.

There is a clear need to ensure that education, awareness raising and social marketing interventions for MSM include information about sexual risk-taking, signs and symptoms of STIs (including HIV), promoting regular STI screening and information on where to find services.

Efforts should continue to be made to make MSM aware of the following recommendations:

- to have an HIV and STI screen at least annually and every 3 months if they are having unprotected anal intercourse with casual or new sexual partners
- to use condoms consistently with all casual and new partners, and main partners until they have been screened

- to reduce numbers of sexual partners and avoid overlapping partners

- that sero-sorting is unsafe. In HIV positive men it carries risk of acquiring other serious STIs including hepatitis C, syphilis and drug resistant gonorrhoea. In HIV negative men it additionally carries the risk of HIV transmission

Online interventions should be considered as a method of sexual health promotion/STI prevention given the high use of the internet in sourcing sexual encounters by MSM. It should be recognised that there is a need for education of young MSM on the risks, as well the benefits of using the internet for social and information purposes.

Consideration should be given to behavioural interventions to reduce unsafe sexual behaviour. These will need to be modified to suit local populations given the diversity of the MSM population in London.

Venues attracting MSM that may be involved in sex-on-premises should be supported in ensuring they provide a safe environment and be used for provision of venue-based outreach services to clients.

Condoms should be promoted and provided at scale, with a strong communications message supporting condom use.

It is advised that drug and alcohol services provide services meeting the specific needs of MSM. Other modalities such as digital media, web-based and venue-based interventions should also be considered for this purpose.

Providers of sexual health services are advised to:

- offer sexual health screens including an HIV test annually to MSM, 3 monthly to MSM having unprotected sex with new or casual partners

- make the most of health promotion opportunities when a test result is negative

- review their uptake of HIV testing among MSM and where low they should explore possible reasons for this and aim to increase it

- train staff in harm reduction, giving brief advice and appropriate referral to drug and alcohol services

- rapidly assess drug and alcohol use in clients, provide harm minimisation advice and promptly refer to appropriate services if required

Expanding and normalising HIV testing is an important measure to increase uptake of testing, to ensure earlier diagnosis and access to HIV treatment, and therefore to prevent HIV transmission. HIV testing in settings outside of sexual health services should be expanded at scale and with pace in London. Commissioners of sexual health services should explore opportunities for increasing HIV testing using home sampling.

Further research is welcomed on the extent of and drivers for unsafe sexual behaviour in MSM, along with research on effective interventions for behavioural change in MSM.

Introduction

Men who have sex with men (MSM) are a key risk group for sexually transmitted infections (STIs) and there has been recent concern about reports of increasing levels of recreational drug use and unsafe sexual behaviour.

The purpose of this report is to pull together intelligence usually presented in different places, to build up a picture of the needs of MSM as they relate to STIs and HIV in London. The report is intended for those commissioning and providing sexual health services across London.

This report complements the Public Health England's (PHE) summary on promoting the health and wellbeing of gay, bisexual and other men who have sex with men[1]. Further PHE documents are planned to follow-up on this initial summary, including a Framework and Implementation Plan.

This report also complements the HIV Prevention Needs Assessment for London published in 2013, which has more detail on the evidence of effective interventions regarding preventing HIV in MSM.

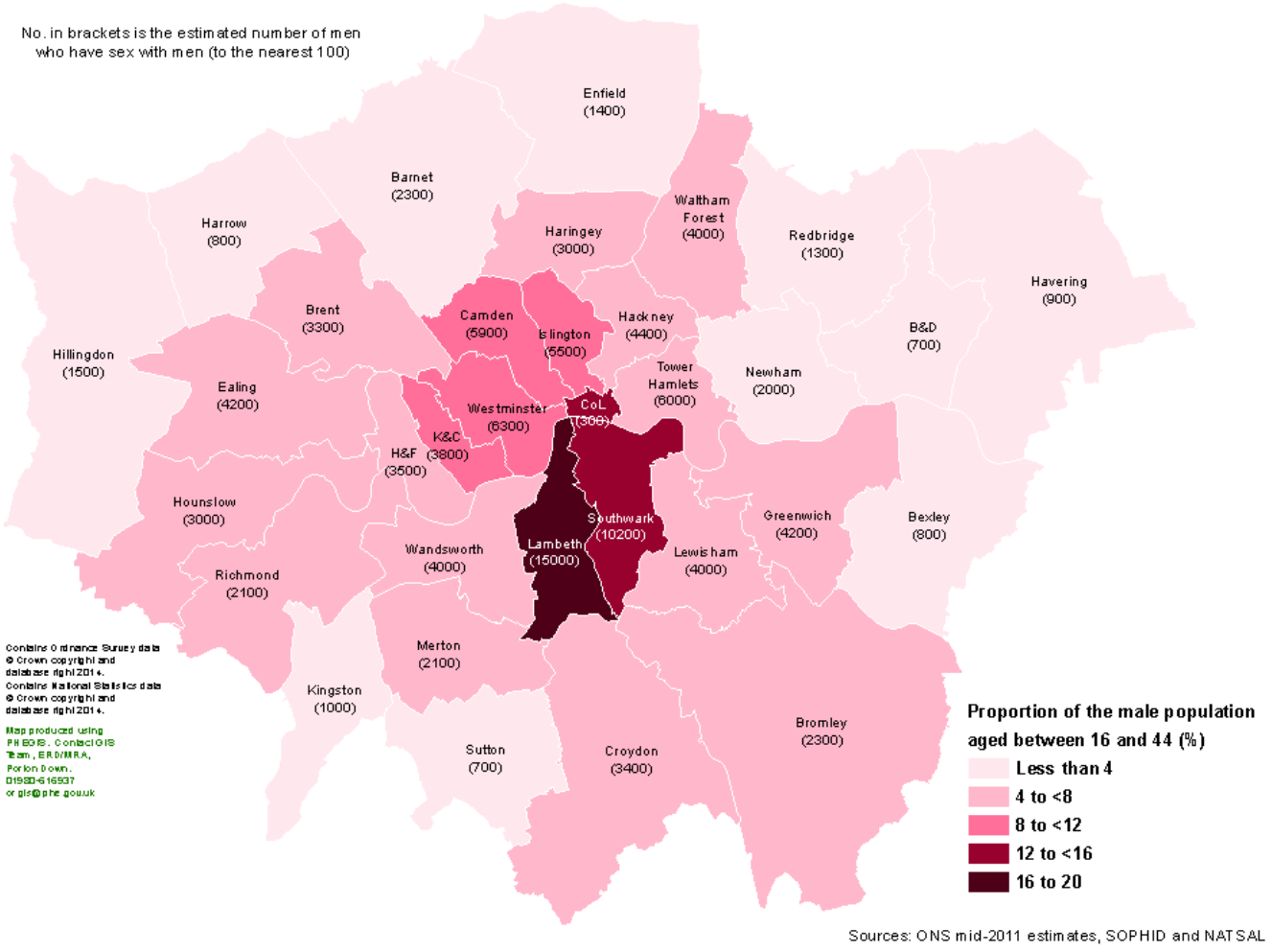
For more information on the epidemiology of STIs and HIV in London please access the London STI[2] and HIV[3] reports recently published in addition to the PHE Sexual and Reproductive Health Profiles, which include a downloadable Local Area Profile[4]. Local authorities also have access to Local Authority STI Epidemiology Reports (LASERs), available through their local PHE teams.

Demographics

The term MSM encompasses a diverse group of men of varying age, ethnicity, education, social economic status and type of relationship. Unfortunately, we do not have a good denominator population data for MSM, which hampers our ability to determine what proportion of MSM are affected by STIs and HIV.

The information that is available identifies London as having a higher proportion of the population who are MSM than other parts of England. The most recent National Survey of Sexual Attitudes and Lifestyles (NATSAL 2010-2012) estimated that 1 in 26 of men in London aged 16-74 years reported having sex with men (3.81%, 95%CI: 2.42%-5.94), which is higher than the rest of England and Wales (2.36%, 95%CI:1.95%-2.85%)[5]. It is estimated that MSM make up less than 2% of the London adult population.

Figure 1: SOPHID weighted estimates of the number of 16 to 44 year old MSM resident in each LA in London and the estimated proportion of males aged 16 to 44 years that are MSM[6, 7]



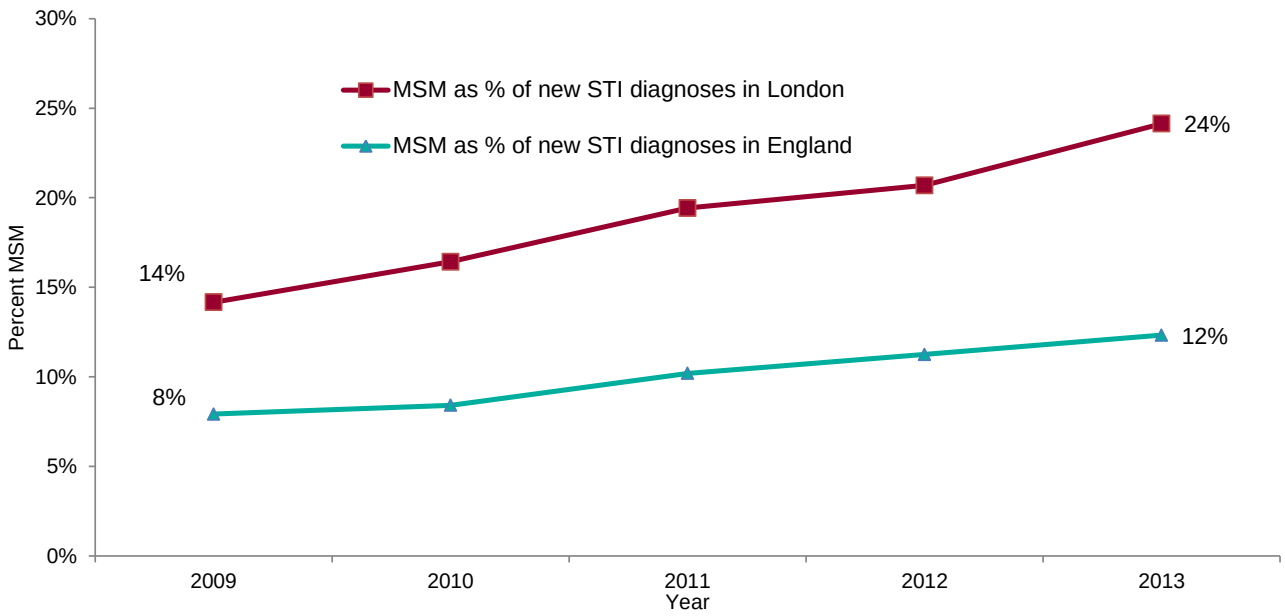
Proportions of men in London who are MSM vary by borough and higher proportions are seen in more central areas of London (Figure 1). Based on previous NATSAL data (2000), the estimated proportions range from 1.5% in Harrow to 18% in Lambeth (SOPHID weighted estimations)[6, 7]. As various assumptions are used to calculate these estimates and the less recent 2000 NATSAL data has been used, they should be used with caution.

STIs

MSM have a very high relative burden of new sexually transmitted infections (STIs) and this is increasing. In 2013, 24% of all London residents diagnosed with a new STI in sexual health clinics were MSM[8] (Figure 2). This proportion has increased since 2009, at a greater rate in London than nationally (Figure 2).

Actual numbers of MSM diagnosed with a new STI in London sexual health clinics have increased by 15% between 2012 and 2013[8]. Several factors may partially contribute to this increase, including increased testing and testing with more sensitive tests.

Figure 2: MSM as a proportion of those diagnosed with a new STI[1]: London sexual health clinic attendees[2]compared to attendees at sexual health clinics in England as a whole, 2003-2013[8]



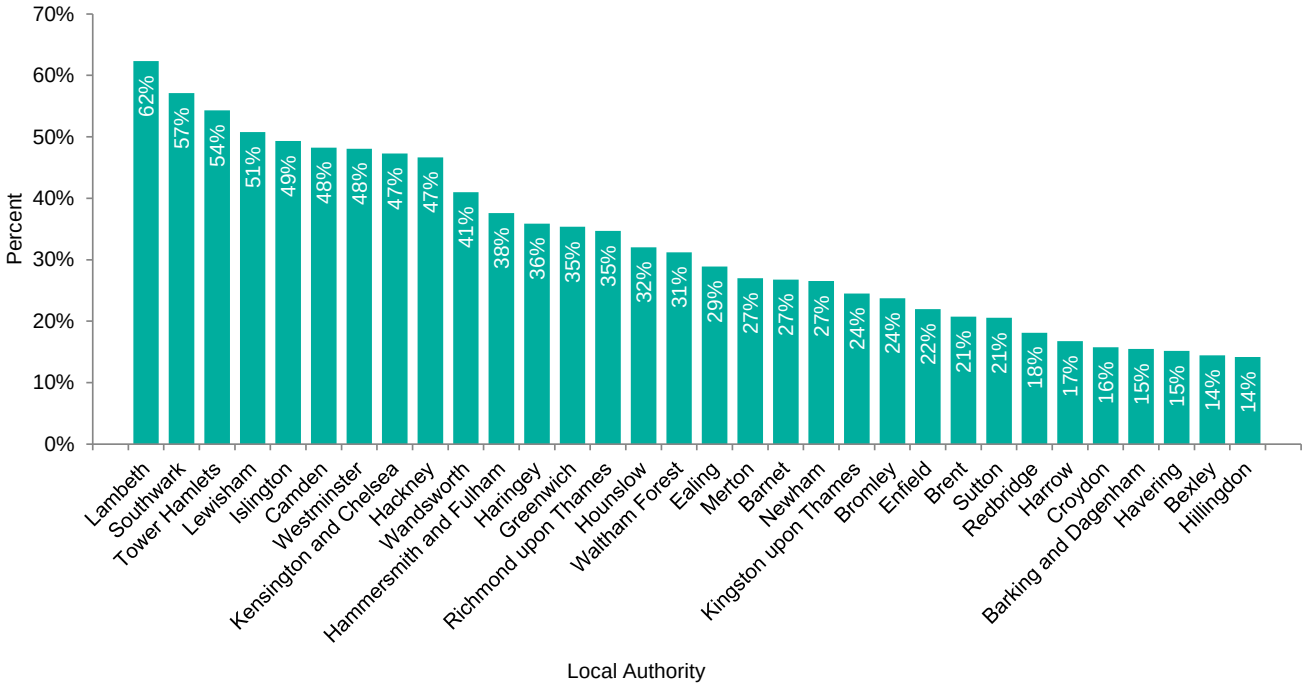
There is considerable variation across London which is in keeping with differences in the underlying populations. Local authorities (LAs) with the largest proportions of MSM among all male patients diagnosed with a new STI in 2013 were Lambeth (62%) and Southwark (57%)[8] (Figure 3, City of London excluded). In eight further LAs, infection in MSM accounted for over

[1] Excluding the following acute STIs as sexual orientation was not reported on KC60 returns (which provide the data for years 2000 to 2008): Chancroid, LGV, Donovanosis, Trichomoniasis (> 90% of Trichomoniasis diagnoses are in women)

[2] Not all these individuals will have been London residents. Conversely, some London residents will have been diagnosed elsewhere. An analysis of GUMCAD data for 2009 to 2010 showed that 91% of those diagnosed in London were also London residents and 98% of London residents were diagnosed at London clinics.

40% of all men diagnosed with new STI in GUM clinics. A high proportion of MSM in the City of London were also diagnosed with new STI's (63%), however in this borough, fewer than 100 MSM residents attended sexual health clinics in 2013.

Figure 3: MSM as a proportion of male local authority residents with a known sexual orientation diagnosed with a new STI in sexual health clinics: London, 2013[8] (GUMCAD, sexual health clinic diagnoses only. Males with no information on sexual orientation are excluded from the calculation, Please note City of London has small numbers and has been excluded from this figure.)



MSM diagnosed with a new STI in 2013 in sexual health clinics were in general older than heterosexual males[8] (Figure 4). Only one in seven London resident MSM diagnosed with a new STI in 2012 was aged 15-24 years (14%), compared to 1 in 3 heterosexual males (32%). Approximately one quarter of MSM diagnosed with a new STI in 2012 were over 40 years (25%) compared to one in seven heterosexual men (14%).

The majority of MSM diagnosed with a new STI in London were white (74%)[8] (Figure 5). This was a higher proportion than in heterosexual men (49%) and in women (54%). However a third of white MSM (34%) with a new STI were from backgrounds other than white British compared with 16% of heterosexual males with a new STI.

Figure 4: MSM and heterosexual males diagnosed with a new STI in sexual health clinics, age distributions compared: London residents, 2013 (GUMCAD)[8]

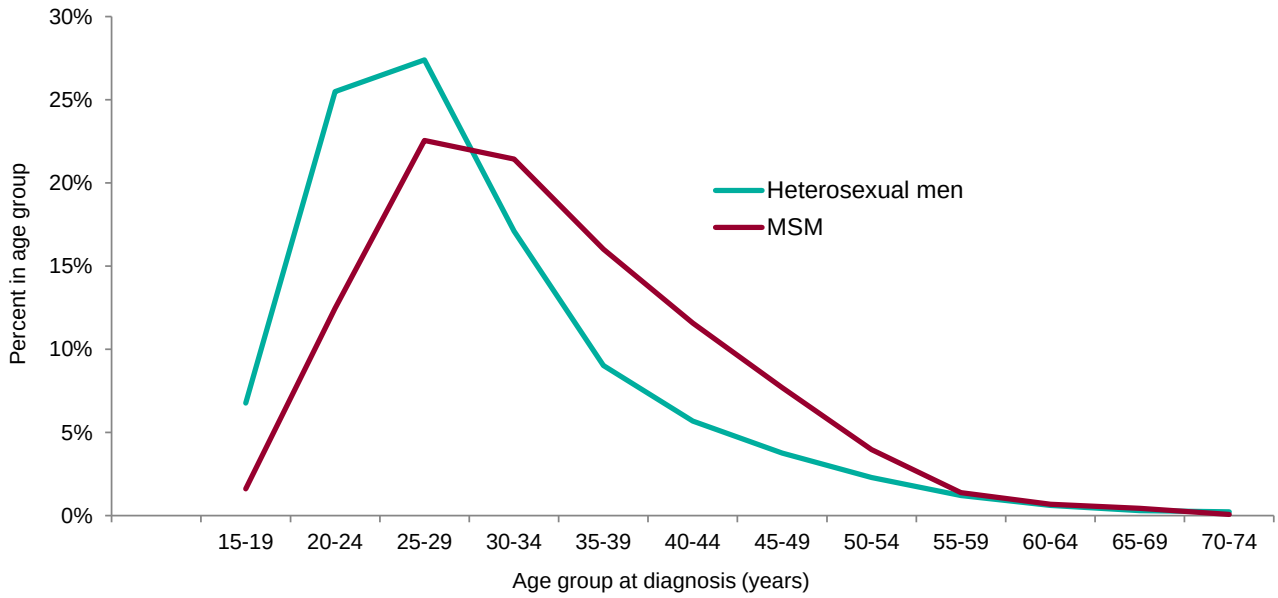
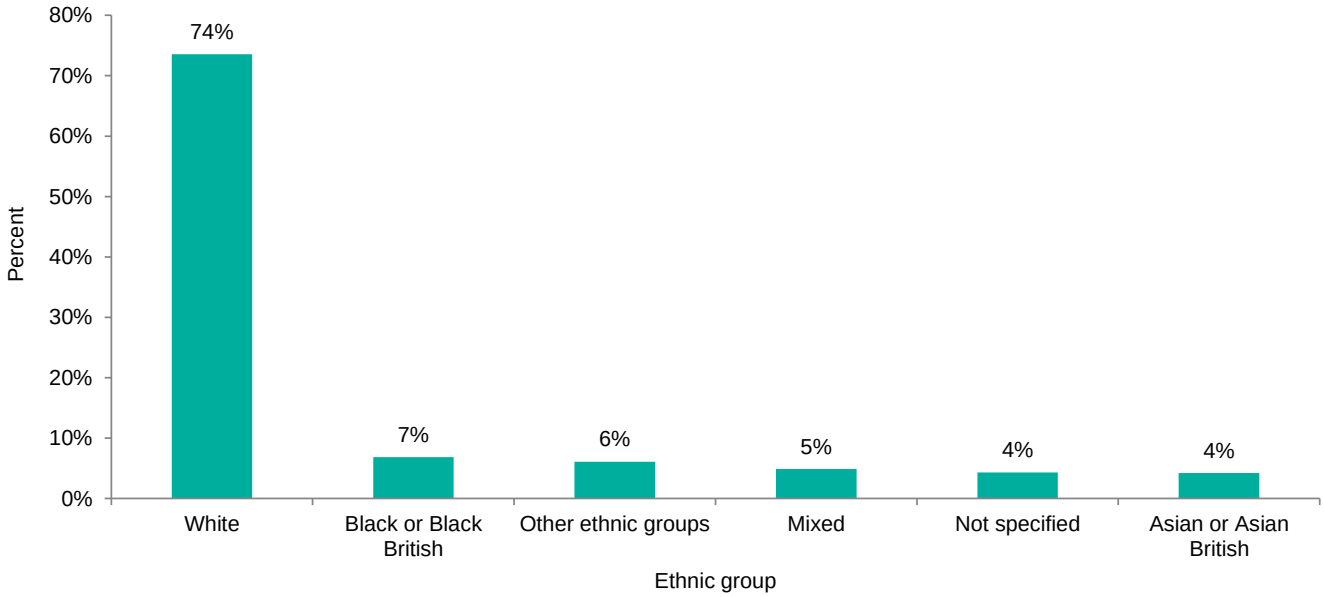
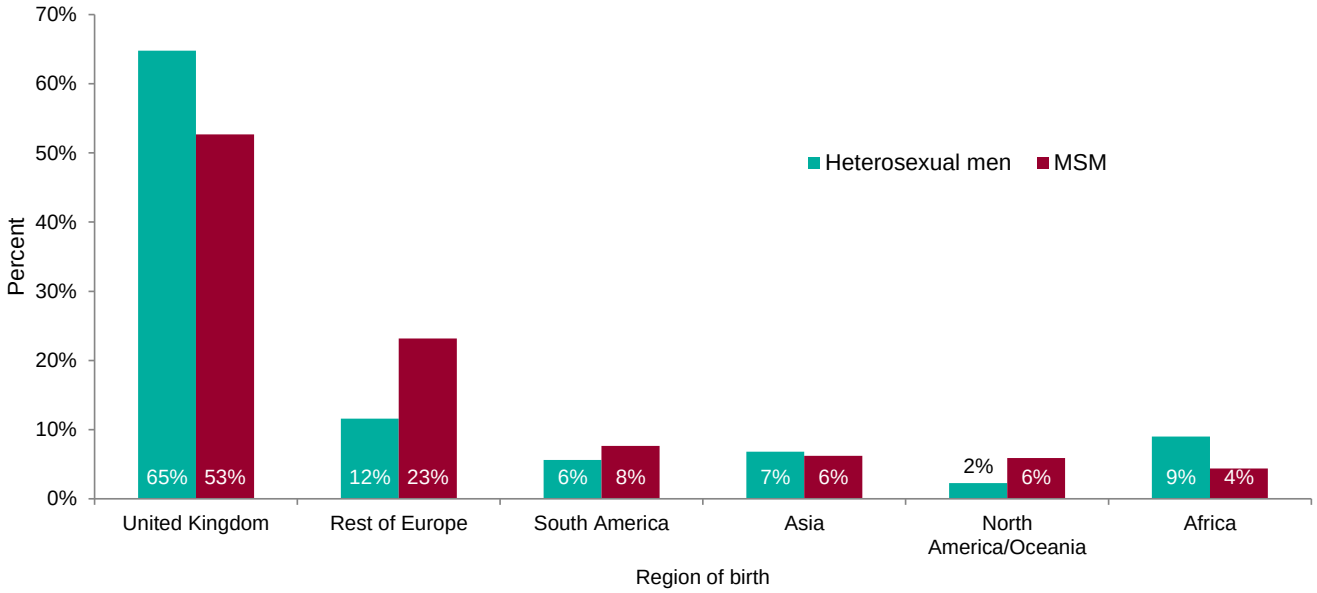


Figure 5: MSM diagnosed with a new STI in London by ethnicity, 2013 (GUMCAD)[8]



Just over half of MSM with a new STI were UK born (53%)[8] (Figure 6). This was lower than the proportion of heterosexual males with a new STI who were born in the UK (65%). Among MSM with a new STI born outside of the UK, Brazil was the most commonly reported country of birth (4% of all MSM with a new STI). Europe constituted the most common region of birth with nearly one in four MSM with a new STI (23%) having been born in a European country outside of the UK. Of these, the highest proportions were born in Italy (15%), Spain (15%), Poland (10%), Ireland (10%) and France (9%).

Figure 6: Region of birth of MSM and heterosexual males diagnosed with a new STI in London 2013 (GUMCAD)[8]



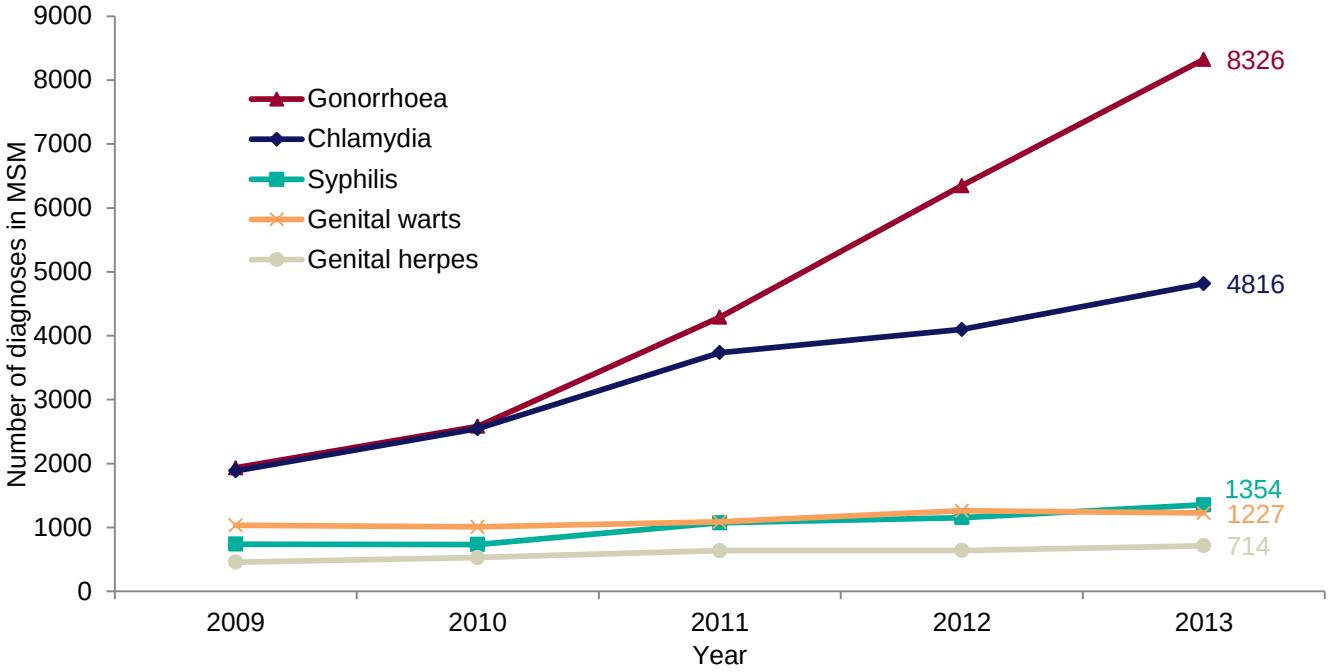
Gonorrhoea and syphilis

Sustained transmission of gonorrhoea and syphilis is a marker of high risk sexual activity[9] and the relative burden of these infections is particularly high among MSM. More than eight out of 10 of all cases of syphilis (84%) and almost two thirds of all cases of gonorrhoea (65%) diagnosed in London residents in sexual health clinics in 2013 were in MSM[8]. These proportions have been steadily increasing.

Continuing exposure is evidenced by high levels of reinfection, with gonorrhoea infection in MSM in London over twice as likely to represent re-infection within one year compared to both heterosexual males and women (11.5% vs. 5% in 2011). This raises additional concerns regarding the facilitation of antibiotic resistance given data from 2012 showing that rates of decreased susceptibility to the antibiotics cefixime, ciprofloxacin and penicillin are higher in MSM than heterosexual men and females[10]. In addition it has become apparent that rectal STIs, while often asymptomatic, are associated with increased acquisition of HIV and may therefore potentiate its transmission.

There have been large increases in the number of both syphilis and gonococcal infections in MSM[8]. Between 2010 and 2013 the number of gonorrhoea diagnoses in MSM more than tripled (222% rise) and there was an 85% rise in syphilis diagnoses (Figure 7). This is likely to be partially due to increased testing, including at extra genital sites, and the use of more sensitive tests, especially for gonorrhoea. Furthermore, recording of sexual orientation in GUM clinics improved markedly from 2009 to 2010.

Figure 7: Number of diagnoses of acute STIs in MSM in sexual health clinics in London residents, 2009-2013 (GUMCAD)[8]



Chlamydia, genital herpes and genital warts

In contrast with syphilis and gonorrhoea diagnoses, one in five (19%) of all cases of chlamydia infection and less than 10% of all cases of genital herpes and genital warts diagnosed in sexual health clinics in 2013 were in MSM[8]. Nevertheless, the proportion of diagnoses of chlamydia cases that were in MSM almost doubled between 2009 (10%) and 2013 (19%) and the rise in actual numbers of diagnoses of chlamydia is also notable (Figure 7).The proportion of all genital herpes and genital warts cases among London residents that attended a sexual health clinic that were in MSM has remained relatively stable.

Lymphogranuloma venereum

While chlamydial infection affects people of all genders and sexual orientation, diagnoses of lymphogranuloma venereum (LGV), an infection caused by three serovars of *Chlamydia trachomatis*, are made almost exclusively in MSM. LGV causes painful symptoms which can be treated with antibiotics, however late complications, which can occur if the infection is left untreated, may require surgery.

Acquisition of LGV in the UK has been found to be associated with the following[11]:

- unprotected rectal contact, both receptive and insertive, and fisting
- meeting partners on the internet, at sex parties or in saunas
- dense sexual networks
- simultaneous contacts (sex parties, saunas)
- poly-drug use

LGV was previously rare in Europe however increasing numbers of cases have been seen in the UK since 2004. In London, there were 327 diagnoses in 2013, slightly lower than the peak of 353 in 2010[12] (Figure 8). London accounted for 53% of all cases seen in England in 2012. Over three quarters of MSM diagnosed with LGV were also co-infected with HIV[13].

Figure 8: LGV diagnoses by sexual health clinics in London, 2003-2013 (STBRU Laboratory Returns)[12]

The current epidemiological picture of infections which were previously rare such as syphilis and LGV, alongside high levels of co-infection with HIV, demonstrate the continuing need to optimise sexual health in MSM. MSM remain the most at-risk group from these infections.

HIV

The national picture

In the UK MSM are the group most affected by HIV and it was estimated that approximately 41,000 MSM were living with HIV in the UK by the end of 2012. Of these, 18% (7,300) were thought to be unaware of their infection[14]. The steady increase in diagnoses of HIV among MSM is thought in part to be attributed to on-going transmission, as well as an increase in HIV testing. The number of new diagnoses among MSM has been greater than those among heterosexuals since 2011. In 2012 MSM accounted for over half (51%) of new diagnoses of HIV[15]. These factors along with their position as the group with the highest levels of transmitted antiviral resistance (9.8% in 2010[16]) provide cause for concern.

Overall prevalence of HIV in MSM in London

It has been estimated that approximately one in 12 MSM in London are living with HIV compared to one in 34 living elsewhere in the UK[17].

MSM living with diagnosed HIV

In 2012 there were 15,552 MSM living with diagnosed HIV in London[18]. This represents a 5% increase on the previous year and increase of 88% in the previous 10 years (8,253 in 2002). The rise can be partly attributed to much improved survival rates due to highly active antiretroviral therapy (HAART), combined with persistent transmission.

Age

The largest proportion of MSM living in London with diagnosed HIV was in the 40-50 year age group (Figure 9).

MSM living with diagnosed HIV in London are an ageing cohort, with the peak age group rising progressively from 30-34 years in 2002 to the current peak in the 45-49 year age group[18] (Figure 10). This raises new issues with respect to service planning and treatment of HIV which have not yet been encountered in practice.

Figure 9: Numbers of MSM living in London with diagnosed HIV by age group, 2012[18] (SOPHID)

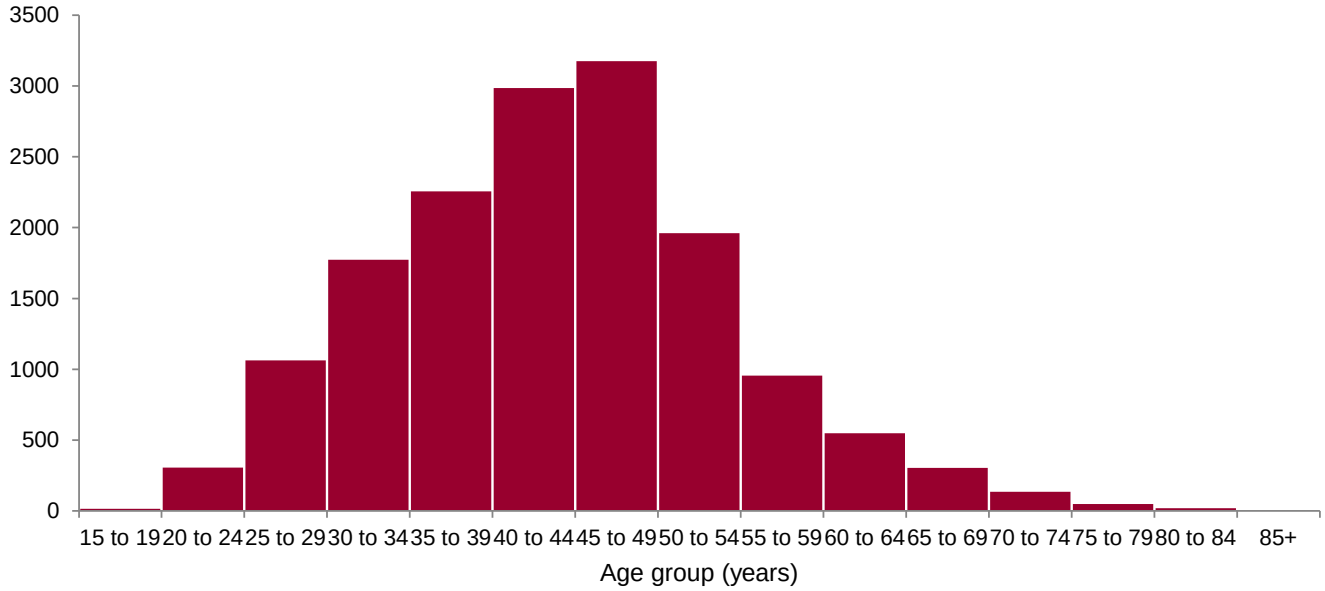
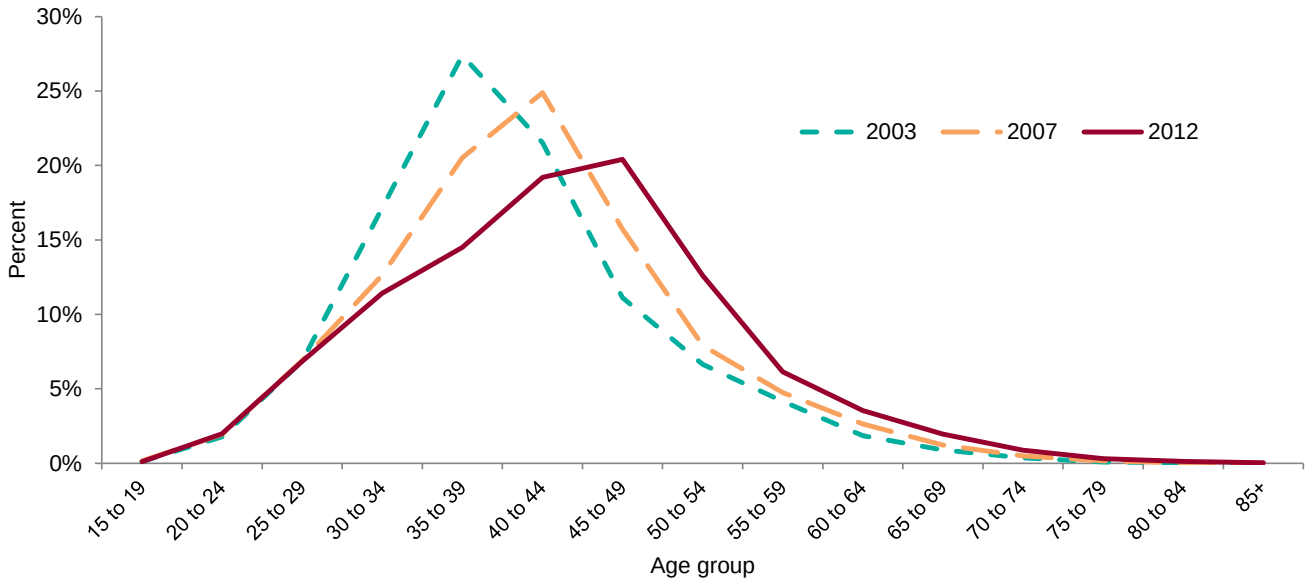


Figure 10: Proportions of MSM living with diagnosed HIV in London by age group, 2003, 2007 & 2012 (SOPHID)[18]



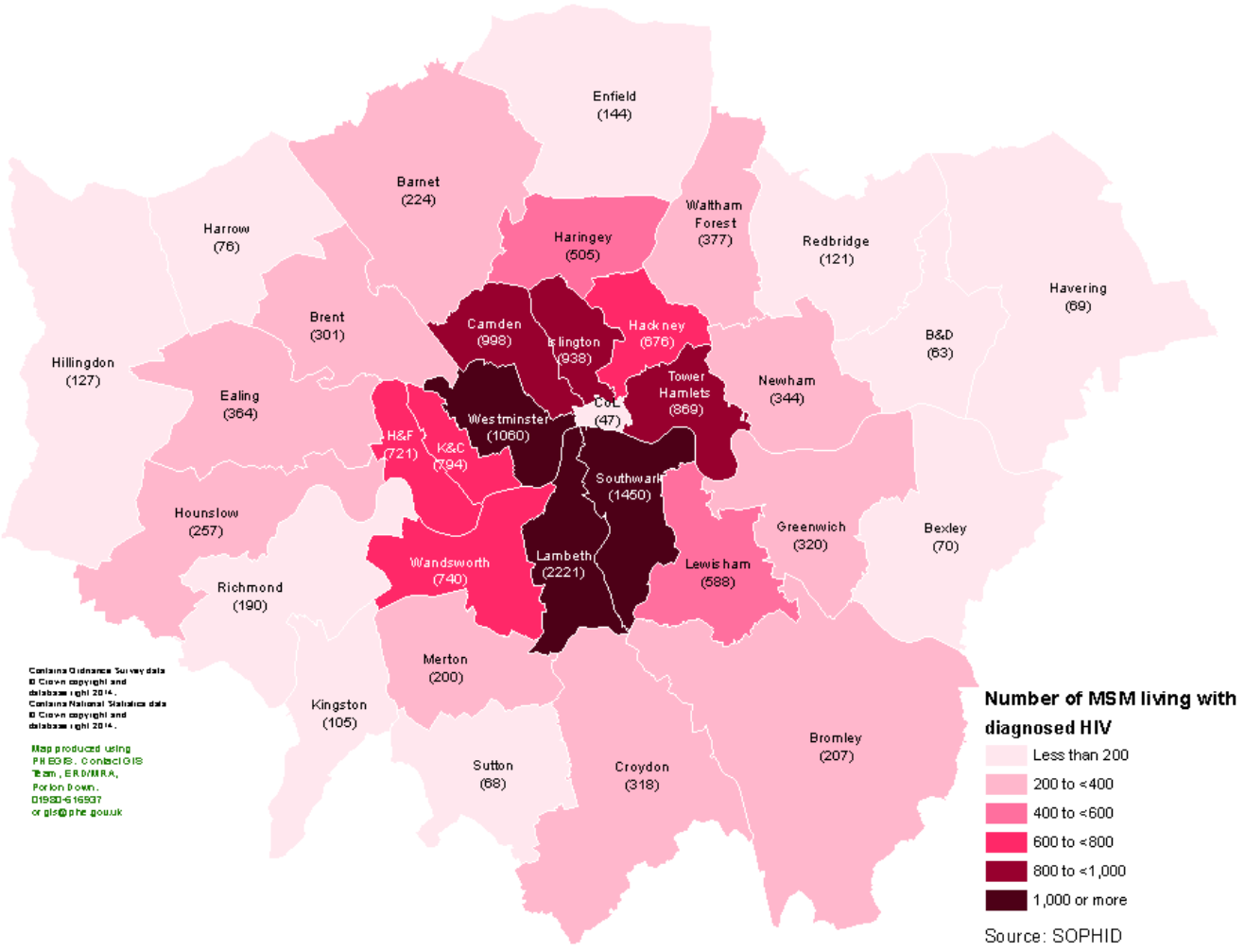
Ethnicity

The majority of MSM living with diagnosed HIV in 2012 were white (80%) with 2% of black African and 3% black Caribbean ethnicity[18].

Geography

In 2012 the highest numbers of MSM living with diagnosed HIV were living in more central areas of London with 14.4% of these men living in the London Borough of Lambeth[18] (Figure 11).

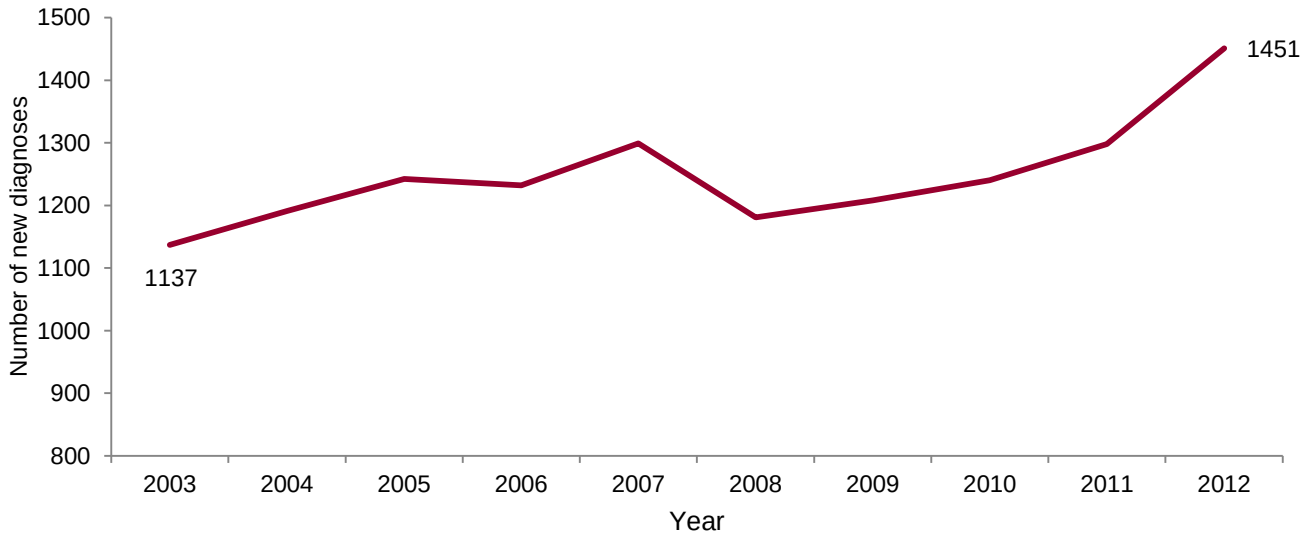
Figure 11: Numbers of MSM accessing care for diagnosed HIV by London LA, 2012 (SOPHID)[18]



New diagnoses of HIV in MSM

New diagnoses of HIV among MSM are increasing. There were 1,451 new diagnoses of HIV amongst MSM in London in 2012, which represents a 12% increase compared to 2011 and an overall increase of 28% since 2003[15] (Figure 12). In line with national figures, over half (51%) of all new diagnoses of HIV in London in 2012 were among MSM.

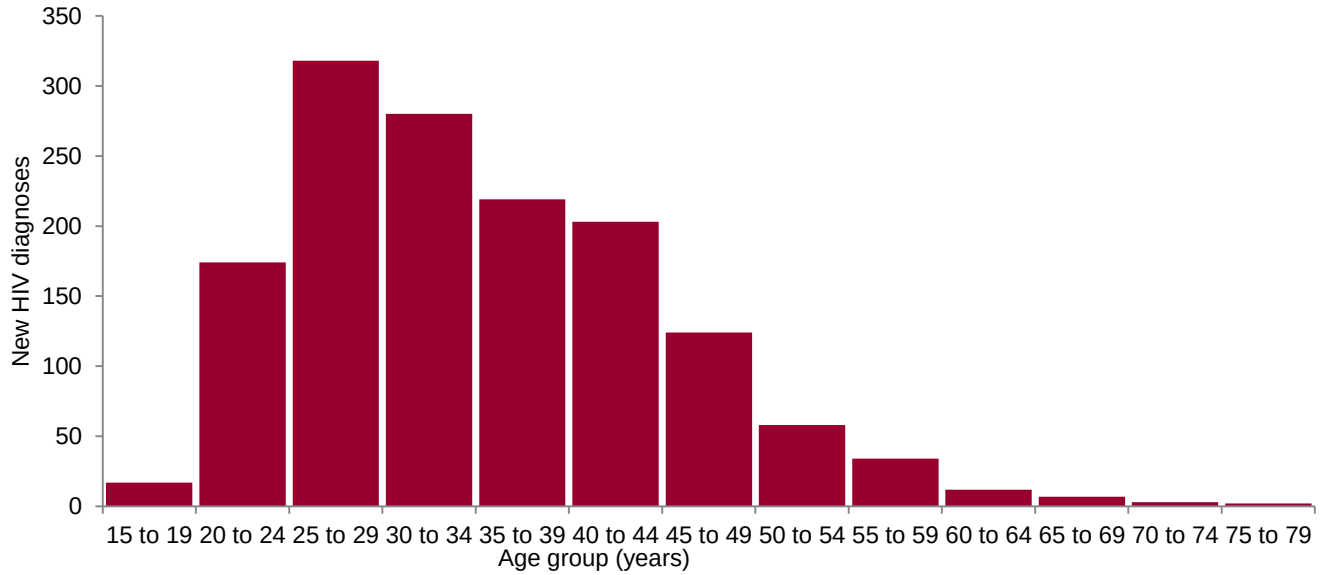
Figure 12: Numbers of new diagnoses of HIV in MSM in London, 2003-2012 (HANDD Database)[15]



Age

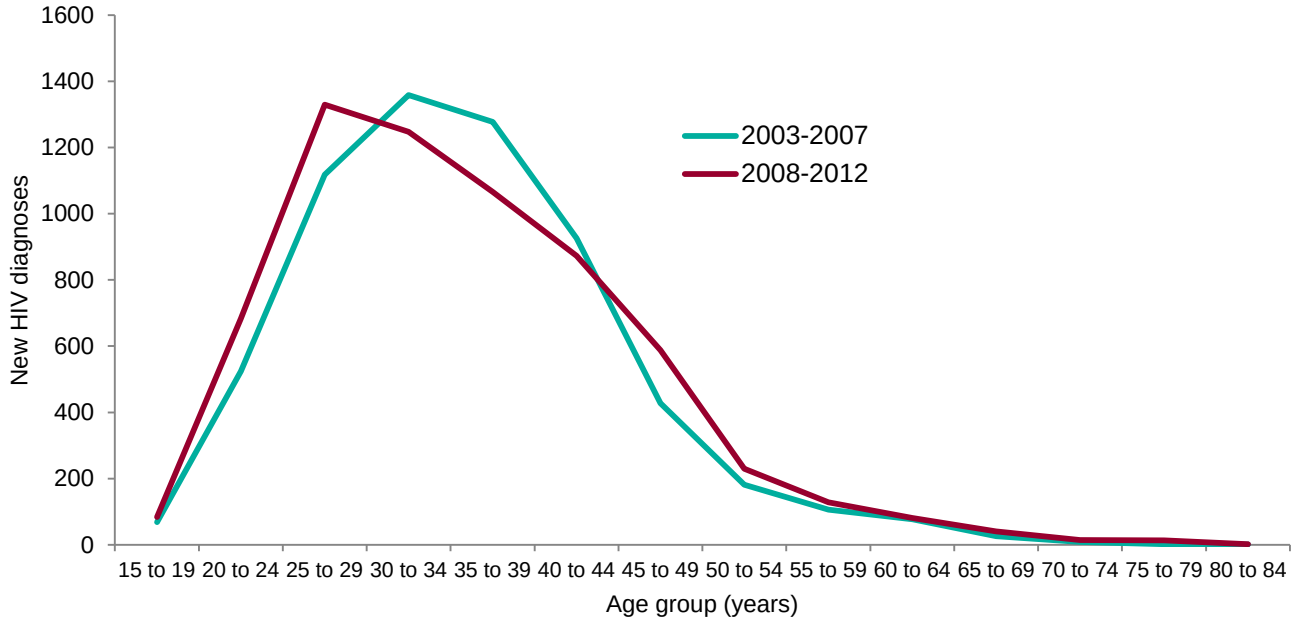
The peak age group for MSM newly diagnosed with HIV in 2012 was in those aged 25-29 years (Figure 13)[15].

Figure 13: Numbers of new diagnoses of HIV in MSM in London by age group, 2012 (HANDD Database) [15]



When analysed over 5 year periods, the peak age at diagnosis of HIV in MSM appears to have fallen from the 30-34 year age group in 2003-7 to the 25-29 year age group in 2008-12[15] (Figure 14).

Figure 14: Comparison of new HIV diagnoses in MSM by age group in 5 year periods, 2003-7 and 2008-12 (HANDD Database)[15]

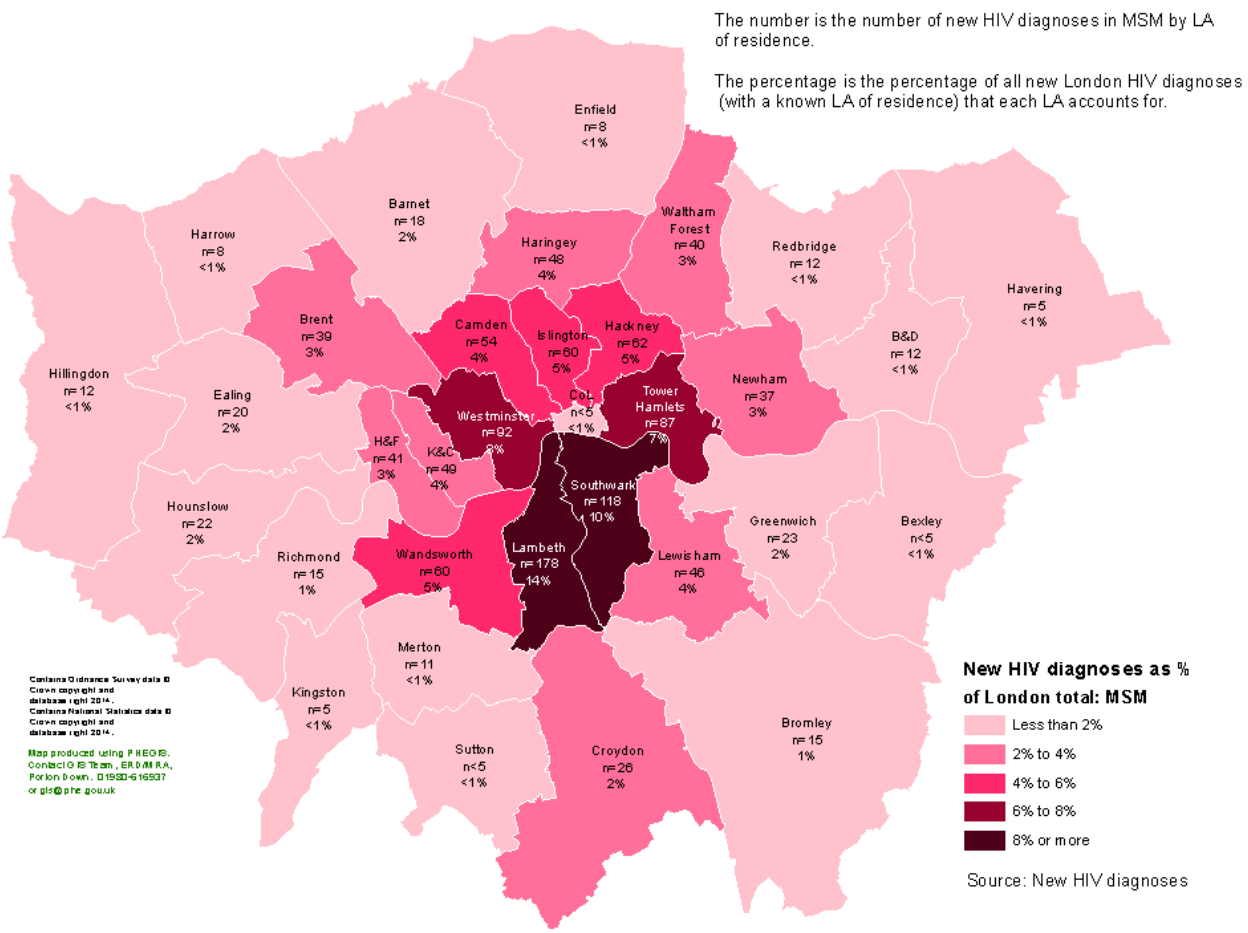


Geography

New diagnoses of HIV in MSM were also more common in the more central areas of London, with Lambeth and Southwark having the highest numbers (Figure 15)[15].

In 2012, 14% of all MSM with newly diagnosed HIV who had a LA of residence documented, lived in Lambeth and 10% lived in Southwark[15].

Figure 15: Number of new HIV diagnoses in MSM by London LA of residence, 2012 (HANDD Database)[15]



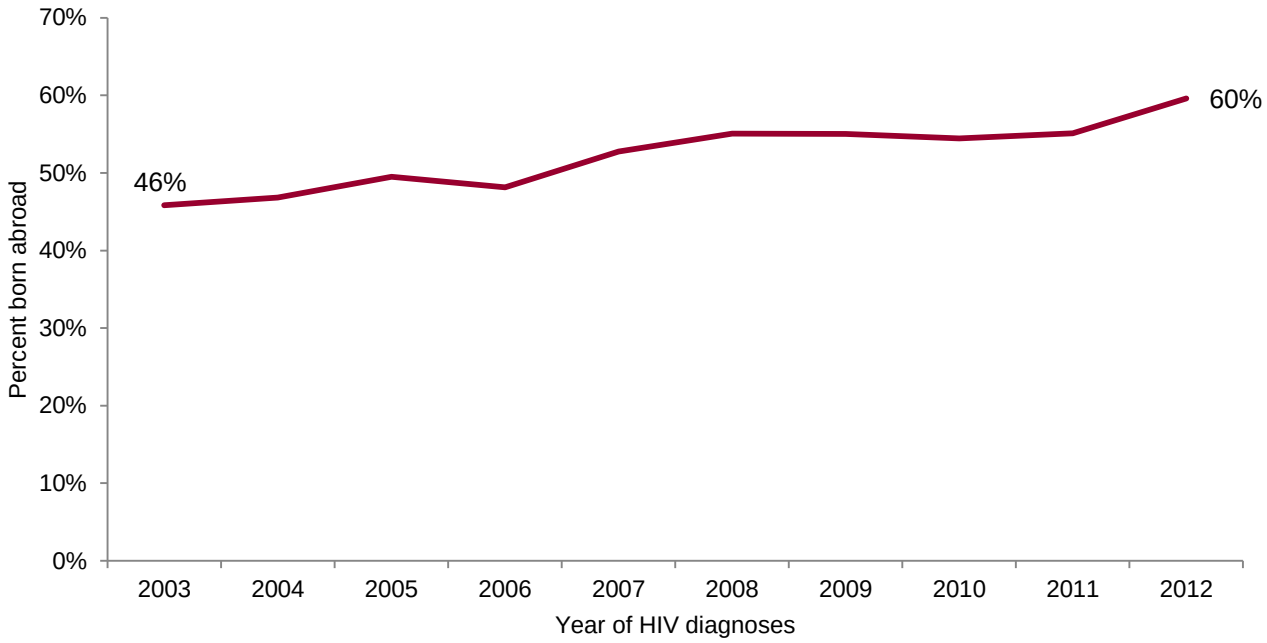
Ethnicity

The majority of MSM newly diagnosed with HIV in London in 2012 were white (73%)[15]. Small proportions were of black Caribbean (3%) or black African (5%) ethnicity. One in five was from other black and minority ethnic groups (19%)

Country of birth

The majority of MSM newly diagnosed with HIV in London in 2012 were born abroad with 40% born in the UK[15]. The proportion of MSM newly diagnosed with HIV who were born abroad has shown a steady increase over the past ten years (Figure 16).

Figure 16: Proportion of MSM newly diagnosed with HIV born abroad, 2003-2012 (HANDD Database)[15]



In 2012, one in four of MSM newly diagnosed with HIV for whom this data were available was born in Europe (25%), constituting the largest region of birth outside of the UK for these men[15].

The most common countries of birth among MSM newly diagnosed with HIV over the 5 year period 2008-2012 were Brazil, followed by Spain, Italy and the USA.

Country of infection

Among those for whom the data were recorded, the vast majority (75%) of MSM diagnosed with HIV in 2012 were infected in the UK[15]. This proportion has changed little in the past ten years. Nevertheless these data are poorly recorded, with the probable region of infection unknown in 45% of cases in 2012.

From the data available, the countries outside of the UK where the highest counts of new infections were thought to have occurred were Spain and Italy within Europe, and the USA and Brazil outside of Europe. This corresponds with the most common countries of birth outside of the UK among MSM newly diagnosed with HIV.

Other risk factors

Concerns have been raised about the increasing use of recreational drugs, including injected drugs, among MSM and this is discussed later (page 35). There is some evidence that suggests that injection of drugs has not yet been a major factor in HIV transmission in MSM, as

less than one per cent of MSM newly diagnosed with HIV in London from 2009 to 2011 also described intravenous drug use as a possible route of transmission[15]. However, this could be due to under-reporting and the issue will require on-going monitoring as more recent data becomes available.

Recent infection

MSM newly diagnosed with HIV in London were more likely to have a recent infection (24%) than heterosexuals (8%)[19]. The proportion of likely recent infections among people newly diagnosed varied with age in England, Wales and Northern Ireland. One in four (28%) newly diagnosed MSM aged under 35 years was recently infected, compared to 15% among MSM aged over 50 years[17, 19].

Late diagnosis

A significant proportion of MSM were diagnosed late in London (31% in 2011), although they were less likely to be diagnosed late than heterosexuals[20]. While excellent treatment options are now available, these are most effective if the infection is diagnosed promptly. Late diagnosis of HIV is associated with increased morbidity and mortality and increased costs to health care services[21]

Incidence

No evidence of a decline in HIV incidence among MSM in England and Wales has been observed over the past decade[17]. This evidence comes from using a CD4-staged back-calculation approach to estimate HIV incidence and trends in diagnosis patterns among MSM in England and Wales for the period 2001-2010[22]. The model incorporates data on new HIV and AIDS diagnoses, including CD4 cell counts at diagnosis, and information on the natural history of HIV infection.

Undiagnosed HIV

Nationally, it is estimated that one in five MSM with HIV are undiagnosed[14]. However, this compares favourably to other HIV risk groups eg black Africans. People who know their diagnosis can access effective treatment, which not only greatly improves their health, but also reduces their chances of infecting others. An estimated half of overall HIV transmission is due to people who are not aware of their infection[23].

Financial costs associated with HIV infection

Failure to prevent the 1,088 UK acquired infections in MSM diagnosed in London in 2012 will cost the health service an estimated £348 million in future direct health care costs.

This is based on an estimated £320,000 in direct lifetime costs per HIV positive patient which arises from a study conducted by the Health Protection Agency and the National AIDS Trust, working with a group of stakeholders, of the economic implications of a new HIV infection. It does not include social costs[24]. There would be further additional savings as a result of preventing onward transmission, as people who are aware of their diagnosis can access effective treatment, which in turn reduces the chance of them infecting others.

Hepatitis

Hepatitis C

Between 2002 and 2006 there was evidence of a 20% year on year increase in the incidence of newly acquired hepatitis C infection in HIV positive MSM across major clinics in London and Brighton[25]. The prevalence in HIV negative MSM has not been shown to be significantly higher than in the general population[26].

Levels of hepatitis C were higher in those reporting previous syphilis infection, another recent STI diagnosis, unprotected anal intercourse, injecting drug use, recreational drug use and high rates of partner change[26-28].

There is evidence of on-going sexual transmission of hepatitis C among HIV positive MSM, however this appears to be declining[29]. The estimated incidence of infection in this group in the UK has reduced significantly over a four year period to 2.2 per thousand person years in 2012. The Enhanced Surveillance of Newly Acquired Hepatitis C infection in Men Who Have Sex with Men (SNAHC) collected data from centres in London, Manchester and the South East between January 2008 and November 2011 and identified a reduction in this group from 7.38 per 1,000 person years in 2008 to 1.46 per 1,000 person years in 2011[28]. The vast majority (95%) of these men were HIV positive.

It has been suggested that the decline in transmission may have been affected by increased awareness following campaigns, which demonstrates the value of such methods as interventions. It also underlines the need, as suggested by the British HIV Association (BHIVA), for screening for hepatitis C in known HIV positive MSM both at diagnosis and at regular intervals after diagnosis[30]. It is important that the declining levels of newly acquired infection do not lead to complacency. A significant proportion of HIV-infected MSM who are successfully treated for hepatitis C become re-infected with the virus. A study from a London teaching hospital stated that as many as 25% of individuals treated for hepatitis C would become re-infected within 2 years[31]. This demonstrates that despite trying to effect behaviour change, risk taking practices are continuing and on-going surveillance and prevention work is necessary among MSM.

Hepatitis B

Heterosexual exposure was the most common route of infection for hepatitis B both nationally and in London. Nevertheless figures from 2012 demonstrate that in approximately one-fifth of cases of acute hepatitis B in London (19/97), sex between men was identified as the most likely route of transmission. Therefore the relative burden is high[32].

The Department of Health's 2001 Strategy for Sexual Health and HIV contained a standard that all MSM should be offered hepatitis B immunisation at their first visit to sexual health services[33]. Coverage of the first dose was high in 2006 at 94% in London, although only around a quarter of these (26%) completed the full course[34]. Awareness appears to have remained high with over 80% of MSM, who were not known to be immune, screened for hepatitis B in a national audit of sexual health services in 2010[35]. Clearly with recent changes in the commissioning of sexual health services, it is important to ensure that high rates of testing and vaccination continue.

Hepatitis A

Hepatitis A is a highly infectious virus, transmitted by the faeco-oral route, which affects the liver and can cause flu-like and gastrointestinal symptoms. While there have been no recent outbreaks of hepatitis A in London, outbreaks have been reported previously in many cities worldwide, including in London related to a Vauxhall sauna in 2004[36]. Routine Hepatitis A vaccination of MSM is recommended[37].

Shigella

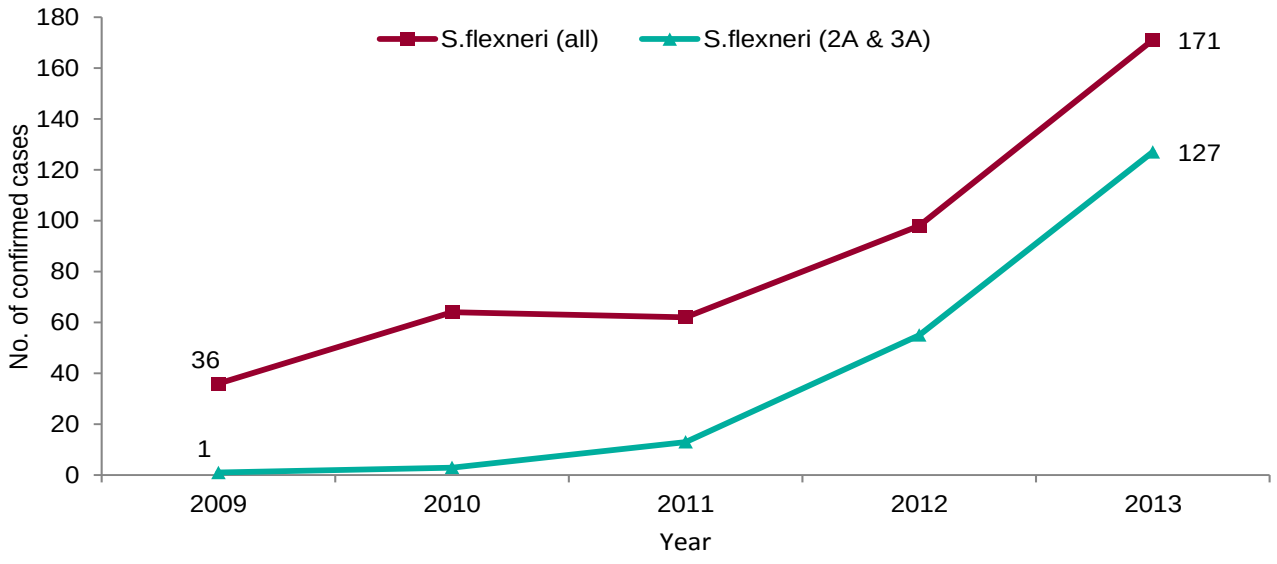
There is evidence of a sustained increase in UK acquired *Shigella flexneri* in MSM in London. Shigella is a bacteria which causes a gastrointestinal infection resulting in diarrhoea. Transmission of *Shigella* among MSM has been previously reported[38] and can be significant given the low infectious dose required, alongside factors such as immunodeficiency due to HIV and sero-sorting behaviour.

Identifying an increase of *Shigella* in MSM comes from pulling intelligence together from different sources, as currently sexual orientation is not routinely collected for cases of *Shigella*. Data revealed a very high male to female ratio in UK acquired adult cases; a small proportion of these male cases were investigated further through in depth interviews.

An increase in the number of UK acquired infections of *S. flexneri* was detected in London in 2010 followed by an increase in Manchester in 2011[39]. UK acquired cases were predominantly male in comparison to an equal gender distribution in travel related cases[40]. In addition the 3a serotype has increased considerably. This increase is mainly attributable to diagnoses among men aged 30-50 years.

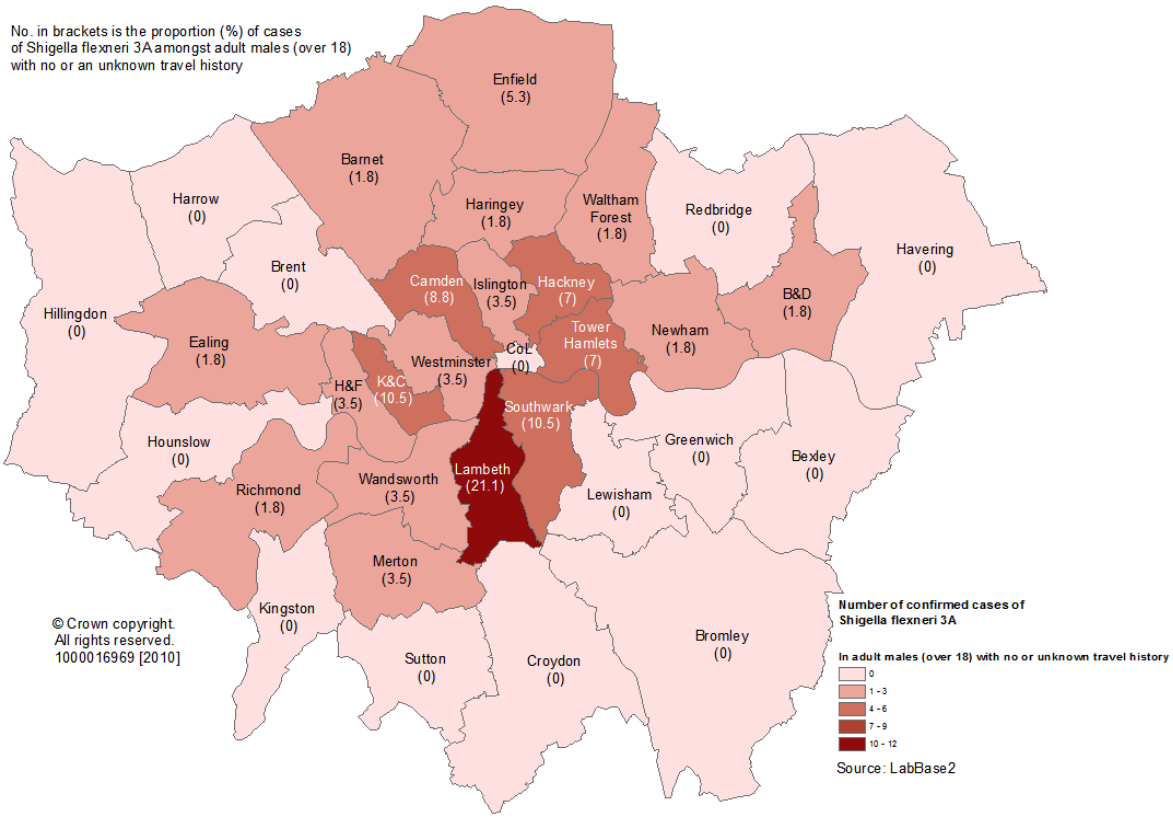
Overall in London in 2013, there was an estimated excess of 171 cases of *S. flexneri* in males with no or unknown travel history compared to females[40] (Figure 17).

Figure 17: Estimated number of cases of *S. flexneri* among MSM: Excess of adult males (compared to females) aged over 18 years with UK-acquired or unknown travel status by serotype, 2009 to 2013[41]



Within London the geographical distribution of cases of *S. flexneri* among males over 18 years of age with no or unknown travel status is concentrated within inner London and can be compared with the estimated distribution of men who have sex with men[40] (Figure 18). Lambeth has seen the highest proportion of cases in this group.

Figure 18: Distribution of cases of *S. flexneri* serotype 3a among males over 18 years of age in London with UK-acquired or unknown travel status with a specimen date between 1 Jan – 22 Aug 2013[40]



Qualitative data from national interviews in 2012-13 suggests that the majority of MSM diagnosed with *S. flexneri* were white and a high proportion who were HIV positive (59%)[42, 43]. Many men reported dense sexual networks with many casual or anonymous sexual partners. Rates of other STIs in the past were high. Three quarters of those interviewed used recreational drugs leading to disinhibiting sexual behaviour.

Condom use was rare and 88% of these men had no previous knowledge of *Shigella.* Treatment was delayed after seeking medical attention suggesting low levels of awareness of *S. flexneri* infection in MSM among health professionals[42].

Attitudes and behaviour

The transmission of STIs is facilitated by unprotected intercourse, concurrent partnerships and high numbers of sexual partners. These factors are also linked to high intake of alcohol and recreational drug use. However, to explain reasons for recent increases in STIs among MSM, one must also consider the changing sociocultural environment eg the growth of the sexual marketplace[44].

Concerns have risen regarding emerging practices related to sexual risk in the MSM population[45, 46]; however, solid recent evidence on risk taking behaviour in the UK is limited. Obtaining further information in this area is important in order to plan and prioritise prevention and health promotion services.

Partnership patterns

MSM in the UK have relatively high numbers of sexual partners. The likelihood of acquiring STIs including HIV increases with number of sexual partners for several reasons. Men with high numbers of sexual partners are more likely to have sex with someone of a different HIV or STI status. Concurrency or overlapping sexual partners additionally facilitates spread as it provides a route of transmission during a highly infectious period in those with newly acquired infections.

Information on sexual behaviour comes from different sources, including surveys of MSM sampled from different settings. It should be noted that studies which sample from gay venues or from volunteer samples may not be representative of MSM in the general population of London and national surveys are unlikely to be representative of people who live in London.

- the UK Gay Men's Sex Survey 2010, part of the European MSM Internet Sex Survey (EMIS), has reported on sexual behaviour of MSM in London, including over 5,000 men aged 16-89 who volunteered to be surveyed using the internet[47]. Over 60% of men had last sexual contact within the past seven days[47]. Almost three quarters (70%) had had more than one sexual partner within the last twelve months[47]

- among HIV negative men recruited from London gay social venues in 2011, a third had more than 10 anal intercourse partners in the last year (34%)[48]

- the National Survey of Sexual Attitudes and Lifestyles in 2000 identified that the distribution of partnerships in Britain was high skewed eg while MSM had a median of one partner in the last year, 15% of MSM reported at least 10 partners in the past year[49]. This survey is a stratified probability sample survey of the general population

There have also been reports highlighting sexual mixing in the MSM population between men with high and low numbers of sexual partners[50]. This means that many people with a low number of sexual partners will acquire infections simply through their link with men with multiple partners. Men with multiple partners have been found to be more likely to use certain settings such as saunas, backrooms and cruising grounds. However, they also use common settings such as pubs, clubs and the internet which are used by those with low numbers of sexual partners alike and perpetuates infection in this group[50].

Not surprisingly, investigation of outbreaks of STIs among MSM has identified cases as having higher numbers of sexual partners eg in depth interviews with a small sample of cases involved in the recent *Shigella* outbreak among MSM revealed particularly high numbers of partners in the past year in this group (median 60)[42].

Unprotected anal intercourse

A number of surveys in London have identified high levels of unprotected anal intercourse (UAI) among MSM and the most recent data available suggests that this is increasing.

- surveys of MSM carried out in London gyms identified a steady increase in the proportion engaging in UAI between 1998 and 2008, with a third of all men (36.6%) reporting UAI within the previous 3 months in 2008 compared to a quarter (24.3%) in 1998[51]

- information from the more recent EMIS Survey in 2010 (London data) identified that two-fifths (40%) did not use a condom the last time they had anal sex with a male partner within the last 6 months, although only 20% said they did not have a condom when they wanted one at some point within the last 12 months[47]

- among HIV negative men recruited at London gay social venues (Gay Men's Sexual Health Survey - GMSHS) in 2011 over half (54%) had had UAI in the last year and 43% had had UAI with casual partners in the last year[48]

- between 2000 and 2008, there was an increase in UAI with more than one partner in the last year in both HIV positive men (49.6% to 57.7%) and HIV negative men (42.2% to 46.4%) recruited from London gay social venues (GMSHS survey)[52]

Sero-adaptive behaviour

There is evidence of widespread sero-adaptive behaviours among MSM and this is an important driver for STI transmission[53].

Sero-adaptation is the modifying of sexual behaviour based on one's own HIV sero-status, the perceived HIV sero-status of a sexual partner, and/or differences in risk of transmission by

different sexual acts[54]. There is evidence that after a diagnosis of HIV, MSM adopt such sero-adaptive practices, including sero-positioning, where the HIV-positive partner is not in the insertive position during UAI, resulting in a decline in sexual activity associated with the highest risk of HIV transmission[55].

However, the lack of condom use associated with these strategies facilitates both the transmission of STIs, and also the transmission of HIV, as significant numbers of MSM have HIV but are yet to be diagnosed, and therefore they do not know their HIV status.

Although we lack recent data, sero-sorting may be increasing. In London, a survey of gay and bisexual men who use gyms identified that concordant UAI (with a partner of the same HIV status) increased significantly from 10% in 1998 to 21% in 2008[51].

There is evidence that HIV positive MSM are more likely to engage in UAI than HIV negative men. The 2008 GMSHS in London identified that HIV positive men were more likely in the last year to have engaged in UAI (57.7% vs. 46.4%) and more likely to have higher numbers of partners (5+ partners, 23% vs. 4.3%) than HIV negative men.

Corresponding to higher levels of UAI are higher rates of STIs in HIV positive men.

- the GMSHS 2008 London survey identified a higher level of STIs (28.3% vs. 10.4%) compared to HIV negative men[52]
- the majority of MSM cases in recent LGV (80-86%) and *Shigella* (59%) outbreaks were known to be HIV positive[42, 56]
- 32% of MSM diagnosed with syphilis in England were HIV positive[57]
- 19% of MSM diagnosed with gonorrhoea in England were HIV positive[57]

There are high levels of non-concordant UAI in HIV negative men. The GMSHS identified that over a quarter of HIV negative men recruited from London gay social venues in 2011 had non-concordant UAI in the last year (27%)[48] and the GMSHS in London in 2008 identified that nearly a fifth (17.6%) of men had UAI with discordant or unknown status partners[52].

Although we again lack recent data, in contrast to rising levels of concordant UAI, the latest data suggest that levels of non-concordant UAI have not risen. The London gym study reported that the levels of non-concordant UAI (with a partner of unknown or discordant HIV status) remained similar in 2008 (16%) compared to 1998 (albeit with a temporary increase between 2001 and 2005)[51].

The risk of HIV transmission is compounded by the fact that when sero-sorting, knowledge regarding partner status often relies on verbal disclosure rather than actual testing[51]. Furthermore, almost 70% of MSM in London said nothing about their HIV status before or during sex with their last non-steady male partner[47].

Recreational drug use

There have been recent concerns about the rise of recreational drug use linked to sexual activity among MSM; however, robust recent data is limited. 'Chemsex' is a term commonly used by gay and bisexual men to describe sex that occurs under the influence of drugs[58]. The drugs most commonly associated with chemsex are crystal methamphetamine (crystal meth), GHB/GBL and mephedrone[58].

The concern is that use of these drugs can lead to an increase in risk taking sexual behaviour, including UAI and an increase in numbers of sexual partners. Recreational drug use has been found to be independently associated with UAI with casual partners[59]. Methamphetamine in particular has been identified as a drug leading to unsafe sexual behaviour due to its disinhibitory and libido increasing effects[60].

There are increasing reports of highly sexually charged venues targeted at MSM such as saunas and post-clubbing chill-out or sex parties and use of internet sites both to locate them and to organise additional sexual encounters[45, 61].

There has been evidence from specialist sexual health and drug clinics in London of recent rises in MSM presenting with problems linked to the common chemsex drugs. Antidote, the LGBT drug support service in London, have reported a rise in the number of gay and bisexual men presenting with problems relating to crystal meth, GHB/GBL and mephadrone (3% in 2005 to 85% by 2012) and a rise in the number of gay male clients being referred by sexual health clinics[58, 62].

Further concern has been raised about possible increases in injecting or 'slamming' among MSM. Among MSM seen between 2011/12 in the Club Drug Clinic at Chelsea and Westminster Hospital, almost a quarter were currently injecting, with 50% of these reporting sharing needles. At the CODE clinic, a dedicated sexual health clinic for MSM in Soho, 80% reported injecting crystal meth in 2012 with 70% reporting sharing needles.

Using data from EMIS in 2010, the Chemsex Study reported that while MSM in London use drugs more than elsewhere in England, only a minority of MSM in London had ever injected drugs. Further analysis of the EMIS 2010 survey identified the following:[58]

- 4.9% of MSM in London had ever injected drugs other than anabolic steroids or medicines, including 2.7% in the last year. This was higher than seen in the rest of England (2.2%)[58]

- the mean number of different drugs (not including alcohol or tobacco) used by MSM resident in London was 2.1, higher than seen in the rest of England (1.3)[58]
- chemsex drugs such as crystal meth, GHB/GBL and mephadrone were less commonly used than cocaine, poppers and cannabis[58]
- the use of common chemsex drugs was higher in London compared to England (Table 1)[58]
- mephadrone and GHB/GBL was more commonly used than crystal meth[58]
- the use of crystal meth in London appears to be slowly increasing[58]
- drug use in MSM resident in Lambeth, Southwark and Lewisham (LSL) was higher than those resident in the rest of London[58]
- MSM resident in LSL who used crystal meth, GHB/GBL, mephadrone were more likely to have recently been to a sauna, backroom/sex club or private sex party[58].
- in MSM resident in LSL the use of GHB/GBL, mephedrone and crystal meth was more common in MSM who were HIV positive[58]

Table 1: Drug use among MSM in London compared to elsewhere in England, 2010[58, 63]

	Percentage of men who used drugs in the last 4 weeks	
	London (n=4,903-4,974*)	Elsewhere in England (n=8,654-8,690*)
Poppers	34.4	26.9
Cocaine	12.6	4.8
Ecstasy	8.2	4.1
GHB/GBL	6.6	1.6
Mephedrone	6.3	2.9
Ketamine	6.8	3.8
Sedatives	6.7	3.8
Crystal meth	3.4	0.7
Speed	1.4	1.7
Heroin	0.2	0.3
LSD	0.5	0.3

*sample sizes vary due to missing data

Evidence of higher drug taking among lesbian, gay and bisexual (LGB) populations comes from a survey from predominantly ‘pride’ attendees in England from 2009 to 2011, including London.

This study estimated the use of any drug in the last month to be seven times higher across all LGB adults compared to the general population[64].

There are also reports from specialist services that HIV positive MSM are more likely to take drugs and reports that they may not take their antiretrovirals. At Antidote, the majority (75%) of users are HIV positive and 60% of these report not taking their antiretrovirals[65].

From qualitative study of a small number of MSM who use drugs, the Chemsex Study describes four narratives of drug use relating to sexual risk taking[58].

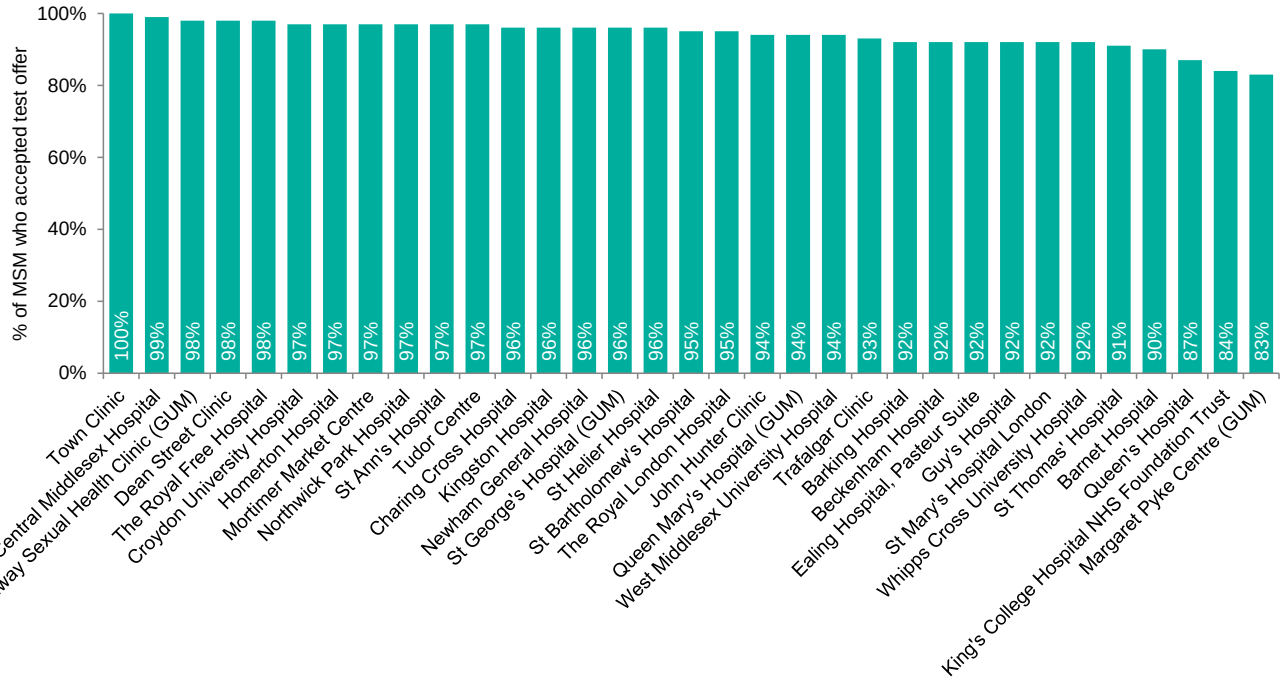
- more than a quarter of participants (all HIV positive) made pre-determined decisions to engage in sero-concordant UAI. While drugs may have led to an increase in the number of sexual partners, they were not the main driver of sexual risk taking[58]
- nearly a third of participants found it difficult to control their behaviour while under the influence of drugs and engaged in HIV/STI transmission risk behaviour which they subsequently regretted[58]
- a small sample of men who sought out risky sex and felt that this was facilitated by the drugs they took[58]
- a quarter of participants frequently engaged in chemsex but felt in control of their actions and who were, for the most part, engaging in sex with very limited chance of HIV/STI transmission[58]

Contact with sexual health services and HIV testing

The majority of MSM in London are in regular contact with sexual health services and have had an HIV test; however, under half have been tested in the last year. The EMIS 2010 study reported that over 80% of men in London had had an HIV test at some point (82.7%), with almost half (47.3%) having received a test result in the past 12 months[47]. Similarly approximately 80% of men had attended for STI testing at some point, with just over half (55%) having been tested within the past year[47]. With respect to knowledge of sexual health services, 87% of men without a diagnosis of HIV were very confident in accessing HIV testing, with similar proportions aware of free HIV and STI testing[47].

HIV testing of MSM in sexual health clinics has increased in recent years and is higher than for heterosexuals. In London the number of MSM residents tested for HIV in sexual health clinics increased by 11% from 2012 (44,282) to 2013 (48,979)[8]. In 2013, the uptake of HIV tests among MSM residents who attended sexual health clinics was 96%, compared to 95% in 2012 (heterosexual men 87% in 2013)[8]. However, there is wide variation in uptake across different London clinics (Figure 19).

Figure 19: Proportion of MSM sexual health clinic attendees who accepted the offer of a HIV test by London clinic, 2013[8]



We lack good information about HIV testing of MSM outside sexual health services. Although HIV testing in primary care is rising in London[2], there has been patchy implementation of expanded HIV testing eg routinely testing new hospital admissions and primary care registrations[66].

HIV self-sampling is a recent successful innovation in improving HIV testing. Two national pilots, supported by PHE, have been successful, demonstrating the feasibility, acceptability and effectiveness of such services, especially for MSM[67]. The next step is to scale-up this model to provide a sustainable and widespread service.

The majority of MSM have been reached by HIV prevention programmes. Almost 40% of men had received information targeted at MSM about HIV and STIs within the last 7 days and further 23.1% within the last month[68]. Targeted HIV prevention programmes had reached 81%[47].

Current guidance and possible interventions

Testing and vaccination

Given evidence of on-going unsafe sexual behaviour and spread of STIs among MSM, encouraging STI screening and treatment is an important tool to help stem the continuing transmission seen in this group. This is particularly pertinent as, despite the trends, MSM appear to be accessing and engaging with sexual health services.

National guidance from 2008 recommends that MSM are tested for HIV annually or more frequently if clinical symptoms are suggestive of sero-conversion or on-going high risk exposure[69]. A recent national review of sexual health in MSM carried out by the Health Protection Agency supported this recommendation and advised the same for general STI testing[70]. The World Health Organisation (WHO) also supports periodic testing for asymptomatic *Chlamydia*, gonorrhoea and syphilis in MSM[71]. In MSM with HIV, syphilis has been specifically identified as a disease which requires testing for at each routine visit (3–6 monthly).

The 2001 National Strategy for Sexual Health and HIV recommended that all MSM should be offered hepatitis B vaccination at their first attendance at a sexual health clinic[33]. While not stated as a specific standard, the importance of hepatitis B vaccination in at-risk groups such as MSM has been upheld by the current framework for sexual health[72]. Hepatitis B vaccination of those people who frequently change sexual partners is recommended by PHE and Department of Health[73] and BASHH guidance recommends consideration of MSM for hepatitis B screening and vaccination[74]. Hepatitis A vaccination of MSM with multiple sexual partners[73] or those who live in large cities has also been recommended[74].

STI and HIV primary prevention

A modest amount of literature exists on the effectiveness of interventions to change sexual behaviour and reduce transmission of STIs in MSM. Most concentrate on HIV prevention.

The HIV Prevention Needs Assessment for London in 2013 included a summary of literature reviews on HIV prevention undertaken as part of the needs assessment in 2011 and 2013[75]. These reviews found the following evidence for MSM:

- 2013 review: limited evidence of effectiveness for motivational interventions, and evidence for education and health promotion, supportive approaches, media interventions and pre-exposure prophylaxis (PrEP)[75].

- 2011 review: group interventions, behavioural interventions (to reduce risky sexual behaviour), counselling and cognitive behavioural therapy (CBT) interventions, condom schemes (supported by grey literature only), testing (supported by NICE guidance), screening, interpersonal skills training, skills building (general), peer support[75].

Some studies support behavioural interventions as an effective tool to reduce unprotected anal intercourse. Results of a Cochrane review of behavioural interventions to reduce HIV transmission found evidence of effectiveness for behavioural interventions including individual counselling, social and behavioural support, group counselling and community-based interventions[76]. Improved outcomes in term of HIV risk reduction have been demonstrated in several studies which used peer advocates to deliver behavioural interventions[77, 78]. Other studies are limited in their findings of improved outcomes with cognitive behavioural and other individual behavioural interventions[79-81]. A recent systematic review found no evidence for motivational interviewing in improving HIV risk or a range of sexual behaviour outcomes in MSM[82].

Internet based interventions have been found to be effective in several studies[83-85]. These potentially low cost interventions warrant further evaluation given the extent of internet use in this group. WHO guidelines on reducing STI and HIV infection in MSM suggest that individual level, community based, internet based and sex venue-based outreach strategies should be used, while acknowledging the limitations of the available data[71].

It has been noted that the increase in sexual health risks in MSM is unlikely to be curbed by behavioural interventions alone. A study in Scotland found that peer education was effective in terms of the uptake of sexual health services, but not in achieving sexual behaviour change among MSM[86]. The predicament of high rates of STI transmission in a group where there is apparent engagement with services, confirms that behaviour change is difficult to incite in this population. More research is required on possible interventions and their effectiveness so that services can be planned and delivered accordingly; however in their absence early detection and treatment of HIV and other STIs is a priority. Training of staff in sexual health services on behavioural interventions, particularly with respect to recreational drug use, has been reported to be lacking in the UK by several sources[59, 65, 87]. These staff have been noted to be ideally placed to provide health promotion and harm minimisation advice to MSM due to the nature of their contact and the skills they possess[59].

Little information is available on venue-based interventions. In response to a hepatitis A outbreak and building on previous local audits of premises in Lambeth, the Play Zone partnership was formed to address minimum standards and a code of conduct for venues involved with sex-on-premises[61]. These standards encompassed venue safety (hygiene, lighting, cleaning), customer safety (provision of condoms, lubrication and sexual health promotion resources) and staff training. Although this scheme has now ceased, South East London Health Protection Team (SELHPT), in partnership with Guys and St Thomas' NHS Foundation Trust (GSTT) Sexual Health Promotion team (commissioned and funded by the

London Boroughs of Lambeth and Southwark) have developed the Healthy Gay Business Initiative (HGBI) which draws on the main elements of Play Zone. There is interest in incorporating the HGBI into local authority locality guidelines. Given the positioning of venues as places where risky sexual behaviours may occur as well as the potential for outbreaks to be related to these venues, it is important to involve them in prevention and promotion initiatives as well as supporting them in maintaining a healthier environment for personal and sexual health.

Conclusion

MSM in London are affected by particularly poor sexual health and this is worsening. While MSM are estimated to make up less than one in 50 of the London adult population, nearly one in five of all acute STIs diagnoses, half of new diagnoses of HIV and 8 out of 10 syphilis diagnoses in London are in MSM. Sustained and high levels of HIV transmission are seen and recent outbreaks of infections such as LGV and *Shigella* have been identified within the MSM community.

This reflects on-going risky sexual behaviour, including UAI, which is influenced by a range of complex individual and socio-cultural factors. Sero-adaptive behaviour is one such factor and the lack of condom use by HIV positive men means that they suffer particularly poor health from STIs. The lack of condom use in HIV negative men can additionally result in transmission of HIV as significant numbers of MSM with HIV do not know they are infected. Recreational drug use has evolved in recent years and in combination with easier ways of meeting casual sex partners through improved technology, this may result in increased risk taking sexual behaviour.

The worsening of sexual health of MSM is despite evidence that they are increasingly aware of and accessing services. Without good access to condoms, the burden of STIs and HIV could be much worse and it is important that access to these continues.

There is evidence of increasing rates of HIV testing. However, with on-going high levels of risky sexual behaviour and a significant proportion of undiagnosed HIV, HIV testing needs to be more frequent to reduce transmission. New opportunities such as home sampling are becoming available to facilitate this.

Further information on the effectiveness of interventions to address the needs of MSM is required. This will require narrowing the knowledge gap with respect to social and sexual networks and the extent of and drivers for risk-taking behaviours in this group.

A locally relevant approach, specific to the context of MSM in London, is necessary to provide prevention and health promotion initiatives which are effective for this group.

The factors behind the worsening of sexual health in MSM are complex and represent a challenge to tackle. Local commissioners and providers are advised to be responsive to this worsening situation, to take account of the needs of MSM and take measures to reverse their decline in sexual health.

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