**Illicit drug use in sexual settings (“Chemsex”) and HIV/STI transmission risk behaviour among gay men in South London: findings from a qualitative study**

Bourne A (PhD, BSc)1\*, Reid D (MSc, BA)1, Hickson F (PhD, BSc)1, Torres-Rueda S (MSc, BA)2, Weatherburn P (MSc, BA)1

1. Sigma Research, Department of Social & Environmental Health Research, London School of Hygiene & Tropical Medicine.
2. Department of Global Health and Development, London School of Hygiene & Tropical Medicine.

\* Corresponding author:

Adam Bourne

Sigma Research

London School of Hygiene & Tropical Medicine

15-17 Tavistock Place, London, WC1H 9SH

E: adam.bourne@lshtm.ac.uk

T: 020 7927 2793

**This is the final version of the paper submitted by the authors to the journal, Sexually Transmitted Infections for design and print production (June 16, 2015).**

**The final printed edition is available at**

[**http://sti.bmj.com/content/early/2015/07/09/sextrans-2015-052052.short**](http://sti.bmj.com/content/early/2015/07/09/sextrans-2015-052052.short)

*Sex Transm Infect doi:10.1136/sextrans-2015-052052*

**MeSH terms**: sexual behavior; illicit drugs; risk; HIV; qualitative research; London

**Word count** (Background to Conclusion): 3064

**ABSTRACT**

**Background**

“Chemsex” is a colloquial term used in the UK that describes sex under the influence of psychoactive substances (typically crystal methamphetamine, mephedrone and GHB/GBL). Recently, concern has been raised as to the impact of such behaviour on HIV/STI transmission risk behaviour, which this qualitative study aimed to explore via semi-structured interviews with gay men living in three South London boroughs.

**Methods**

Interviews were conducted with thirty community recruited gay men (age range 21-53) who lived in the boroughs of Lambeth, Southwark and Lewisham, and who had used either crystal methamphetamine, mephedrone or GHB/GBL either immediately before or during sex with another man during the previous 12 months. Data were subjected to a thematic analysis.

**Results**

Chemsex typically featured more partners and a longer duration than other forms of sex, and the relationship between drug use and HIV/STI transmission risk behaviour was varied. While some men believed that engaging in chemsex had unwittingly led them to take risks, others maintained strict personal rules about having safer sex. Among many participants with diagnosed HIV, there was little evidence that the use of drugs had significantly influenced their engagement in condomless anal intercourse (primarily with other men believed to be HIV positive) but their use had facilitated sex with more men and for longer.

**Conclusions**

Analysis revealed that, within this sample, chemsex is never less risky than sex without drugs, and is sometimes more so. Targeted clinic and community-based harm reduction and sexual health interventions are required to address the prevention needs of gay men combining psychoactive substances with sex.

**BACKGROUND**

Recent modelling suggests HIV incidence among men-who-have-sex-with-men (MSM) in the United Kingdom has persistently and gradually increased over the last decade, now being at the same level as its peak in the early 1980s.[1]Several factors have been proposed as facilitating the rise in HIV incidence, including the phenomenon colloquially known as “chemsex” (a contraction of “chemical sex”). Chemsex is the intentional combining of sex with the use of particular non-prescription drugs in order to facilitate or enhance the sexual encounter. It is distinct from sex on drugs that is coincidental (e.g., sex that occurs after drug use that was largely for a social or clubbing purposes).

Research in many countries suggests that MSM use stimulant drugs more commonly than non-MSM [2] and that MSM with diagnosed HIV are more likely to use them than men who are HIV negative or untested.[3] Between the late 1990s until at least 2007, the most commonly used illicit drugs in community samples of MSM were cannabis, amphetamine (‘speed’), methylenedioxymethamphetamine (MDMA, ‘ecstasy’) and cocaine.[4,5] However, over the last few years emerging clinic data [6,7], practitioner discourse [8,9] and popular gay media [10,11] suggest that methylmethcathinone (‘mephedrone’), gamma-Hydroxybutyric acid (‘GHB’, sometimes taken as the pro-drug gamma-Butyrolactone, or ’GBL’) and crystal methamphetamine have become more popular (see Table 1).

Like cocaine and ecstasy, these newer drugs can induce euphoria, increased energy and disinhibition. However they also have the crucial additional effect of stimulating and enhancing sexual arousal and aiding sexual stamina.

*Table 1. Drugs commonly associated with chemsex.* [Source: [www.talktofrank.com](http://www.talktofrank.com)]

|  |  |  |  |
| --- | --- | --- | --- |
| **Common name (Street names)** | **Means of delivery** | **Typical effects** | **Typical duration** |
| GHB/GBL(G, Gina, liquid ecstasy) | Swallowed in small liquid doses | Sedation and anaesthetisation: euphoria, disinhibition; drowsiness | Up to 7 hours  |
| Mephedrone (meow-meow, MCAT, plant food) | Snorted as a powder, injected or administered rectally  | Stimulation: euphoria, alertness, affection, confidence; anxiety, paranoia | About 1 hour |
| Crystal methamphetamine (Christine, Tina, T, crystal, ice, yaba) | Snorted as powder, smoked in glass pipe, or injected  | Stimulation: exhilaration, alertness, disinhibition; agitation, paranoia, confusion, aggression | 4 to 12 hours |

In the UK enhanced surveillance suggests that much of a *Shigella flexneri 3a* outbreak among MSM in London in 2012 was experienced by MSM engaging in chemsex [12]. The impact of illicit drugs (especially crystal methamphetamine) on sexual behaviour has been widely documented among MSM in North America and Australia. For example, studies of association have regularly found that men who use drugs (compared to men who do not) are less likely to use condoms when anal intercourse occurs [13,14], although other studies have not found this association [15] and the causality in this relationship has been difficult to establish. Less research has been conducted on the role of mephedrone and GHB/GBL use among this population. Internationally, qualitative investigations of MSM’s drug use have focussed on their role in the ‘circuit-party’ (large dance events frequented by gay men) and point to the instrumental use of drugs for sex [16] and the central role of the desires for pleasure [17] and ‘excess’.[18]

At the population level use of chemsex drugs by MSM is still low. The British Crime Survey 2013/14 indicated that, for example, only 1.0% of gay and bisexual men (defined by identity) had used methamphetamine in the last 12 months, although this figure was ten times higher than for other men.[19] Their use is also highly geographically focussed. Gay community surveying in 2010 indicated that 4.9% of gay and bisexual men in Lambeth, Southwark & Lewisham (LSL) had used methamphetamine within the previous 4 weeks, compared to 2.9% in the rest of London and 0.7% elsewhere in England.[20]

In response to concerns that chemsex is increasing sexual infection risk in South London [6, 8-11], our aim was to explore HIV/STI transmission risk behaviour during the intentional combining of sex with mephedrone, GHB/GBL and crystal methamphetamine.

**METHODS**

We undertook in-depth interviews with 30 MSM engaged in chemsex and living in the London Boroughs of Lambeth, Southwark and Lewisham (LSL). These boroughs have large MSM populations and a prevalence of diagnosed HIV in community surveys of approximately 20%.[21] Interviews were conducted by authors AB or DR (both male) who have combined qualitative interview experience of more than 30 years. The eligibility criteria were: male; over 18 years of age; living in LSL; has combined homosexual behaviour with either crystal methamphetamine, mephedrone or GHB/GBL during the previous 12 months. We choose 12 months based on the recency of drug use among men from LSL in our 2010 community survey which suggested a wide range of frequency of use.

We recruited and interviewed 30 eligible participants between August 2014 and February 2014. In total, 44 men initially registered interest, of whom 9 were ineligible to participate given that they were not resident in LSL, and a further 5 did not respond to follow-up emails to arrange a time for interview.

All participants self-identified as gay. The mean age was 36 years (range 21-53). Thirteen were living with diagnosed HIV and 17 had last tested HIV negative. Sixteen identified as White British, 11 as other White groups and 3 were from visible ethnic minorities. Drug taking histories varied greatly: some had been using drugs since early adulthood; others had only very recently started taking drugs, or had started doing so in a sexual context. Polydrug use – the use of two or more drugs within the same session - was very common, making it hard for men to distinguish the effects of individual drugs.

Participants were recruited through paid advertising (gay-scene magazine and geo-social networking application), community based organisation referrals, and distribution of promotional cards in gay-scene venues. All materials directed potential participants to a webpage containing a project description and an invitation to contact the lead researcher.

Private interviews, lasting between 1 and 2 hours, were conducted in participants’ homes or at the researchers’ offices. Following discussion of study aims and provision of informed consent, interviews elicited men’s history of drug use, their sex lives, the impact of drugs on their recent sexual behaviour, and their perceptions and/or experiences of harm and of accessing support in relation to their drug use. Interviews were digitally recorded, transcribed verbatim and thematically analysed.[22] The data were read and and initial codes were documented, organised into relevant themes and all examples of each potential theme were recorded. Identification of key themes was undertaken by one author and corroborated by two others. Typical quotes were identified to illustrate themes (shown below in *italics*, with participant’s age and HIV testing history).

The research was approved by the Research Ethics Committee of the London School of Hygiene & Tropical Medicine.

**RESULTS**

We begin by describing the broad impact of GHB/GBL, mephedrone and crystal methamphetamine on the sexual lives of the men we interviewed, including how they often facilitated sexual arousal and men’s ability to have sex with a higher number of partners. Following this are two themes (‘Sero-sorting in the context of chemsex’ and ‘Unintentional sexual risk behaviour’) that explore the role men felt these drugs played in their sexual behaviour as it relates to the risk of HIV/STI exposure and transmission. The final theme (‘Maintaining safer sex’) briefly explores the experience of those men who felt in control of their drug use and who consistently engaged in sex with limited chance of HIV or other STI transmission.

**Facilitating sexual arousal and partner acquisition**

All participants recalled intense sexual arousal while under the influence of drugs, especially crystal methamphetamine. While a few described using drugs only with regular, long-term partners, most engaged in chemsex with casual partners met via geo-social networking apps or in sex-on-premises venues. Group sex was commonplace, typically occurring within private homes. Participants commonly reported how drugs enhanced sexual arousal and performance.

*“It just makes you feel horny. I can’t put it into words. It’s just that everything feels more intense. You feel sluttier. You feel you want to fuck loads of people.”* [Aged 40, last tested HIV negative]

A few, who reported problems controlling their drug use, described chemsex ‘marathons’ over several days, for example starting at a chemsex house party, transitioning to a sauna, contact with a partner met online, then participation in a further sex party. As well as facilitating men’s ability to have a higher number of sexual partners than if they were not on drugs, sexual activity over this protracted length of time often resulted in rectal trauma or penile abrasions.

**Sero-sorting in the context of chemsex**

Sero-sorting is the practice of choosing sexual acts based on beliefs about one’s own and one’s partner’s HIV status, in particular among HIV positive men.[23] Among the 13 participants with diagnosed HIV, eight had made a conscious decision not to use condoms when engaging in chemsex, provided their sexual partners were also thought to be HIV positive. Typically, this decision related to a preference for sex without condoms, valuing greater physical sensation, coupled with a desire not to be a source of onward infection. While some were very clear to establish HIV sero-concordancy through explicit disclosure online or face-to-face prior to sex, others relied on cues in their environment or made assumptions about a man’s positive HIV status based on their appearance (e.g., tattoos and piercings) or stated sexual preferences (e.g. for anal intercourse without condoms).

When asked to reflect on other STIs, a small number stated that they were simply unconcerned by the prospect of other infections.

*“I am being absolutely open and honest and this may sounds cold and calculated […] but they [STIs other than HIV] are all manageable. You take the pills, you have an injection. You’re going to be sick if it’s something like Shigella, but you’re always going to come through it.”* [Aged 33, diagnosed HIV positive]

This was not a dominant position, and most men with HIV who sero-sorted had some concern about other STIs, particularly hepatitis C. However, this did not always translate into protective action, for example, while fisting (ano-brachial intercourse) was common place – especially in combination with crystal methamphetamine use - few men took precautions to reduce the risk of hepatitis C transmission, such as by using latex gloves.

Broadly speaking, drug use appeared to play a small role in determining whether interviewees with diagnosed HIV engaged in anal intercourse or whether a condom was used. Most had made a decision, at a point in time when they were not under the influence of drugs, not to use condoms with other men they believed to have HIV. However, their chemsex lasted longer and involved more partners than their non-chemsex, thus increasing the likelihood they acquire and transmit STIs.

**Unintentional sexual risk behaviour**

In contrast to the participants with diagnosed HIV described above, around a third of participants described multiple instances of unintended sexual risk behaviour that they directly attributed to drug use. Such men typically sought to use condoms all, or most, of the time but frequently experienced situations where drugs adversely affected their capacity to perceive or respond to risks in their environment. Some men appeared to describe drugs as having myopic properties, in that they focus attention on the here-and-now and alter the ability to perceive the wider consequences of actions.

*“I caught hepatitis B and it really taught me a lesson at the time not to do unsafe sex, but it just happens again. I guess also you reach a stage, maybe at night, where you care a little bit less […] It’s probably the state of mind that the drugs put you in. You don’t think about any of that. The consequences.”* [Aged 28, last test negative]

A particular concern expressed by men who commonly used crystal methamphetamine was that it triggered such intense sexual arousal that they could only focus on immediate sexual gratification, removing the ability to attend to broader health or safety issues. Several men described a clear transition from someone who was very risk aware and sexually cautious to one who engaged in risky sex they later regretted. Sometimes these were isolated incidents, but others found themselves frequently engaging in risky sex and had struggled to find a route out of it.

*“For me it [crystal methamphetamine] was very overpowering and it increased my sex drive. It made me actually want to explore myself and have sex and with no regard or responsibility in terms of using condoms and who I was having sex with and how rough it was or how long it went on for.”* [Aged 24, last tested HIV negative]

When condomless anal intercourse with a casual partner had occurred, HIV negative men sometimes accounted for their actions by pointing out that they were less likely to acquire HIV because they were the insertive partner, or emphasised that they were not in receipt of ejaculate, or expressed their belief that even if their sexual partner had HIV he was likely to have an undetectable viral load. Whether reasoned choices or post-hoc rationalisations (and our method is unable to distinguish them), these thoughts may explain why seeking post-exposure prophylaxis (PEP) was rare following experiences of objectively risky sex.

**Maintaining safer sex**

Chemsex does not necessarily equate to risky sexual behaviour, illustrated by the quarter of our sample who, despite their use of multiple illicit drugs, had maintained strict personal rules about condom use with casual partners. There were no outstanding patterns that distinguished this group of men from those that did engage in condomless anal intercourse (whether pre-meditated or otherwise), although it is noteworthy that none were injecting drug users.

Men in this group described a greater sense of psychological well-being by using condoms, secure in the knowledge that they were unlikely to contract or transmit STIs. This was the case both for men with diagnosed HIV and those whose last HIV test was negative and was the case when using drugs during sex and not doing so. Such men were aware that many others on the chemsex scene did not use condoms, but were not willing to endorse this behaviour themselves.

*“He said, ‘Listen, you can’t fuck me with that dick because it’s got a condom on it.’ […] And I said, ‘I’m always going to wear this condom, no matter what.”* [Aged 31, last tested HIV negative]

**DISCUSSION**

This paper reports findings from a qualitative study of 30 gay-identified MSM living in an Inner South London. The findings illustrate a range of relationships between chemsex and HIV/STI risk and illustrates the ways in which use of these relatively new psychoactive substances can influence sexual behaviour.

A large proportion of participants with diagnosed HIV tried to ensure they had chemsex only with other HIV positive men. Where such sero-sorting is challenged by drug-related cognitive incapacity, or assumptions of sero-status, the potential for HIV transmission arises. Some men whose last HIV test was negative described encounters where they did not use condoms because of the myopic effects of the drugs they had used. In high HIV prevalence networks such behaviour clearly places them at high risk. Conversely, around a quarter of participants felt in control of their drug use and maintained strict personal rules about sexual risk management. This demonstrates that drug use during sex need not be inherently problematic and that, with adequate support and harm reduction information, other men engaged in chemsex might be empowered to adopt more precautionary measures. Beyond HIV, these data indicate that chemsex could play a role in the transmission of other STIs. A high turnover of sexual partners, coupled with potential for penile abrasions or rectal trauma resulting from intense sexual activity, provides opportunity for transmission of STIs.

Although more common in particular areas of the country, chemsex drugs are used by MSM across Britain [24] and our findings have some transferability. Men were only recruited for this study from three South London Boroughs (a relatively confined geographical area) but, given the rapid transit of gay men across the city and the immediacy of smartphone sexual networking applications, it is likely that these findings may reflect the needs of men residing in other parts of London and in other large cities – especially those with larger gay male populations where the drugs of choice are similar to those explored in this study. On the other hand, the large and dense population of MSM in South London, coupled with a large, commercial gay scene may present men with different opportunities and challenges than will a smaller and more diffusely populated network.

Even if the proportion of MSM engaging in chemsex nationally is relatively small, the high likelihood of HIV/STI risks makes them a priority target for interventions, especially those men experiencing control problems. Health interventions focussed on drug use typically include prevention of uptake, harm reduction for those who continue to use and treatment for those who wish to stop. Traditional drugs services, with their expertise in managing opiate use among predominantly heterosexual populations, might not be appropriately skilled to address the needs of homosexually active men and the specific sexual nature of their drug use. Ensuring the range of drug-related interventions benefit MSM requires a balance of inclusion in general population interventions (e.g., drug counselling that is sexual orientation competent) as well as targeted and tailored interventions specifically for sexual minorities (e.g., an LGBT drugs-counselling service).

Best practice guidelines for chemsex harm reduction interventions are in their infancy. Examples of dedicated LGBT community-based drug services exist [2] and further research is needed to better understand their strengths and weaknesses. In areas where culturally competent drug-services are unavailable, sexual health and HIV care services might provide an ideal setting for drug harm reduction interventions, especially given that illicit drug use has been associated with poor HIV medication adherence. [25] Sexual health and HIV care providers are in an ideal position to provide support or refer to drugs services. It is crucial that such staff are suitably trained and resourced to engage with the complex needs of men who find their chemsex problematic.

**CONCLUSION**

Chemsex affects HIV/STI transmission among MSM through association with more partners and longer sexual duration, as well as reduced condom use. While not necessarily carrying more risk than other sex, chemsex was never less risky and was sometimes more so. While it is likely that the overall proportion of MSM who are experiencing harm from chemsex is relatively low, findings from this qualitative study indicate a need for targeted sexual health and drug harm reduction interventions which is not solely focussed on condom use.

**KEY MESSAGES**

* Psychoactive substances such as mephedrone, GHB/GBL and crystal methamphetamine can trigger feelings of sexual arousal, increase the longevity of sex and facilitate a higher number of sexual partners.
* Although some gay men engaging in chemsex unwittingly engage in HIV transmission risk behaviour, others carefully manage their drug use and exposure to sexual harm.
* Chemsex facilitates ideal conditions in which the transmission of STIs other than HIV can occur, although the exact contribution to incidence it still to be determined.

**ACKNOWLEDGEMENTS**

We wish to acknowledge the support of all those organisations and venues who helped to recruit participants for the study, and those who kindly hosted interviews. Thanks to Paul Steinberg of Lambeth Council for ensuring the commissioning of this study, and to the 30 men who gave up their time to share their experiences.

**COMPETING INTERESTS**

The authors confirm that they have no competing interests.

**FUNDING**

This research was commissioned and funded by the London Boroughs of Lambeth, Southwark & Lewisham.

**CONTRIBUTIONS**

AB designed and led the study and prepared the first draft of the manuscript. DR conducted interviews, while he, STR, FH and PW contributed to primary data analysis. FH and AB revised the manuscript. All authors commented on and approved the final version of this paper.

**REFERENCES**

1. Phillips AN, Cambiano V, Nakagawa F, et al. Increased HIV incidence in men who have sex with men despite high levels of ART-induced viral suppression: analysis of an extensively documented epidemic. *PLoS One* 2013;8(2):e55312, doi:10.1371/journal.pone.0055312.

2. Bourne A. Drug use among men who have sex with men: Implications for harm reduction. In: Stoicescu C, ed. *Global State of Harm Reduction 2012.* London: Harm Reduction International, 2012:147-55.

3. The EMIS Network. *The European Men-Who-Have-Sex-With-Men Internet Survey. Findings from 38 countries.* Stockholm: European Centre for Disease Prevention and Control, 2013.

4. Keogh P, Reid D, Bourne A, et al. *Wasted opportunities: problematic alcohol and drug use among gay men and bisexual men*. London: Sigma Research, 2009.

5. Weatherburn P, Stephens M, Reid D, et al. *Vital Statistics: Findings from the National Gay Men's Sex Survey, 1999.* London: Sigma Research, 2000.

6. Stuart D. Sexualised drug use by MSM: background, current status and response. *J Assoc Nurses AIDS Care* 2013;13(1):6-10.

7. Daskalopoulou M, Rodger A, Phillips AN, et al. Recreational drug use, polydrug use, and sexual behaviour in HIV-positive men who have sex with men in the UK: results from the cross-sectional ASTRA Study. *Lancet HIV* 2014; 2014, doi:10.1016/S2352-3018(14)70001-3.

8. Channel 4 News. Meth: causing a ‘health nightmare’ in London? <https://www.youtube.com/watch?v=tr5wjVUqYsw>: Aired 30th January 2014.

9. Daly M. The Meth-Fuelled, Wee-Long Orgies Ravaging London’s Gay Sex Party Scene. *Vice* 2013. Retreived from: <http://www.vice.com/en_uk/read/the-week-long-meth-fuelled-sex-parties-taking-over-londons-gay-scene>, on 16th February 2015.

10. Marsh J. Sex, drugs and gay identity. *QX Magazine* 2012. Retrieved from: <http://www.qxmagazine.com/feature/drugs-sex-gay-identity/>, on 16th February 2015.

11. Hopkins A. Chem Sex Revealed: Part One. *Beige Magazine* 2014. Retrieved from: <http://www.beigeuk.com/2014/02/chem-sex-revealed-part-one/>, on 16th February 2015.

12. Gilbart V, Simms I, Jenkins C, et al. Sex, drugs and smart phone applications: findings from semistructured interviews with men who have sex with men diagnosed with *Shigella flexneri* 3a in England and Wales. *Sex Transm Infect doi:10.1136/sextrans-2015-052014*

13. Bolding G, Hart G, Sherr L, et al. Use of crystal methamphetamine among gay men in London. *Addiction* 2006;101(11):1622-30.

14. Forrest DW, Metsch LR, LaLota M, et al. Crystal methamphetamine use and sexual risk behaviors among HIV-positive and HIV-negative men who have sex with men in South Florida. *Bull N Y Acad Med* 2010;87(3):480-5, doi:10.1007/s11524-009-9422-z.

15. Prestage G, Fogarty AS, Rawstorne P, et al. Use of illicit drugs among gay men living with HIV in Sydney. *AIDS* 2007;21 Suppl 1:S49-55, doi:10.1097/01.aids.0000255085.77470.bd.

16. O'Byrne P, Holmes D. Desire, drug use and unsafe sex: a qualitative examination of gay men who attend gay circuit parties. *Cult Health Sex* 2011:13(1):1-13, doi:10.1080/13691058.2010.510610.

17. [Hurley M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hurley%20M%5BAuthor%5D&cauthor=true&cauthor_uid=19499392), [Prestage G](http://www.ncbi.nlm.nih.gov/pubmed/?term=Prestage%20G%5BAuthor%5D&cauthor=true&cauthor_uid=19499392). Intensive sex partying amongst gay men in Sydney. [*Cult Health Sex*](http://www.ncbi.nlm.nih.gov/pubmed/19499392)2009;11(6):597-610, doi:10.1080/13691050902721853.

18. Gaissad L (2013) Expending Ourselves at “La Démence”? Gay Party Circuit from Consumption to Consummation. *Ethnologie française* 2013;43:409-416.

19. National Statistics UK. Illicit drug use among adults by ethnicity and sexual orientation: Drug misuse 2013 to 2014. Table Sex\_Pref\_3. Available at [www.gov.uk/government/statistics/tables-for-drug-misuse-findings-from-the-2013-to-2014-csew](http://www.gov.uk/government/statistics/tables-for-drug-misuse-findings-from-the-2013-to-2014-csew). Accessed 6th May 2015.

20. Bourne A, Reid D, Hickson F, et al. *The Chemsex study: drug use in sexual settings among gay and bisexual men in Lambeth, Southwark and Lewisham.* London: Sigma Research, London School of Hygiene & Tropical Medicine, 2014.

21. Yin Z, Brown AE, Hughes G, et al. *HIV in the United Kingdom 2014 Report: data to end 2013.* London: Public Health England, 2014.

22. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3:77-101

23. Suarez TP, Kelly JA, Pinkerton SD, et al. Influence of a partner's HIV serostatus, use of highly active antiretroviral therapy, and viral load on perceptions of sexual risk behavior in a community sample of men who have sex with men. *J Acquir Immune Defic Syndr* 2001;28(5):471-7

24. **Bonell** **C, Hickson F, Weatherburn P et al.** Methamphetamine use among gay men across the UK. [*Int J Drug Policy*](http://www.sciencedirect.com/science/journal/09553959) 2010;21(3):244-246, doi:10.1016/j.drugpo.2009.07.002.

25. [Hinkin CH](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hinkin%20CH%5BAuthor%5D&cauthor=true&cauthor_uid=16897351), [Barclay TR](http://www.ncbi.nlm.nih.gov/pubmed/?term=Barclay%20TR%5BAuthor%5D&cauthor=true&cauthor_uid=16897351), [Castellon SA](http://www.ncbi.nlm.nih.gov/pubmed/?term=Castellon%20SA%5BAuthor%5D&cauthor=true&cauthor_uid=16897351) et al. Drug use and medication adherence among HIV-1 infected individuals. [*AIDS and Behaviour*](http://www.ncbi.nlm.nih.gov/pubmed/16897351) 2007;*11(2):*185-94.