

# MAKING IT COUNT

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A collaborative planning framework to minimise the incidence of HIV infection during sex between men

4th edition  
March 2011

# ACKNOWLEDGEMENTS

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# THE CHAPS PARTNERSHIP

CHAPS is an England-wide, collaborative programme of HIV health promotion for men who have sex with men (MSM), delivered in conjunction with an integrated evaluation and development programme. It is funded by the Department of Health and co-ordinated by Terrence Higgins Trust. The programme consists of national interventions intended to benefit MSM in all areas of England.

The programme includes interventions targeted at men who may have sex (including national media interventions) and interventions targeted at others who may influence men who have sex (such as the sexual health workforce). Providers develop these interventions within a collaborative partnership of HIV health promoters, known as the CHAPS Partnership.

CHAPS has been co-ordinated and led by Terrence Higgins Trust since November 1996. Since April 2010 the Partnership has included the following agencies:

## National Partners

**Terrence Higgins Trust**  
**GMFA**  
**NAM**

## Regional Partners

<b>Yorkshire MESMAC</b>	Yorkshire & Humber
<b>Lesbian &amp; Gay Foundation</b>	North West
<b>Healthy Gay Life</b>	West Midlands
<b>Terrence Higgins Trust Midlands</b>	West Midlands
<b>Trade</b>	East Midlands
<b>Terrence Higgins Trust East</b>	East of England
<b>The Metro Centre</b>	London
<b>Terrence Higgins Trust London</b>	London
<b>Terrence Higgins Trust South</b>	South East Coast
<b>Terrence Higgins Trust Thames</b>	South Central
<b>The Eddystone Trust</b>	South West
<b>Terrence Higgins Trust West</b>	South West

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**London School of Hygiene & Tropical Medicine**



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# SUMMARY OF STRATEGIC STATEMENTS AND INTERVENTION AIMS

*This section brings together the strategic statements made throughout the document that describe the directions we are working towards, along with the specified aims for interventions based on knowledge, opportunities/resources and skills in the following chapters.*

## STRATEGIC GOALS, AIMS AND OBJECTIVES

**Strategic Research Goal:** We will stimulate and/or carry out research that increases our understanding of the relative and especially attributable risks associated with each of the factors contributing to HIV incidence among men who have sex with men (MSM) in England.

**Strategic Programme Goal:** For men who have sex with men (MSM) to more frequently choose precaution across a range of 10 specified choices than is currently the case.

*Population Target #1:* Reduce the average length of time between HIV infection and HIV diagnosis in men who become infected.

*Population Target #2:* Increase the proportion of MSM with diagnosed HIV who are on fully suppressive anti-retroviral therapy.

*Population Target #3:* Reduce the average number of sexual partners between STI screens.

*Population Target #4:* Reduce the frequency with which men have unprotected anal intercourse without knowing whether or not they and their partner are HIV sero-concordant.

*Population Target #5:* Increase the length of time since having an extra-relational sex partner, among men with a regular male sex partner.

*Population Target #6:* Decrease the proportion of sexual sessions between men that feature anal intercourse.

*Population Target #7:* Increase the proportion of anal intercourse events that feature condoms from the beginning of intercourse.

*Population Target #8:* Reduce the frequency with which ejaculation occurs into a mouth or rectum without a condom.

*Population Target #9:* Reduce the frequency with which men use poppers during receptive anal intercourse.

**Strategic Aim:** We will increase the motivation and power that enable men to make precautionary choices.

**Strategic Objective 1:** We will investigate which consequences of remaining HIV uninfected, of acquiring HIV, of not passing HIV and of passing HIV on, that are of value to gay and bisexual men, and we will act to increase their awareness of those consequences of value and their probability of occurring; as well as acting to make those consequences actually more likely.

**Strategic Objective 2:** We will investigate whose opinions gay and bisexual men care about (that is, who their liked significant others are), and act to encourage those people to express positive attitudes towards remaining uninfected and not passing HIV on, and towards precautionary choices for doing so.

**Strategic Objective 3:** We will investigate and respond to those unmet needs for knowledge, opportunities, skills and resources which enable us to remain HIV uninfected and/or to keep HIV to ourselves.

## AIMS FOR KNOWLEDGE BASED INTERVENTIONS

### The human immune deficiency virus

- HIV is a virus that can infect humans.
- HIV is an incurable infection, once someone has it they cannot get rid of it.
- HIV infection can cause a disease where the body is unable to defend itself against infections.
- HIV infection can increase the likelihood of cancers and cardio-vascular diseases.
- HIV infection is a stigmatised disease and people diagnosed with it are sometimes shunned and blamed for their illness.
- In 2009 about 35,000 gay and bisexual men were living with HIV in the UK and about 2,500 are diagnosed with the infection each year.
- HIV is now a treatable medical condition.
- The majority of people who have been diagnosed with the virus remain fit and well on treatment.
- The long-term effects of both HIV and anti-HIV drugs can be debilitating.
- Although drugs can prevent most people with HIV from dying, about 200 gay and bisexual men die from HIV infection each year in the UK.
- The longer HIV goes undiagnosed and untreated the more likely a person is to die of HIV disease.

### The HIV test

- Medical tests exist which can determine whether we are infected with HIV or not.
- HIV infection has a 'window period' where very recent infection may not be detected – the length of this period varies by the type of test used.
- The most modern HIV tests (called 4th generation assay tests) can detect infections from 12 days following exposure, however such tests may not be available at our local service.
- We can ask for a free and confidential test at our local sexual health clinic and other services providing HIV tests.

- HIV tests usually use a blood sample (from a vein or a finger prick) and sometimes a saliva sample.
- Some tests can provide results within minutes and some testing services can provide results at the same visit.
- Some clinics still need to send samples away to be tested but rapid HIV testing clinics can offer results at the same visit as giving the blood sample.
- A test result applies only to the person taking the test and not to any of their sexual partners.
- A negative test result (if the window period has passed) means we are almost certainly not infected with HIV, but does not mean we are immune, even if we know we have been exposed to HIV – subsequent risk taking will mean we can no longer rely on a negative result.
- A positive HIV test result means we are infected with HIV.
- Having HIV infection does not depend on whether that infection is diagnosed or not: if we have the virus it does not go away if we ignore it.
- Men with undiagnosed HIV may pass their virus to others unawares.

### (Un)diagnosed infection

- If we acquire HIV, having it diagnosed means we may benefit from health monitoring, medical treatment and support services that would be unavailable if our infection remained undiagnosed.
- Late diagnosis is the most important factor associated with HIV-related illness and death in the UK.
- About a quarter of gay and bisexual men with HIV in the UK do not know they are infected and the average length of time men spend with undiagnosed infection is about four years.

### Sero-conversion illness

- People can experience symptoms when they acquire HIV that can then pass despite people remaining HIV infected.
- Many people who acquire HIV experience flu-like symptoms in the first few weeks after infection that then pass.



- Common symptoms of seroconversion are fever, rash and sore throat occurring together.
- A fever, rash and sore throat occurring together after recent sexual risk are warning signs of having picked up HIV.

### Viral load and infectivity

- Only people with HIV infection can pass the infection to others.
- An HIV positive man with a detectable viral load is able to pass the infection to his sexual partners.
- An undetectable plasma viral load may mean an HIV positive man is unable to pass HIV infection if he stays free of other STIs.
- HIV plasma viral load tests do not necessarily reflect seminal viral load.
- HIV plasma viral load alone cannot be used as a guide to infectiousness.
- If an HIV infected man engages in unprotected anal intercourse and acquires a penile infection which increases seminal viral load, he may be highly infectious.

### Other sexually transmitted infections

- As well as HIV, six other STIs can be fatal (syphilis, hepatitis B and hepatitis C can kill; human papillomavirus, herpes (HPV) can cause cancers which kill; chlamydia and gonorrhoea can cause pelvic inflammatory disease (PID) in women which can kill)
- As well as HIV, three other STIs are incurable (human papillomavirus (HPV), herpes and hepatitis B).
- Some STIs can increase the likelihood of HIV infected people transmitting the virus during sexual encounters.
- Some STIs can increase the likelihood of people being infected with HIV during sexual encounters.

### HIV treatment

- HIV treatment slows the spread of HIV in the body, prevents illnesses and prolongs life; by taking HIV treatment doctors believe that people with HIV can lead a more or less normal lifespan.
- Untreated HIV infection can lead to a wide range of health complications.

- The goal of HIV treatment is undetectable viral load.
- HIV plasma viral load tests do not necessarily reflect seminal viral load: HIV plasma viral load alone cannot be used as a guide to sexual infectiousness.
- Current treatments include fewer pills and less severe side effects than in the 1990s.
- For HIV treatment to be effective it needs to be taken at the right time and in the right way 95% of the time.
- HIV drugs can cause side-effects; many of these are manageable.
- Having an undetectable viral load reduces the risk of sexual transmission to sexual partners if sexual exposure to an uninfected person occurs.
- Fully virally suppressive anti-retroviral therapy reduces but does not eliminate the risk of transmission.
- Virally suppressive treatment may have a similar effectiveness to consistent condom use.
- Sexually transmitted infections can increase seminal viral load; if an HIV infected man engages in unprotected anal intercourse and acquires a penile infection which increases seminal viral load, he may be highly infectious.

### Sexual partner change

- The more people we have sex with the more likely we are to pick up sexually transmitted infections.
- The more people we have sex with between STI screens the more likely we are to pick up and pass on an STI.
- The more sex partners we have the more likely we are to be sexually assaulted.

### Telling our partners about our infections

- We can be prosecuted for passing any serious STI we are aware of to a sexual partner who does not know about our infection.
- There are both HIV-uninfected and HIV-infected homosexually active men in all areas of England and in every country in the world.
- A man's appearance, age, ethnic group, life experience and behaviour are neither accurate nor reliable ways of telling whether he is infected with HIV or not.

- People can have HIV without experiencing any symptoms.
- We cannot tell if someone has HIV or not by looking at them.
- Some men believe their HIV status to be other than it actually is: many men who have HIV have not yet been diagnosed and still believe themselves to be HIV uninfected.
- Some men who do know their HIV/STI status will engage in sexual intercourse without disclosing their HIV status, irrespective of any legal sanction.

### Monogamy and open-relationships

- Couples in sexually open relationships increase their STI risks by sharing the risks with each other.
- Many male couples choose and succeed in having monogamous relationships.
- If neither partner in a monogamous relationship has HIV, they cannot pass it to each other whatever their sexual practices.
- Relationships agreed to be monogamous are not always monogamous – some men cheat on their partners.
- Couples who agree to limit unprotected intercourse to each other do not always stick to that agreement.

### Anal intercourse

- HIV is carried in semen, pre-seminal fluid, anal mucus and blood.
- A body fluid from an infected person must enter the body of an uninfected person for infection to occur.
- Receiving the ejaculate of a man with HIV into the rectum is by far the most common and easiest method of acquiring HIV infection.
- HIV can and is also being acquired during receptive anal intercourse without ejaculation, and during insertive anal intercourse.
- Condoms are not 100% effective.
- Anal intercourse (with or without a condom) carries a greater risk of HIV and STI transmission than sex without anal intercourse.

- The more men we engage in intercourse with, the more likely it is that we will be involved in HIV transmission.
- HIV is very unlikely to be passed between partners who avoid anal intercourse and other STIs are also less likely to be passed on.
- Many gay men choose to **not** include anal intercourse with many of their sexual partners, or in many of their sexual sessions with the same partner.

### Condoms and lubricant

- If anal intercourse occurs, there are health and hygiene benefits to using condoms **whatever the HIV status of the partners.**
- If anal intercourse occurs, proper condom use greatly reduces the chances of HIV/STIs being transmitted if one or other partner is infected.
- Putting a condom on the penis before and throughout anal intercourse greatly reduces the chances HIV will be passed.
- The use of a condom also reduces the likelihood of infection with HIV, gonorrhoea, NSU, syphilis and herpes if they have intercourse with someone who is infected.
- Condoms can break or slip off but are much less likely to do so if used correctly.
- Condoms come in different shapes and sizes so some will be more comfortable than others and be less likely to fail.
- Water or silicon based lube will greatly reduce breakage by lubricating the condom – latex condoms rot very quickly and break if exposed to oil present in some lubricant.
- Condoms also come in non-latex varieties that can safely be used with oil based lubricant.
- Incorrect use of condoms increases the rate at which they fail.
- Wearing two condoms (one on top of the other) increases the likelihood they will tear.
- Putting lubricant inside the condom (or on the penis) before putting the condom on increases the likelihood it will slip off during intercourse.

- Condoms are more likely to fail if they are used for an extended period of intercourse – using a fresh condom every 30 minutes will reduce the chance of failure.

### Ejaculation

- HIV is primarily carried in semen.
- HIV is also carried in pre-cum – ejaculation into the rectum or mouth is not necessary for transmission to occur.
- Infections primarily carried by body fluids are more likely to be transmitted if ejaculation into the body occurs.
- Withdrawal before ejaculation is less likely to result in HIV/STI transmission than ejaculation into the body.
- Many men find it difficult to interrupt intercourse (or fellatio) as they are approaching orgasm and an intention to withdraw is often not carried through.

### Poppers

- Poppers cause our blood vessels to expand, our blood pressure to drop and our heart to race.
- Poppers use doubles the risk of HIV being transmitted if an HIV uninfected man has receptive unprotected anal intercourse with an HIV infected man.
- Infections can still be passed in the absence of poppers use.

### Post-Exposure Prophylaxis

- Taking anti-HIV drugs within 72 hours of exposure to HIV can very greatly reduce the chances we get HIV: these drugs are called Post-Exposure Prophylaxis (PEP).
- The sooner PEP is taken after exposure the better, and they must start within 72 hours of exposure.
- PEP must be taken for a month afterwards for them to work.
- Our local Accident & Emergency and clinical sexual health services should be able to provide PEP, in practice this might be difficult especially at weekends.
- PEP should be prescribed by a doctor – sharing a positive person's HIV medication is unlikely to work and may cause harm.
- The sooner PEP is taken, the more likely it is to prevent infection.

## AIMS FOR OPPORTUNITY AND RESOURCE BASED INTERVENTIONS

### All risk reduction choices

- Physical autonomy (not being physically forced).
- Economic power.
- Control over sex (including through negotiation beforehand).
- Control over our alcohol and drug use.
- Opportunities for psycho-social change.
- Access to information about HIV, its transmission and prevention.

### STI / HIV testing

- Access to a trusted HIV/STI testing service and to current treatments for infections that are diagnosed.
- The time to attend when the HIV/STI service is open.
- Freedom to choose to test for HIV/STIs (not being prevented from testing).

### HIV treatments

- Access to free NHS care.
- Social support.

### Declining, deferring, dating

- Physical autonomy (not being sexually assaulted).
- Being able to afford to say no to sex (not being financially exploited).
- Access to social alternatives to drink, drugs and sex.
- Not thinking we are expected to have sex.

### Sharing knowledge of infections

- Ability to raise and respond to discussion of HIV/STIs and safer sex.
- Ability to judge the 'best moment' to bring up HIV and safer sex with a partner.
- Freedom from fear of violence for sharing our HIV/STI status.

### Negotiating relationships

- A partner who has a positive attitude toward sexual exclusivity.

- An ability to establish trust with a regular sexual partner.
- An ability to negotiate sexual exclusivity and contingencies should it be broken.

### Non-penetrative sex or intercourse

- A location to have sex
- Physical autonomy (not being forced).

### Using condoms

- Access to appropriate condoms and water-based lubricant.

### Poppers

(No opportunities or resources needed to avoid poppers were identified)

### Using PEP

- Safe access to PEP assessment and prescription.
- Social and emotional support to adhere to PEP drugs for a month if prescribed.

## AIMS FOR SKILLS BASED INTERVENTIONS

### All risk reduction choices

- Sexual negotiation skills.
- Being equipped and competent to negotiate sex.
- The ability to anticipate risk and to own our reactions to it.
- Ability to balance own desires with expectations of others.
- The interpersonal skills to negotiate sex.
- A sense of social inclusion (not alienation)
- Self-esteem.
- Feeling happy with our sexuality.
- Ability to envisage a future for ourselves and a means to achieve it.
- Ability to recognise our sexual behaviour to be a problem if it repeatedly involves risks later regretted.
- The self-confidence to negotiate sex.
- Feeling like we're not worth caring for. [REDUCE]
- Feeling our sexuality is a problem to us. [REDUCE]
- Seeing no future for ourselves. [REDUCE]

- Feeling our sexual behaviour is a problem (although our sexual behaviour is not a problem to our sexual partners). [REDUCE]

### STI / HIV testing

- Confidence to access an STI/HIV testing service.

### HIV treatment

- Ability to adhere to daily medication.
- Ability to communicate effectively with clinicians.

### Declining, deferring, dating

- Ability to decline sexual contact, either verbally or non-verbally.

### Sharing information

- Assertiveness and interpersonal skills.
- Ability to disclose our own HIV status to sexual partners.
- Ability to respond sensitively and respectfully to disclosure of HIV status by partners.

### Relationships

- Interpersonal negotiation skills.
- Conflict resolution skills.

### Non-penetrative sex

- Sexual competence (knowing how to have non-penetrative sex).

### Condoms

- Skills to use condoms and lubricant correctly.

### Ejaculation

- Ability to interrupt anal intercourse before the insertive partner ejaculates.

### Poppers

(no additional skills to those above)

### PEP

- Feeling able to access a PEP assessment and prescribing service.
- Feeling able to approach sexual health clinical services and can talk honestly about our sexual behaviour with clinic staff.

# 1 INTRODUCTION AND OVERVIEW

*This chapter describes the scope of the framework, who it is intended for and for what purpose. It describes the group of agencies who have developed it and outlines the principles on which the framework is based and the way in which it was developed.*

## 1.1 PURPOSE OF THIS DOCUMENT

*Making it Count* is the collaborative planning framework of the CHAPS Partnership. It is a joint statement of the CHAPS Partnership and is supported by all partners. It has emerged from the collective understanding and endeavour of a group of well established organisations serving men who have sex with men (and men who might like to have sex with men).

### KEY CONCEPT: BENEFITS DRIVEN CHANGE

We believe it is possible for the population of MSM to experience *both* an improvement in their sex lives and a reduction in the harm arising from their sex lives.

This is both an ethical position and an effective practical approach. By focussing on the benefits of sexual precautions we engage with what is of value to people – the only route to both effective and ethical change.

Benefits driven change focuses on the up-side of precaution rather than the down-side of risk. We plan to minimise sexual risks by maximising the benefits of the precautionary alternatives and by making those alternatives available.

The CHAPS partners are committed to reducing the harm associated with HIV infection by minimising HIV transmissions during sex between men. However, the presence of HIV is insufficient reason to justify using ‘any means necessary’ when intervening in the lives of MSM. Since the purpose of activities is to improve the quality of life for MSM, it does not make sense to reduce HIV infection through means that reduce that quality of life. The aim of this document is to minimise the harm associated with sex between men while maximising its benefits.

The framework is specifically focussed on HIV transmission during sex between men in England and sees this harm within the context of other harms and benefits associated with sex. It describes what the CHAPS partners are willing to do to minimise the number of future infections. In doing so, the document systematically describes our understanding of the epidemic, its causes, and our rationale and justification for intervening. This includes stating what we think is the case with regard to MSM and HIV and also what we believe to be common misconceptions about MSM and HIV.

The framework outlines our short, medium and long-term aspirations, which provide a description of the outcomes we are pursuing. It is intended to increase the transparency of our interventions, their intentions, development, implementation and evaluation.

The primary intended users of this document are the CHAPS partners themselves. It has several purposes:

### For planning our interventions

- to focus and clarify the purpose of our interventions with men who have sex with men;
- to provide a common vocabulary for collaborative HIV health promotion actions, the people they are intended to influence and the differences they are intended to make;
- to aid the description of interventions and to make planning decisions more transparent;
- to delineate the range of interventions the CHAPS partners find acceptable, including the methods, needs and risk/precaution behaviours they address.

### For training our volunteers and staff

- as an aid to staff and volunteer induction and training within our organisations, and to briefing members of the press, students, and others working in the HIV epidemic;
- to help us locate our work within the bigger picture of sexual health promotion;

- to use as a tool for social change at the corporate level in our organisations.

### For marketing and evaluating our services

- as a set of agreed parameters for planning that can be included in service level agreements between CHAPS partners and their commissioners, and to support funding applications;
- as a set of programme policies that can be used to kick-start programmes or support exiting programmes;
- outlining the range of methods, needs, risk/precaution behaviours and health outcomes examined in evaluations of our work with MSM.

### For inspiring us

- to inspire collective action among the CHAPS partners and between the CHAPS partners and others working in HIV health promotion.

## 1.2 PRINCIPLES

We are committed to the best sexual health for all MSM in England, across the diversities of sexual identity, HIV status, class and income, age, ethnicity, gender history, faith and disability. We aim to promote the quality of emotional and sexual lives for men both living with and without HIV. We are committed to tackling the disproportionate sexual ill-health borne by black MSM and poorer and less well-educated MSM.

We believe all men have the right to express and enjoy their sexuality. We affirm, value and accept love and sex between men. We insist that all men should be able to express their sexuality free from force, manipulation and coercion. We are therefore committed to increasing sexual self-determination.

We seek to be honest and accurate in our actions. Our benchmark for HIV education and sex education is based on the best scientific evidence. We will not mislead or misrepresent what we know to be the case in order to encourage men to behave in certain ways.

We seek to educate MSM about sex and the law, and how to stay within it. We recognise that, although

significant advances in equality have been made, HIV and homosexuality are still widely stigmatised both in this country and around the world. Stigma negatively impacts on MSM and all people with HIV through a variety of mechanisms. We seek to counter stigma and to eliminate the discrimination that arises from it in all our communities, as well as in public policy and practice.

We seek to work in partnership with the MSM we serve, with the communities they live within and with other organisations, services and funders.

## 1.3 PROCESS OF DEVELOPMENT

We, the agencies who developed this framework, have many years' experience working with MSM and a robust understanding of the lives of MSM. In addition we have drawn on research in the UK and internationally. This research covers the context of men's sexual lives, the social and behavioural context in which transmission is occurring, the nature of HIV precaution needs and the extent to which they are met, and the performance of a range of interventions to meet unmet needs.

The framework has been developed in stages building on the first three editions of *Making it Count*. We stated very broadly what we believed to be the case about HIV prevention and MSM. We then progressively expanded this statement, ensuring we were still in agreement with what was stated at each stage. The theoretical basis for the framework incorporates social marketing into our existing health promotion framework.

We have drawn on a number of formal theories and a wide range of sources of knowledge to plan our response to HIV. The framework links together a number of theories, including: the theory that the disease syndrome AIDS is caused by the virus HIV; the theory that HIV is being transmitted during sex between men; that sexual mixing and sexual behaviours are influenced by knowledge, will and power; and the theory that knowledge, will and power can be influenced through health promotion and other interventions. Our approach is therefore simultaneously focussed on health outcomes, behaviours, needs and interventions.



## 1.4 OVERVIEW OF WHAT WE ARE TRYING TO ACHIEVE (SEE FIGURE 1.4)

Figure 1.4 provides an overview of the strategy. We are focussed simultaneously on health outcomes, risk and precaution behaviours, prevention needs and programme delivery. Focussing only on the behavioural outcomes of our interventions is insufficient as there are interventions which may bring about the desired behaviours but through unacceptable means.

The actions of the CHAPS partners are represented in box A. In order to act, the CHAPS partners have a number of needs, such as motivation, resources and skills.

The CHAPS partners are only one group of actors impacting on the HIV related needs of MSM. There are also our allies (who positively contribute to meeting needs) and our adversaries (whose actions undermine the meeting of prevention needs).

We will engage in two types of interventions (or actions) – those which directly influence the needs of MSM (direct contact interventions) and those which influence our own needs, the needs of our allies and of our adversaries (facilitation, workforce development and policy advocacy), who in turn act on the needs of MSM. Chapter 5 describes the range of interventions we will engage in. In the first instance then we seek to deliver:

- programmes of interventions which are feasible, within budget, accessible, needed, acceptable, effective and efficient.

Our interventions with MSM are focussed on sexual HIV prevention needs and HIV/STI testing needs. We recognise that economic, social and cultural factors influence the sexual and treatment choices available to MSM, as well as their personal characteristics and resources. We will therefore also work to influence the context in which men live and the choices available to them.

By delivering a range of interventions we intend to work toward:

- a population of MSM who are sufficiently knowledgeable, aware, empowered and equipped to best manage their sex lives with maximum benefit

and minimum harm, including access to HIV/STI diagnostic and treatment interventions.

We recognise that sex between men has value and that different men place different values on different sexual lifestyles and behaviours. We also recognise that sex carries some risk of harm and that the level of risk varies with different sexual lifestyles and behaviours. These harms include but are not limited to HIV transmission.

We recognise that achieving the above situation will not result in *no* risk behaviours occurring but we believe it will result in fewer risk behaviours than if men were ignorant, unaware, dis-empowered and lacking resources. Chapter 4 describes the range of prevention needs (including testing needs) we are attempting to meet. We will act to increase men's motivation and ability to *manage* HIV risks. All men have the potential to be experts in their own lives, including making choices about sex, treatment, utility and risk. We do not seek to control men or make their choices for them. Instead we seek to inform and empower men to make the best choices for themselves and their sexual partners.

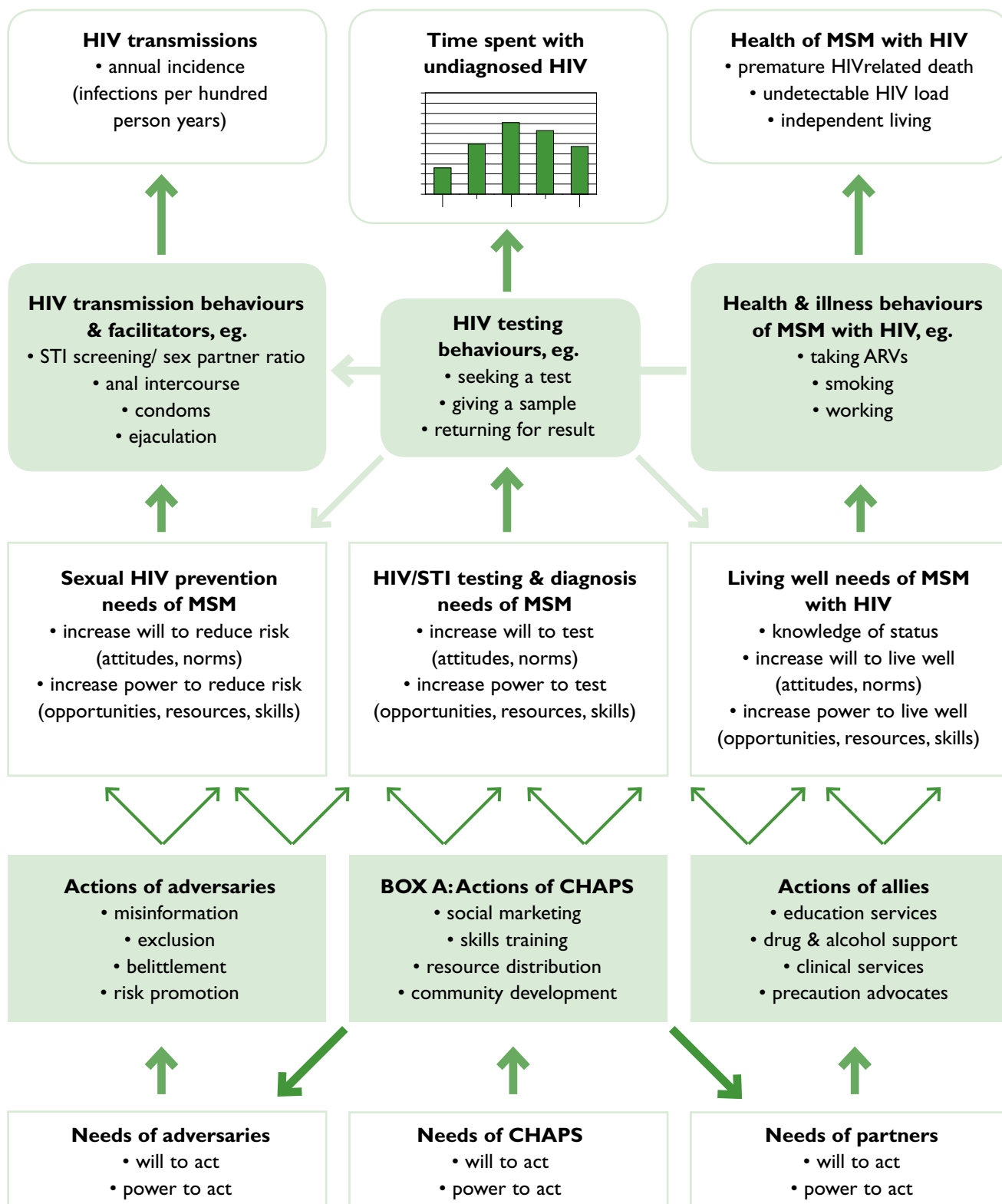
By ensuring men have their HIV/STI prevention needs met, we seek to ensure that men are able to:

- minimise the number of sexual HIV exposures (fewest sero-discordant sexual sessions which feature anal intercourse not protected by condoms), with the least infected fluid transfer (least amount of ejaculation in the body), fewer transmission facilitators (concurrent sexually transmitted infections, nitrite inhalant use) and maximum transmission impediments (optimum HIV treatment and post-exposure prophylaxis); *and*
- shorten the period of time between infection and diagnosis among MSM acquiring HIV.

These are not the only determinants of HIV incidence but are those causes of new infections that we are trying to influence. What we know about their current contribution to incidence is described in Chapter 3, where other determinants of incidence are also outlined.

Together, minimising these behavioural and biological factors will contribute to:

Figure 1.4 The CHAPS Programme Overview (see Section 1.4)





- a minimisation of homosexually acquired HIV infection.

Chapter 2 describes what we think the current state of the epidemic is among MSM in England. We also expect the changes described above to contribute to an improvement in the overall health and well-being of MSM both with and without HIV. To positively effect both the incidence of HIV and the well-being of MSM means recognising that different men prefer different kinds of sex, and that one risk reduction solution will not suit all men. It would be possible to attempt to eradicate all the harm associated with sex between men by eradicating all sex between men. But this would also eradicate the value of sex and is therefore, from our perspective, counter-productive.

## 1.5 THE MEANING OF SUCCESS

We have a clear focus on our shared goal of minimising HIV transmissions during sex between men.

We are also clear about which behaviours cause transmission and which behaviours make transmission more or less likely. While we have a clear focus on behaviours, we do not decide how men should reduce their risk of involvement in HIV transmission and do not seek to impose a singular behavioural choice on the diverse population of MSM. For some men in some situations this may be best achieved by avoiding or declining sex. For others it may be by screening for HIV/STIs with a prospective partner before having sex and avoiding sex until any infections are treated or suppressed. For other men or at other times transmission risk may be best reduced by engaging in non-penetrative sex, or by using condoms. If uninfected men do engage in receptive anal intercourse without condoms with men they are not confident are also uninfected, they may best reduce the probability of transmission by avoiding ejaculation in the body, by not concurrently using nitrite inhalants, or/and by seeking post-exposure prophylaxis.

We are focussed on the behavioural causes of HIV transmission. However, it is not acceptable to facilitate behavioural change by unacceptable means, such as disseminating misleading or incorrect information, withholding resources or infringing civil liberties. We

therefore also have a clear focus on the *needs* associated with reducing risk behaviours and increasing precautionary behaviours. This means ensuring that risk behaviours are reduced and precautionary behaviours increased through increasing accurate knowledge, fostering practical skills, distributing relevant resources and creating opportunities for precautionary choices.

We do not see a conflict between our desire for fewer HIV infections *and* a desire for greater sexual self-determination in the population of MSM. In fact we see the latter as the only ethical approach to the former. We maintain that our acting to increase the choices available to men and increasing their motivation and ability to make precautionary choices will result in fewer new infections than if we did not act. This is the meaning of success for our work.

## 1.6 POLICY CONTEXT

In national prevention responses to HIV, UNAIDS guidelines encourage us to:

- know our epidemic;
- match and prioritise our response;
- set ambitious, realistic and measurable prevention targets;
- tailor our prevention plans;
- analyse and use strategic information.

In global terms, the HIV epidemic in England is a 'concentrated scenario' where HIV prevalence is high in identifiable sub-populations (such as men who have sex with men, injecting drug users, migrants from African countries with a high prevalence or sex workers and their clients) but where HIV is not being passed on with significant frequency within the general population<sup>1</sup>. This framework is a contribution towards all five of the above objectives.

This framework also continues to be wholly in accord with the *National Strategy for Sexual Health and HIV* and its review<sup>2</sup>. The review concluded that greater attention to MSM is needed. As they apply to MSM, the actions identified as being required consist of the following, all of which the current framework is congruent with:

HEALTH	✓ the well-being of MSM with HIV;
BEHAVIOUR	✓ swifter diagnoses of HIV/STI;
NEEDS	<ul style="list-style-type: none"> <li>✓ the knowledge and skills (ie. motivation and power) to stay healthy and to improve sexual health (ie. have better sex with less harm) at all life stages;</li> <li>✓ access to testing and treatment for HIV/STI;</li> <li>✓ freedom from stigma associated with HIV/STI;</li> </ul>
INTERVENTIONS	<ul style="list-style-type: none"> <li>✓ HIV testing in a wide range of settings;</li> <li>✓ Sex &amp; Relationships Education that integrates same sex relationships;</li> <li>✓ lifelong learning programmes in community based organisations;</li> <li>✓ regular information/motivation campaigns in the public sphere;</li> <li>✓ living well with HIV self-management programmes;</li> </ul>
POLICY	✓ local investment in prevention programmes for MSM, including MSM with HIV;
PRIORITY GROUP	✓ younger MSM.

The approach to influencing behaviour adopted in this framework continues to be one of education, awareness raising, opportunity and empowerment. In addition, this edition of *Making it Count* assimilates key elements of the social marketing approach. We have created an original and innovative model which melds the best parts of health promotion and social marketing to point the way forward for HIV health promotion that respects individuals' choices and is also clear about what the desirable changes are in the population. This has been achieved by recognising and maintaining the distinction between the population and the individuals within it. For example, a desire to reduce the average number of sexual partners between STI/HIV screenings should not translate into telling individuals (alone or *en masse*) to have fewer sex partners. Social marketing is an important part of the armoury in the translation between epidemiological imperatives in the population and the lived experience of gay men, bisexual men and other men who have sex with men in England today.

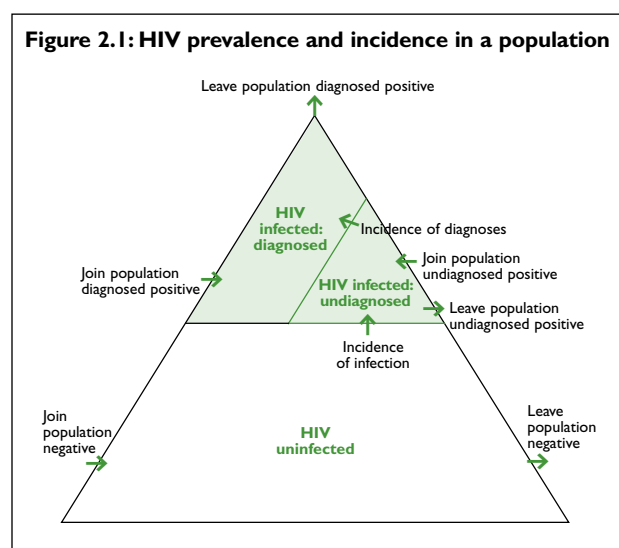
The CHAPS Programme is funded by the Department of Health and is subject to the constitution of the NHS. This constitution enshrines a number of rights among those entitled to NHS services. *Making it Count* encourages all HIV health promotion funded through the NHS to contribute to the strategic objectives of the NHS to be preventative, people-centred and productive<sup>3</sup>.

# HIV AMONG MSM IN ENGLAND

*This chapter describes our current picture of the HIV epidemic among MSM in the UK, including the number of men living with diagnosed and undiagnosed HIV infection, and the rate at which men are joining and leaving this population.*

## 2.1 THE PARAMETERS OF THE CHALLENGE

Figure 2.1 below illustrates HIV prevalence and HIV incidence in a population, here MSM in England. The large triangle represents men in England who have sex with men. Men are joining and leaving this population all the time as they become homosexually active, finish their sex life with men (through choice, circumstance or death) and as they enter and leave the country.



The large inner triangle at the top represents those MSM who have HIV infection (and the remaining rhomboid below are those who are uninfected). The smaller triangle to the right are those MSM with HIV who have not yet had it diagnosed.

Men join the HIV infected MSM population when uninfected MSM acquire HIV (incidence, shown by the arrow from uninfected to undiagnosed infected) and when MSM with HIV move into the country (these men with diagnosed HIV are retested and reported as a case

new to the UK and are shown as joining the undiagnosed group in the first instance).

Men move from the undiagnosed infected MSM group to the diagnosed infected MSM group by being diagnosed (shown by the arrow).

Men can only leave the diagnosed infected MSM group by stopping having sex with men, dying or leaving the country.

The number of MSM living with HIV in the UK has only ever increased. This is because the rate at which MSM have become infected with HIV has always been greater than the rate at which MSM with HIV have died.

The figure concerns HIV transmission during sex between men. MSM who are also injecting drug users (IDU) have a much higher incidence of HIV infection than MSM who are not IDU. On acquiring HIV MSM-IDU also have a worst prognosis. MSM-IDU are a relatively small group very disproportionately suffering harm from HIV.

## 2.2 MEN WHO WILL HAVE SEX WITH A MAN

Our population of concern is men who have sex man, currently and in the future. At mid-2007 there were 20,170,000 men aged 16 and over normally resident in England<sup>4</sup>. The number in the UK was 24,021,600. In NSSAL2 (whose fieldwork took place in 2000) the proportion of men aged 16-44 who had genital contact with another man in the last five years was 2.8% (95% confidence range 2.3–3.3%)<sup>5</sup>. This figure is likely to be an under-estimate of the true figure due to under-reporting but because this figure relates to men aged 16-44, it is likely to be lower for all adult males as sexual activity declines with age. In the absence of further data to estimate the size of these errors, we take this figure of 2.8% as being the proportion of adult males who are homosexually active. This suggests there are 564,760 (463,910–665,610) MSM in England and 672,605 (552,499–792,713) MSM in the UK.

## 2.3 PREVALENCE OF HIV AMONG MSM

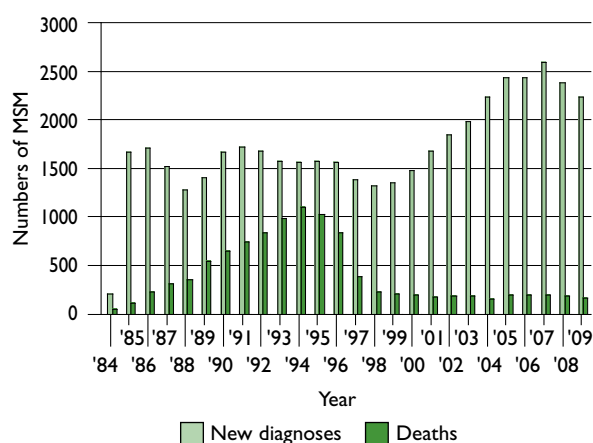
The Health Protection Agency estimated there to be 35,070 (32,420–39,130) MSM living with HIV infection in the UK in 2009 (including both diagnosed and undiagnosed)<sup>6</sup>. This suggests that the overall prevalence of HIV infection among MSM in the UK in 2009 was 5.2% (4.1–7.1%).

In 2009 between 16% and 40% of MSM with HIV (6,440–13,020 men) had not yet been diagnosed<sup>6</sup>. This suggests the prevalence of undiagnosed infection was in the range 0.8%–2.1%. However, residual syphilis blood samples from MSM attending sentinel GUM clinics across the UK during 2009 measured 2.4% of MSM having previously undiagnosed HIV infection<sup>7</sup>. Since clinic attendance is associated with sexual risk taking the prevalence of HIV is much higher among men attending sexual health clinics than among men not attending.

The prevalence of HIV among MSM varies by age, geography, ethnicity and social class. Although approximately half of MSM with HIV in the UK live in London, prevalence rises over the last few years have been proportionately greater outside London.

## 2.4 DEATHS WITH HIV

**Figure 2.4: HIV diagnoses and deaths among MSM in England.**



Source: Personal communication from Meaghan Kall (HPA) to Ford Hickson (Sigma Research), 2.9.10.

Figure 2.4 shows the number of MSM with HIV who have died each year in England. The rising tide of deaths was severely curtailed by the introduction of anti-HIV therapy in the mid-1990s. However, around 200 MSM still die each year with HIV across the UK<sup>8</sup>. The majority of these deaths occur because men were diagnosed too late for treatment to be effective<sup>9</sup>. Reducing late diagnoses is therefore a potentially major route for increasing the health of men with HIV.

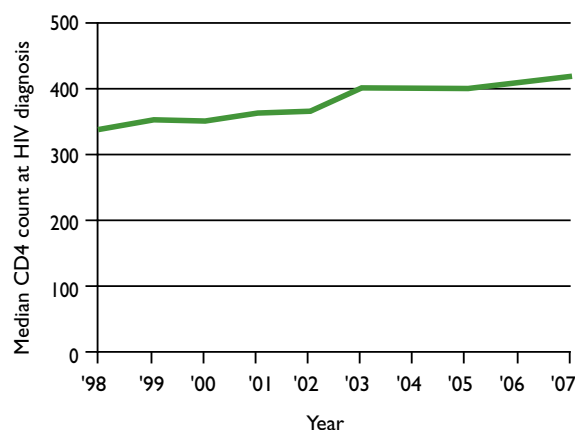
## 2.5 DIAGNOSES OF HIV

Figure 2.4 also shows the number of new HIV diagnoses made in England each year among MSM. Since 2003 there has remained substantial and undiminished levels of newly diagnosed HIV (and other STIs) in MSM. The pattern of declining HIV diagnoses in MSM in the late 1990s followed by a consistent increase has been seen across Western Europe, North America and Australia<sup>10</sup>.

Across the UK in 2009 there were 1,497 MSM diagnosed with HIV acquired in the UK, a further 314 MSM diagnosed with HIV acquired abroad (including MSM who moved to the UK with HIV), and 660 MSM diagnosed with HIV whose country of acquisition was not determined, making a total of 2,471 men joining the diagnosed positive population that year<sup>11</sup>.

## 2.6 LENGTH OF TIME SPENT UNDIAGNOSED

**Figure 2.6: Median CD4 count at HIV diagnosis among UK MSM, 1998–2007.**



Source: HPA, CD4 Slideset 2008/1.

It is important to distinguish these diagnosis events from the infection events that preceded them. All men who acquire HIV spend some time with undiagnosed infection before being diagnosed. The profile of this length of time is poorly understood. However, counts of CD4 cells in the blood can be used as a marker for this length of time. The longer people have untreated HIV, the lower their CD4 cell count falls. So a higher CD4 count suggests a shorter period of time with HIV.

The Health Protection Agency collate CD4 count data at diagnoses of HIV. The average (median) CD4 count among MSM in the UK has been rising for some years (Figure 2.6). Correspondingly, the proportion of MSM diagnosed with HIV who have a CD4 count below 200 (the definition of 'late' diagnosis) has been falling and the proportion that are of recent infection has been rising<sup>12</sup>. This suggests that the average length of time spent undiagnosed has been getting shorter. Among MSM diagnosed with HIV in the UK in 2006 (the most recent year for which an estimate was made) the median length of time spent living with HIV before diagnosis was estimated at 4.7 years<sup>13</sup>.

The Recent Infection Testing Algorithm (RITA), which can distinguish recently acquired infection (within the last six months) from longer standing infections, suggest around 20% of MSM diagnosed with HIV in 2008 were within the first six months of their infection<sup>14</sup>. Ideally, this figure should be 100%, that is, all men who acquire HIV being diagnosed very promptly.

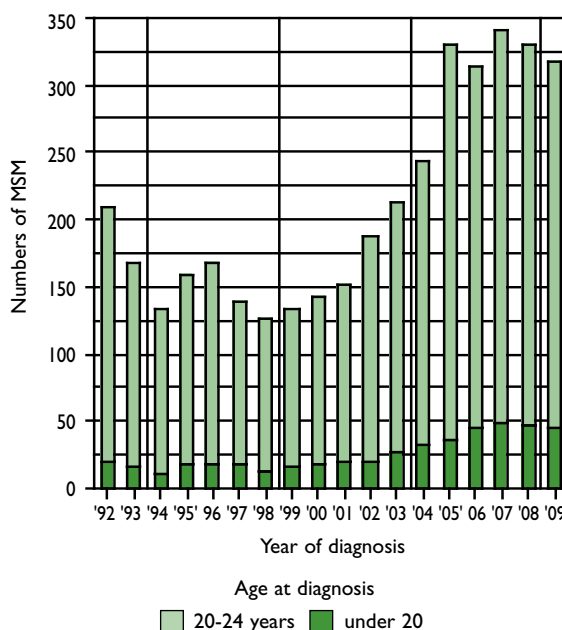
## 2.7 HIV INCIDENCE

It is problematic to use changes in the rate of diagnoses as an indicator of change in HIV incidence as it is also influenced by changes in the length of time between infection and diagnosis. Recent years have seen a large increase in the number of HIV tests being taken by MSM, as well as the proportion of MSM who test.

Serological testing of men attending GUM clinics with previously undiagnosed HIV infection is able to distinguish recent from longer standing infections. In 2007 a survey estimated HIV incidence *among MSM clinic attenders* to be in the range 1.0% to 3.4%<sup>15</sup>.

The large increase in HIV diagnoses over the past ten years is in part the result of changes in HIV testing policy and practices<sup>16</sup>. This effect is unsustainable as the

**Figure 2.7: Number of UK diagnoses in under 25 year olds of homosexually acquired HIV.**



Source: Health Protection Agency. United Kingdom new HIV diagnoses to end of June 2010. No.1: 2010.

undiagnosed population is diminished and the average length of time spent undiagnosed is reduced. The increase in diagnoses may also be a result of increase in HIV incidence, but the contribution of these two factors to the overall increase in diagnoses is unclear. If the former is the predominant explanation, then diagnoses should soon start dropping. In June 2010 the Health Protection Agency's adjusted figure for the number of diagnoses in 2009 (2,760 men) was slightly lower than that for 2008 (2,780 men), which was lower than that for 2007 (2,950)<sup>8</sup>. It may be that the rate of new HIV diagnoses has stopped rising.

On the other hand, although there is no direct evidence of significant change in HIV incidence among all MSM in the UK since 2003 (when MiC3 was published), the increase in diagnoses has also occurred among men under the age of 25 and among men under the age of 20 (see Figure 2.7). These are much more likely to be recent infections.

The lack of direct evidence for an increase in incidence may be a reflection of the lack of a sufficiently powerful system for measuring it. This may change in the near future with the introduction of RITA (see 2.6 above) which was planned to reach national coverage by the end of 2010<sup>14</sup>.

# SEXUAL RISK AND PRECAUTIONARY BEHAVIOURS

*For HIV transmission to occur between individuals, a number of specific behavioural and biological conditions must be met. These are the primary causes of HIV transmission. The combination of these conditions result in HIV incidence in the population. The relative contributions of various primary causes vary among different populations across the globe. This chapter describes the conditions we think are contributing to new infections among MSM in the UK.*

*We acknowledge that there is a limited consensus about several of the issues raised in this chapter. The purpose of laying down the arguments is to better understand them and to encourage investigations in order to provide a firmer evidence base for our theorising.*

## 3.1 RISKS AND PRECAUTIONS

### THREE KEY SEXUAL ACTS

The three acts referred to throughout this chapter are called Act 1, Act 2 and Act 3.

**Act 1** is when an **HIV infected man is INSERTIVE in anal** intercourse with an HIV uninfected man.

**Act 2** is when an **HIV infected man is RECEPTIVE in anal** intercourse with an HIV uninfected man.

**Act 3** is when an **HIV infected man is insertive in ORAL** intercourse with an HIV uninfected man.

For HIV to be transmitted during sex between men, a man with infectious HIV and a susceptible man without HIV need to perform a sexual act which allows the transfer of virus or viral particles from the infected to the uninfected man.

The number of new infections is the outcome of many different factors working together. Our current theory of the causes of HIV incidence includes the following:

*The profile of infectivity among MSM with HIV*

- the number of men with HIV infection (both diagnosed and undiagnosed);
- the profile of viral load in the body fluids (semen, anal mucus, blood) of the infected population, which is influenced by:
  - the proportion of infected men on successful viral suppressive treatment and
  - the proportion with an STI co-infection, which are both influenced by:
    - frequency of HIV/STI testing;

*Sexual mixing and sexual behaviours*

- the frequency of sex between HIV infected men and HIV uninfected men, which is influenced by;
  - the rate of new sexual partner acquisition and;
  - the extent of concurrent regular sexual partnerships (over-lapping or open relationships).
- the proportion of those sexual sessions that feature:
  - anal intercourse with the infected partner insertive (Act 1);
  - anal intercourse with the uninfected partner insertive (Act 2);
  - oral intercourse with the infected partner insertive (Act 3);
    - the proportion of those risk acts that feature condoms and the extent of condom failure when they are used;
  - the volume of body fluid transferred during risk acts and condom failure events, specifically semen during Act 1 and Act 3 and anal mucus during Act 2;

### The profile of susceptibility among MSM without HIV

- the proportion of uninfected men using nitrite inhalants during Act 1;
- the proportion of uninfected men who have a foreskin during Act 2;
- rectal trauma in the uninfected partner prior or during Act 1, and rectal trauma in the infected partner prior to or during Act 2.
- the prevalence of other STIs in both partners, specifically:
  - the proportion of uninfected men who have a rectal STI during Act 1;
  - the proportion of uninfected men who have a genital STI (or a history of genital STI) during Act 2;
  - the proportion of uninfected men who have an pharyngeal STI during Act 3; all of which are influenced by:
    - frequency of STI testing;
- the proportion of uninfected men who take PEP following exposure.

Not all of these factors are equally important to HIV incidence. The attributable risk each factor contributes to incidence is the proportion of infections that would not occur if the factor were not present. It need not be the case that factors with a higher relative risk also make a larger contribution to attributable risk. For example, a co-factor that had a high absolute risk but which is very uncommon in the population may contribute less to new infections than a factor with a smaller relative risk but which is very commonly done or present. There is very little data about the attributable risk associated with different factors contributing to the HIV epidemic. This is a major impediment to programme planning.

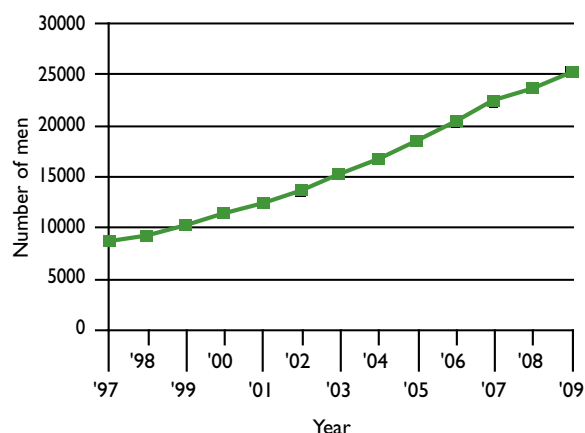
**Strategic Research Goal:** We will stimulate and/or carry out research that increases our understanding of the relative and especially attributable risks associated with each of the factors contributing to HIV incidence among men who have sex with men (MSM) in England.

We now consider the evidence for the contribution of each of these factors, and the potential for them to be population level targets for HIV health promotion programmes.

## 3.2 NUMBER OF SEXUALLY ACTIVE MSM WITH HIV

HIV comes from people with HIV, so the number of people living with HIV is related to the number of new infections occurring. To date the number of MSM living with HIV in England has only ever gone up (see Figure). Since the only way for the number of men with HIV to go down is through them dying or leaving the country, we are not attempting to reduce the number of men living with HIV by removing HIV infected men from the population.

**Figure 3.2: Number of MSM with diagnosed HIV cared for in England.**



Source: SOPHID, Health Protection Agency. Personal communication from Alison Brown to Ford Hickson, 17.8.10.

The number of men with **diagnosed HIV** has continually increased since the first diagnoses were made in the early 1980s. Figure 3.2 shows how the number of MSM living in England with *diagnosed* HIV has increased each year, having more than doubled in the last ten years.

The number of men with **undiagnosed** HIV at any point in time may also have increased, even though the proportion of all infections that are diagnosed has slowly risen.



Anti-HIV therapy has meant that men with HIV live healthier lives than previously. Healthier lives can include more sex, so it is likely that men with diagnosed HIV have sex with uninfected men on average more often now than was occurring before combination therapy was introduced around 1995. This may mean more casual sero-discordant sexual sessions and more sexual sessions between men in sero-discordant relationships.

The majority of men who acquire HIV do so after having tested HIV negative at least once and the majority of men with undiagnosed HIV still believe themselves to be HIV uninfected<sup>17</sup>.

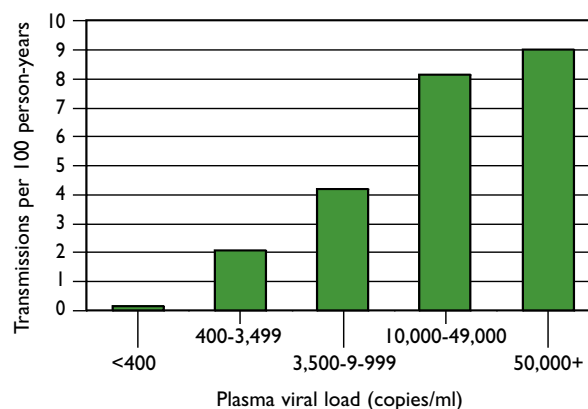
The average length of time spent undiagnosed influences the length of time men go without HIV treatments, which influences both their infectivity (see below) and their future health. All other things being equal, more men with HIV means more new HIV infections.

### 3.3 INFECTIOUSNESS OF MSM WITH HIV – THE PROFILE OF VIRAL LOAD

The probability of transmission occurring during homosexual HIV exposure is a function of the amount of virus that is passed from the infected to the uninfected partner. The amount of virus transferred is a function of both the amount of body fluid passed and the concentration of virus in that fluid. If the amount of body fluid is held constant then the probability of transmission is a function of the concentration of virus (or of viral particles) in the body fluid being passed from the partner with HIV<sup>18</sup>. When HIV-infected men have anal intercourse or insertive oral intercourse with HIV-uninfected men, those with higher viral load will be more likely to pass on HIV if they do not use a condom or if the condom fails.

Viral load is a measure of the amount of virus in a body fluid, usually expressed in RNA copies per millilitre of fluid on a logarithmic scale. The specific body fluid involved in sexual HIV transmission varies by the type of sexual act. During Act 1 (anal intercourse with the infected partner insertive) and Act 3 (oral intercourse with the infected partner insertive) it is pre-ejaculatory fluid and semen. During Act 2 (anal intercourse with the uninfected partner insertive) it is anal mucus and rectal blood. The viral load in these four body fluids can vary

Figure 3.3: Increased viral load results in increased infectivity.



Source: Ref 19

within the same person at any point in time and across time. Viral load in each fluid varies with disease stage (how long someone has had the virus), anti-retroviral treatment and other infections.

More viral particles (that is, a higher viral load) results in greater infectiousness. In HIV sero-discordant vaginal intercourse, viral load is the most important predictor of transmission. Figure 3.3 illustrates the relationship between viral load and infectivity in vaginal intercourse. The data come from heterosexual couples of mixed HIV status with no treatment<sup>19</sup>. Viral load in the HIV positive partners was measured on a 'log-scale' then grouped into six groups. The rate at which the positive partners passed their infections to their HIV uninfected partners is shown up the left hand side in infections per hundred person years. Each log increment in plasma viral load is associated with a increase in transmission rate ratio of 2.45 (95 percent confidence interval, 1.85 to 3.26)<sup>20</sup>. All other things being equal, higher viral load in the HIV infected population means more new HIV infections.

There is disagreement over the risk associated with a very low viral load (on the far left of the figure)<sup>21</sup>. A body fluid with very little virus in it may require an unfeasibly large amount of body fluid to be passed to cause infection. Men with very little virus in their body fluids may not be infectious. This has led some HIV specialists to state that people with HIV whose viral load is consistently undetectable (that is, below the level at which tests can detect it) are not sexually infectious.



This idea was first made public by a group of Swiss scientists and physicians in what is known as The Swiss Statement<sup>22</sup>. However, there is disagreement about whether people with HIV in this position cannot pass on the virus or that it will be a very uncommon event.

A systematic review of studies looking at the relationship between viral suppression in plasma and semen<sup>23</sup> found that (in the absence of sexually transmitted infections), plasma and seminal viral loads are moderately well correlated in men receiving anti-retroviral treatment. For individuals, anti-retroviral therapy has the potential to reduce the risk of transmitting HIV, although it may not eliminate that risk.

Isolated episodes of infectious HIV RNA have been measured in the semen of HIV positive men with undetectable viral load, sometimes at high levels, indicating that an undetectable viral load in plasma does not always mean undetectable viral load in semen<sup>24</sup>.

The Swiss Statement only applies to people with HIV on treatment. It does not say that people with HIV who are not on treatment and have an undetectable viral load are also unable to pass their infection. However, it is clear that among people with HIV not on treatment, higher viral load is associated with higher probability of onward transmission if exposure occurs.

Modelling of the effects of the Swiss Statement suggests that substituting treatment for condom use altogether carries a risk of increasing HIV incidence if even a small proportion of individuals do not have fully suppressed viral load, and if transmission can occur between men even when viral load levels are very low. In a scenario in which people with fully suppressed viral load did not use condoms during 100 episodes of vaginal or anal intercourse each year with a steady partner, in which 85% of people had fully suppressed viral load at any time and condoms were used in 80% of sex acts, HIV incidence would increase fourfold in HIV-discordant male couples over ten years<sup>25</sup>. For this reason we think there is good reason to not transfer the Swiss Statement about vaginal intercourse to the case of anal intercourse.

### 3.3.1 Disease stage of untreated HIV infection

#### HIV RELATED BEHAVIOURAL CHOICE

The length of time men spend with undiagnosed HIV is related to how frequently men at risk for HIV test for it. Increasing the rate at which men at risk test is a desirable goal for the population of MSM in order to minimise new HIV infections.

Whether men choose to take anti-retroviral therapy is also a choice that is only possible if men with HIV have had their infection diagnosed.

The natural history of HIV infection results in viral load being very high in the first few months following infection, dropping to a much lower level for a 'latent' (or asymptomatic) period and increasing with the onset of illness and later stage HIV disease. If HIV transmission probability is a function of viral load then people will be more infectious in the earlier and later stages of infection.

An early review (in 1994, so before anti-retroviral combination therapy) suggested that men in the initial stage of HIV infection were between 100 and 1000 times more infectious than the following asymptomatic phase, and then between 10 and 100 times more infectious once AIDS develops<sup>26</sup>. More recent studies have suggested the difference is large but not this large. A recent review of HIV sero-conversion during sero-discordant *vaginal* intercourse estimated the per-contact risk to be 9.2 (95% CI 4.5-18.8) and 7.3 (95% CI 4.5-11.9) times larger when the infected partner is in the early and late phases of HIV infection respectively, than during the asymptomatic phase<sup>27</sup>.

The first six months following infection (known as recent, primary or acute infection) has therefore been identified as the period during which onward transmission is most likely should exposure occur. Among MSM in the UK, men with recent HIV infection have been shown to be 3 to 4 times more likely to have recently passed on their infections than men with untreated chronic infection<sup>18</sup>.

Not all MSM with HIV are diagnosed. Approximately 25% of men with HIV are yet to be diagnosed and are not in touch with clinical services. In order to benefit from ARVs (see next section) men with HIV must have had their infection diagnosed. HIV testing needs in the population of MSM not diagnosed with HIV are therefore central both to the profile of viral load among men with HIV and consequently their health and their HIV infectivity.

### 3.3.2 Anti-retroviral treatment for HIV (ARV)

#### HIV RELATED BEHAVIOURAL CHOICE

The proportion of men with detectable viral load influences the rate of HIV transmission. Fully suppressive anti-retroviral therapy will reduce the risk of HIV transmission. To minimise new HIV infections, increasing the proportion of men eligible for treatment who receive anti-retroviral treatment that is fully suppressive is a desirable goal for the population of HIV-infected MSM.

Advances in drug treatments have reduced the average infectiousness of men with diagnosed HIV. Anti-retroviral treatment works by suppressing the ability of HIV to replicate, thereby forcing down viral load. Driving viral load down below the level at which tests are able to detect it is desirable for the health of people with HIV because it means people have a very low risk of developing AIDS and also a low risk of developing resistance to ARVs.

There is ecological evidence from two populations with somewhat similar epidemiological profiles to England – San Francisco in the United States and British Columbia in Canada – demonstrating that an increase in the proportion of individuals eligible for treatment who take anti-retroviral drugs is strongly correlated with a decline in new HIV diagnoses over time. Both settings have a higher frequency of HIV testing than England, and both studies use new HIV diagnoses as a surrogate for HIV incidence.

In the case of San Francisco the profile of viral load in the community as a whole was correlated with the decline in new HIV diagnoses. All available viral load measurements of HIV-diagnosed persons receiving care in the city were averaged over each of the years 2004-

2008, and correlated with new HIV diagnoses in the period. The analysis showed that mean and total community viral load were strongly correlated with new diagnoses, with an increase in the uptake of anti-retroviral treatment among eligible persons and with an increase in the proportion of patients with fully suppressed viral load<sup>28</sup>.

In British Columbia an increase in the proportion of medically eligible persons receiving anti-retroviral treatment correlates strongly with significant declines in new HIV diagnoses in the periods 1996-99 and 2004-2008. Conversely a stabilisation in numbers on treatment due to later treatment initiation and treatment interruptions in the period 2000-2003 was strongly correlated with a stable rate of new HIV diagnoses in the province during the same period. These trends occurred despite increases in sexually transmitted infections after 1998, an indicator of increases in unprotected sex, and despite an increase in the total numbers tested. The trends in each period were also correlated with declines in the median population viral load<sup>29</sup>.

The most relevant studies in this area have been conducted with heterosexuals. While the reduction in infectiousness during anal sex cannot be quantified, it is likely to be substantial. A study with 3,381 HIV discordant heterosexual couples in several African countries calculated that treatment reduced the transmission risk by 92%. There were 103 HIV transmissions, but 102 of these were from a partner not taking HIV treatment<sup>30</sup>. A 92% reduction in risk is greater than the reduction in risk given by universal consistent condom use.

Currently not all MSM in England diagnosed with HIV are on ARVs and with undetectable virus. Nationally in 2009, 77% of MSM seen for HIV care were using ARVs<sup>31</sup>. Among 758 MSM with diagnosed HIV using an East London clinic in 2004/5, 71% were on ARV and 61% had an undetectable viral load.<sup>32</sup> This suggests up to a third of MSM with diagnosed HIV are not on ARVs, nor are any of the men with undiagnosed HIV.

3.3.3 Other sexually transmitted infections (STI)

HIV RELATED BEHAVIOURAL CHOICE

The length of time HIV infected men spend with heightened infectivity due to STIs is related to how frequently they acquire STIs and how quickly they have them diagnosed. To minimise new HIV infections, increasing STI screening among more sexually active men is a desirable goal for the population of HIV infected MSM.

Even if plasma viral load is undetectable, there can be a spike in seminal or anal mucus viral load if another STI is acquired<sup>33</sup>. So men with undetectable (plasma) viral load may pass on HIV by acquiring another STI and are then being involved in sexual exposure. Among MSM with HIV in Brighton, those diagnosed with another STI were 6 times more likely to have passed on their infection than those without an STI diagnosis<sup>18</sup>.

Men with diagnosed HIV are more likely to acquire other STIs than are men without diagnosed HIV<sup>34</sup>. As elsewhere in the world, in England there have been outbreaks of syphilis, lymphogranuloma venereum (LGV) and sexually transmitted hepatitis C, concentrated in HIV infected MSM.

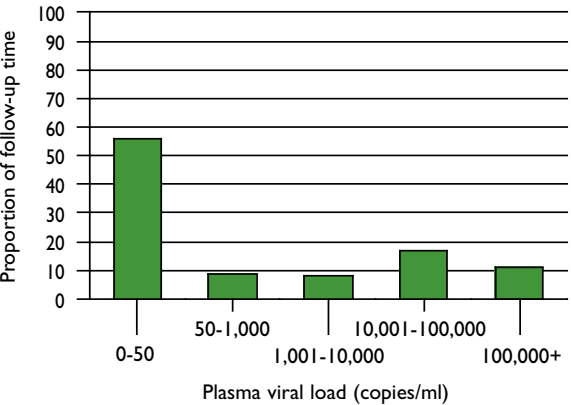
Most men with diagnosed HIV have more sexual partners than sexual health screens<sup>35</sup>. Increasing the rate of STI screening among MSM with diagnosed HIV has great potential for reducing harm. At the population level further sexually transmitted infections among men with HIV means more new HIV infections.

3.3.4 The profile of plasma viral load in the HIV infected MSM population

Although men with recent infection may be much more infectious and much more likely to pass on their infection, at any point in time they are in the minority of men with HIV.

Among men with diagnosed HIV attending a Brighton clinic, almost half of all men's time is spent with a detectable viral load (that is, above 50 copies, see Figure 3.3.4). This suggests that the population of men with diagnosed HIV have the infectious potential to pass on their virus.

Figure 3.3.4: Distribution of time spent with varying plasma viral load among men with diagnosed HIV in Brighton.



Source: Ref 18

The group of men with currently undiagnosed HIV will almost certainly have a very different profile of viral load, with men weighted toward the higher end of viral load.

3.4 FREQUENCY OF SEX BETWEEN HIV INFECTED AND UNINFECTED MEN

HIV RELATED BEHAVIOURAL CHOICE

The number of sexual partners men have between each STI screen influences the rate at which STIs and HIV are passed on. More partners per screening results in more infections.

To minimise new HIV infections, reducing the number of partners between screens is a desirable goal for the population of MSM.

Sex between infected and uninfected men are the events within which all MSM sexual HIV transmissions occur.

They include sex between uninfected men and both diagnosed and undiagnosed infected men, both between regular and casual sex partners.

In addition to the prevalence of HIV in the population, the overall parameters in the population influencing the number of HIV sero-discordant sexual sessions are: the rate of new partner acquisition; the pattern of mixing between infected and uninfected men; the proportion of men in HIV sero-discordant regular sexual relationships

(not necessarily recognised as discordant by the men in the relationship); and the frequency of sex between men in such relationships.

In the HIV uninfected population of MSM as a whole, HIV acquisition is more common in men with higher numbers of sexual partners<sup>36</sup>. This is both because the probability of engaging in sex with a man with HIV increases with increasing numbers of partners, and because the probability of engaging in acts that can cause HIV transmission also increases. Multiple sexual partners on their own may not be associated with HIV acquisition but multiple anal intercourse partners, especially multiple unprotected anal intercourse partners are. However, men with higher numbers of sexual partners are also more likely to acquire and pass on other STIs which increase susceptibility to infection (in uninfected men) and infectivity (in infected men). Therefore men with multiple 'safer' sexual partners can increase the risk other men pass and acquire HIV by picking up and passing on other STIs.

The UK *National Survey of National Sexual Attitudes and Lifestyles* found that the number of men having sex with other men increased between 1990 and 2000. However, there was not a significant increase in the rate of new partner acquisition (that is, the rate of partner change)<sup>5</sup>.

### 3.5 KNOWLEDGE AND DISCLOSURE OF HIV STATUSES

#### HIV RELATED BEHAVIOURAL CHOICE

Telling sexual partners about one's HIV status can influence the sexual choices that are made. Asking a sexual partner about their HIV status can increase knowledge of HIV sero-concordancy but may also result in the wrong perceptions especially for men who think they are HIV uninfected.

Increasing sharing of HIV status between sexual partners is a desirable goal for the MSM population to minimise new HIV infections.

In order to enjoy sex with minimum risk of onward HIV transmission, some men with diagnosed HIV purposefully choose sexual partners who are also living with HIV, especially if their sexual preference is for unprotected anal intercourse<sup>37</sup>.

Sexual partners who know or believe themselves to have the same HIV status often choose to engage in sexual acts that they would not engage in if they did not know they had the same status. In order to acquire this knowledge both partners must be tested for HIV and to share their HIV test results with each other. Sharing knowledge about one's HIV status is therefore a behaviour directly related to sexual risks and precautions and in order to do this men must have tested for HIV and if HIV negative to have done so since their last HIV risk.

### 3.6 SEXUAL ACTS ABLE TO TRANSMIT HIV

We are concerned with three sexual HIV exposure behaviours. Each involves an HIV infected and an uninfected man. We recognise infected men being insertive in UAI with uninfected men as a different risk act (transferring a different body fluid) from uninfected men being insertive in UAI with infected men. There is no current data to tell us what proportion of sexual sessions feature each of these risk acts. Nor do we have current data about the frequency with which the risk acts occur and how they are spread through the population. Most data consists of the proportion of men who had engaged in a particular behaviour over a specified time period.

In addition to the number of men with HIV and the frequency with which sex occurs with men without HIV (see above), the frequency of exposures is a result of the frequency of anal and oral intercourse, the frequency with which condoms are used for these acts, and the frequency with which those condoms fail.

#### HIV RELATED BEHAVIOURAL CHOICE

When men have sex together, the type of sexual acts they engage in vastly influence the likelihood STIs and HIV are passed on if present in either or both partners.

Both receptive anal intercourse and insertive anal intercourse carry risk and the proportion of sessions that include anal intercourse influences HIV incidence. To minimise new HIV infections, it is desirable that the overall proportion of sexual sessions that feature anal intercourse be lower.

### 3.6.1 Risk Act 1: infected partner is insertive in anal intercourse with uninfected partner

Receptive unprotected anal intercourse (RUAI) continues to be the most common route for HIV acquisition during sex between men in England (and conversely insertive UAI (IUI) is the most common way in which it is passed on)<sup>38</sup>. This is because it is a fairly common act and has a high per-contact probability of transmission relative to other acts.

Both IUI in HIV infected men and RUAI in uninfected men are common behaviours. Almost half of all men with diagnosed HIV engaged in some IUI in the last year<sup>39</sup>. Not all of these will have done so with uninfected men but many did do so: 18% of men with diagnosed HIV said they had engaged in IUI with a known HIV uninfected partner and 29% had done so with a partner of unknown status. Many of the 37% who indicated they had IUI with other men with HIV based their judgements of their partners' statuses on insufficient information and wishful thinking<sup>40</sup>.

Conversely, 33% of never tested men and 38% of men last tested negative had RUAI in the last year. Again not all of these men will have done so with HIV infected partners but some did, and many had opportunity to do so: less than 1% of untested men and less than 2% of tested negative men had RUAI with men they knew to have HIV, while 19% of both had done so with a partner of unknown status. In addition, because of undiagnosed infection, many of the men who thought they had RUAI with HIV uninfected partners were in fact being exposed to HIV.

At the level of the population, the proportion of men that engage in Act 1 increases with increasing numbers of sexual partners. The higher the average number of sexual partners in the population, the larger the proportion of the population will be involved in exposure.

The per-contact probability of transmission is very strongly associated with the co-factors described below. These co-factors create differences in transmission probability that are so large that it is unhelpful to attempt to give an estimate for the per-contact probability for Act 1 *per se*. It depends on the seminal viral load of the infected partner, whether he ejaculates into the rectum of the uninfected partner and whether the uninfected partner is using poppers (nitrite inhalants, see section 3.9.2 below).

The risk of pos-insertive sdUAI (Act 1) in the absence of ejaculation may be similar to that for pos receptive sdUAI (Act 2), the difference arising because ejaculation of HIV infected semen into the body is possible in Act 1 but not Act 2.

### 3.6.2 Risk Act 2: infected partner is receptive in anal intercourse with uninfected partner

It is possible for men to acquire HIV through the penis during insertive anal intercourse with an infected man.

Act 2 is common among MSM – 18% of men with diagnosed HIV indicated having had RUAI with known uninfected partners in the last year and 36% had done so with men of unknown status. Correspondingly, less than 1% of never tested and 3% of last test negative had IUI with men known to have HIV, while 20% and 23% respectively had done so with men of unknown status. Some men are willing to take a risk with Act 2 but not Act 1 knowing it is less likely to result in transmission.

However, the overall contribution of Act 2 to the HIV epidemic among MSM in the UK is sufficiently large for it to be picked up as an independent risk factor in a relatively small case control study<sup>38</sup>.

### 3.6.3 Risk Act 3: infected partner is insertive in oral intercourse with uninfected partner

It is possible for HIV transmission to occur during Act 3 in the absence of ejaculation. HIV has been found in pre-ejaculatory fluids<sup>41</sup> and case studies have reported HIV acquisition during receptive fellatio without ejaculation<sup>42, 43</sup>. However, this appears to be a very rare event. Ejaculation in the mouth increases transmission probability considerably (see below).

A Spanish study followed 96 HIV uninfected women who were in monogamous sexual relationships with HIV positive male partners, and who always used condoms for vaginal or anal intercourse and had no condom failure<sup>44</sup>. Between them the women were estimated to have performed 8965 acts of fellatio of which 34% (3048 acts) included ejaculation into the mouth. None of the women acquired HIV. It is worth noting however that few if any of the women's partners were in the early (highly infectious) stage of HIV infection.

Fellatio is an almost universal behaviour among MSM and far more uninfected men are receptive in unprotected oral intercourse than unprotected anal intercourse. Condom use for fellatio has not been measured for some time in the UK MSM population and is assumed to be rare.

### 3.7 CONDOM USE AND CONDOM FAILURE

#### HIV RELATED BEHAVIOURAL CHOICE

When men have anal intercourse, whether or not they use a condom influences the likelihood HIV and other STIs will be transmitted if present.

To minimise new HIV infections, it is desirable that there is an increase in the proportion of anal intercourse events that feature condoms.

A condom used during anal and oral intercourse is an effective but not infallible way to block body fluid transfer during all three sexual risk acts. Because condoms block body fluid transfer but may not wholly cover an infected skin area, during anal intercourse between infected and uninfected partners condoms reduce the transmission risk of STIs that are transmitted by genital fluids (eg. gonorrhoea, chlamydia and HIV) more than of STIs that are primarily transmitted by skin-to-skin contact (eg. herpes, human papilloma virus / warts virus and syphilis).

If they remain intact and on the penis throughout intercourse condoms provide 100% protection against HIV. However, the extent to which condoms reduce HIV transmission probability is dependent on the extent to which they fail (break or come off) during intercourse.

Under ideal conditions in vaginal intercourse, condoms can have a failure rate of 2%. This would reduce the risk of transmission to 1/50th of the act without a condom and is the best performance estimate. A meta analysis of comparisons between HIV sero-discordant couples who always used condoms with those who never used them found consistent condom using couples experienced an HIV incidence of 13% that of couples never using them. In other words, consistent condom use was 87% effective at preventing HIV infections during sero-discordant vaginal intercourse<sup>45</sup>.

At the event level, under domestic conditions among gay couples who are sexually familiar with each other, 6.5% occasions of condom use for anal intercourse result in the condom breaking or slipping off<sup>46</sup>. The rate of condom failure may be higher in protected intercourse between new partners in non-domestic environments. It may also be higher between sero-discordant partners than between HIV uninfected partners because men with diagnosed HIV are more likely to have experienced condom failure than men without HIV. Inconsistent condom users (who are more likely to be HIV infected) are also more likely to experience condom failure than those who are consistent condom users.

At the population level there is a larger increase in HIV risk between no AI and AI with a condom than there is between AI with a condom and AI without a condom. A single city USA study (Seattle, 2001-2007) looked at the proportion of MSM clinic attenders who tested HIV negative and then tested HIV positive within a year, by their sexual behaviour in the 12 months preceding their positive diagnosis<sup>47</sup>. The data therefore come from men repeat testing who are likely to be very sexually active. The unit is the year preceding the visit (some men contributed more than one year to the data). Overall, 3.1% (89/2912) of tests following a year featuring UAI were positive, 1.5% (28/1827) of tests following a year featuring protected but not unprotected AI were positive, and zero tests following 410 years with no anal intercourse were positive. This suggests that a larger proportion of the risk associated with protected AI is eliminated by avoiding AI, than is the proportion of risk associated with UAI eliminated by using a condom. Avoiding AI is a better way of reducing HIV risk than is using condoms if only HIV risk (and not the quality of men's sex lives) is taken into account.



### 3.7.1 Change over time in unprotected anal intercourse (combined Acts 1 and 2 without condoms)

It is well documented that sexual risk acts between men became increasingly frequent in gay communities across the globe from 1996 onwards. This trend may have increased in the UK until the early 2000s before reversing more slowly.

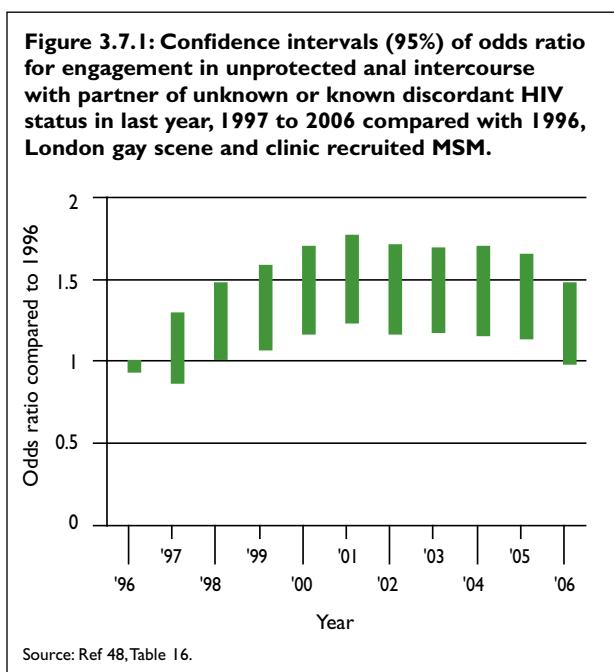


Figure 3.7.1 shows the odds ratio for engagement in UAI with a 'risky partner' (one of unknown HIV status or known to be discordant) for the years 1997 to 2006 compared with 1996<sup>48</sup>. (This data does not distinguish Act 1 from Act 2.) The odds of engaging in this risk behaviour rose significantly higher in 1998 than 1996 (the black bar is all above 1) and has stayed significantly higher since. The overall trend across the decade appears to be a rise followed by a slower fall.

## 3.8 BODY FLUID TRANSFER

HIV is passed by the body fluid of an infected partner entering the body of an uninfected partner. The amount of body fluid along with the concentration of virus in the fluid affect transmission. Body fluid transfer varies by sexual risk act.

### 3.8.1 Pre-cum and semen in Act 1 and Act 3

#### HIV RELATED BEHAVIOURAL CHOICE

When men have unprotected intercourse or fellatio (and when condoms fail during use), whether or not they ejaculate into each other's bodies influences the likelihood some STIs, including HIV, are transmitted if present.

To minimise new HIV infections, it is desirable that the proportion of intercourse events that result in ejaculation into the body be reduced.

Because ejaculation increases the amount of virus carrying fluid transferred into the body of the uninfected partner, ejaculation into the body makes HIV transmission more likely than without it. In the UK men who engaged in RUAI to ejaculation with men not known to be HIV uninfected were 2.5 times more likely to acquire HIV than men who do this but not to ejaculation<sup>38</sup>. The unit here is individual men and some (if not many) of the sexual partners men had RUAI with will not in fact have had HIV. The effect should be stronger considering only men known to have had discordant RUAI with and without ejaculation. Accordingly, a study in Sydney found that HIV uninfected MSM who engaged in RUAI to ejaculation with known HIV infected partners had an HIV incidence 6 times that of men who had RUAI with known infected partners but who avoided ejaculation<sup>49</sup>.

Again the unit here is individual men. The size of the effect of ejaculation on the probability of a single event of Act 1 (between infected and uninfected partners) may be higher again (because some of the uninfected men who engaged in sdRUAI to ejaculation may also have done so not to ejaculation, diluting the strength of the comparison group).

Ejaculation into the mouth during Act 3 appears to greatly increase transmission risk, with transmission being very rare in its absence. Ejaculation into the mouth is also associated with a higher risk of throat infection with other STIs in MSM<sup>50</sup> which may then render men more susceptible to oral HIV infection.

### 3.8.2 Rectal mucus and blood in Act 2

Remarkably little is known about anal mucus and what determines the amount of anal mucus that may be transferred to the penis during Act 2. Increased production of mucus may be a response to irritation or stimulation through anal intercourse itself.

A study in Washington that measured viral load in different body fluids from the same men found that the viral load in rectal secretions was much higher than that in blood which in turn was higher than that in semen<sup>51</sup>. The differences between viral load in rectal secretions and in semen were much larger among men not on HIV treatments.

The use of sex toys and ano-brachial insertion (fisting) can cause trauma resulting in bleeding, thereby increasing the amount of infectious body fluid present, which if in the infected partner prior to Act 2 could increase transmission risk. There may also be blood present in faeces.

## 3.9 SUSCEPTIBILITY OF MEN WITHOUT HIV

A variety of factors related to the susceptibility of the uninfected partner can influence the probability of transmission when sexual exposure takes place. It is possible some men are naturally immune to HIV but there is no way of knowing who, so this is of no practical value for precautionary choices. If this were the case it might be thought to apply to all three exposure routes. Other factors are specific to the exposure routes.

### 3.9.1 Act 1 risk facilitator: anal trauma

The cells of the rectum are vulnerable to HIV and trauma is not necessary for infection to occur. However, ano-brachial insertion and the use of sex toys can cause colonic perforation and other damage<sup>52</sup>. Anal trauma prior to anal exposure to HIV may also increase the probability of HIV transmission occurring, although there is little empirical evidence to demonstrate this.

As with anal mucus, the properties of the rectum and its vulnerability to HIV have been little studied. Vaginal vulnerability to pathogens reduces with age<sup>53</sup> and it would be useful to know whether this were so for rectal vulnerability.

### 3.9.2 Act 1 risk facilitator: poppers

#### HIV RELATED BEHAVIOURAL CHOICE

When HIV uninfected men are receptive in unprotected anal intercourse with HIV infected men, whether they are using poppers influences the likelihood HIV is acquired.

It is desirable that the proportion of such exposures that feature poppers be reduced.

Poppers is the street name for various kinds of liquid alkyl nitrite which are sold in small bottles and inhaled as a recreational drug. They effect a drop in blood pressure, a rise in heart rate, a head rush and a relaxation of smooth muscle<sup>54</sup>. Of the three types of nitrites in circulation, one (amyl) is controlled by the medicines act, another (butyl) is banned due to its carcinogenic properties and the third (iso-butyl) is uncontrolled.

The use of poppers by the uninfected partner during Act 1 has been demonstrated to increase by approximately 3-fold the probability of HIV transmission occurring<sup>38,55</sup>. Which of the three types of poppers were involved is unknown. The mechanism by which transmission probability is increased during poppers use is also unknown but may be a consequence of vasodilation or longer, rougher intercourse.

Poppers are the most commonly used drug after alcohol among MSM in England<sup>56</sup> and are particularly popular during receptive anal intercourse. Poppers are also frequently used for being fisted and using larger sex toys, multiplying any risk associated with anal trauma. The ratio of the three types of poppers in current use is unknown.

### 3.9.3 Act 2 risk facilitator: foreskins

As well as the urethra being susceptible to HIV infection, the cells of the foreskin are also vulnerable. Therefore a foreskin increases transmission probability specifically during Act 2 (HIV uninfected man insertive in anal intercourse with HIV infected man) and circumcision reduces that probability. Foreskins are also associated with other STIs which are themselves facilitative factors for HIV transmission.



Experimental trials have found that HIV uninfected men with foreskins who are randomly selected for circumcision are less likely to acquire HIV than are controls (with similar sexual behaviour) who are not circumcised. These experiments show that the foreskin has a casual role in HIV transmission to the penis. This has been demonstrated among predominantly heterosexual men in Africa and may be generalisable to MSM in Britain. A meta-analysis of observational studies of sero-conversion in heterosexuals suggests a foreskin increases the per contact probability of HIV transmission during unprotected vaginal intercourse with an HIV infected female partner by a factor of at least 2<sup>27</sup>.

However, large samples of MSM show no difference in HIV prevalence between men with a foreskin and those who have had it removed<sup>57</sup>. This suggests any attributable risk of foreskins in the MSM epidemic is small. No study has yet demonstrated a significant difference in HIV acquisition between MSM with and without a foreskin.

### 3.9.4 Act 3 risk facilitator: oral trauma

Oral trauma and ulcerative mouth conditions increase transmission probability during Act 3<sup>58</sup>. As risk factors multiply, ejaculation by an infected man *and* oral trauma in the uninfected man will provide a higher probability of HIV transmission than either facilitator alone. In the absence of both these facilitators the risk of transmission during Act 3 appears to be very low<sup>59, 60</sup>.

### 3.9.5 Act 1, Act 2 & Act 3 risk facilitator: other STIs

#### HIV RELATED BEHAVIOURAL CHOICE

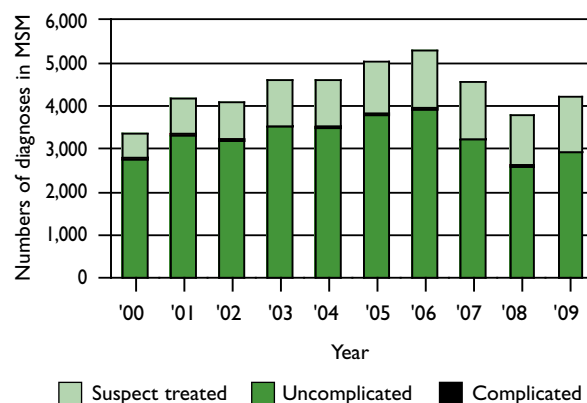
The number of STI screens that occur before new sex partners have sex influences the rate at which STIs and HIV are passed on. More screens per new partnership results in fewer infections.

Increasing the number of screens that occur before new partners have sex is a desirable goal for the population of MSM.

As well as other STIs making HIV infected men more infectious, STIs can make HIV uninfected men more susceptible to HIV. A concurrent ulcerative STI in the uninfected partner increases HIV transmission probability during Act 1 if the infection is rectal, during Act 2 if it is genital and during Act 3 if it is oral.

Among MSM clinic attenders, men diagnosed with an STI are more likely to also have undiagnosed HIV than men not diagnosed with an STI<sup>15</sup>.

**Figure 3.9.5: Episodes of male homosexually acquired gonorrhoea in England.**



Source: Ref 61

Gonorrhoea in particular makes a detectable independent contribution to HIV acquisition among MSM in England – MSM clinic attenders diagnosed with gonorrhoea are four times more likely to be diagnosed with HIV than MSM not diagnosed with gonorrhoea<sup>38</sup>. Gonorrhoea diagnoses rose in MSM until 2006 followed by a drop (see Figure 3.8.5), however MSM continue to be the gender/sexuality group with the highest incidence of gonorrhoea in the UK<sup>61</sup>. It is therefore probably the single most significant other infection for HIV prevention programmes.

Most HIV uninfected MSM have more sexual partners than sexual health screens but the average number of sexual partners between STI screens is poorly documented. Increasing the rate of STI and HIV screening among MSM not diagnosed with HIV has great potential for reducing harm.

### 3.9.6 Act 1, Act 2 & Act 3 risk reducer: PEP

#### HIV RELATED BEHAVIOURAL CHOICE

When HIV uninfected men are sexually exposed to HIV, whether or not they swiftly seek and use PEP influences the likelihood they acquire HIV infection.

It is desirable that the proportion of men in this position using PEP increases.

Taking anti-HIV drugs immediately following sex with a risk of HIV transmission (post-exposure prophylaxis, or PEP) can reduce the risk of HIV acquisition. The drugs then need to be taken for a month<sup>62</sup>. This framework supports the *UK Guidelines for the use of post-exposure prophylaxis for HIV following sexual exposure* by the British Association for Sexual Health & HIV.

Only a proportion of men sexually exposed to HIV will acquire it. It is not clear by how much the risk of acquisition would be reduced if all the men exposed took PEP immediately after exposure (and then followed the course of drugs correctly). However, it may approach 100%. The reduction in risk will get smaller as the time between exposure and onset of PEP increases and will eventually reach the same risk of acquisition as if PEP had not been taken. This profile of this relationship is poorly documented.

Only a small proportion of men sexually exposed to HIV access PEP and those who do so also have risk occasions when they do not access PEP<sup>63</sup>. For those who do access PEP it can mean the difference between becoming HIV infected or not on that exposure occasion. This makes it an important personal health service. However, PEP has very limited utility either as a long-term risk reduction tactic for an individual or as a public health intervention covering a significant proportion of the population at risk.

#### 3.10 ABSOLUTE RISKS OF TRANSMISSION

The absolute risk of HIV transmission under any given set of circumstances is how likely the event is to occur. As noted above, the absolute risk during any specific act depends on both the viral load of the infected partner and a number of other specific co-factors. It is therefore simply not possible to say, for example, how risky

fellatio on an HIV infected partner is, because it is not the sexual act itself that is most important in determining the risk.

However, a few studies (using a variety of methods) have provided estimates for the per contact transmission probabilities of sexual acts between infected and uninfected men averaged across all the co-factors prevalent in the population providing data at the time of the studies.

An early study of gay couples in Boston<sup>64</sup> estimated per contact risk of pos-insertive sdUAI to ejaculation (no PEP, averaged across disease stage, other STIs and poppers use were not measured) to be in the range 0.5% – 3.0% (that is 1-in-200 to 1-in-33).

A prospective US cohort study across three cities conducted between 1992 and 1994<sup>65</sup> estimated the per contact risk of pos-insertive sdUAI (ejaculation not specified, no PEP, averaged across disease stage, other STIs and poppers use which were unmeasured) to be in the range 0.24% – 2.76% (or 1-in-417 to 1-in-36, 95% confidence interval), a range similar in magnitude to the Boston study.

More recently, a cohort study among gay men in Sydney<sup>66</sup> estimated the per act risk of pos-insertive sdUAI to ejaculation to be in the range 0.48% – 2.85% (95%CI), again very similar to the previous two studies.

#### 3.11 SEXUAL LIFESTYLES

The per contact risk of transmission applies to only one event. What appears a very small risk can become important because many people do it. A large number of people taking a small risk can result in more negative outcomes than a small number of people taking larger risks. In addition, men's sex lives consist of a large number of events over a long period of time. What appears to be a very small risk (from a single event) can add up to a large risk if that act is repeatedly engaged in. People are generally very poor at appreciating the summative effect of numerous small risks over a period of time.

The incidence of infection over a year (the proportion of men who sero-convert) from a single route (eg. IAUJ only) is a function of both the number of times the act

occurs and the probability of transmission when the act occurs.

In order to get the number of HIV infections currently observed in England, a much larger number of exposures is required, which themselves occur in an even larger number of risk acts. The risk acts vary both in terms of what men know about their sero-statuses (whether they are concordant or not and whether or not the infected partner is more infectious than the uninfected partner is susceptible) and also in terms of what acts they engage in (pos-IAI, pos-RAI, pos-IOI), with what transmission facilitators (ejaculation, poppers) and transmission obstacles (condoms, PEP).

It is the volume of risk overall that determines HIV incidence. How this volume is distributed is not documented. For example, how many times men are sexually exposed to HIV before they sero-convert (an indicator of how concentrated the volume of risk is in the same group of men) is unknown.

Men who have sex with men are as diverse as the general population. The contexts in which HIV transmission occurs during sex between men are as varied as the contexts in which sex occurs. In global terms, England is a relatively easy country for MSM to live in. In eighty countries in the world homosexuality is illegal and in five it is punishable by death<sup>67</sup>. In many others men known or thought to have sex with men are subject to a higher level of day-to-day discrimination than in England. Large cities with extensive gay scene, such as London and Manchester, therefore attract MSM from across the globe.

### 3.11.1 Characteristics of men passing on HIV

Men who have themselves been recently infected are thought to be disproportionately likely to pass on HIV<sup>68</sup>. However, since these men are in the minority of men with HIV, their proportionate contribution to overall incidence is unclear.

Sexual risk is common in men with diagnosed HIV. In a sample of MSM with HIV attending a London clinic, 20.2% had UAI with an unknown or known discordant partner in the past 3 months<sup>32</sup> and as noted earlier many men with diagnosed HIV spend some time with detectable viral load.

One reason often given for wanting to reduce the length of time spent with undiagnosed HIV is that men are less likely to sexually expose their infection once the infection has been diagnosed. There is a measurable downward impact of HIV diagnosis on sexual risk behaviours among men with undiagnosed HIV. Although this reduction may not be sustained, if it occurs early in infection and at a time of high HIV infectivity it will be more advantageous to incidence than later diagnosis. Less reduction in risk at diagnosis has been associated with having more sexual partners before diagnosis and a concurrent STI at diagnosis (both indicating an overall riskier sexual behaviour pattern), as well as drug use, ketamine in particular<sup>36</sup>.

However, men with diagnosed HIV are more likely to be involved in UAI with partners of unknown status than are men with undiagnosed infection<sup>17</sup>. Many men with diagnosed HIV use sex on premises venues such as saunas and backrooms (and are more likely to do so than other men<sup>69</sup>) and unprotected intercourse in these settings is not uncommon<sup>40</sup>.

### 3.11.2 Characteristics of men picking up HIV

Behaviourally and causally, picking up HIV is associated with larger numbers of intercourse partners, less use of condoms, and accepting more ejaculation into the body. In today's MSM cultures, these behaviours are in turn associated with using saunas and backrooms, a larger number of sexual partners overall, a greater use of 'party' drugs and (for a minority of men) sex work<sup>36</sup>.

So the factors associated with acquiring HIV are the same as those associated with passing it on, both before and after diagnosis. Behaviourally and in terms of sexual lifestyle, men who are most likely to pick up HIV and men most likely to pass on HIV are indistinguishable. They are the same men at different points in time.

Demographically, approximately half of the men who pick up HIV in England are under 30 years of age (based on the average age of diagnosis and the estimated average length of time spent undiagnosed). Black MSM (African and Caribbean) appear twice as likely to pick up HIV as other ethnic groups. Men with lower education are more likely to pick up HIV than men with higher education.

### 3.11.3 Characteristics of the relationship between men passing and picking up HIV

HIV is being passed in England during both casual sex between men and during sex between regular partners<sup>70</sup>. Men with diagnosed HIV pass their infection both to men who know they have HIV and to men who do not know. Of men acquiring HIV, 28% had RUAI with a man they knew to have HIV around the time of their infection<sup>38</sup>.

However, it is difficult to be precise about the relative contribution of each of these contexts. Many men who acquire HIV had multiple opportunities to pick it up. The distribution of risk acts between men who do and do not acquire HIV (for example, the profile of the number of exposure events MSM experience before HIV acquisition occurs) is not documented. It is clear however, that it is not only men acquiring HIV who are involved in exposure. Given the low probability of transmission occurring during a single exposure, there are likely very many exposures occurring to generate the current number of infections. It may be only under certain circumstances does exposure result in transmission, and identifying and altering those circumstances may be a more effective route to reducing incidence than attempting to eliminate all exposures.

## 3.12 POPULATION PROFILES AND INDIVIDUAL CHOICES

The incidence of HIV among MSM is a property of the population and is the outcome of thousands of men making millions of choices in interaction with each other. These choices cover:

*Patterns of use of clinical services:* How frequently men screen for STIs and HIV, their use of treatments if diagnosed with an infection, and their use of PEP if exposed to HIV.

*Patterns of sexual partnerships:* How frequently men chose to have sex with new partners and whether or not they choose to form closed (exclusive) or open (non-exclusive) regular sexual relationships.

*Patterns of disclosure and sexual negotiation:* The extent of information sharing about HIV/STI statuses between sexual partners and the moderation of sexual acts based on this information.

*Patterns of sexual behaviour:* Whether men choose to engage in oral and/or anal intercourse, whether or not they use a condom and lubricant, which orifices (if any) ejaculation occurs in, and the use of poppers.

In Chapter 4 we consider these patterns in the populations from the perspectives of men making choices in their day-to-day lives and how we can approach influencing these choices. In particular we consider the incentives individuals have for making precautionary and risky choices.

# 4 APPROACHES TO INFLUENCING THE BEHAVIOURS CAUSING HIV TRANSMISSION: THE AIMS OF INTERVENTIONS

*This chapter describes the range of factors that impact on men's choices and contains a statement of what we are trying to influence about them in order to minimise HIV infections. These include knowledge, awareness of potential consequences of choices and how likely those consequences are to occur, perceived social norms, and opportunities, skills and resources for putting intentions into practice.*

## 4.1 TEN CHOICES FACING MEN WHO WILL HAVE SEX WITH ANOTHER MAN

Influencing precautionary and risky behaviours requires clarity on which behavioural choices are important and understanding of why they occur. HIV incidence is the outcome of a large number of actions being taken by a large number of men over an extended period of time. However, from the perspective of men themselves, the relevant choices are:

**Choice 1.** Have an STI check-up for sexually transmitted infections before the next sexual partner (including HIV if not already diagnosed with it) <OR> Take no action.

**Choice 2.** [When men have diagnosed HIV infection] Take anti-retroviral treatment, or not.

**Choice 3.** [When men have an opportunity for a new sex partner.] Decline or defer the next opportunity for sex with a new partner <OR> Have sex with a new partner at the next opportunity.

**Choice 4.** Telling sexual partners about our HIV/STI status <OR> Saying nothing (or misleading) about HIV / STI status.

**Choice 5.** [If men have a regular sexual partner.] Monogamous relationship (only have sex with each other) <OR> Sexually-open relationship (also have sex with other people).

**Choice 6.** [If men have sex] Kissing, rubbing, masturbating, fellatio (ie. sex other than anal

intercourse) <OR> Have anal intercourse (as well as other kinds of sex).

**Choice 7.** [If men have anal intercourse.] Using a condom and lubricant for anal intercourse <OR> Not using a condom and lubricant for anal intercourse.

**Choice 8.** [If men have fellatio or anal intercourse, with or without a condom.] Ejaculation outside the body <OR> Ejaculate inside the mouth or rectum.

**Choice 9.** [If men have receptive anal intercourse.] Avoiding poppers during receptive anal intercourse <OR> Using poppers during receptive anal intercourse.

**Choice 10.** [If men do not have HIV and are sexually exposed to it.] Swiftly seek post-exposure prophylaxis <OR> Do nothing.

In each of these ten choices, both the precautionary and the risky behaviour has needs associated with doing (or not doing) it. If we are concerned only with the harm arising from sex we should try to minimise all sexual activity between men. This would mean being confident that the behaviour men should choose each and every time is the first option in each choice. However, sex also carries value, and for the majority of men that value warrants some risk. The second option in each choice carries potential value that varies for different people in different situations. The two options also carry risk, that is, the potential for harm. The amount of risk any particular sexual activity warrants cannot be decided by third parties, although most people have an opinion about what people should do sexually. With regard to the above choices, our strategic goal is for men to more frequently choose precautions than is currently the case.

**Strategic Programme Goal:** For men who have sex with men (MSM) to more frequently choose precaution across a range of 10 specified choices than is currently the case.

## 4.2 THE CHAPS APPROACH TO INFLUENCING CHOICES

In order to influence people we need to understand them. Sexual risk and precautionary behaviours are the outcome of many factors, most of which are amenable to influence by someone (which is not to say anyone can affect all of them).

Experience of working with MSM on sexual health and drawing on social research have provided us with a broad understanding of the HIV prevention needs of MSM, both in terms of what motivates us to manage risks and what enables us to do so. Prevention needs extend beyond motivation to include the abilities, resources and opportunities required to carry out intentions. So we are concerned not only with whether men want to manage risks but also whether they are able to do so. Needs assessment (and formative evaluation) requires a careful consideration of which factors are driving risk or preventing precautions, including the values and social norms of the individual or group we are concerned with. Needs assessment is the subject of Chapter 5. This chapter is concerned with our model of choices and our theoretical approach to influencing them (needs description).

We will describe how our interventions are intended to influence men's choices, that is, how we think they work and what we are intending to change in order to enable men to make better sexual choices. Needs description therefore covers the range of capacities we are willing to address. We will not focus on a particular behaviour and claim that we are willing to do anything necessary in order to change that behaviour. We do not believe we have the right to do anything necessary in order to get men to behave in the way we decide they should.

Although many of the factors determining choices are amenable to influence, we will not make people's choices for them. Not only is this impossible in most circumstances (we will not be there when men make their choices) but choices made for people are less likely to be sustained than choices people make for themselves. This approach is in line both with social psychological theory as well as with Government policy on healthier living. The consultation for *Choosing health* found that:

*"Most people were clear that they wanted to decide for themselves what they should do to make a difference to their own health. [...] Health is a very personal issue. People do not want to be told how to live their lives or for Government to make decisions for them."*<sup>71</sup>)

Most adults do not want to be told what to do and many MSM are positively hostile to authorities telling them what to do, particularly in the area of sex. This is one good reason for authorities not to attempt to tell all MSM how they 'should' behave. The second good reason is that we have a regard not only for the infections men pick up but also for their sexual self-determination and social well being. The third and most compelling reason against simply telling MSM what to do is that there is no evidence that doing so influences their choices.

No one way of managing sex opportunities will be suitable for all men in all sexual situations. Some men may choose to make different choices with different partners in different situations. There is a gap between behavioural intention (what men intend to do) and behaviour (what men actually do) for all ten choices. For example, men can intend to have an STI screen before their next partner but for the opportunity for sex to come up and for men to take it, to tell their partner about their infection but not do so, or to have intercourse with a condom but actually have unprotected intercourse. So promoting any single risk reduction tactic on its own (or at the expense of all others) is problematic.

We are mindful that when we attempt to influence one factor, all other factors do not necessarily remain equal. We endeavour for MSM themselves to be best able to balance the potential benefits and costs inherent in sexual activity. We acknowledge that there are a variety of risk management tactics which men can use and that they themselves are usually best placed to determine how best to go about managing their risks. We wish to motivate men to engage in as little risk as they require in order to fulfil their sexual desires, that they are comfortable with and that they are able to achieve.

We seek to make precautionary behaviours socially desirable among MSM. We will not do this by telling men what to do. We will not do this by misleading men about the probable outcomes of different actions. It is



not our aim to belittle or denigrate men who acquire HIV or who engage in risk behaviours (such as not testing, having new sexual partners, open-relationships, or having anal intercourse, including anal intercourse without condoms). We will increase the extent to which men are able to see the potential consequences of their choices as well as their abilities to pursue their choices.

**Strategic Aim:** We will increase the motivation and power that enable men to make precautionary choices.

All sex carries risk and the only way to achieve no risk is through no sex. Most people are dissatisfied with the 'no sex / no risk' option and are willing to trade some risk for some sex. The role of HIV health promotion is not to decide which risks are worth taking and encourage men to stick to them, but to assist men to decide which risks, if any, for them are worth taking, and to enable them to avoid further risk.

#### 4.3 A MODEL OF ACTION: MOTIVATION AND POWER

This section outlines our theory of what determines the choices people make. In Chapter 3 we described the behaviours in the population of MSM that are determining HIV incidence. Here we introduce the theoretical model that mediates between these behaviours of MSM and the interventions described in Chapter 6. The theory outlined here is an extended version of the Information-Motivation-Skills Theory<sup>72, 73, 74</sup>.

In order to act people usually require both the motivation and the power to do so. This can broadly be characterised as wanting to do something and being able to do something. Both are not strictly necessary: people can be forced to do something they do not want to do if they do not have the power to resist it being imposed on them. Similarly people can be prevented from doing something they do want to do if they do not have the power to engage in it. But people are more likely to engage in an action (or to avoid one) if they are both motivated to do it and able to do it.

It has long been observed that knowledge does not determine behaviour. This is because knowledge alone does not determine either motivation or power.

People are both individual and social beings, that is they both think for themselves and are influenced by others. So the motivation to act comprises both psychological and social components: people are influenced both by what they think (their attitudes) and by what they think others do and think (their perceived social norms). This part of IMS Theory is taken over from the Theory of Reasoned Action<sup>75, 76</sup>.

##### 4.3.1 Motivation: attitudes

Attitudes are theoretical constructs that represent whether or not people have positive or negative orientations to objects, people or behaviours. An attitude towards an action (or inaction) is the outcome of (1) the awareness of the potential consequences of the action, (2) how much those consequences are valued, and (3) how likely the consequences is judged to occur. The consequences of acquiring or passing HIV or not, and the other consequences of the various behaviours associated with doing so, are diverse and wide ranging. Therefore, in any group of people a range of attitudes toward HIV/STI precautionary and risk behaviours will be found.

A consequence may have little weight in a person's attitude toward infection for three possible reasons: they are unaware of it (or understand it poorly); they think it is unlikely to happen; or they do not care if the consequence does or does not occur. Consequences of value can be both specific to individuals and shared with others. What people attach meaning or importance to is derived from other people and interpreted within their own lives. In other words, everyone influences each other's consequences of value all the time. Responsibility is inter-subjective because it consists of placing value on specific potential outcomes and those values arise from understandings of others. Values, including responsibility and irresponsibility, are contagious.

**Strategic Objective 1:** We will investigate which consequences of remaining HIV uninfected, of acquiring HIV, of not passing HIV and of passing HIV on, that are of value to gay and bisexual men, and we will act to increase their awareness of those consequences of value and their probability of occurring; as well as acting to make those consequences actually more likely.

We will focus on consequences which are of value to men themselves as these are the consequences likely to trigger precautionary choices. However, we will not simply attach the things men value to HIV (for example, we will not suggest men can have sex with more men if they remain HIV uninfected). We will focus on consequences (both physical and social) which have a real possibility of occurring and which are in fact related to HIV. We will focus on maximising men's awareness of both the benefits of remaining HIV uninfected and of not passing on infections (which may also be the costs of acquiring HIV and of passing it on).

We will not mislead men as to the probability of specific outcomes occurring. For example, we want men to know that HIV can kill, especially if untreated for a long time. However, acquiring HIV does not definitely swiftly kill and to encourage men to think so is not only dishonest but damaging to men who do acquire HIV.

We will not compound the negative consequences of HIV on people with HIV by recreating or acting out those negative consequences for the health benefit of men without HIV (for example, we will not suggest that having HIV is shameful and that HIV uninfected men should avoid HIV in order to avoid this shame).

#### 4.3.2 Motivation: social norms

A positive or negative attitude towards acquiring or transmitting HIV does not automatically result in the intention to carry out a particular choice. Motivation is also an outcome of social norms.

People are surrounded by cultural and sub-cultural rules about sexual behaviours and are acutely sensitive to the judgements of others about sexual conduct and performance<sup>77</sup>. Perceived social norms for an action consists of an understanding of what significant others do and think.

Significant others can have both positive and negative weighting. As well as being inclined to want to be like those they like, people are also inclined to want to be different from those they dislike. People may develop negative opinions of those who tell them what to do and some people may have a stance of rebellion against being told what to do, so some authority figures telling them what to do can have the reverse effect. This may

be particularly acute among gay men who have had to develop a culture of resistance simply to exist<sup>78</sup>. Since few people are universally regarded positively, any person's opinion has the potential to incline different people to contrary actions.

'Peer pressure' can result in people doing things which they have a negative attitude toward (or avoiding something they have a positive attitude toward). In the absence of a strong positive attitude toward remaining HIV uninfected, a strong social norm for doing so may motivate people to want to remain uninfected. However, in the absence of both positive attitudes and positive social norms for remaining uninfected, people have little reason for avoiding infection and may have reasons for acquiring it. Similarly, a positive attitude toward not passing on HIV is reinforced by a social norm for not doing so. However, in the absence of a strong positive attitude toward not passing HIV on, a perceived social norm for doing so may on its own motivate people to do so. In both cases a strong perceived social norm toward acquiring or passing on can override a positive attitude toward staying uninfected or not passing HIV on.

**Strategic Objective 2:** We will investigate whose opinions gay and bisexual men care about (that is, who their liked significant others are), and act to encourage those people to express positive attitudes towards remaining uninfected and not passing HIV on, and towards precautionary choices for doing so.

Through these means we hope to increase the entire community's sense of responsibility for the HIV epidemic. Responsibility is contagious, and people become involved in HIV transmission because those around them did not express enough concern that they do otherwise.

#### 4.3.3 Power: opportunity, resources and skills

All actions require an opportunity to perform (or avoid) them, and the resources and skills to carry them out. The opportunities, skills and resources required vary depending on what the action is (for example, people need a condom to have protected intercourse but not to have non-penetrative sex, for example).



HIV prevention needs can be defined as those factors about people and their social and physical environments that increase precautionary behaviours and which interventions are able to change. Needs can be considered in two broad categories: needs related to motivation (or the will) to reduce risks and needs related to abilities (or the power) to reduce risks. Knowledge can be considered a subset of each of these two categories of need but it is different knowledge that will motivate us from that which will give us the power to reduce risk. In terms of threats, people are able to protect themselves only if they have knowledge of the consequences of not doing so *and* knowledge of how to go about reducing the likelihood the threat will befall them. For example, the difference between the knowledge of what HIV might do to health if it is acquired, and the knowledge that HIV can be transmitted during sexual intercourse. So there is knowledge related to motivation and knowledge related to power.

**Strategic Objective 3:** We will investigate and respond to those unmet needs for knowledge, opportunities, skills and resources which enable us to remain HIV uninfected and/or to keep HIV to ourselves.

#### 4.3.4 Power: consumer choices and supply factors

The distribution of the choices in the population (how many men do one thing rather than another) is driven by more than the choices themselves. The supply of the opportunities and resources required to engage in sexual HIV risk behaviours may influence the level of risk behaviour in the population. These include:

- supply of opportunities to make contact with potential sexual partners;
- supply of ways to communicate with potential sexual partners;
- supply of places to meet sexual partners;
- supply of places to have sex / locations suitable for anal intercourse;
- sale and distribution of condoms and lubricants;
- shops / outlets for nitrite inhalants ('poppers');

There has been a major increase in the commercial supply of all of these services in the last decade in England both through the internet and through the creation of semi-public sexual spaces (saunas and sex clubs). These services facilitate risk choices by making the physical opportunities and resources required for them more plentiful. They facilitate better sex because they enable choices to be made. We will not seek to nudge men toward choosing precautions by disabling them from choosing risks. We will not therefore pursue reducing the above supply factors in order to make precautionary choices more likely.

This intention does not preclude or prevent us from acting to influence suppliers of these services to minimise the risks the services may pose. Nor does it prevent us from creating alternatives to sexual activity for MSM.

### 4.4 CHOICE ZERO: BEING INVOLVED IN HIV TRANSMISSION OR NOT

Before the choices people make around any particular HIV risk or precautionary behaviour (for example, declining sex, using a condom for intercourse, or seeking PEP following exposure) there is the question of increasing their motivation to reduce HIV risks at all. The motivation to avoid HIV risk does not result in any single behavioural choice. For example, it is not the case that 'unprotected intercourse = HIV' and that 'HIV prevention = condoms'. Men may react to knowledge of HIV in a variety of ways depending on their values and circumstances. However, all risk reduction choices can be motivated by increasing: knowledge of the existence of HIV; awareness of the consequences and impact of acquiring HIV; social norms for risk reduction; the knowledge and power to reduce risk. This section considers these generalised HIV prevention needs.

#### 4.4.1 The motivation to avoid acquiring HIV

In order to lay the groundwork for any risk reduction promotion, we want men to have some basic knowledge of what HIV is, how common it is and what its general impact might be. This includes the following facts (the facts in this and the following sections have been agreed by the CHAPS partners as the knowledge base we wish to promote).

Choice	Not acquiring HIV	Acquiring HIV
Knowledge	<ul style="list-style-type: none"> <li>• HIV is a virus that can infect humans.</li> <li>• HIV is an incurable infection, once someone has it they cannot get rid of it.</li> <li>• HIV infection can cause a disease where the body is unable to defend itself against infections.</li> <li>• HIV infection can increase the likelihood of cancers and cardio-vascular diseases.</li> <li>• HIV infection is a stigmatised disease and people diagnosed with it are sometimes shunned and blamed for their illness.</li> <li>• In 2009 about 35,000 gay and bisexual men were living with HIV in the UK and about 2,500 are diagnosed with the infection each year.</li> <li>• HIV is now a treatable medical condition.</li> <li>• The majority of people who have been diagnosed with the virus remain fit and well on treatment.</li> <li>• The long-term effects of both HIV and anti-HIV drugs can be debilitating.</li> <li>• Although drugs can prevent most people with HIV from dying, about 200 gay and bisexual men die from HIV infection each year in the UK.</li> <li>• The longer HIV goes undiagnosed and untreated the more likely a person is to die of HIV disease.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• Less vulnerable to other STIs.</li> <li>• Less anxiety about health.</li> <li>• Not dying prematurely.</li> <li>• Not suffer the physical and mental effects of HIV and drugs.</li> <li>• Not suffer the social effects of being a person with HIV (guilt and stigma).</li> <li>• Not passing HIV to someone else.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Not worrying about catching HIV anymore.</li> <li>• Emotional and physical closeness with other HIV positive men.</li> <li>• Access to financial / social support for people with HIV.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• On-going anxiety about acquiring HIV.</li> <li>• Feeling excluded from the social bond between HIV positive men and exclusion from positive only sex clubs.</li> <li>• Exclusion from financial / social support for people with HIV.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• More vulnerable to other STIs.</li> <li>• More anxiety about health.</li> <li>• Dying prematurely.</li> <li>• Suffer the physical and mental effects of HIV and its treatments.</li> <li>• Suffer the social effects of being a person with HIV (guilt and stigma).</li> <li>• Passing HIV to someone else.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>

These are *examples* of the kinds of consequences men may be aware of. The consequences they actually consider are likely to be far more detailed and directly relevant to their lives. The consequences are founded on what men know and believe about HIV, and what they think they know may be incorrect. This does not prevent them from forming attitudes based on that incorrect knowledge.

People are more likely to choose an option that brings

them greater benefits and fewer costs. In order to motivate men to reduce their risks of HIV infection, we want them in particular to be aware of the benefits of remaining HIV uninfected and the costs of acquiring HIV.

We do not believe many men seek to acquire HIV (belittled and caricatured as ‘bug-chasers’) or seek to pass HIV on (demonised as ‘gift-givers’), although some circumstances give rise to this desire and we acknowledge that some men are in this position.

Choice	Not passing on HIV	Passing on HIV
Benefits	<ul style="list-style-type: none"> <li>Someone else not dying prematurely.</li> <li>Someone else not suffer the physical and mental effects of HIV and drugs.</li> <li>Someone else not suffer the social effects of being a person with HIV (guilt and stigma).</li> <li>Someone else not passing HIV to someone else.</li> <li>Feelings at having avoided the above.</li> <li>Not suffer the social effects of being a person who has passed on HIV (guilt and stigma).</li> <li>Freedom from prosecution for having passed our infection.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>Someone else not worrying about catching HIV.</li> <li>Someone else experiences emotional and physical closeness with HIV positive men.</li> <li>A partner may stay with us if they are also positive.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>
Costs	<ul style="list-style-type: none"> <li>Someone else has on-going anxiety about acquiring HIV.</li> <li>Someone else feels excluded from the social bond between HIV positive men and excluded from positive only sex clubs.</li> <li>An uninfected partner may leave us if they remain uninfected.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>Someone else dies prematurely.</li> <li>Someone else suffers the physical and mental effects of HIV and drugs.</li> <li>Someone else suffers the social effects of being a person with HIV (guilt and stigma).</li> <li>Someone else passing HIV to someone else.</li> <li>Feelings at having contributed to the above.</li> <li>Suffer the social effects of being a person who has passed on HIV (guilt and stigma).</li> <li>Prosecution if disclosure of HIV status does not occur before sex.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>

#### 4.4.2 The motivation to avoid passing on HIV

All people who acquire HIV are then at risk of passing it on. As with acquiring HIV, the consequences of passing it on are diverse. The following table illustrates some of the potential consequences that may be of value to MSM.

These are generic *examples* of the kinds of consequences people may have an understanding of. The broad groups of potential consequences of passing HIV are an extension of those of remaining uninfected or acquiring HIV but for someone else, plus further potential consequences for the person passing the infection.

Choice	Remain uninfected / not pass HIV on	Acquire HIV / pass HIV on
Knowledge	<ul style="list-style-type: none"> <li>• How HIV is and is not transmitted.</li> <li>• How to reduce the risk of HIV transmission.</li> </ul>	
Opportunity & resources	<ul style="list-style-type: none"> <li>• Physical autonomy (not being physically forced).</li> <li>• Economic power.</li> <li>• Control over sex (including through negotiation beforehand).</li> <li>• Control over our alcohol and drug use.</li> <li>• Opportunities for psycho-social change.</li> <li>• Access to information about HIV, its transmission and prevention.</li> </ul>	[We recognise that men have more opportunity to acquire HIV the more sexual partners they are able to meet. However, we will not attempt to make risk taking less likely by acting to reduce their opportunities to meet new sex partners.]
Skills	<ul style="list-style-type: none"> <li>• Sexual negotiation skills.</li> <li>• Being equipped and competent to negotiate sex.</li> <li>• The ability to anticipate risk and to own our reactions to it.</li> <li>• Ability to balance own desires with expectations of others.</li> <li>• The interpersonal skills to negotiate sex.</li> <li>• A sense of social inclusion (not alienation)</li> <li>• Self-esteem.</li> <li>• Feeling happy with our sexuality.</li> <li>• Ability to envisage a future for ourselves and a means to achieve it.</li> <li>• Ability to recognise our sexual behaviour to be a problem if it repeatedly involves risks later regretted.</li> <li>• The self-confidence to negotiate sex.</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling like we're not worth caring for. [REDUCE]</li> <li>• Feeling our sexuality is a problem to us. [REDUCE]</li> <li>• Seeing no future for ourselves. [REDUCE]</li> <li>• Feeling our sexual behaviour is a problem (although our sexual behaviour is not a problem to our sexual partners). [REDUCE]</li> </ul>

#### 4.4.3 The power to avoid or reduce the risk of acquiring and passing on HIV

Simply wanting to reduce HIV transmission risk is not enough. People need to know how to reduce or eliminate risk and be able to enact those decisions. In order to choose to reduce risk people require the knowledge of how to do so, the belief that they can carry out preventative actions and the opportunity for doing so, and the skills and resources required. The following table illustrates the range of factors involved.

We will therefore increase men's knowledge of practical ways to reduce STI/HIV risk, including knowledge of how infectious agents are and are not transmitted. The scientific literature will be the basis for this education. We will also increase men's real opportunities to reduce their risks through increasing the control they have over risk reduction.

Men will not be prevented from acquiring or passing on HIV by reducing their opportunities to meet sexual partners who do (or do not have HIV). However, we will address men's lack of motivation to avoid HIV because of feelings of worthlessness, hopelessness, or self-punishment. We will also enable men to choose precautionary choices by ensuring they have sufficient economic, interpersonal and psychological power to do so.

These power needs are not specific to any one method of risk reduction but are the generic needs to reduce risk. Since these needs lie at the root of all preventative actions, they are likely to hinder all precautionary choices if they are not met.

#### 4.4.4 Drug and alcohol use

A major obstacle to men having power over their sexual choices can be the use of alcohol and other drugs. Intoxication can undermine motivation and can reduce interpersonal and motor skills. In extreme cases it can disable physical autonomy and leave people vulnerable to accident and assault.

All illicit drugs are used by a higher proportion of the MSM population than the general male population<sup>79</sup>. Over the last ten year the prevalence of use of different drugs has changed, with use of amyl nitrite (poppers), cannabis, amphetamine and LSD becoming less common, and use of cocaine, ecstasy, ketamine and GHB increasing. However, cannabis and poppers remain the most commonly used drugs after alcohol. Polydrug use is common.

Awareness and uptake of drugs services is low among MSM. From the perspective of service users, good practice in drugs services means treatment and prevention programmes being aware of the specific needs of the LGBT population. Clinic-based support should include marketing in social venues accessed by MSM.

The extent of problematic alcohol and drug use in a local population of MSM (and the need for services to address them) should be included in HIV prevention needs assessments, including ensuring that MSM are explicitly addressed in drugs services needs assessments.

### 4.5 THE MOTIVATION AND POWER TO MAKE TEN PRECAUTIONARY BEHAVIOURS

The following ten sections consider each of the choices identified in section 4.1 and outlines the range of factors influencing that choice. We identify those factors which we intend to influence, which we will refer to as needs. We also distinguish a number of factors contributing to choices which we acknowledge but do not intend to attempt to influence. The needs are grouped by: useful knowledge (facts that we believe to be true that can help men form an attitude); benefits and costs (consequences that may or may not be of value to men); social norms (who significant others may be and what they think about the choices); and the

opportunities, resources, and skills necessary to enact the choices.

#### 4.5.1 Choice One: STI screening before the next new sex partner, or not

For everyone who picks up HIV or another sexually transmitted infection (STI), someone passes it on. The first behavioural choice is about the risk of passing on sexually transmitted infections when men have new sexual partners, as well as reducing the impact of infections they pick up. If men have not been diagnosed with HIV we consider an HIV test part of an STI checkup.

Although some men currently have too many partners for it to be feasible to STI screen between each one, all men always have the choice of seeking an STI screen before their next partner by declining or deferring their next partner (see Choice 1). It is not that having an STI screen between each partner is unfeasible but that many men consistently choose not to do so. In this case men will be unable to be 100% confident they are not contributing to HIV/STI risk.

Doctors recommend at least annual STI/HIV screening for MSM, and that a suspicion of symptoms should prompt immediate screening. The BHIVA / BASHH / BIS Guidelines on HIV Testing<sup>80</sup> aim to ensure all MSM know that medical authorities think they should test for HIV early and often. We will aim to ensure men know that doctors think they should test for HIV.

The BHIVA Guidelines also intend for men to be aware of the benefits of HIV testing and the costs of not doing so, and are concordant with this framework. Swifter HIV diagnosis is one route to less harm both for the individual infected and potentially for those he has sex with.

Some social networks of HIV positive men organise 'bareback orgies' (closed spaces for multi-partner anal sexual contact without condoms). It has been claimed that these events do not contribute to the spread of HIV to those who are uninfected. However, the number of new HIV infections is related to the number of other STIs among men with HIV. HIV positive men can only be confident of not contributing to HIV incidence by having an STI screen *before* attending such events. Passing an

Choice 1	Having an STI check-up for sexually transmitted infections BEFORE the next sexual partner (including HIV if we have not been diagnosed with it).	Taking no action about STIs between sexual partners.
Knowledge	<p><i>The HIV Test</i></p> <ul style="list-style-type: none"> <li>• Medical tests exist which can determine whether we are infected with HIV or not.</li> <li>• HIV infection has a 'window period' where very recent infection may not be detected – the length of this period varies by the type of test used.</li> <li>• The most modern HIV tests (called 4th generation assay tests) can detect infections from 12 days following exposure, however such tests may not be available at our local service.</li> <li>• We can ask for a free and confidential test at our local sexual health clinic and other services providing HIV tests.</li> <li>• HIV tests usually use a blood sample (from a vein or a finger prick) and sometimes a saliva sample.</li> <li>• Some tests can provide results within minutes and some testing services can provide results at the same visit.</li> <li>• Some clinics still need to send samples away to be tested but rapid HIV testing clinics can offer results at the same visit as giving the blood sample.</li> <li>• A test result applies only to the person taking the test and not to any of their sexual partners.</li> <li>• A negative test result (if the window period has passed) means we are almost certainly not infected with HIV, but does not mean we are immune, even if we know we have been exposed to HIV – subsequent risk taking will mean we can no longer rely on a negative result.</li> <li>• A positive HIV test result means we are infected with HIV.</li> <li>• Having HIV infection does not depend on whether that infection is diagnosed or not: if we have the virus it does not go away if we ignore it.</li> <li>• Men with undiagnosed HIV may pass their virus to others unawares.</li> </ul> <p><i>(Un)diagnosed infection</i></p> <ul style="list-style-type: none"> <li>• If we acquire HIV, having it diagnosed means we may benefit from health monitoring, medical treatment and support services that would be unavailable if our infection remained undiagnosed.</li> <li>• Late diagnosis is the most important factor associated with HIV-related illness and death in the UK.</li> <li>• About a quarter of gay and bisexual men with HIV in the UK do not know they are infected and the average length of time men spend with undiagnosed infection is about four years.</li> </ul> <p><i>Sero-conversion illness</i></p> <ul style="list-style-type: none"> <li>• People can experience symptoms when they acquire HIV that can then pass despite people remaining HIV infected.</li> <li>• Many people who acquire HIV experience flu-like symptoms in the first few weeks after infection that then pass.</li> <li>• Common symptoms of seroconversion are fever, rash and sore throat occurring together.</li> <li>• A fever, rash and sore throat occurring together after recent sexual risk are warning signs of having picked up HIV.</li> </ul> <p><i>Viral load and infectivity</i></p> <ul style="list-style-type: none"> <li>• Only people with HIV infection can pass the infection to others.</li> <li>• An HIV positive man with a detectable viral load is able to pass the infection to his sexual partners.</li> <li>• An undetectable plasma viral load may mean an HIV positive man is unable to pass HIV infection if he stays free of other STIs.</li> <li>• HIV plasma viral load tests do not necessarily reflect seminal viral load.</li> <li>• HIV plasma viral load alone cannot be used as a guide to infectiousness.</li> <li>• If an HIV infected man engages in unprotected anal intercourse and acquires a penile infection which increases seminal viral load, he may be highly infectious.</li> </ul> <p><i>Other sexually transmitted infections</i></p> <ul style="list-style-type: none"> <li>• As well as HIV, six other STIs can be fatal (syphilis, hepatitis B and hepatitis C can kill; human papillomavirus, herpes (HPV) can cause cancers which kill; chlamydia and gonorrhoea can cause pelvic inflammatory disease (PID) in women which can kill)</li> <li>• As well as HIV, three other STIs are incurable (human papillomavirus (HPV), herpes and hepatitis B).</li> <li>• Some STIs can increase the likelihood of HIV infected people transmitting the virus during sexual encounters.</li> <li>• Some STIs can increase the likelihood of people being infected with HIV during sexual encounters.</li> </ul>	

Choice 1	Having an STI check-up for sexually transmitted infections BEFORE the next sexual partner (including HIV if we have not been diagnosed with it).	Taking no action about STIs between sexual partners.
Benefits	<p><i>If we test positive</i></p> <ul style="list-style-type: none"> <li>Any infections we have caught can be treated swiftly giving us a better prognosis.</li> <li>We can pay closer medical attention to our general health (non-HIV related illnesses will be picked up sooner)</li> <li>Opportunities to take an active role in our own health management.</li> <li>We can be sure we are not contributing to HIV/STI rates if we wait until any infections are under control before having sex.</li> </ul> <p><i>If we test negative</i></p> <ul style="list-style-type: none"> <li>Peace of mind.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Less hassle in the immediate short-term.</li> <li>Not having to think (and feel) about HIV/STIs.</li> <li>Not suffering discrimination for testing or for testing positive (eg. still being able to visit countries with bans on people with HIV)</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>Going for an STI screen takes time and effort (which is the same whether we are diagnosed with something or not).</li> <li>Psychological and emotional barriers to HIV testing.</li> <li>Discriminated against for testing for HIV/STIs.</li> </ul> <p><i>If we test positive for HIV</i></p> <ul style="list-style-type: none"> <li>Discriminated against (eg. barred from some countries unless you lie and/or endanger your medication)</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>The more partners we have between STI screens the more we risk passing on STIs, which are harmful in themselves and can also contribute to HIV infections.</li> <li>The longer we spend with STIs before we have them treated, the more damage they can do, including death.</li> <li>Continuing disregard for our health.</li> <li>Missing opportunities for health monitoring.</li> <li>Continue to have a nagging doubt about infecting others and our own health deteriorating.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to HIV/STI screen before my next sex partner?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to have another partner without an HIV/STI screen since my last partner?</i></p> <p><i>How significant are they to me?</i></p>
Resources	<ul style="list-style-type: none"> <li>Access to a trusted HIV/STI testing service and to current treatments for infections that are diagnosed.</li> <li>The time to attend when the HIV/STI service is open.</li> <li>Freedom to choose to test for HIV/STIs (not being prevented from testing).</li> </ul>	<p>[We recognise that men are more likely to test for HIV/STIs if they have their ability to avoid doing so removed (for example by coercive or surreptitious testing). However, we will not attempt to make HIV/STI testing more likely by removing men's ability to choose not to test.]</p>
Skills	<ul style="list-style-type: none"> <li>Confidence to access an STI/HIV testing service.</li> </ul>	--

STI to an HIV positive man means he is more infectious when he next has sex with uninfected men.

**Population Target #1: Reduce the average length of time between HIV infection and HIV diagnosis in men who become infected.**

This target is shared with other agencies concerned with HIV, in particular clinical sexual health services.



#### 4.5.2 Choice Two: taking HIV treatment, or not (if men have diagnosed HIV infection)

Virally suppressive anti-HIV treatment significantly reduces the risk of passing on HIV if a condom breaks or is not used. Although BHIVA treatment guidelines recommend that starting HIV treatment should be recommended to all people with a CD4 count of 350 cells/mm<sup>3</sup> or below, one in five HIV-positive men who have sex with men with a CD4 count below this level are not taking treatment (1016 of 5158 men, i.e. 19.6%)<sup>31</sup>.

While the decision to start treatment must primarily be determined by the clinical benefit for the individual, a decision to take effective treatment also potentially reduces harms to that person's sexual partners and to public health. BHIVA guidelines recommend that reducing transmission may be a factor to consider in initiating anti-retroviral therapy when a person has a CD4 count above 350 cells/mm<sup>3</sup><sup>81</sup>.

The most relevant studies have been conducted with heterosexuals. While the reduction in infectiousness during anal sex cannot be quantified, it is likely to be substantial.

In a recent study conducted with 3,381 heterosexual couples in several African countries, the researchers calculated that treatment reduced the transmission risk by 92%. In each couple, one partner had HIV while the other did not. There were 103 HIV transmissions, but 102 of these were from a partner not taking HIV treatment<sup>30</sup>.

A 92% reduction in risk is comparable to the reduction in risk given by consistent condom use (as a minority of condoms may break or otherwise fail). A combined strategy of consistent condom use and effective treatment is likely to be the most effective of all if men with diagnosed infection have intercourse with men without infection.

**Population Target #2: increase the proportion of MSM with diagnosed HIV who are on fully suppressive anti-retroviral therapy.**

Choice 2	Taking virally suppressive HIV treatment (if supported by clinical BHIVA guidelines or recommended by the person's doctor).	Not taking treatment.
Knowledge	<ul style="list-style-type: none"> <li>HIV treatment slows the spread of HIV in the body, prevents illnesses and prolongs life; by taking HIV treatment doctors believe that people with HIV can lead a more or less normal lifespan.</li> <li>Untreated HIV infection can lead to a wide range of health complications.</li> <li>The goal of HIV treatment is undetectable viral load.</li> <li>HIV plasma viral load tests do not necessarily reflect seminal viral load: HIV plasma viral load alone cannot be used as a guide to sexual infectiousness.</li> <li>Current treatments include fewer pills and less severe side effects than in the 1990s.</li> <li>For HIV treatment to be effective it needs to be taken at the right time and in the right way 95% of the time.</li> <li>HIV drugs can cause side-effects; many of these are manageable.</li> <li>Having an undetectable viral load reduces the risk of sexual transmission to sexual partners if sexual exposure to an uninfected person occurs.</li> <li>Fully virally suppressive anti-retroviral therapy reduces but does not eliminate the risk of transmission.</li> <li>Virally suppressive treatment may have a similar effectiveness to consistent condom use.</li> <li>Sexually transmitted infections can increase seminal viral load; if an HIV infected man engages in unprotected anal intercourse and acquires a penile infection which increases seminal viral load, he may be highly infectious.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>Less risk of illnesses, opportunistic infections and long-term complications of HIV infection.</li> <li>Prolong life expectancy.</li> <li>Feel that I am taking some positive action in relation to having HIV.</li> <li>Reduced risk of passing HIV on to a sexual partner if exposure occurs.</li> <li>Reduce anxiety about passing HIV on.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Freedom from daily medication.</li> <li>Chance to push HIV to back of the mind until later.</li> <li>Freedom from short and long-term unwanted effects of medication.</li> <li>Easier to keep HIV status private if not taking medication.</li> <li>Avoid medicalisation of life.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>Having to manage daily medication.</li> <li>Being daily reminded of HIV status.</li> <li>Medication may have short and long-term unwanted effects.</li> <li>May result in others knowing about HIV status.</li> <li>Contributes to medicalisation of life – becoming a patient.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Greater risk of illnesses, opportunistic infections and long-term complications of HIV infection.</li> <li>Shorten life expectancy.</li> <li>Feeling less in control of HIV.</li> <li>Continuing risk of passing HIV on to a sexual partner if exposure occurs.</li> <li>Greater anxiety about passing HIV on.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p>Who wants me to take virally suppressive HIV treatment (if supported by clinical guidelines)?</p> <p>How significant are they to me?</p>	<p>Who wants me to NOT take virally suppressive HIV treatment (even if supported by clinical guidelines)?</p> <p>How significant are they to me?</p>
Resources	<ul style="list-style-type: none"> <li>Access to free NHS care.</li> <li>Social support.</li> </ul>	[We recognise that men may be more likely to take treatments if they have their ability to avoid doing so removed (for example by coercive treatment). However, we will not attempt to make treatment taking more likely by removing men's ability to choose not to treat.]
Skills	<ul style="list-style-type: none"> <li>Ability to adhere to daily medication.</li> <li>Ability to communicate effectively with clinicians.</li> </ul>	--

#### 4.5.3 Choice Three: declining or deferring a new sexual partner, or having a new sex partner (if men have an opportunity for a new sex partner)

Better sex is not the same as more sex partners. Saying 'No, thanks!', or 'How about next week?' or 'How about going for a [something other than sex]?' are all choices men have when an opportunity arises for sex with a new partner. Having sex with a new partner, particularly not having had an STI screen since the last partner, is a sexual health risk behaviour relative to choosing to do something other than having a new partner.

Consistently choosing not to have sex whenever presented with an opportunity for a new partner is sometimes called abstinence or celibacy. For some men this will be a preferred 'sexual' lifestyle, perhaps for an extended period of time. However, people do not have to make any one choice every time they are presented with it. Precautionary choices are not all or nothing choices and we are *not* advocating abstinence (that is, consistently choosing not to have a new sex partner) as a solution to HIV infection. However, declining, deferring or dating a potential sexual partner rather than having sex with him, and extending the length of time between new sexual partners can have beneficial impacts. Even in the absence of STI/HIV, there are benefits to declining sex. This is particularly the case where the sex utility was low (that is, bad sex).

We will promote choosing to do something other than have sex with a new partner by increasing men's awareness of the benefits of doing so. For example, if men are looking for a close emotional relationship with another man, meeting as friends first rather than sex

partners can lay a better foundation for a future together. We will also raise men's awareness of the potential costs of having new partners.

We will not attempt to reduce men's choosing to have new sex partners by undermining their opportunities for doing so. This means we will not attempt to close down or limit men's places to meet sex partners (except within the law), nor to disable them from pursuing casual sex practices. Instead, we will increase men's ability to decline or defer sex by increasing assertiveness, interpersonal skills and self-confidence. We recognise these also increase men's ability to choose to have sex.

We recognise that some men in some situations will choose to take the risk of having sex with a new partner if the opportunity arises (with or without having tested for STIs since their last sex partner). Without attempting to limit the choice to have sex, we wish to influence the relative frequencies with which men acquired new sex partners and have STI screens.

#### **Population Target #3: reduce the average number of sexual partners between STI screens.**

Rather than aiming for men to have fewer sexual partners and/or specifying a length of time within which we aim for every man to have an STI screen (eg. every year), we are targeting the relationship between partners and sexual health screens. There are definitional issues with 'sex' and the range of tests that go toward an STI screen. However the intention is clear – we aim for men to have more STI screens per sexual partner (or fewer partners per STI screen) than is currently the case.

Choice 3	Declining, deferring or dating the next opportunity for sex with a new partner.	Having sex with a new partner.
Knowledge	<ul style="list-style-type: none"> <li>• The more people we have sex with the more likely we are to pick up sexually transmitted infections.</li> <li>• The more people we have sex with between STI screens the more likely we are to pick up and pass on an STI.</li> <li>• The more sex partners we have the more likely we are to be sexually assaulted.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• No risk of HIV/STI transmission.</li> <li>• Less risk of sexual assault.</li> <li>• Getting to know someone before sex might improve the chances of a permanent relationship.</li> <li>• Less likely to have sex with someone incompatible.</li> <li>• If we have not had an STI screen since our last partner (Choice 1), we can arrange to have one.</li> <li>• Allows us to invest our time in other pursuits.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be exciting, affirming and erotic.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• Might mean sex does not happen and an opportunity to get to know someone sexually is lost.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Some risk of acquiring HIV/STI transmission.</li> <li>• Increased risk of assault.</li> <li>• Having many partners can blunt our emotional apparatus making emotionally meaningful relationships difficult.</li> <li>• The sex may be poor or bad.</li> <li>• If we have not had an STI screen since our last partner, some risk of passing on an STI.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to decline or defer my next opportunity for sex with a new partner?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to have sex with a new partner at the next opportunity?</i></p> <p><i>How significant are they to me?</i></p>
Resources	<ul style="list-style-type: none"> <li>• Physical autonomy (not being sexually assaulted).</li> <li>• Being able to afford to say no to sex (not being financially exploited).</li> <li>• Access to social alternatives to drink, drugs and sex.</li> <li>• Not thinking we are expected to have sex.</li> </ul>	<p>[We recognise that men are more able to have new sex partners the more opportunities and resources they have to do so, such as ways to meet men and self-confidence. However, we will not attempt to make having new sex partners less likely by acting to reduce these resources.]</p>
Skills	<ul style="list-style-type: none"> <li>• Ability to decline sexual contact, either verbally or non-verbally.</li> </ul>	<p>[We recognise that men are more able to have new sex partners the more skills they have to do so, such as negotiation skills, chat-up lines and the ability to verbally and non-verbally invite sexual contact. However, we will not attempt to make having new sex partners less likely by acting to reduce these skills.]</p>

#### 4.5.4 Choice Four: telling sexual partners about HIV/STI infections, or not (if men have sexual partners)

Sex between men occurs in a wide variety of contexts and with a varying amount of personal information exchanged before and after sex. Before (as well as after) sex people have the choice of talking about HIV/STIs, telling potential partner about any infections known about and bringing up the kind of sex (eg. intercourse or not, condom or not) we are willing to have.

Knowledge and perception of their own and their sexual partners HIV status is central to the risks people are willing to take. Believing a partner to have the same HIV status means believing there is little risk of HIV infection. Many men who engage in HIV risk behaviour do so because they believe the sex they are having carries little or no risk. Both because of undiagnosed infection and because of other misreadings of HIV sero-concordancy, this choice (and what results from it) impacts on all other choices.

Expectation of HIV disclosure is very high among MSM although disclosure itself is relatively low. Expecting to be told that a person you are about to have sex with has HIV is a problem both because around a third of people with HIV do not know they have it and because many people who do know they have HIV will not tell sexual partners before sex.

Many men, especially with casual sexual partners, choose to not to bring up HIV/STI because they either intend to have no anal intercourse or to have anal intercourse with a condom, and have decided this is a risk they are willing to take.

Some men with diagnosed HIV infection attempt to limit HIV risk behaviours to other men with HIV by 'choosing partners carefully' or 'sero-sorting'. This should be easier for men who know they have HIV than for those who do not, and should be able to reduce HIV transmission risk compared to infected men engaging in risk behaviours with no regard for the HIV status of partners. However, in practice many HIV positive men make optimistic judgements that their sexual partners in casual or anonymous settings also have HIV without making verbal confirmation<sup>40</sup>. Similarly, some men who believe themselves uninfected attempt to limit sexual risk

behaviours to men they think also do not have HIV, but again with extensive assumptions. Limited to one partner this has been labelled 'negotiating safety' (ensuring mutual HIV uninfected statuses by testing together before engaging in intercourse *and* agreeing on avoiding risk behaviours with third parties) and can reduce the risk of HIV acquisition substantially compared with engaging in unprotected intercourse with no recourse to tests or sharing information<sup>82</sup>. It does not eliminate risk because of the possibility of a partner not sticking to the agreement, picking up HIV and passing it to their partner (for example, HIV incidence among men in negotiated safety arrangements in Sydney has been measured at 0.55%<sup>49</sup>).

Attempting to limit risk behaviours to men without HIV when doing so with more than one partner ('choosing partners carefully' or 'sero-sorting') is less likely to be successful than limiting them to one partner, but is still able to reduce HIV acquisition risk compared to engaging in risk behaviours with no regard for the HIV status of partners. The majority of MSM with undiagnosed infection in England have previously tested HIV negative and still believe they are HIV uninfected<sup>17</sup>. Uninfected men are unable to successfully reject all infected partners because of the extent of undiagnosed infection. Engaging in risk acts with men whose HIV status is unknown may be more likely to result in infection than doing so with a man known to be HIV infected due to differences in viral load (and therefore infectivity) between diagnosed and undiagnosed men with HIV<sup>83</sup>.

Knowing who infection was acquired from can result in greater sharing of understanding in the future. Although some people react unpleasantly (or violently) to knowing who they got an infection from, not knowing is more likely to result in also withholding understanding. Greater certainty about who men had contracted HIV from is associated with disclosure of positive HIV status to new partners, while greater uncertainty is associated with not disclosing HIV serostatus to new partners<sup>84</sup>.

Prosecutions for harm associated with transmitting STIs are not limited to HIV. All men are at risk of prosecution if they, for example, attend sex venues in the knowledge of having an STI and having sex without ensuring their partners know about their infection beforehand.

Choice 4	Telling sexual partners about our HIV/STI status.	Saying nothing (or misleading) about our HIV/STI status.
Knowledge	<ul style="list-style-type: none"> <li>• We can be prosecuted for passing any serious STI we are aware of to a sexual partner who does not know about our infection.</li> <li>• There are both HIV-uninfected and HIV-infected homosexually active men in all areas of England and in every country in the world.</li> <li>• A man's appearance, age, ethnic group, life experience and behaviour are neither accurate nor reliable ways of telling whether he is infected with HIV or not.</li> <li>• People can have HIV without experiencing any symptoms.</li> <li>• We cannot tell if someone has HIV or not by looking at them.</li> <li>• Some men believe their HIV status to be other than it actually is: many men who have HIV have not yet been diagnosed and still believe themselves to be HIV uninfected.</li> <li>• Some men who do know their HIV/STI status will engage in sexual intercourse without disclosing their HIV status, irrespective of any legal sanction.</li> </ul>	
Benefits	<p><i>Telling people we've already had sex with</i></p> <ul style="list-style-type: none"> <li>• They can seek a screening and catch any infection early.</li> </ul> <p><i>Telling people we might have sex with</i></p> <ul style="list-style-type: none"> <li>• Allows them to decide what risks they think are worth taking.</li> <li>• Demonstrates our care for them and increases the chances they will think well of us.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Our infection is less likely to become common knowledge.</li> <li>• More likely to avoid rejection (we get some sex).</li> <li>• Less likely partner is preoccupied with our infection.</li> <li>• More likely to avoid violence from a partner.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• The partner may tell others we do not wish to know about our infection.</li> <li>• The partner may reject us and not want to have sex.</li> <li>• The partner may want to talk about it when all we want to do is have sex.</li> <li>• The partner may be violent.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• A partner may find out about an infection we did not tell them about and feel they were not given a choice about the risks involved, think badly of us or be violent.</li> <li>• We risk prosecution and imprisonment if we pass on any STI (not just HIV) to a sexual partner we have not told about our infection before having sex.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to tell my partners about my infection/s?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to say nothing to my partner/s about my infection/s?</i></p> <p><i>How significant are they to me?</i></p>
Resources	<ul style="list-style-type: none"> <li>• Ability to raise and respond to discussion of HIV/STIs and safer sex.</li> <li>• Ability to judge the 'best moment' to bring up HIV and safer sex with a partner.</li> <li>• Freedom from fear of violence for sharing our HIV/STI status.</li> </ul>	— —
Skills	<ul style="list-style-type: none"> <li>• Assertiveness and interpersonal skills.</li> <li>• Ability to disclose our own HIV status to sexual partners.</li> <li>• Ability to respond sensitively and respectfully to disclosure of HIV status by partners.</li> </ul>	— —

We recognise that some men who know they have an infection, in some situations, choose to take the risk of having sex without disclosing their infection. Without removing that choice we want to influence the proportion who do so.

**Population Target #4: reduce the frequency with which men have unprotected anal intercourse without knowing whether or not they and their partner are HIV sero-concordant.**

This target concerns what men know about the risks they take, not whether they take the risks or not. Later targets concern the risks men take. Here we are concerned that, whenever risks are taken with UAI, men know what the risk they are taking. The target is change in the profile of the population.

#### **4.5.5 Choice Five: monogamy or open relationship (if men have a regular sexual partner)**

If men have a regular sexual partner they can choose whether to have sex with that partner only, or to also have sex with other people. The regular partner has the same choice. Sexual exclusivity is not normative among gay and bisexual men and many couples choose to have open relationships. Others choose to have sex only with each other, but one or both may not stick to this agreement. The potential consequences of these choices for both the relationship and the sexual health of both partners are extensive.

HIV positive men (who have no other STIs) in monogamous relationships with uninfected men are at small risk of transmission during sex (of any kind) if the positive partners viral load is undetectable. Non-monogamous relationships are at risk of other STIs (brought in by either partner) and therefore viral load

spikes which can make HIV transmission much more likely.

As well as increasing knowledge of the STI implications of different relationship configurations, we will attempt to influence men's choice of relationships by increasing awareness of the benefits of monogamous relationships and the costs of open-relationships. We will not attempt to disable or prevent men from implementing open relationships if that is what they and their partner choose.

Even in the absence of STI/HIV there are benefits to monogamy. However, we recognise that some men in sexual relationships with other men choose to also have sex with third parties, and that some men have multiple on-going sexual relationships. While making no attempt to remove that choice, we wish to reduce the extent of concurrent (that is sexually open or overlapping) partnerships in the MSM population.

**Population Target #5: increase the length of time since having an extra-relational sex partner, among men with a regular male sex partner.**

Sexual exclusivity in male-male relationships varies with length of relationship, age of partners, social setting and other factors. However, in opportunistic samples of gay men about half of the men with a regular partner also have sex with other men. There are distinctions to be made between explicit and implicit expectations and agreements, and actual behaviour, as well as definitional issues about 'relationships' and 'sex'.

The target is a profile in the population, not a proportion. Considering only those men with a regular partner, we wish to increase the average length of time since those men had sex with someone else.



Choice 5	A monogamous relationship (only having sex with each other).	A sexually-open relationship (also having sex with other people).
Knowledge	<ul style="list-style-type: none"> <li>• Couples in sexually open relationships increase their STI risks by sharing the risks with each other.</li> <li>• Many male couples choose and succeed in having monogamous relationships.</li> <li>• If neither partner in a monogamous relationship has HIV, they cannot pass it to each other whatever their sexual practices.</li> <li>• Relationships agreed to be monogamous are not always monogamous – some men cheat on their partners.</li> <li>• Couples who agree to limit unprotected intercourse to each other do not always stick to that agreement.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• Chance to develop deep and satisfying sex lives with one other person.</li> <li>• Provide a stable and secure foundation for emotional closeness and for benefiting from the focussed sexual attention of each other.</li> <li>• If neither partner has HIV, we can have any kind of sex we prefer without concern about passing HIV.</li> <li>• If one partner is uninfected while the other is infected, treatment adherent and has an undetectable HIV viral load, and neither has another STI, they are unlikely to pass HIV and can have any kind of sex they prefer without concern about passing HIV (they can still pass gut infections during anal intercourse without condoms).</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• More sexually variety.</li> <li>• Greater sense of personal freedom.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• May be boring.</li> <li>• Can feel confining.</li> <li>• Our partner may cheat on us anyway.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Sex becomes one less thing available to make a relationship special.</li> <li>• Feelings of jealousy and insecurity can result in more risk of relationship dissolving (break-up).</li> <li>• Double the risk of STIs as we are effectively sharing each others partners.</li> <li>• Couples in which one partner has HIV and one does not are much more likely to transmit HIV if one acquires an STI.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to be sexually exclusive (if I am in a steady relationship)?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to have sex with other people (if I am in a steady relationship)?</i></p> <p><i>How significant are they to me?</i></p>
Resources	<ul style="list-style-type: none"> <li>• A partner who has a positive attitude toward sexual exclusivity.</li> <li>• An ability to establish trust with a regular sexual partner.</li> <li>• An ability to negotiate sexual exclusivity and contingencies should it be broken.</li> </ul>	<ul style="list-style-type: none"> <li>• An ability to negotiate rules about sex with others and contingencies should they be broken.</li> </ul> <p>[We recognise that men are more able to have open relationships the more resources they have for meeting new partners such as ways to meet men and self-confidence. However, we will not attempt to make having open relationships less likely by acting to reduce these resources.]</p>
Skills	<ul style="list-style-type: none"> <li>• Interpersonal negotiation skills.</li> <li>• Conflict resolution skills.</li> </ul>	<p>[We recognise that men are more able to have open relationships the more skills they have for meeting new partners such as negotiation skills, chat-up lines and the ability to verbally and non-verbally invite sexual contact. However, we will not attempt to make open relationships less likely by acting to reduce these skills.]</p>

#### 4.5.6 Choice Six: sex without or with anal intercourse (if men have sex)

Sex between men is not equal to anal intercourse and men do not need to have anal intercourse to be gay. Even in the absence of HIV/STIs, there are benefits to not having intercourse when having sex.

Avoiding anal intercourse and instead having non-penetrative sex is a highly effective way of reducing HIV risk. Avoiding both insertive and receptive intercourse with all partners reduces the vast majority of HIV acquisition risk. Risk is not eliminated because HIV can be acquired orally.

Gay men are surrounded by messages that suggest gay sex equals anal intercourse. We will promote the notion of satisfying gay sex without intercourse in order to give men real choices about their sexual behaviour. We will also promote the notion that different sexual sessions with the same partner can include different sexual choices.

In order to choose sex other than intercourse men need to have physical autonomy, that is being free from

physical force and rape. Men also require a location to have sex in and we will promote safe spaces for men who have sex. We will not attempt to reduce men's ability to engage in intercourse by removing locations in which they can have it. Similarly, sexual competencies (for example, assertiveness, interpersonal sensitivity and skills, physical techniques) are required for all sex and we will promote these in order for men to make more precautionary choices.

Sex without intercourse can be erotic, intimate and satisfying. However, some pairs of men choose to have anal intercourse.

#### **Population Target #6: decrease the proportion of sexual sessions between men that feature anal intercourse.**

A surrogate marker for this target may be the average length of time since anal intercourse. This target may be distinguished by partner type or context of sex, for example, the proportion of sexual sessions with new partners that feature anal intercourse.

Choice 6	Kissing, rubbing, wanking, sucking, fingering (having all kinds of sex other than anal intercourse)	Having anal intercourse as well as other kinds of sex.
Knowledge	<ul style="list-style-type: none"> <li>HIV is carried in semen, pre-seminal fluid, anal mucus and blood.</li> <li>A body fluid from an infected person must enter the body of an uninfected person for infection to occur.</li> <li>Receiving the ejaculate of a man with HIV into the rectum is by far the most common and easiest method of acquiring HIV infection.</li> <li>HIV can and is also being acquired during receptive anal intercourse without ejaculation, and during insertive anal intercourse.</li> <li><b>Condoms are not 100% effective.</b></li> <li><b>Anal intercourse (with or without a condom) carries a greater risk of HIV and STI transmission than sex without anal intercourse.</b></li> <li>The more men we engage in intercourse with, the more likely it is that we will be involved in HIV transmission.</li> <li><b>HIV is very unlikely to be passed between partners who avoid anal intercourse and other STIs are also less likely to be passed on.</b></li> <li>Many gay men choose to not include anal intercourse with many of their sexual partners, or in many of their sexual sessions with the same partner.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>Can be exciting, affirming and erotic.</li> <li>Most sexual acts are easier to perform than anal intercourse and can be less messy.</li> <li>Masturbation and fellatio can feel more egalitarian than anal intercourse.</li> <li>Very small HIV risk.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>Can be exciting, affirming and erotic.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>
Costs	<ul style="list-style-type: none"> <li>Can feel it is missing something.</li> <li>STI infection may still occur even in the absence of intercourse.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>Can be routine, leave us feeling used and discarded, be unerotic, unpleasant or painful.</li> <li>Can be physically difficult to perform and messy with faeces.</li> <li>Can feel like 'aping heterosexuality'.</li> <li>Can have overtones of power or abuse.</li> <li>Larger HIV risk.</li> <li><i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>
Norms	<i>Who wants me to have non-penetrative sex (if I have sex)? How significant are they to me?</i>	<i>Who wants me to have anal intercourse (if I have sex)? How significant are they to me?</i>
Resources	<ul style="list-style-type: none"> <li>A location to have sex</li> <li>Physical autonomy (not being forced).</li> </ul>	[We recognise that men are more able to have anal intercourse the more resources they have for doing so, such as a location to have intercourse, a partner with a positive attitude toward having anal intercourse, and access to condoms and lubricant. However, we will not attempt to make having anal intercourse less likely by acting to reduce these resources.]
Skills	<ul style="list-style-type: none"> <li>Sexual competence (knowing how to have non-penetrative sex).</li> </ul>	[We recognise that men are more able to have anal intercourse the more skills they have for doing so, such as sexual competence and knowing how to have anal intercourse. However, we will not attempt to make having anal intercourse less likely by acting to reduce these skills.]

#### 4.5.7 Choice Seven: using condoms and lubricant, or not (if men have anal intercourse)

During anal intercourse the pre-cum from the penis of the insertive partner and the mucus (and possibly blood) from the anus of the receptive partner are transferred to each other. The insertive partner has the receptive partner's anal mucus on his penis and the receptive partner has the insertive partner's pre-cum in his rectum. Both of these fluids can transmit HIV if either partner has HIV. This section considers the choice of having protected anal intercourse or not – the choice and implications of ejaculation into the rectum if anal intercourse occurs is in the next section.

We will aim to ensure men have accurate knowledge about the consequences of using a condom or not if they have intercourse. We will not assume that men will have intercourse and will acknowledge that intercourse with a condom is a greater HIV risk than no intercourse.

We will promote condoms if intercourse is chosen by ensuring men are aware of the benefits of condom use and the risks of non-use. The benefits of condom use is always present and does not require men to be HIV sero-discordant to be present. In all situations, condom use has benefits to both partners.

For uninfected men, attempting to avoid Act 1 (being receptive in anal intercourse with HIV infected men) without a condom but not attempting to avoid engaging in Act 2 (being insertive) without a condom has been named 'strategic positioning': uninfected men can reduce their HIV acquisition risk by not engaging in RUAI even if they continue to engage in IUI<sup>49</sup>. This tactic has major problems unless men are testing for HIV in between each risk. The risk of infection through IUI remains substantial. Those men who rely on strategic positioning without testing for HIV between risk events who do become infected are very likely to pass their infection on when they continue to engage in IUI thinking they are reducing the risk to themselves while

in fact they are now increasing the risk to their partners because they have HIV.

Similarly, for HIV positive men attempting to avoid Act 1 (being insertive in anal intercourse with uninfected men) without a condom but not avoiding Act 2 (receptive intercourse) has also been labelled 'strategic positioning' under the belief that infected men are more likely to pass on their infection if they engage in insertive rather than receptive UAI<sup>49</sup>. However, the risk of passing on HIV through RUAI remains substantial, particularly in the presence of a rectal co-infection. Positive men who rely on strategic positioning without testing for STIs between risk episodes who become co-infected become more likely to pass-on their infection when they continue to engage in RUAI.

Avoiding Act 1 and Act 2 without a condom by using condoms for all occasions of intercourse with all partners reduces the majority of HIV risk. Risk is not eliminated because condom failure occurs, and because HIV can be acquired orally. Knowledge of HIV status is not required to employ this tactic.

We will also promote choosing condoms and lubricant through making them widely available. We will not attempt to reduce intercourse without condoms by reducing men's contact with other men (who want unprotected intercourse) or by limiting their access to locations for doing so.

Condoms are health protective in all cases of anal intercourse, irrespective of the HIV status of the two partners – there are always benefits to using condoms for intercourse. However we recognise that some men choose to engage in unprotected intercourse.

#### **Population Target #7: increase the proportion of anal intercourse events that feature condoms from the beginning of intercourse.**

This target can be distinguished in different contexts, for example, the proportion of anal intercourse events with casual partners that feature condoms.

Choice 7	Anal intercourse with condoms	Anal intercourse without condoms
Knowledge	<ul style="list-style-type: none"> <li>• If anal intercourse occurs, there are health and hygiene benefits to using condoms <b>whatever the HIV status of the partners.</b></li> <li>• If anal intercourse occurs, proper condom use greatly reduces the chances of HIV/STIs being transmitted if one or other partner is infected.</li> <li>• Putting a condom on the penis before and throughout anal intercourse greatly reduces the chances HIV will be passed.</li> <li>• The use of a condom also reduces the likelihood of infection with HIV, gonorrhoea, NSU, syphilis and herpes if they have intercourse with someone who is infected.</li> <li>• Condoms can break or slip off but are much less likely to do so if used correctly.</li> <li>• Condoms come in different shapes and sizes so some will be more comfortable than others and be less likely to fail.</li> <li>• Water or silicon based lube will greatly reduce breakage by lubricating the condom – latex condoms rot very quickly and break if exposed to oil present in some lubricant.</li> <li>• Condoms also come in non-latex varieties that can safely be used with oil based lubricant.</li> <li>• Incorrect use of condoms increases the rate at which they fail.</li> <li>• Wearing two condoms (one on top of the other) increases the likelihood they will tear.</li> <li>• Putting lubricant inside the condom (or on the penis) before putting the condom on increases the likelihood it will slip off during intercourse.</li> <li>• Condoms are more likely to fail if they are used for an extended period of intercourse – using a fresh condom every 30 minutes will reduce the chance of failure.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• A condom clad penis can be very erotic.</li> <li>• Condoms allow men who want to ensure they do not get faeces on their penis to be insertive in anal intercourse and make anal intercourse less messy and more hygienic.</li> <li>• <b>Can enjoy anal intercourse with a much smaller risk of HIV/STI transmission than if we did not use them.</b></li> <li>• Can be used in anal intercourse between HIV negative partners, HIV positive partners and mixed pairs and using them need say nothing about HIV status.</li> <li>• Can communicate care, regard, respect.</li> <li>• <i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Condomless intercourse can be more convenient and spontaneous.</li> <li>• More sensation and can be more comfortable.</li> <li>• More exciting, affirming and erotic.</li> <li>• More intimate.</li> <li>• Can communicate trust and closeness.</li> <li>• Infection will not always occur even during unprotected anal intercourse.</li> <li>• <i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>
Costs	<ul style="list-style-type: none"> <li>• Using condoms for anal intercourse can be an inconvenient interruption.</li> <li>• Less sensation and may be uncomfortable.</li> <li>• Less exciting, affirming and erotic.</li> <li>• Less intimate.</li> <li>• Can communicate distrust or suspicion.</li> <li>• Infection may still occur even if using a condom.</li> <li>• <i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Not using condoms is messier and dissuades us from fellating a penis that has been anally insertive.</li> <li>• Unless we are absolutely sure neither partner has STI/ HIV we are risking our own health and that of other men if we have intercourse without condoms.</li> <li>• Much bigger risk for HIV/STI than using a condom (with or without ejaculation).</li> <li>• Even in mutually monogamous STI free couples gut infections can be passed during unprotected intercourse.</li> <li>• Can communicate lack of care, disregard, disrespect.</li> <li>• <i>...or other potential consequences of value specific to individuals and groups.</i></li> </ul>
Norms	<p><i>Who wants me to use a condom (if I have anal intercourse)?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to not use a condom (if I have anal intercourse)?</i></p> <p><i>How significant are they to me?</i></p>

Resources	<ul style="list-style-type: none"> <li>• Access to appropriate condoms and water-based lubricant.</li> </ul>	[We recognise that men are more able to have unprotected intercourse the more resources they have for doing so, such as a location to have intercourse and a partner with a positive attitude toward unprotected intercourse. However, we will not attempt to make having anal intercourse less likely by acting to reduce these resources.]
Skills	<ul style="list-style-type: none"> <li>• Skills to use condoms and lubricant correctly.</li> </ul>	--

#### 4.5.8 Choice Eight: ejaculating outside or inside the body (if men have anal or oral intercourse)

Anal intercourse and fellation need not end with ejaculation into the rectum or mouth. As with all sexual behaviours, whether or not men are attracted to ejaculation in the body is very personal. It is also the medium through which infections can be carried if present.

The gap between intention and behaviour may be particularly large for withdrawal as ejaculation can take men by surprise and approaching orgasm is a time when many men feel out of control.

Unprotected intercourse *without* ejaculation (between partners not mutually known to be STI clear) is a risk for STI transmission. We do not 'advocate' that men engage in unprotected intercourse with withdrawal as

this would promote risk. However, we do advocate that men know that ejaculation during unprotected intercourse greatly increases the chances STIs will be passed if the insertive partner has an infection. It is also important that men know that the gap between intention and behaviour may be particularly large around withdrawal. Despite the risk involved, some men choose to take ejaculate into their mouth or rectum because of the benefits it brings to them.

**Population Target #8: reduce the frequency with which ejaculation occurs into a mouth or rectum without a condom.**

The amount of semen transferred from HIV infected men to HIV uninfected men is a major determinant of transmission. An indicator for this target could be the length of time since men ejaculated into a mouth or rectum without a condom.

Choice 8	Ejaculating outside the body	Ejaculating into the mouth or rectum
Knowledge	<ul style="list-style-type: none"> <li>HIV is primarily carried in semen.</li> <li>HIV is also carried in pre-cum – ejaculation into the rectum or mouth is not necessary for transmission to occur.</li> <li>Infections primarily carried by body fluids are <b>more</b> likely to be transmitted if ejaculation into the body occurs.</li> <li>Withdrawal before ejaculation is <b>less</b> likely to result in HIV/STI transmission than ejaculation into the body.</li> <li>Many men find it difficult to interrupt intercourse (or fellatio) as they are approaching orgasm and an intention to withdraw is often not carried through.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>Smaller risk of HIV transmission.</li> <li>Seeing a man's ejaculate emerge with the penis outside the body is erotic and easier to clean up.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Can be exciting, affirming and erotic: some men prefer to thrust or be fellated to ejaculation and others like to feel a man orgasm in their rectum or mouth.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>Can feel sexually less fulfilled without ejaculating into the rectum or mouth.</li> <li>Infection can still occur in the absence of ejaculation into the body.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Larger risk of HIV transmission.</li> <li>Smell and taste of ejaculate can be unpleasant.</li> <li>...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to ejaculate outside the body (if I have unprotected intercourse)?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to ejaculate in the mouth or rectum (if I have unprotected intercourse)?</i></p> <p><i>How significant are they to me?</i></p>
Resources	--	--
Skills	<ul style="list-style-type: none"> <li>Ability to interrupt anal intercourse before the insertive partner ejaculates.</li> </ul>	--

#### 4.5.9 Choice Nine: avoiding poppers, or using poppers, during receptive anal intercourse (if men have receptive anal intercourse)

Poppers are a very common part of gay life in the UK. They are widely advertised in the press and are on sale in shops and at clubs and are given away in commercial promotions. The widespread availability of poppers means that they are widely used.

No skills are required to use poppers, however they do require access to them, including finance. Because we value men making their own choices, we will not seek to reduce the widespread use of poppers by reducing men's access to them. We attempt to promote men's choosing not to use poppers by ensuring they are knowledgeable about them, and are aware of the benefits of avoiding them and the costs of using them.

It has not been demonstrated that poppers increase the transmission of other STIs although the potential health harms of poppers are clear. However, some men choose to use poppers during receptive anal intercourse.

**Population Target #9: reduce the frequency with which men use poppers during receptive anal intercourse.**

This target can be distinguished by partner and context, for example, with new or casual sexual partners. An indicator of the target could be how recently men had used poppers during unprotected receptive anal intercourse. The target is the profile of use in the population.



Choice 9	Avoiding poppers during receptive anal intercourse	Using poppers during receptive anal intercourse.
Knowledge	<ul style="list-style-type: none"> <li>• Poppers cause our blood vessels to expand, our blood pressure to drop and our heart to race.</li> <li>• Poppers use doubles the risk of HIV being transmitted if an HIV uninfected man has receptive unprotected anal intercourse with an HIV infected man.</li> <li>• Infections can still be passed in the absence of poppers use.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• We are not adding further HIV risk to an already risky act.</li> <li>• Less risk of a headache.</li> <li>• Room less likely to smell stale.</li> <li>• Avoids poppers related cancer risk.</li> <li>• Avoids other health hazards associated with poppers.</li> <li>• Avoid accidental poppers poisoning.</li> <li>• Avoid ruining clothes with poppers spills.</li> <li>• More likely to maintain an erection.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Using poppers causes physical and mental sensations that some men find pleasurable, including relaxing anal muscles which may make receptive anal intercourse more comfortable.</li> <li>• The smell can be erotic.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• Can be physically less enjoyable than with poppers.</li> <li>• Sex can feel less erotic without poppers smell.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• We double the HIV risk of an already risky act.</li> <li>• Poppers can give us nausea and a throbbing headache.</li> <li>• They make a room smell stale.</li> <li>• Some types of poppers cause cancer and are banned in the UK.</li> <li>• Can severely exacerbate circulatory problems and low blood pressure.</li> <li>• Drinking can cause poisoning.</li> <li>• Spillage can cause staining.</li> <li>• Inability to maintain an erection.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p><i>Who wants me to avoid poppers?</i></p> <p><i>How significant are they to me?</i></p>	<p><i>Who wants me to use poppers?</i></p> <p><i>How significant are they to me?</i></p>
Resources	--	[We recognise that men are more able to use poppers during sexual HIV exposure the more access they have to them, such as their price and the number of shops and outlets selling them. However, we will not attempt to make using poppers less likely by acting to reduce access to them.]
Skills	--	--

#### 4.5.10 Choice Ten: seeking Post-Exposure Prophylaxis, or not (if HIV uninfected men are sexually exposed to HIV)

Having intercourse without a condom with new partners is the riskiest thing an MSM can do as far as HIV/STIs go, particularly if ejaculate into the rectum occurs. Even at this late stage, choices make a difference to whether people get HIV or not. We do not advocate the use of PEP as a sustainable risk reduction tactic; it is not. However, for men who are exposed to HIV using PEP or not can make the difference between acquiring an incurable infection or not.

We will promote seeking PEP for men may have been

sexually exposed to HIV as a personal health service, not a public health intervention. We will seek to ensure men know about PEP, its uses and limitations and how to access it.

We will seek to ensure PEP assessment and prescription services are available in all areas of the country and that men know about them and feel able to access them without judgement.

There is no population level target associated with choice ten as we are not seeking for PEP to be a public health intervention, but a personal health intervention that should be available to men who have sex with men.

Choice 10	Swiftly seeking post-exposure prophylaxis if exposed to HIV.	Taking no action if exposed to HIV.
Knowledge	<ul style="list-style-type: none"> <li>• Taking anti-HIV drugs within 72 hours of exposure to HIV can very greatly reduce the chances we get HIV: these drugs are called Post-Exposure Prophylaxis (PEP).</li> <li>• The sooner PEP is taken after exposure the better, and they must start within 72 hours of exposure.</li> <li>• PEP must be taken for a month afterwards for them to work.</li> <li>• Our local Accident &amp; Emergency and clinical sexual health services should be able to provide PEP, in practice this might be difficult especially at weekends.</li> <li>• PEP should be prescribed by a doctor – sharing a positive person's HIV medication is unlikely to work and may cause harm.</li> <li>• The sooner PEP is taken, the more likely it is to prevent infection.</li> </ul>	
Benefits	<ul style="list-style-type: none"> <li>• Can prevent us acquiring HIV.</li> <li>• Can give us an insight into what a lifetime on anti-HIV drugs might be like.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• It's easy to do nothing.</li> <li>• Exposure will not always result in infection even in the absence of PEP.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• Accessing PEP can be difficult and a hassle.</li> <li>• PEP drugs can cause severe side effects.</li> <li>• PEP will not always work.</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Leaves us at risk of HIV</li> <li>• ...or other potential consequences of value specific to individuals and groups.</li> </ul>
Norms	<p>Who wants me to seek PEP if I've been at risk of sexual HIV exposure?</p> <p>How significant are they to me?</p>	<p>Who wants me to take no action if I've been at risk of sexual HIV exposure?</p> <p>How significant are they to me?</p>
Resources	<ul style="list-style-type: none"> <li>• Safe access to PEP assessment and prescription.</li> <li>• Social and emotional support to adhere to PEP drugs for a month if prescribed.</li> </ul>	--
Skills	<ul style="list-style-type: none"> <li>• Feeling able to access a PEP assessment and prescribing service.</li> <li>• Feeling able to approach clinical sexual health and Accident &amp; Emergency services and to talk honestly about our sexual behaviour with staff.</li> </ul>	--

# INTERVENTIONS

*This chapter describes the range of activities available to us to influence the HIV prevention needs described in Chapter 4, and therefore the risk/precaution behaviours described in Chapter 3, and hence future HIV transmissions. It outlines the key features of interventions which increase the likelihood they will have an impact on behaviours.*

## 5.1 PRINCIPLES OF INTERVENTION

We use the term intervention to refer to any purposeful activity that has been specified in terms of its settings and objectives, its target and aims, and its resources. Interventions are able to influence sexual HIV risk behaviours<sup>85</sup>.

Rather than treat our communities of concern as passive recipients of interventions (or as consumers of marketing) we approach intervention as a collaborative action. We seek the involvement of the targets of interventions in their development, and we constantly seek feedback from those who engage with or use our services. All our interventions will be decent and honest.

In order to have greatest and fairest impact with given resources we seek to make interventions that are: feasible; properly resourced; needed; accessible; acceptable; effective; and efficient. We will use evidence where it exists and also generate new evidence to increase the impact of our interventions.

Mindful of promoting human rights and reducing stigma and discrimination, we will: engage with people in their capacities as (i) community members, business people and media (ii) education, health and social services, and (iii) policy makers and researchers, in order to increase the contribution they make to meeting the HIV prevention needs of the MSM. We will also engage with men who have sex with men, in order to meet their HIV prevention needs.

## 5.2 FEATURES OF SUCCESSFUL INTERVENTIONS

A comprehensive review of the features of successful sex education for younger people<sup>86</sup> has identified 17

characteristics of effective programmes that can be usefully applied to most interventions. The 17 characteristics can be grouped into planning, aims, activities and delivery processes.

## PLANNING CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS

**1. Competent designers** – Intervention planning involved a variety of people with a range of expertise in theory, research and sex/HIV education.

**2. Needs assessed** – The specific risk behaviours being displayed by the target group are assessed, as well as the extent of the unmet needs contributing to those behaviours (eg. ignorance, skills, values).

**3. Theorised** – intervention designers should articulate a chain of influence between their activities, the needs of clients, their behaviours and the health gains hoped for.

**4. Feasible and acceptable plans** – the planned activities are possible in the setting and within budget, and are acceptable to both service providers and clients.

**5. Piloted or pre-tested** – intervention activities are given a dry-run and feedback from providers and clients used to improve them and iron out problems.

## AIMS OF SUCCESSFUL INTERVENTIONS

**6. Health goals are explicit and specific** – the intervention explicitly focuses on clear health goals (eg. more likely to have pleasurable sex; less likely to pick up and pass on HIV/STIs).

**7. Precaution/risk behaviours are explicit and specific** – the intervention explicitly focuses on specific actions and behaviours (patterns of action) that lead to health goals (eg. attending saunas; avoiding anal intercourse; using condoms), addressing the situations that might give rise to them and how to attract or avoid them.

**8. Needs addressed are explicit and specific** – the intervention explicitly tries to change the motivation

factors (eg. awareness of consequences of actions, judgements of outcome probabilities, values placed on outcomes, perceived social norms) and power factors (opportunities, resources, skills) that affect behaviours.

## ACTIVITIES OF SUCCESSFUL INTERVENTIONS

**9. Scene setting and safety** – attention is paid to the comfort and safety of participants creating a safe social environment.

**10. Multiple activities** – the intervention consists of a variety of different tasks and exercises.

**11. Participatory learning methods** – clients are actively engaged in their own learning through participation and engagement, being encouraged to personalise and contextualise information.

**12. Activities are feasible and acceptable to clients** – activities, images and language are appropriate to the clients culture, age and experiences.

**13. Logically sequenced** – the activities and content is covered in a logical sequence that builds upon itself.

## IMPLEMENTATION PROCESSES OF SUCCESSFUL INTERVENTIONS

**14. Support is sought from gate-keepers and authorities** – interveners have secured consent and at least minimal support from stakeholders who have power to close down or support the intervention (eg. other community organisations, police, health authorities)

**15. Trained and supported staff** – those delivering the intervention are acceptable to the clients and adequately trained, monitored and supervised.

**16. Promotion** – the activities are advertised and obstacles to attending addressed

**17. All parts of intervention is delivered** – planned interventions are delivered as planned rather than piecemeal.

Attention to these 17 characteristics can greatly increase the probability of an intervention making a positive contribution to health gain through influencing behaviour by impacting on needs. Planning and needs

assessment are taken up in Chapter 6. The rest of this chapter considers the range of intervention activities available.

## 5.3 A RANGE OF INTERVENTIONS

Engagement can include a range of communication methods used in education, training and marketing including writing and reading, talking and listening, skills training and the provision of resources (condoms, lubricant, HIV/STI tests, HIV/STI treatments).

HIV prevention programmes use a range of intervention types, and within each type a range of methods and techniques can be used. We recognise the following types of intervention to be of value when adequately delivered:

**A.** Interventions delivered directly to MSM to influence their knowledge, perceived consequences, perceived social norms, opportunities, resources or skills.

**B.** Interventions engaging community members and business to act to reduce the HIV prevention needs of MSM in their community.

**C.** Interventions targeting the staff of organisations with a responsibility for the education, health and social welfare of MSM to increase the contribution they make to meeting their HIV prevention needs.

**D.** Interventions targeting legislators, policy makers, regulators and standard setters to increase the contribution they make to meeting the HIV prevention needs of MSM.

The following sections describe each of these ways of promoting precautionary choices among MSM.

## 5.4 INTERVENTIONS DELIVERED DIRECTLY TO MSM TO REDUCE THEIR HIV PREVENTION NEEDS

The first and most common type of interventions are those which MSM encounter directly and which are intended to make an impact on their HIV related needs which make risk behaviours less likely and precautionary behaviours more likely.

This type of intervention has been subject to the largest amount of evaluation. The properties of intervention more likely to have an impact include<sup>87</sup>:

- planning and making explicit how the intervention is intended to 'work' (using theoretical models);
- emphasis on practical precautionary behaviours (rather than theoretical risks or life-long risk elimination);
- aiming to increase behavioural and social skills, self-efficacy and knowledge;
- accurate and unambiguous communication;
- well trained implementors;
- sustained over time;
- tailored to the values and abilities of the target group (consisting of acceptable and feasible activities or tasks);
- being located where the target group will disproportionately encounter them.

No one type of intervention can meet all prevention needs. This suggests that MSM require a range of interventions to meet their needs and to keep those needs met. This is reflected in the evaluation literature which suggests prevention interventions are more likely to be effective if they have multiple components and are sustained over time.

#### 5.4.1 HIV/ STI testing and treatment, including PEP

Comprehensive and accessible STI treatment services are particularly cost-saving for populations with a high rate of infections.

Swift access to HIV and STI testing and treatment is required for men to establish their infection status and to access treatments to cure or manage infections. Access includes services that are available, accessible and trusted. Clinical services are also required to ensure men who think they have been at risk of HIV have access to assessment and (if warranted) prescription for PEP.

The UK has a world class system of open access clinical sexual health services and MSM are generally very positive about the services. Third sector organisations are increasingly providers of HIV/STI testing.

The BHIVA Guidelines on HIV Testing<sup>80</sup> instructs services to offer HIV tests to a wide range of people based on certain medical diagnoses, attendance at specific services, residence in specific areas and membership of specific sub-populations. The Guidelines suggest men who disclose a history of sex with men should be routinely and repeatedly offered an HIV test by all health care services, including sexual health clinics, general practice, general in-patient and out-patient services.

The behaviours in providers the Guidelines are encouraging are:

- Doctors and nurses should offer HIV testing in a wide range of settings.
- Doctors and nurses should routinely recommended an HIV test to patients with specific indicator conditions.
- Doctors and nurses should encourage acceptance of HIV testing whenever it is offered.

The needs of professionals are described as follows:

- All doctors and nurses should be able to obtain informed consent for an HIV test in the same way that they currently do for any other medical investigation.

This framework supports these Guidelines and acknowledges that both STI and HIV screening for asymptomatic men can consist of tests only rather than tests and talking with the primary focus being on screening and not risk reduction counselling<sup>88</sup>. As with all interventions, it is important the clinical services recognise the finite resources available for intervention and concentrate on what this intervention is best able to address rather than attempting to address all needs with insufficient resources.

Anti-HIV therapy (or highly active anti-retroviral therapy) is cost-effective. The clinical goal of undetectable viral load can contribute to both individual and public health goals.

People diagnosed with an STI should be provided with infection-specific information, including advice about re-infection. For chlamydia infection, a home sampling kit can be provided.

As STI epidemics are dynamic, it may be possible for a large but temporary increase in service capacity to gain control of the number of infectious people (that is, make the rate of cure greater than the rate of acquisition). This response could best serve the need to reduce gonorrhoea. It requires policy action and is addressed below.

#### 5.4.2 Contact tracing

Contact tracing and partner notification can be a cost-effective contribution to reducing the time between infection and diagnosis. People diagnosed with an STI can share information with their previous partners or services can do it on their behalf. Approaching the sexual partners of men who have been diagnosed with HIV or other STIs is able to raise those men's awareness that their sexual behaviour may have risked HIV/STI acquisition, improve their knowledge about the major benefits and minor costs of testing (and the major costs and minor benefits of not doing so) and increase their access to tests and treatment.

When feasible and acceptable, recent sexual contacts of men diagnosed with HIV/STI should be contacted (either by the source patient or the health care provider), informed that they have been at risk of infection and invited for screening. All testing services should have guidelines on partner notification and support should be tailored to meet the patient's individual needs.

While contact tracing can make a contribution to swifter diagnoses, most men who had sex with men diagnosed with an infection cannot be traced.

#### 5.4.3 Centre based structured one-to-one and small group interventions

These are the most cost-intensive interventions *per user* and are those for which the largest amount of evaluation data is available. These interventions can be expected on average to reduce occasions of, or partners for, UAI by 27% of its pre-intervention level in the population who receive the intervention<sup>88</sup>. Their impact is dependent on the profile of their users and is therefore dependent on their method of recruitment. Structured small group work among gay men in the UK has been demonstrated to increase men's control over

risk and precautionary behaviours, perceived physical safety, HIV/STI knowledge and sexual negotiation skills such as assertiveness<sup>89</sup>.

Safer sex skills / cognitive behavioural training is cost effective with people at high risk of infection. NICE<sup>90</sup> recommend that MSM be a priority group for all providers of one-to-one interventions, which can include health professionals working in general practice, STI clinics, community health services, voluntary and community organisations and school clinics. In the UK clinic setting one-to-one intervention has been demonstrated to increase perception of the likelihood of acquiring STIs in the future<sup>91</sup>.

Intervention is usually preceded by identifying individuals at high risk of STIs using their sexual history and offering or referring to face-to-face services. Opportunities for risk assessment may arise during consultations on HIV/STI testing, providing travel immunisation, and routine care or when a new patient registers. Recruitment through open-access advertising results in a client base at less risk.

One-to-one structured discussions are often based on behaviour change theories, addressing prevention needs including self-efficacy and motivation. Face-to-face work often features discussion of values and beliefs. Relationship counselling and support can be provided one-to-one or in couples. Each session should last at least 15–20 minutes. The number of sessions will depend on individual need.

Interventions within internet chat room are feasible with MSM and can consist of a tailored discussion in the absence of a face-to-face meeting.

The number of men who can be contacted with one-to-one intervention is limited by the workforce resources available and are typically much smaller than the numbers reached through media channels. On the other hand one-to-one interventions have been shown to be most likely to have a behavioural impact although they have not been demonstrated to be the most cost-efficient way of doing so.

#### 5.4.4 Community-based structured and unstructured one-to-one outreach

One of the more common interventions in England in gay men's HIV health promotion has been the activities broadly known as 'outreach'. There is no standardised description of outreach but it usually involves trained workers visiting community settings where men are, and engaging in face-to-face conversations (either following a structured template to address a pre-selected need or wholly directed by client need). The aim may be to reduce needs *in situ* or to identify and refer men in need to centre based services. Evaluations (such as<sup>92</sup>) suggests outreach can achieve high coverage of the population and that social surveillance by others in the venue was found to rarely impede the intervention. Gay men generally find outreach on the gay scene acceptable and useful. Outreach is commonly reported as impacting on knowledge with impacts on negotiation skills and risk awareness raising being more common outcomes from longer contacts. Outreach can increase demand for clinical health services<sup>93</sup>. Outreach should be distinguished from peer education projects (see below).

#### 5.4.5 Condom and lubricant distribution and cut-price selling

Free condom provision can be carried out within a number of services and through specific interventions in diverse settings. Condoms can be given out as part of an outreach intervention and as a hook to engage clients in conversations.

Free condom schemes in any one city are used by men living across a very wide area and are not limited to those men a funding authority is responsible for. The number of free condoms *per* MSM provided across the England is highly variable.

There is no evidence that on-going free condom schemes in an area is associated with higher levels of access to condoms in that area compared with areas without a scheme. This may be because in the absence of free condoms the majority of MSM are able to find alternative means of supply, or because condoms schemes are used by men from a very large catchment area such that schemes serve men from areas without schemes also.

Condom distribution can be accompanied by other messages on condom packs that increase knowledge and awareness but cannot on their own increase skills for example.

#### 5.4.6 Social marketing

These interventions use the techniques of marketing to elicit desire to engage in precautionary behaviours among the population of concern.

What social marketing can achieve is the subject of considerable dispute. Like all interventions, marketing can address some needs but not others, so is able to influence behaviour only among those men who lack what it has to offer. Advertising is not primarily an educative medium but a medium of engagement and image. It can be used to engage men in more educative interventions such as help-lines, websites and leaflets. Social marketing is poor at educational aims and is unable to directly give men skills or resources but it is able to elicit the desire to seek out interventions that can.

Social marketing in gay specific settings (gay print and internet media and community venues) has been able to reach up to half of gay men and is one of the cheapest interventions per user if carried out efficiently.

#### 5.4.7 Internet-based interventions

The internet is a relatively new environment for health promotion activities, and the feasibility and acceptability of different kinds of interventions is still being explored. While internet interventions may be a part of a multi-method social marketing or educational intervention, they can also stand alone both as an information source and as an interactive application. A recent review of evaluations of interactive computer-based interventions to improve sexual health showed that compared to minimal interventions they have moderate effects in improving knowledge, a small effect on sexual self-efficacy, a small effect on safer-sex intentions, and an effect on condom use. Computer-based interventions appeared better than face-to-face interventions at improving sexual health knowledge<sup>94</sup>.



## 5.5 INTERVENTIONS ENGAGING COMMUNITY MEMBERS AND BUSINESS

Community health promotion includes all activities that engage with and develop community infrastructures. It is also known as community-based work. This type of intervention covers the range of activities whose objectives are to encourage social, physical and political environments in which the health promotion aims are more likely to be met. Community health promotion is divided into two areas, with the interventions contained within them concentrating on more or less of each.

### 5.5.1 Peer education

Peer education interventions identify and recruit community members to be trained in raising and advocating for precautionary behaviours in their social network. It has been popular in HIV prevention in the UK, particularly among young people. However, the assumption that peers (people in our social networks similar to ourselves) are particularly effective educators has not been borne out by evaluations of projects with gay gym users<sup>95</sup> or with men selling sex in the UK<sup>96</sup>. In both cases, while recruitment and training were feasible, peer educators found delivery of interventions to their peers to be very difficult.

### 5.5.2 Community education, mobilisation and development

Social diffusion interventions target people in the social networks of MSM to increase those people's abilities to intervene on the MSM in their networks so as to reduce their HIV prevention needs. It is particularly useful for establishing social norms towards HIV precaution. Social diffusion projects usually also aim to meet the HIV prevention needs of the people they target and as such function as direct contact interventions as well. Such interventions can include:

- Promoting community norms other than drugs-and-sex and providing social spaces for men to meet other men.
- Outreach programmes place community educators in community settings.
- Talking about same-sex relations in families and schools.

- Encouraging the appointment of openly gay people in boardrooms and sports clubs.
- Supporting people to come out in all walks of life.
- Encouraging promotion of HIV precaution in gay settings: bars, clubs, saunas, dating sites.
- What-you-can-do guides for: venues, media, coffee-shops; bars; clubs etc.

The largest human resource in reducing HIV incidence are gay men, other homosexually active men and their social networks. Many health promotion aims can be brought about by men interacting with each other and with women. Some cannot. We recognise (as valid HIV health promotion) activities that increase the contribution individuals make to meeting the health promotion needs of gay men and other homosexually active men. The key means of social diffusion include critical consciousness raising and community mobilisation.

### 5.5.3 Media advocacy

The media, including print titles, the internet, and broadcasting, can reach far more people than interventions delivered directly to MSM. Health promoters can reach MSM through the media by supplying editors and journalists with information, encouraging coverage of HIV-related issues and promoting HIV precaution behaviours.

## 5.6 INTERVENTIONS TARGETING THE STAFF OF ORGANISATIONS WITH A RESPONSIBILITY FOR THE EDUCATION, HEALTH AND SOCIAL WELFARE OF MSM

HIV prevention needs are diverse and come within the responsibility of a large collection of public services in both statutory and voluntary sectors. All services intended to address the education, health and social needs of the population can impact on the HIV prevention needs of homosexually active men. Health promoters can increase the contribution made by services through a number of interventions such as:

- Training of staff in ally organisations and services.

- Monitoring and advocating for high-quality sexual relationships education that integrates same sex relationships.
- Increasing commissioners and planners knowledge about the impact of sexual health promotion.
- Facilitation of cross-PCT commissioning of interventions.
- Sharing of protocols for PEP, training outlines, etc.

A particular service of concern is schools. Sexual relationships education is part of Personal, Social, Health and Economic (PSHE) education, which aims to help children and young people deal with the real life issues they face as they grow up<sup>97</sup>. For young men who are sexually attracted to other men, this means help with coming out. The Macdonald Review concludes that PSHE education is not given sufficient priority in many schools, that the quality of PSHE education varies significantly across schools and often does not meet the needs of students. These findings may be even more pertinent to sexual minority students. These reviews argued that making the subject statutory is the key to raising its status and improving provision. While PHSE is a compulsory part of the curriculum the extent of sex and relationships education within any school's programme is within the school's discretion.

As well as PSHE, it is also important to examine, encourage and support interventions to reduce physical/emotional violence associated with homophobia in schools. The way young people from sexual minorities experience their school environment (whether or not they are known as such) has long-term impacts on self-esteem, aspirations and mental health and social functioning.

Also of particular concern are clinical sexual health services. Our interventions will support the National AIDS Trust framework<sup>98</sup> for reducing the time between infection and diagnosis by aiming to ensure that:

- Clinicians, nurses, GPs and acute medicine clinicians are able to recognise risks and symptoms relating to primary HIV infection, and are able to offer and conduct an HIV test when indicated.
- NHS Direct, GP out-of-hours services and sexual health helplines recommend an HIV test when primary infection is indicated.
- Fourth generation assay tests for HIV are consistently available in all laboratories testing for HIV.
- Services conducting point of care testing have clear protocols on how to ensure such interventions do not allow more primary HIV infection to go undiagnosed (because the test used is insufficiently sensitive resulting in men in primary infection thinking they are uninfected).

## 5.7 INTERVENTIONS TARGETING LEGISLATORS, POLICY MAKERS, REGULATORS AND STANDARD SETTERS

Communities and the services intended to meet their needs are both either confined or enabled by the actions of local and national policy makers, researchers and commissioners. Globally, the most important factor in a nation's response to HIV incidence is political leadership<sup>99</sup>. The actions of governments and their agents determine the level of HIV incidence in a country through their impact on social norms, the size and configuration of the service response and the abilities of communities to address their own needs.

We will engage in advocacy of policy that promotes all of the above. We will also work toward PCT commissioners ensuring that sexual health services are in place to meet the needs of MSM. This includes ensuring that all HIV/STI testing services include arrangements for the notification, testing, treatment and follow-up of partners of people diagnosed with HIV/STI.

Other areas that would benefit from improvement are in the communication of HIV/STI public health data for MSM, staff training and audit and monitoring frameworks.

## 5.8 COLLABORATION IS KEY TO PROGRAMME SUCCESS

While the Government is ultimately responsible for reducing the national HIV incidence, no single group or organisation commands sufficient expertise, resources and respect to ensure it occurs. No one agency delivers all types of intervention. No intervention need be done by all agencies and some, such as policy advocacy, are best done by one or a small number of agencies (with input from others). Hence, the collective success will depend on the extent of collaboration.

Gay men and other homosexually active men, like many population groups, are a diverse and mobile population. Regional level initiatives may be more effective and efficient to address some needs than several independent initiatives. Adoption of this framework would facilitate national, regional, district and agency-

level planning groups that can include commissioners, providers, researchers and lay people.

A commitment to planning within this framework would mean an agency or authority:

- is commissioning or carrying out HIV health promotion with gay or other homosexually active men that contributes to the achievement of our shared aims and is not carrying out activities that make their achievement less likely; and
- recognises the need for a collaborative approach to reducing HIV incidence and is committed to working in partnership with other agencies to do so; and
- can describe its activity and is willing to share intervention performance information with other agencies.

# NEEDS ASSESSMENT & PROGRAMME PLANNING

*Needs assessment should be focussed on gaining information that will enable more successful interventions to take place. This involves seeking insight into the unmet needs of individuals and communities that can be addressed through concrete actions.*

## 6.1 THE MEANING OF NEED WITHIN THE FRAMEWORK

The concept of need has been variously defined in health care and prevention services and a variety of types of needs have been identified. Chapter 4 considered two broad sets of needs: motivation needs and power needs. Men can be in need of motivation (they do not want to reduce risk) or in need of power (they are unable to reduce risks). The reasons for either can be varied. We recognise the following factors to be associated with not being motivated to avoid HIV transmission:

- not knowing what HIV is, what it can do to us and what that might mean;
- men without HIV, being unaware of the benefits of remaining uninfected and the costs of acquiring HIV;
- men with HIV, being unaware of the benefits of not passing HIV on and the costs of passing on infection;
- men's positive significant others (people liked or admired) wanting or expecting them to acquire or pass on HIV;
- men's negative significant others (people disliked or held in contempt) wanting or expecting them to remain HIV uninfected or to keep HIV to themselves.

As described above, a number of choices are related to HIV precautions/risks and not being able to enact a choice can arise for a variety of reasons. Broadly, we consider not being able to reduce risks to include:

- not knowing about precaution/risk choices;
- not having the opportunity to choose precaution;
- not having the resources to choose precaution;
- not having the skills to choose precaution.

Men have unmet need/s if they are unaware of HIV or STIs, ignorant or misinformed about them, disempowered in sexual relationships or activity, or ill-equipped to take protective action, including condom use. Men are also in need if they have little or no access to educational or clinical services, or they have access only to poor quality services. Need describes areas where a single man or group of men have the potential to benefit from an intervention or programme of work. An intervention may target the men themselves, or members of their social and sexual networks who in turn influence them. Need is defined as an intervention aim being unmet.

For a population of men there will always be a diversity of unmet needs and the dominant unmet needs in the population may not be the most crucial unmet need for any single individual. So individual interventions need to be sensitive to the specifics of an individual's life, while programmes should be weighted towards the commonly unmet needs in the population.

As we are also attempting to increase the number and quality of peer-led interventions, men *not being able to make interventions with their peers* is also considered evidence of need within the framework. Since we require community infrastructures to do direct contact and social diffusion projects, *the absence of community infrastructures* is also considered as evidence of need. As *are organisations being unable to contribute to the health promotion aims in the course of their work.*

As health promoters and researchers require organisational structures, personnel, skills and planning

data, the absence of these is also viewed as an HIV prevention need within the framework. Finally, *policy and practices that unfairly discriminate against homosexually active men and people with HIV*, and which make HIV prevention interventions less possible are in themselves evidence of need. An HIV prevention needs assessment for gay men and / or bisexual men could cover any or all these areas of need.

The sexual health needs of an MSM population cannot be derived from HIV incidence, STI prevalence or sexual behaviour. Needs assessment involves generating and considering evidence to make informed judgements about the extent to which health promotion aims are unmet. Resources are likely to be most efficiently used if they are employed in areas of greatest need. Alternately, health promotion activities may be inefficient simply because their aims are already well met for the target audience. An assessment of need may consider:

- the extent to which a specific aim(s) is met for an entire population;
- the extent to which all of the health promotion aims are met for a specific sub-population; or
- the extent to which specific aims are met for a specific sub-population.

A needs assessment for a population or sub-population should make an estimate of its size and relationship to other population groups. Needs assessment is not a single activity, event or report. It is an ongoing process requiring the collation of information from a wide range of sources and cycles of review. Needs assessment and programme planning occur in parallel.

Men who have acquired HIV (particularly those who acquired HIV recently) can be an important source of needs information about unmet needs that may be driving new infections. The sexual health and prevention needs of men living with HIV should be acknowledged and the similarities and differences with the needs of men without diagnosed HIV described.

## 6.2 SEGMENTATION AND TARGET DESCRIPTION

We can describe sub-populations of MSM using any number of single variables: for example, demographically

(Black Caribbean, social class, young etc.); geographically (rural, Londoners etc.); socially (opera lovers etc.); clinically (men with hepatitis or HIV); sexually (men with 'higher' numbers of sexual partners) or by another means of HIV exposure (such as injecting drug use). These classifications will often overlap. Where they overlap and form meaningful groups within the larger population, we can identify segments which share characteristics.

Segments form meaningful groups of people who share sufficient knowledge, values, resources, opportunities and skills to make them targets of a communication. Any information about the potential clients or users of a service or intervention can be used to describe the population of concern and the segments within it. The description of the population segments and the target chosen for the intervention can be distinguished from:

- the behaviours of concern (eg. men who have unsafe sex);
- the needs being addressed (eg. men without the knowledge, values, social norms, resources, or skills);
- the location in which the clients/users are encountered (eg. scene using men);
- the medium used for the communication (eg. readers of a specific media title).

*Tailoring* refers to the modification of intervention activities, vocabulary, imagery, etc., to be attention catching and engaging to the segment chosen for the intervention.

*Targeting* refers to the choice of settings in which to carry out the intervention such that it is disproportionately (or exclusively) encountered by the target for the intervention.

## 6.3 PROGRAMME PLANNING

A programme is a set of "activities designed to fulfil particular strategic goals and targets related to a (particular) priority"<sup>100</sup>. Therefore any strategic combination of interventions may be thought of as a programme of work. However, as a minimum a programme should include at least two types of intervention working towards similar outcomes for the same target group.

In any area with several interventions occurring (possibly from a variety of agencies) clients may encounter more than one. People encounter and are influenced by and often do not distinguish between interventions and influences emanating from several sources, often with those sources being unaware of each other. No agency has exclusive access to any one individual, and even where an individual encounters only one agency, they also encounter other community members, other services and other authorities. Consequently single interventions cannot easily be independently prioritised as the desirability of each is dependent on what other interventions are occurring and what other community activity is taking place. The combined influence of different interventions should have a greater impact than any one intervention encountered separately. Moreover, contradictory or conflicting interventions may cancel each other out or cause harm neither could cause individually.

Programme planning is essential to use finite resources in the most effective and efficient way to address the unmet needs identified in needs assessment. As all programmes have access to finite resources, some prioritisation of activities needs to occur. Programme planners should have more plans for interventions than resources available.

Homosexually active men are a diverse population, who do not all go to the same places, or all know the same people. Since such diversity cannot be reflected in every health promotion activity; a successful programme must employ a variety of settings and methods. Different interventions (in either setting, methods or both) may be required to address the same unmet aims for different groups of men. However, it is not the case that each group of men that can be identified requires its own programme (or organisation). What is important is *relevant* group differences.

One of the reasons services and community groups may have little intended impact is because they are not collaborating with each other towards common goals. So for example, where a service and some community members have differences in what they think MSM should do (what they want or expect of MSM in terms of the ten choices outlined above), they are unlikely to agree on what interventions should occur and what

they should look like. Since communities are diverse, and the range of opinion and expectations of MSM are correspondingly wide, no single position adopted by a service will correspond to the values and needs of the population it aspires to serve. This may be one reason why a diversity of agencies is desirable in the same way as a diversity of interventions is. However, all services should resist totalitarian responses to HIV which impose a single solution on the entire population (and which usually advocate withholding information or resources about other solutions).

Although cooperation among those involved in service planning and delivery has long been seen as key to success, competitive tendering has fostered competition and an increasingly adversarial approach to change. The tactics used in debates about HIV prevention are akin to those used by political parties vying for power in government. However, given the complex influences on people's health, no single agency can hope to meet all the health-related needs of any population.

*Making it Count* is a framework for the collaborative planning of HIV prevention. It is both an aid to collaboration and an aid to clarity of disagreement. We recognise that men will encounter, and probably be influenced by, many different interventions, from several different agencies. We recognise (and respect) individuals and other agencies right to disagree with the approach we have adopted. The collective task of those working within this framework is to choose activities so that they have the maximum impact on improving sex lives *and* reducing the harm associated with them. In other words, it is an attempt to identify the best combination of interventions to address the needs described in Chapter 4.

Describing interventions facilitates the construction and articulation of programmes. When the interventions under consideration are described in a comparable manner, they can be collected, compared and contrasted. This allows us to avoid replication and maximise impact. It also allows us to increase the equity of a programme by covering as much of the population of concern as possible, and to counter inequalities by targeting specific groups.



A programme can be audited by examining the different activities that make it up. These activities might include interventions, policies and procedures, as well as training and staff development. HIV health promotion is an ongoing activity and sustained programmes are one of the keys to success. Comprehensive HIV health promotion programmes for a geographic area require collaboration between a number of agencies, important among which are clinical and non-clinical services. They include activity funded and resourced through a number of channels. Collaborating agencies and commissioners can make collective changes at the programmatic level to match changes in the unmet needs of the population.

## 6.4 PRIORITISING INTERVENTIONS

Prioritisation of activities to include in a programme must attend to the principle that all men are equally entitled to having control over their sexual life and to pursue a sex life that is of value to them. However, HIV infection is not equally distributed among all homosexually active men (either geographically or by social networks). Men who have poor quality sex lives are not necessarily the same men who are most likely to be involved in HIV transmission. To have maximum impact on HIV incidence, programmes should attempt to provide a combination of universal interventions intended for the entire population and targeted interventions delivered to those most likely to be involved in HIV transmission during sex. Either approach alone is likely to be of limited benefit.

We explicitly recognise that these three principles of prioritisation (impact on incidence, impact on sex life quality and impact on equity of sexual health) may be in conflict. For example, men who have little or no sex and are unhappy about that have a poor quality of sex life but also a low incidence of HIV infection. The following three principles should be considered together when making programming decisions:

### *To maximise impact on HIV incidence*

Prioritise interventions that are disproportionately encountered by men more likely to be involved in HIV transmission (such as men with undiagnosed HIV infection, men in sero-discordant relationships, men with many male sexual partners, men with lower educational qualifications).

### *To maximise equity of health*

Prioritise interventions that are disproportionately encountered by population groups who have many sexual health needs unmet compared with other population groups (such as men with lower educational achievement, men under 20 or over 50, behaviourally bisexual men).

### *To maximise impact on sex life quality*

Prioritise interventions that are disproportionately encountered by men with poor quality sex lives. Further research is required to identify which segments of the MSM population these are.

### *To maximise impact on all three*

Prioritise interventions which address needs which are poorly met for a large proportion of the population.

In addition, prioritising interventions should attend to their performance in meeting their specified aims.

## 6.5 EVALUATING INTERVENTIONS & PROGRAMMES

The performance of an individual intervention at influencing the men who encounter it can be distinguished from the impact of programmes of interventions on the strategic targets for a population over a sustained period of time.

To judge whether an HIV prevention intervention or programme has failed or succeed it must be sufficiently specified. Only by being specific can the useful be distinguished from other interventions.

### 6.5.1 Evaluating interventions

It is against changes in the related health promotion aims that individual interventions should be judged. Descriptions of interventions should include what is done (objectives and methods), where (setting), with what (resources), to achieve what change (aims) for whom (target), as well as the behavioural choice the intervention seeks to influence (for example, using condoms for anal intercourse).

Only if these dimensions of an intervention are specified can information on their actual performance be gathered. If these dimensions are specified the following



seven qualities of the intervention can be considered:

**Feasibility** – Is it possible to carry out the intended objective in the specified setting with the finite resources? Can it be done?

**Cost** – How many resources does it take (eg. money, people, equipment)? How much is related to the setting (recruitment costs) and how much to the objectives (unit costs)? What is the overall cost per target group member who encountered the intervention?

**Acceptability** – What do the target think of the objectives, particularly in that setting? What do others think of the intervention, including the intervenor.

**Coverage and access** – How many (or what proportion) of the target group encounter the objectives and how do they differ from the target group members who do not encounter them? What are the biases in access to the intervention?

**Needed** – Is the aim already true for the target before they encounter the objectives? Are the specific needs the intervention addresses (awareness, knowledge, resources, skills, etc.) already met?

**Effectiveness** – Do the objectives bring about a change in the aim for the target? Which target members who encounter the intervention benefit most and least?

**Efficiency** – Were all the resources used in the intervention necessary to bring about the change that occurred? How does the intervention compare to others that bring about the same amount of change for the same people?

Judgements of the worth of interventions are best made when they attend to as many dimensions of intervention performance as possible. Attending to one quality to the exclusion of others (effectiveness for example) is likely to result in a partial assessment of an interventions worth. In addition, changing any one dimension of an intervention (for example, the place it is done, or the men who are intended to benefit from it) will alter other qualities of the intervention.

Qualities of interventions should not be assumed unless they have been observed in practice. Learning from observation of interventions in practice can be shared

among practitioners without recourse to formal evaluation. Discussion between those making interventions is central to judging intervention performance.

Formal evaluation and / or documentation of interventions will be most useful if they include data about all qualities of interventions, including costs. This is not an endorsement of one research design over another in evaluation. Data about the performance of interventions can be gathered through a number of mechanisms to suit a variety of questions. The most desirable design generates the most information about the specific questions being asked. Assessing whether interventions were needed, effective and efficient usually requires more substantial research designs to answer than does assessing whether they are feasible, their cost, accessibility and acceptability. When a range of interventions are both feasible and acceptable to achieve a particular aim with a particular population group, logic suggests programme planning should:

*To maximise efficiency of programmes at increasing sexual health*

Prioritise interventions that are the most efficient at reducing common needs.

### 6.5.2 Evaluating programmes

The effectiveness of a programme in influencing the population targets is not determined solely by the range of methods it includes. The fit between the values and needs of the population, the range of settings and objectives used for interventions and the broader social and legal context are all important.

Even where an intervention is effective, if it does not address the priority needs of its target population it may make no substantial contribution to increasing the quality of sex lives or reducing the harm associated with them. Effective and efficient interventions are necessary but not sufficient to best direct resources: they also must be matched to values and needs.

Comprehensive programmes of interventions may be judged by population level change in the strategic targets specified in Chapter 4, namely:

**Population Target #1:** Reduce the average length of time between HIV infection and HIV diagnosis in men who become infected.

**Population Target #2:** Increase the proportion of MSM with diagnosed HIV who are on fully suppressive anti-retroviral therapy.

**Population Target #3:** Reduce the average number of sexual partners between STI screens.

**Population Target #4:** Reduce the frequency with which men have unprotected anal intercourse without knowing whether or not they and their partner are HIV sero-concordant.

**Population Target #5:** Increase the length of time since having an extra-relational sex partner, among men with a regular male sex partner.

**Population Target #6:** Decrease the proportion of sexual sessions between men that feature anal intercourse.

**Population Target #7:** Increase the proportion of anal intercourse events that feature condoms from the beginning of intercourse.

**Population Target #8:** Reduce the frequency with which ejaculation occurs into a mouth or rectum without a condom.

**Population Target #9:** Reduce the frequency with which men use poppers during receptive anal intercourse.

It is unlikely that in any area a single agency can take responsibility for the entirety of local MSM's sexual health needs. Hence, the above targets cannot be expected to be achieved by any one agency. Rather, change in the targets will be a consequence of all related activity of all agencies in an area working collaboratively.

# REFERENCES

- [1] Joint United Nations Programme on HIV/AIDS (2007) *Practical guidelines for intensifying HIV prevention: towards universal access*. Geneva, UNAIDS.
- [2] Medical Foundation for AIDS & Sexual Health for the Independent Advisory Group on Sexual Health and HIV (2008) *Progress and priorities - working together for high quality sexual health: review of the National Strategy for Sexual Health and HIV*. London, MedFASH.
- [3] Department of Health (2009) *NHS 2010–2015: from good to great. Preventative, people-centred, productive*. London, The Stationery Office.
- [4] Office for National Statistics (2009) *Mid-2007 population estimates, UK, England and Wales, Scotland and Northern Ireland*.
- [5] Mercer C, Fenton K, Copas A, Wellings K, Erens B, McManus S, Nanchahal K, Macdowall V, Johnson A (2004) Increasing prevalence of male homosexual partnerships and practices in Britain 1990–2000: evidence from national probability surveys. *AIDS*, 18(10): 1453–1458.
- [6] Health Protection Agency (2010) *MPES model-based estimates of HIV prevalence in the UK in 2009, table 1*. Colindale, Health Protection Agency.
- [7] Health Protection Agency (2009) *Diagnosed and undiagnosed HIV infection summary of results 2009. Unlinked Anonymous Survey of Genitourinary Medicine Clinic Attendees (GUM Anon Survey)*. Colindale, Health Protection Agency.
- [8] Health Protection Agency Centre for Infections, Health Protection Scotland and UCL Institute of Child Health (2010). HIV Diagnoses Surveillance SHA Tables No. 1:2010, Table 1. Colindale, Health Protection Agency.
- [9] Chadborn TR, Baster K, Delpech VC, Sabin CA, Sinka K, Rice BD, Evans BG (2005) No time to wait: how many HIV-infected homosexual men are diagnosed late and consequently die? (England and Wales, 1993–2002). *AIDS*, 19(5): 513–520.
- [10] Sullivan P, Hamouda O, Delpech V, Geduld J, Prejean J, Semaille C, Kaldor J, Folch C, Op de Coul E, Marcus U (2009) Re-emergence of the HIV epidemic among men who have sex with men in North America, Western Europe and Australia, 1996–2005. *Annals of Epidemiology*, 19(6): 423–431.
- [11] Health Protection Agency Centre for Infections, Health Protection Scotland and UCL Institute of Child Health (2010). *HIV Diagnoses Surveillance Tables 01, Table 5*. Colindale, Health Protection Agency.
- [12] Fisher M, Pao D, Murphy G, Dean G, McElborough D, Homer G, Parry J (2007) Serological testing algorithm shows rising HIV incidence in a UK cohort of men who have sex with men: 10 years application. *AIDS*, 21: 2309–2314.
- [13] Tim Chadborn, Health Protection Agency, personal communication to Ford Hickson, May 2008.
- [14] Health Protection Agency (2009) *HIV in the United Kingdom: 2009 Report*. Colindale, Health Protection Agency.
- [15] Health Protection Agency (2009) *Diagnosed and undiagnosed HIV amongst attendees of sexual health clinics Men who have sex with men (MSM). Unlinked Anonymous Survey of GUM Clinic Attendees (GUM Anon)*. Colindale, Health Protection Agency.
- [16] Dougan S, Elford J, Chadborn T, Brown AE, Roy K, Murphy G, Gill ON (2007) Does the recent increase in HIV diagnoses among men who have sex with men in the United Kingdom reflect a rise in HIV incidence or increased uptake of HIV testing? *Sexually Transmitted Infections*, 83(2): 120–125.
- [17] Williamson LM, Dodds JP, Mercey DE, Hart GJ, Johnson AM (2008) Sexual risk behaviour and knowledge of HIV status among community samples of gay men in the UK. *AIDS*, 22(9): 1063–1070.
- [18] Fisher M, Sudarshi D, Brown A, Pao D, Parry J, Johnson A, Cane P, Gill N, Sabin C, Pillay D (2009) HIV transmission amongst men who have sex with men: association with antiretroviral therapy, infection stage, viraemia and STDs in a longitudinal phylogenetic study. *Sixteenth Conference on Retroviruses and Opportunistic Infections*, Montreal, Canada.
- [19] Attia S, Egger M, Müller M, Zwahlen M, Low N (2009) Sexual transmission of HIV according to viral load and antiretroviral therapy: systematic review and meta-analysis. *AIDS*, 23: 1397–1404.
- [20] Quinn T, Wawer M, Sewankambo N (2000) Viral load and heterosexual transmission of human immunodeficiency virus type 1. *New England Journal of Medicine*, 342: 921–9.
- [21] Bernard E (2008) *Swiss statement that 'undetectable equals uninfected' creates more controversy in Mexico City*. NAM, London.
- [22] Vernazza P et al. Swiss Federal Commission for HIV/AIDS (2008) Les personnes séropositives ne souffrant d'aucune autre MST et suivant un traitement antirétroviral efficace ne transmettent pas le VIH par voie sexuelle. *Bulletin des médecins suisses*, 89 (5).
- [23] Kalichman SC, Di Berto G, Eaton L (2008) Human immunodeficiency virus viral load in blood plasma and semen: review and implications of empirical findings. *Sexually Transmitted Diseases*, 35(1): 55–60.
- [24] Sheth PM, Kovacs C, Kemal KS, Jones RB, Raboud JM, Pilon R, la Porte C, Ostrowski M, Loutfy M, Burger H, Weiser B, Kaul R; Toronto Mucosal Immunology Group (2009) Persistent HIV RNA shedding in semen despite effective antiretroviral therapy. *AIDS*, 23(15): 2050–4.
- [25] Wilson DP, Law MG, Grulich AE, Copper DA, Kaldor JM (2008) Relation between HIV viral load and infectiousness: a model-based analysis. *The Lancet*, 372: 314–320.
- [26] Jacquez J, Koopman J, Simon C, Longini I (1994) Role of the primary infection in epidemics of HIV infection in gay cohorts. *Journal of Acquired Immune Deficiency Syndrome*, 7(11): 1169–84.
- [27] Boily MC, Baggaley RF, Wang L, Masse B, White RG, Hayes RJ, Alary M (2009) Heterosexual risk of HIV-1 infection per sexual act: systematic review and meta-analysis of observational studies. *Lancet Infectious Diseases*, 9(2): 118–129.
- [28] Das M, Chu PL, Santos GM, et al. (2010) Decreases in community viral load are accompanied by reductions in new HIV infections in San Francisco. *PLoS One*, 5(6), e11068.
- [29] Montaner JS, Lima VD, Barrios R, et al. (2010) Association of highly active antiretroviral therapy coverage, population viral load, and yearly new HIV diagnoses in British Columbia, Canada: a population-based study. *The Lancet*, 376: 532–539.
- [30] Donnell D, Baeten JM, Kiarie J, Thomas KK, Stevens W, Cohen CR, McIntyre J, Lingappa JR, Celum C, for the Partners in Prevention HSV/HIV Transmission Study Team (2010) Heterosexual HIV-1 transmission after initiation of antiretroviral therapy: a prospective cohort analysis. *The Lancet*, 375: 2092–2098.

- [31] Health Protection Agency (2010) *Diagnosed HIV-infected individuals seen for care. Survey of Prevalent HIV Infections Diagnosed (SOPHID) Men who have sex with men (MSM) data tables*. Colindale, Health Protection Agency.
- [32] Elford J, Ibrahim F, Bukutu C, Anderson J (2007) Sexual behaviour of people living with HIV in London: implications for HIV transmission. *AIDS*, 21 (suppl 1): S63–S70.
- [33] Sadiq ST, Taylor S, Copas AJ, Bennett J, Kaye S, Drake SM, Kirk S, Pillay D, Weller IVD (2005) The effects of urethritis on seminal plasma HIV-1 RNA loads in homosexual men not receiving antiretroviral therapy. *Sexually Transmitted Infections*, 81: 20–123.
- [34] Dougan S, Evans BG, Elford J (2007) Sexually transmitted infections in Western Europe among HIV-positive men who have sex with men. *Sexually Transmitted Diseases*, 34: 783–790.
- [35] Ferrand R, De Silva S, Cartledge J (2008) Tackling STI epidemics through the HIV clinic: is sex high enough on the agenda? *International Journal of STD & AIDS*, 19(10): 711–712.
- [36] Fox J, White PJ, Macdonald N, Weber J, McClure M, Fidler S, Ward H (2009) Reductions in HIV transmission risk behaviour following diagnosis of primary HIV infection: a cohort of high-risk men who have sex with men. *HIV Medicine*, 10(7): 432–438.
- [37] Bolding G, Davis M, Hart G, Sherr L, Elford J (2005) Gay men who look for sex on the internet: is there more HIV/STI risk with online partners? *AIDS*, 19(9): 961–968.
- [38] Macdonald N, Elam G, Hickson F, Imrie J, McGarrigle C, Fenton K, Baster K, Ward H, Gilbert V, Power R, Evans B (2007) Factors associated with HIV seroconversion in gay men in England at the start of the 21(st) century. *Sexually Transmitted Infections*, 84(1): 8–13.
- [39] Hickson F, Weatherburn P, Reid D, Jessup K, Hammond G (2006) *Consuming passions: findings from the UK Gay Men's Sex Survey 2005*. London, Sigma Research.
- [40] Bourne A, Dodds C, Keogh P, Weatherburn P, Hammond G (2009) *Relative Safety II: risk and unprotected anal intercourse among gay men with diagnosed HIV*. London, Sigma Research.
- [41] Ilaria G, Jacobs J, Polsky B, Koll B, Baron P, MacLow C, Armstrong D, Schlegel P (1994) Detection of HIV-1 DNA-sequences in preejaculatory fluid. *The Lancet*, 340(8833): 1469–1470.
- [42] Lane H, Holmberg S, Jaffe H (1991) HIV seroconversion and oral intercourse. *American Journal of Public Health*, 81: 658.
- [43] Edwards S, White C (1995) HIV seroconversion illness after orogenital contact with successful contact tracing. *International Journal of STD and AIDS*, 6: 50–51.
- [44] del Romero J, Marincovich B, Castilla J, García S, Campo J, Hernando V, Rodríguez C (2002) Evaluating the risk of HIV transmission through unprotected orogenital sex. *AIDS*, 16(9): 1296–1297.
- [45] Davis K, Weller S (1999) The effectiveness of condoms in reducing heterosexual transmission of HIV. *Family Planning Perspectives*, 31(6): 272–279.
- [46] Golombok S, Harding R, Sheldon J (2001) An evaluation of a thicker versus a standard condom with gay men. *AIDS*, 15: 245–250.
- [47] Golden M, Stekler J, Hughes J, Wood R (2008) HIV serosorting in men who have sex with men: is it safe? *Journal of Acquired Immune Deficiency Syndromes*, 49(2): 212–218.
- [48] Wilkinson A, Dodds J, Copas A, Jones V, Mercey D (2007) *Sexual Health Survey of Gay Men: London 2006*. London, University College London.
- [49] Jin F, Crawford J, Prestage GP, Zablotska I, Imrie J, Kippax SC, Kaldor JM, Grulich AE (2009) Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. *AIDS*, 23(2): 243–52.
- [50] Templeton DJ, Jin F, Imrie J, Prestage GP, Donovan B, Cunningham PH, Kaldor JM, Kippax S, Grulich AE (2008) Prevalence, incidence and risk factors for pharyngeal chlamydia in the community based Health in Men (HIM) cohort of homosexual men in Sydney, Australia. *Sexually Transmitted Infections*, 84(5): 361–363.
- [51] Zuckerman R, Whittington W, Celum C, Collis T, Lucchetti A, Sanchez J, Hughes J, Sanchez J, Coombs R (2004) Higher concentration of HIV RNA in rectal mucosa secretions than in blood and seminal plasma, among men who have sex with men, independent of antiretroviral therapy. *Journal of Infectious Diseases*, 190(1): 156–161.
- [52] Cohen CE, Giles A, Nelson M (2004) Sexual trauma associated with fisting and recreational drugs. *Sexually Transmitted Infections*, 80(6): 469–470.
- [53] Technical Meeting on Young Women in HIV Hyper-endemic Countries of Southern Africa (2008) *Essential interventions for reducing biomedical vulnerability of women to HIV infection in southern Africa: Policy and Programme Action Brief*. 15th ICASA, Dakar, Senegal.
- [54] French R, Power R (1997) Self-reported effects of alkyl nitrite use: a qualitative study amongst targeted groups. *Addiction Research & Theory*, 5(60): 519–548.
- [55] Buchbinder SP, Vittinghoff E, Heagerty PJ, Celum CL, Seage GR, Judson FN, McKinnan D, Mayer KH, Koblin BA (2005) Sexual risk, nitrite inhalant use, and lack of circumcision associated with HIV seroconversion in men who have sex with men in the United States. *Journal of Acquired Immune Deficiency Syndromes*, 39(1): 82–89.
- [56] Hickson F, Bonell C, Weatherburn P, Reid D, Hammond G (2010) Illicit drug use among men who have sex with men in England and Wales. *Addiction Theory & Research*, 18(1): 14–22.
- [57] Millett G, Flores S, Marks G, Reed J, Herbst J (2008) Circumcision status and risk of HIV and sexually transmitted infections among men who have sex with men: a meta-analysis. *Journal of the American Medical Association*, 300(14): 1674–1684.
- [58] Scully C, Porter S (2000) HIV topic update: oro-genital transmission of HIV. *Oral Diseases*, 6(2): 92–98.
- [59] Page-Shafer K, Shiboski CH, Osmond DH et al. (2002) Risk of HIV infection attributable to oral sex among men who have sex with men and in the population of men who have sex with men. *AIDS*, 16(17): 2350–2352.
- [60] Baggaley RF, White RG, Boily MC (2008) Systematic review of orogenital HIV-1 transmission probabilities. *International Journal of Epidemiology*, 37(6): 1255–1265.
- [61] Health Protection Agency (2010) *STI Annual Data Tables*. Table 2b. Number of new STI episodes seen at genitourinary medicine clinics by gender: 2000 - 2009. Colindale, Health Protection Agency.
- [62] Fisher M, Benn P, Evans B, Pozniak A, Jones M, MacLean S, Davidson O, Summerside J, Hawkins D (2006) UK Guideline for the use of post-exposure prophylaxis for HIV following sexual exposure. *International Journal of STD & AIDS*, 17: 81–92.
- [63] Sayer C, Fisher M, Nixon E, Nambiar K, Richardson D, Perry N, Llewellyn C (2009) Will I? Won't I? Why do men who have sex with men present for post-exposure prophylaxis for sexual exposures? *Sexually Transmitted Infections*, 85(3): 206–211.
- [64] DeGruttola V, Seage G, Mayer K, Horsburgh C (1989) Infectiousness of HIV between male homosexual partners. *Journal of Clinical Epidemiology*, 42(9): 849–56.

- [65] Vittinghoff E, Douglas J, Judson F, McKirnan D, MacQueen K, Buchbinder S (1999) Per-contact risk of human immunodeficiency virus transmission between male sexual partners. *American Journal of Epidemiology*, 150(3): 306-311.
- [66] Jin F, Jansson J, Law M, Prestage G, Zablotska I, Imrie J, Kippax S, Kaldor J, Grulich A, Wilson D (2010) Per-contact probability of HIV transmission in homosexual men in Sydney in the era of HAART. *AIDS*, 24(6): 907-913.
- [67] Ottosson D (2010) *State-sponsored homophobia: a World survey of laws prohibiting same sex activity between consenting adults*. Stockholm, ILGA.
- [68] National AIDS Trust (2008) *Primary HIV infection: a policy report*. London, NAT.
- [69] Hickson F, Weatherburn P, Reid D, Jessup K, Hammond G (2009) *Testing targets: findings from the United Kingdom Gay Men's Sex Survey 2007*. London, Sigma Research.
- [70] Elam G, Macdonald N, Hickson F, Imrie J, Power R, McGarrigle C, Fenton K, Gilbert V, Ward H, Evans B (2008) Risky sexual behaviour in context: qualitative results from an investigation into risk factors for seroconversion among gay men who test for HIV. *Sexually Transmitted Infections*, 84: 473-477.
- [71] Department of Health (2004) *Choosing health: making healthy choices easier*. London, The Stationery Office.
- [72] Fisher JD, Fisher WA (1992) Changing AIDS risk behavior. *Psychological Bulletin*, 111: 455-474.
- [73] Fisher WA, Fisher JD (1993) A general social psychological model for changing AIDS risk behavior. In J Pryor & G Reeder (eds) *The social psychology of HIV infection*. Hillsdale, Erlbaum.
- [74] Fisher WA, Fisher JD, Harman J (2003) The information-motivational-behavioral skills model: a general psychological approach to understanding and promoting health behavior. In J Suls and KA Wallston (eds) *Social psychological foundations of health and illness*. Oxford, Blackwells.
- [75] Fishbein M, Ajzen I (1975) *Belief, attitude, intention, and behavior: an introduction to theory and research*. Reading, MA, Addison-Wesley.
- [76] Ajzen I, Fishbein M (1980) *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ, Prentice-Hall.
- [77] Richters J (2009) Bodies, pleasure and displeasure. *Culture, Health & Sexuality*, 11(3): 225-236.
- [78] Crossley ML (2004) Making sense of 'barebacking': Gay men's narratives, unsafe sex and the 'resistance habitus'. *British Journal of Social Psychology*, 43: 225-244.
- [79] Beddoes D, Sheikh S, Pralat R, Sloman J (2010) *The impact of drugs on different minority groups: a review of the UK literature. Part 2: lesbian, gay, bisexual & transgender (LGBT) groups*. London, The UK Drug Policy Commission (UKDPC).
- [80] British HIV Association, British Association of Sexual Health and HIV and British Infection Society (2008) *UK national guidelines for HIV testing 2008*. London, BHIVA.
- [81] BG Gazzard on behalf of the BHIVA Treatment Guidelines Writing Group (2008) *British HIV Association guidelines for the treatment of HIV-1-infected adults with antiretroviral therapy 2008*. *HIV Medicine*, 9: 563-608.
- [82] Kippax S, Crawford J, Davis M, Rodden P, Dowsett G (1993) Sustaining safe sex - a longitudinal-study of a sample of homosexual men. *AIDS*, 7(2): 257-263.
- [83] Butler D, Smith D (2007) Serosorting can potentially increase HIV transmissions. *AIDS*, 21(9): 1218-1220.
- [84] Moskowitz D, Roloff M (2008) Vengeance, HIV disclosure, and perceived HIV transmission to others. *AIDS and Behavior*, 12: 721-728.
- [85] Johnson W, Diaz R, Flanders W, Goodman M, Hill A, Holtgrave D, Malow R, McClellan, William M (2008) Behavioral interventions to reduce risk for sexual transmission of HIV among men who have sex with men. *Cochrane Database Systematic Reviews*, 3, CD001230.
- [86] Kirby D (2007) *Emerging answers 2007: Research findings on programs to reduce teen pregnancy and sexually transmitted diseases*. Washington, DC, National Campaign to Prevent Teen and Unplanned Pregnancy.
- [87] Downing J, Jones L, Cook PA, Bellis MS (2006) *Evidence Briefing Update. HIV prevention: a review of reviews assessing the effectiveness of interventions to reduce the risk of sexual transmission*. Liverpool, Liverpool John Moores University Centre for Public Health.
- [88] Pittrof R, McLellan J (2007) Test not talk screening for asymptomatic men. *International Journal of STD & AIDS*, 18(4): 274-275.
- [89] Harding R, Bensley J, Corrigan N, Franks L, Stratman J, Waller Z, Warner J (2004) Outcomes and lessons from a pilot RCT of a community-based HIV prevention multi-session group intervention for gay men. *AIDS Care*, 16(5, SI): 581-585.
- [90] National Institute for Health and Clinical Excellence (2007) *One to one interventions to reduce the transmission of sexually transmitted infections (STIs) including HIV, and to reduce the rate of under 18 conceptions, especially among vulnerable and at risk groups*. London, NICE.
- [91] James N, Gillies P, Bignell C (1998) Evaluation of a randomized controlled trial of HIV and sexually transmitted disease prevention in a genitourinary medicine clinic setting. *AIDS*, 12(10): 1235-1242.
- [92] Bonell C, Strange V, Allen E, Barnett-Page E (2006) HIV prevention outreach in commercial gay venues in large cities: evaluation findings from London. *Health Education Research*, 21(4): 452-464.
- [93] Flowers P, Hart G, Williamson L, Frankis J, Der G (2002) Does bar-based, peer-led sexual health promotion have a community-level effect amongst gay men in Scotland? *International Journal of STD & AIDS*, 13(2): 102-108.
- [94] Bailey JV, Murray E, Rait G, Mercer CH, Morris RW, Peacock R, Cassell J, Nazareth I (2010) Interactive computer-based interventions for sexual health promotion. *Cochrane Database of Systematic Reviews*, 9, CD006483.
- [95] Elford J, Sherr L, Bolding G, Serle F, Maguire M (2002) Peer-led HIV prevention among gay men in London: process evaluation. *AIDS Care*, 14(3): 351-360.
- [96] Ziersch A, Gaffney J, Tomlinson D (2000) STI prevention and the male sex industry in London: evaluating a pilot peer education programme. *Sexually Transmitted Infections*, 76(6): 447-453.
- [97] Macdonald A (2009) *Independent review of the proposal to make Personal, Social, Health and Economic (PSHE) education statutory*. London, Department for Children, Schools and Families.
- [98] National AIDS Trust (2009) *HIV Testing action plan to increase uptake of HIV testing and reduce late diagnosis in the UK*. London, NAT.
- [99] Barnett T, Whiteside A (2002) *AIDS in the 21st Century: disease and globalisation*. Basingstoke, Palgrave.
- [100] Simnet I (1995) *Managing health promotion. Developing healthy organisations and communities*. London, Wiley.