

UK National Guidelines on safer sex advice

The Clinical Effectiveness Group of the British Association for Sexual Health and HIV (BASHH) and the British HIV Association (BHIVA)

July 2012

Authors: D.J. Clutterbuck FRCP MRCGP¹, P.Flowers PhD¹, T.Barber BSc MRCP³, H.Wilson MSc BSocStud¹, M.Nelson MA FRCP³, B.Hedge PhD Dip Clin Psych⁴, S.Kapp D Clin Psych⁴, A.Fakoya FRCP², A.K.Sullivan MD FRCP⁵

¹British Association for Sexual Health and HIV (BASHH), Royal Society of Medicine, 1 Wimpole St, London W1G 0AE, ²British HIV Association (BHIVA), BHIVA Secretariat, Mediscript Ltd, 1 Mountview Court, 310 Friern Barnet Lane, London, N20 0LD ³BASHH HIV Special Interest Group, ⁴British Psychological Society, St Andrews House, 48 Princes Rd East, Leicester, LE1 7DR ⁵BASHH Clinical Effectiveness Group

Corresponding author: Dr Dan Clutterbuck, Consultant in Genitourinary & HIV medicine, Chalmers Centre, 2a Chalmers St, Edinburgh EH3 9HQ.

Email: Daniel.Clutterbuck@nhs.net

Contents

Scope and purpose

Identifying candidates for advice and interventions

Evidence for behaviour change interventions

Intervention delivery

Safer sex advice

Condom efficacy

Determinants of condom effectiveness

Motivation for condom use

Advice on oral sex

Other sexual practices

Abstinence

Partner reduction

Repeat testing for sexually transmitted infections

Hepatitis vaccination

Sexual transmission of HIV infection

HIV infectivity on antiretroviral therapy (ART)

Initiation of ART to reduce transmission risk

Seroadaptive behaviours

Post-exposure prophylaxis following sexual exposure and
pre-exposure prophylaxis

Male circumcision

Patient advice statements

Audit standards

Appendices

Levels and grading of evidence

Rigour of development

Qualifying statement

Stakeholder involvement

Membership of CEG

Summary

This guideline provides evidence based guidance on the content of safer sex advice and the format and delivery of brief behaviour change interventions deliverable in GUM clinics. Much of the advice is applicable to other healthcare settings including general practice and clinics providing HIV care. Advice on condom use and effectiveness, oral sex and other sexual practices and advice specific to the transmission of HIV infection is included. A review of the evidence supporting the guideline, complete reference list and evidence and consensus-based advice statements are published electronically. A patient information leaflet based on the advice statements developed is also available through the BASHH website.

Keywords: Sexually transmitted diseases, safe sex, risk reduction behaviour, condoms, HIV infections

Scope and purpose

The objective of this document is to provide guidance for practitioners in Level 3 Genitourinary medicine (GUM) services (Tier 5 in Scotland) on safer sex advice provided in sexually transmitted infection (STI) and HIV management consultations. The guideline consists of:

- Recommendations on the format and delivery of brief behaviour change interventions deliverable in GUM clinics
- Recommendations on the content of safer sex advice given to individuals at continued risk of STI
- Additional advice to be provided for those living with HIV, or from groups with higher rates of HIV incidence

Much of the guidance is applicable in other sexual health and general practice settings, including HIV care services. The evidence base for the recommendations is summarised in an accompanying paper. Issues relating to implementation of behaviour change interventions in clinics, such as designing service structures and care pathways or the competencies required in different multidisciplinary staff groups, will be addressed in British Psychological Society (BPS) Good Practice Guidelines¹. Safer sex advice and individual behaviour change interventions provided within clinics are elements of a combination prevention approach to STIs and HIV²⁻³ that may also include group and community based behavioural interventions, structural and social changes and for HIV, biomedical interventions including post-exposure prophylaxis following sexual exposure (PEPSE), pre-exposure prophylaxis (PrEP)⁴ and the early initiation of antiretroviral therapy.

Identifying candidates for safer sex advice and other prevention interventions

No systematic reviews, meta-analyses, or original studies describing methods to systematically target potential candidates for interventions were found. The selection of patients for advice and behavioural interventions should be based on demographic group and individual history taking to identify recognised risk factors⁵⁻⁶. Guidance on eliciting risk factors is detailed in the BPS Best Practice Guidelines¹. Those at increased risk may include:

- adolescents^{5 7-8}
- people from, or who have visited countries with high rates of HIV and/or other STIs^{5 8}
- men who have sex with men (MSM)^{9 8}

Also individuals with a history of:

- frequent partner change or sex with multiple concurrent partners^{8 9}
- early onset sexual activity⁸
- previous bacterial STI^{7 10}
- attendance as a contact of STI^{6 11}
- alcohol or substance abuse (the use of recreational and stimulant drugs has been associated with HIV seroconversion in MSM¹²⁻¹³, although a history of intravenous drug use (IVDU) has been associated with a lower risk of acute STI⁹)

A range of other demographic and behavioural factors may be used to identify groups believed to be at risk of poor sexual health outcomes, although good evidence of elevated risk of STI compared to other populations in the UK is lacking; these include those with poor mental health¹⁴, prisoners¹⁵, sex industry workers^{16 17} and their clients¹⁸, looked after and accommodated adolescents¹⁹, those with learning disability and those with sexual compulsion and addiction²⁰⁻²¹.

Recommendation

Sexual history taking should be structured to identify risk factors for sexual ill health, sexual practices and behaviours and opportunities for brief behaviour change interventions (Evidence level IV, C).

Evidence for behaviour change interventions

There is high level evidence that behaviour change interventions can increase condom use and reduce partner numbers^{22,23-24}. There is also some end point evidence showing reduction in STI

incidence²⁵⁻²⁷ but there are significant methodological problems in evaluating outcomes in many populations²⁸. There is cost effectiveness data for interventions preventing HIV in MSM²⁴, but limited cost effectiveness data directly applicable, to other risk groups and other STIs²⁹, to the provision of interventions in GUM clinics, or data comparing interventions in clinics with community based prevention interventions. Local protocols on the selection and prioritisation of candidates for various levels of intervention and the interventions provided should be based on the relative prevalence of infection in different risk groups outlined above, staff competency, training capacity and local financial constraints.

Behaviour change interventions in routine consultations with GUM clinic patients can be effective at reducing STIs and increasing condom use^{22,30}, particularly in young people²⁷. Their effectiveness is related to the appropriateness of the intervention, its theoretical foundation, provider competency, cultural sensitivity and specificity and the provision of clear and unambiguous information, rather than the length or intensity of the intervention³¹. NICE Guidance and cost estimates³²⁻³³ are based on the provision of a single session of 15-20 minutes, but the most robust evidence applies to multi-session interventions. The minimal intervention shown to reduce STIs and increase condom use in heterosexual GUM clinic attendees is two sessions each of 20 minutes, with the greatest observed effect in adolescents and those with prior STI²⁵. A more extended course of 10 sessions reduced unsafe sex in MSM²⁶. Such interventions are unlikely to be routinely delivered to all at risk attendees in the UK GUM clinic given competing demands on resources. However, condom use errors are directly associated with STI rates and are reduced with both experience and the provision of instruction³⁴⁻³⁵. Condom use also increases in the control arm of a number of studies, in which advice alone was provided; suggesting that giving safer sex advice may be an effective intervention. For some individuals, increasing communication skills to enable successful negotiation of condom use may also be required.

A brief behaviour change intervention such as motivational interviewing (MI)³⁶ is no more time consuming and is more effective than simply giving advice³⁷. MI is a collaborative, person-centered form of guidance aimed at eliciting and strengthening an individual's motivation for change. There is good evidence for the use of MI in the treatment of addiction where a single session had beneficial effects over 12 months' follow up³⁸ and for multiple sessions in sexual health^{26 39}.

Hence a pragmatic approach involves enhancing the delivery of safer sex advice routinely given by all staff using a recognised brief

behaviour change strategy, such as (but not exclusively) MI. More detailed but brief (15-20 minute) one-to-one interactive interventions using the same techniques and also delivered by clinic staff should be provided in line with NICE Guidance (ref) to those at increased risk as listed above and tailored, intensive behavioural interventions involving two or more sessions should be provided to those at the highest continuing risk of acquisition and transmission of STIs including HIV. Good Practice Guidelines developed by the BPS will provide detail on the implementation of behaviour change interventions within services.

Proficiency in delivering MI can be achieved with training over one and a half days with ongoing supervision, coaching and feedback; but a single lecture or workshop or self directed learning was not effective⁴⁰. Manual – directed MI may be less effective⁴¹.

Recommendations

Intensive multi-session, evidence based behaviour change interventions targeting individuals and focussing upon skills acquisition, enhancing communication skills and increasing motivation to adopt safer sexual behaviours should be available directly or by referral in all GUM clinics (Evidence level Ia, A).

Motivational interviewing techniques should be used as part of an intensive course of risk reduction counselling in MSM at high risk of HIV infection (Evidence level Ib, A).

Brief (15-20 minute) evidence based behaviour change interventions targeting individuals and focussing upon skills acquisition, enhancing communication skills and increasing motivation to adopt safer sexual behaviours using techniques such as Motivational Interviewing should be provided as part of routine care of those at elevated risk of STI and HIV in GUM clinics (Evidence level Ib, A).

The delivery of safer sex advice, including condom demonstration, based on the characteristics of effective brief behaviour change interventions, should be part of the routine care of all those at continued risk of infection/transmission in GUM clinics (Evidence level III, B).

The provision of accurate, detailed and tailored information on safer sex should form part of all sexual health consultations (Evidence level IV, C).

Motivational interviewing should be provided by clinic staff who have gained competency in its provision through training. (Evidence level IV, C).

Intervention delivery

Computer delivered interventions may offer consistency and reduce the demand on human resources. A Cochrane review of interactive computer-based interventions (ICBI) for sexual health promotion found that ICBI were slightly more effective than face-to face interventions in improving sexual health knowledge⁴². A meta analysis showed an effect comparable to human interventions⁴³. There is evidence that safer sex advice videos in waiting rooms reduce rates of subsequent STI diagnosis but the effect size was not sufficient to recommend that this intervention is routinely introduced across all clinics⁴⁴.

Recommendations

Computer assisted interventions are comparable in effect and should be considered as an alternative or adjunct to human delivered interventions (Evidence level Ib, A).

Videos shown in waiting rooms should be considered as an additional aid to promoting behaviour change (Evidence level IIb, B).

Safer sex advice

The content of advice given to all those at continued risk of STI should be tailored to the individual's needs and understanding, based on the sexual history. Advice on condom use should be included in discussion with all clients (other than some women who have sex exclusively with women (WSW)) and should include verbal and written information on:

- condom efficacy and limitations
- condom types, sizes
- determinants of condom effectiveness
- motivation for condom use

Depending on HIV status, risk of future STI, sexual practices and partner gender, this may be supplemented in some individuals by skills building including condom demonstration and discussion of condom problems and condom sizing. Minimising individual risk may involve providing information on:

- oral sex and STI transmission
- other sexual practices

- Hepatitis vaccination and the use of antiretroviral therapy for HIV

A combination approach, recognising that the ideal of 100% condom use is not achievable for many individuals and supporting additional and alternative techniques is appropriate. Identification and recognition of risk reduction techniques already in use may be important in providing tailored advice on improving the effectiveness of, or advising on the limitations of techniques including:

- partner reduction (or reduction in the number of 'unsafe sex' partners)
- HIV seroadaptive behaviours including negotiated safety, serosorting and strategic positioning/seropositioning
- repeat testing for STI including HIV

Abstinence should not be promoted as the sole means of reducing sexual risk.

Condom efficacy

There is good evidence that consistent use of the male latex condom reduces the transmission of HIV in heterosexual couples, including those who have anal sex⁴⁵, and limited evidence for a comparable effect in MSM⁴⁶. There is evidence of protection against chlamydia, gonorrhoea, syphilis and HSV-2 in heterosexual men and women⁴⁷, rectal chlamydial infection in MSM⁴⁸ and possibly trichomoniasis in women⁴⁷. A Cochrane review of non-latex male condoms for prevention of pregnancy showed significantly higher rates of clinical breakage than latex counterparts⁴⁹. Female condoms confer as much protection from STIs as male condoms^{50 51} and may be used for anal sex⁵²⁻⁵³.

Recommendations

100% use of the male latex condom should be recommended to all those at risk of STIs including HIV (Evidence level III, B).

Non-latex condoms are an acceptable alternative to male latex condoms for vaginal sex but have higher rates of breakage (Evidence level Ia, A).

Female condoms are (at least) equivalent to male latex condoms in the prevention of STIs and should be offered as an alternative or supplement to male condoms to all women (Evidence level Ib, B).

Men should be made aware of the availability and use of female condoms (Evidence level IV, C).

Female condoms can be used as an alternative to male condoms for anal sex but are preferred to latex male condoms by a minority of MSM who have used them (Evidence level IIb, B).

Determinants of condom effectiveness

Recent condom breakage, late application, early removal and other condom errors are reported by up to a third of heterosexual men⁵⁴ and 17% of MSM⁵⁵. Condom slippage and errors are strongly associated with lack of training on correct condom use³⁵. Experiencing condom associated erection loss is associated with lower rates of use⁵⁶. Men with larger penile circumference experience more condom problems and like condoms less³⁴. Condom breakage is less likely with a condom that is individually fitted to penis size than with standard condoms during vaginal or anal intercourse^{57,58}. Although not currently possible in routine practice, providing a range of condom sizes is likely to be helpful. Lubricant use reduces the risk of condom breakage for anal⁵⁹ but not vaginal sex⁵⁷. The risk of condom slippage may be doubled with the use of additional lubricant for vaginal sex.

Recommendations

Less than 100% condom use will offer some protection – advise that using condoms as much as possible is better than not at all (Evidence level IIb, B).

MSM should be advised that thicker condoms are no less likely than standard condoms to break or slip off than standard condoms during anal sex (Evidence level Ib, A).

Non-oil based lubricant should be applied all over the condom and inside the anus, but not inside the condom, before anal sex (Evidence level Ib, A).

There is no advantage, in terms of condom safety, in the routine use of lubricant use for vaginal sex (Evidence level IIb, B).

Both men and women should be instructed on the correct use of male condoms and the importance of applying a condom before penetration and avoiding early removal (Evidence level IIb, B).

Providing a range of condom sizes is a quick and more practical alternative to formal condom sizing (Evidence level IV, C).

Motivation for condom use

Condoms are rarely applied specifically for STI prevention, and only 5.1% of STI clinic attendees used condoms on every occasion of intercourse in the year following an STI clinic visit⁶⁰.

Recommendation:

Advice should be based on an exploration of reasons for condom use and recognise that for heterosexual couples, the avoidance of pregnancy rather than STI is a major motivator (Evidence level III, B).

Advice on Oral Sex

Herpes simplex virus (HSV), human papilloma virus (HPV), gonorrhoea, Chlamydia, syphilis, HIV, Hepatitis B and possibly Hepatitis C are transmissible through oro-genital sex⁶¹⁻⁶². The risks associated with fellatio are likely to be greater than those with cunnilingus but oral sex is associated with significantly less risk of STI transmission than vaginal or anal sex. For HIV and viral infections other than HSV, available evidence suggests the risk to the oral partner is greater than that to the genital partner⁶³. The risk of HIV transmission through oral sex remains unclear⁶⁴, with data suggesting 2.6-8% of cases in MSM may be attributable to oral sex^{65,42}. Condom use for oral sex is very low in all groups studied⁶⁶⁻⁶⁸, so whilst routinely advocating condom use for oral sex is unrealistic, oral sex should not be promoted as risk free. Practitioners report an extremely low level of uptake and use of dental dams.

Recommendations

Safer sex advice should include information on the risks of oral sex, recognising that individuals must make an informed decision on the level of risk that is acceptable to them, and supporting pragmatic alternative risk reduction techniques. The risk of transmission of bacterial and viral STIs including HIV applies to both oral and genital partners but the risk to the genital partner is thought to be considerably lower. The risks of transmission associated with oral sex are (considerably) lower than for unprotected vaginal or anal sex except in the case of HSV-1. Advice on further reducing risk includes:

- *avoiding oral sex with ejaculation reduces the risk of HIV and possibly other infections (Evidence level IV, C)*
- *insertive fellatio is lower risk than receptive (Evidence IV, C)*
- *avoiding brushing teeth or flossing before having oral sex reduces risk of HIV and possibly other infections (Evidence level III, B)*

- *avoiding oral sex if oral cuts or sores are present, or a sore throat. (Evidence level IV, C)*
- *using condoms for fellatio and dental dams for cunnilingus and oro-anal contact (Evidence level IV, C)*

Other sexual practices

No sexual practice can be regarded as without risk of transmission of any STI. Non-penetrative skin to skin contact (including body rubbing, [non penetrative] mutual masturbation and tribadism) carries the risk of transmission of HPV⁶⁹ and HSV but a very low or zero risk of transmission of other STIs. Clinical experience and case reports relating to the non-sexual and accidental transmission of gonorrhoea⁷⁰, Chlamydia and syphilis⁷¹ suggest that these infections may also occasionally be transmitted in this way, but the evidence base is poor. Deep kissing may rarely transmit Hepatitis B⁷² and could theoretically transmit syphilis⁷³. In penetrative practices including digital stimulation, use of sex toys and fisting, transmission risk is related to the degree of trauma. Sado-masochistic practices causing minor trauma to mucous membranes also increase risk, especially if followed by unprotected penetrative sex. Case reports suggest that the use of sex toys may be associated with the transmission of STIs including HIV⁷⁴ although there are few reports of transmission. WSW may have a variety of risks for STI transmission through penetrative practices, which may also include sex with men. There is an increased risk of bacterial vaginosis in WSW with a history of sharing sex toys or whose partners have BV⁷⁵. Fisting in MSM carries significant risk of Hepatitis C⁷⁶ and is implicated in the transmission of lymphogranuloma venereum (LGV)⁷⁷⁻⁷⁸.

Recommendations

No form of sexual contact is entirely without risk of STI transmission. Non-penetrative contact carries the lowest risk (Evidence level IV, C).

In penetrative sex (including fingering, using sex toys and fisting) the risk of transmission is related to the degree of trauma. The use of gloves should be recommended for traumatic digital penetrative sex (Evidence level IV, C).

Abstinence

A systematic review of programmes to promote abstinence as an STI prevention intervention in high income countries⁷⁹ showed no evidence of beneficial effects. Elective abstinence is chosen by a minority of people living with HIV⁸⁰ as a means of preventing onward transmission.

Recommendation

The promotion of abstinence alone as a routine component of effective safer sex advice is not recommended (Evidence level 1a, A).

Partner reduction

The spread of sexually transmitted infections depends on the rate of change of sexual partners, particularly concurrent partners. The number of oral sex partners has been associated with syphilis in MSM⁶⁷, and partner reduction has been implicated in reducing HIV prevalence⁸¹. Reduction in partner number may have a greater effect on the prevalence of infection than a similar proportionate increase in condom use, particularly for bacterial infections⁸².

Recommendation

Safer sex advice should include discussion regarding reduction in number of partners or the number of unprotected sex partners, and in particular, the risks associated with concurrent partnerships in those at increased risk of HIV infection (Evidence level III, B).

Advice should include reduction in the number of partners with whom the individual has oral sex (Evidence level IIb, B with respect to syphilis in MSM).

Repeat testing for STIs

Prior infection with Chlamydia is a risk factor for re-infection with Chlamydia, gonorrhoea and *Trichomonas vaginalis* (TV) in women⁷ with peak reinfection rates of 19-20% at 8-10 months post infection⁸³. Prior rectal Chlamydia, gonorrhoea or syphilis infection is associated with incident HIV infection in MSM¹⁰. Ulcerative and non-ulcerative STIs affecting either HIV positive or HIV negative sexual partners increase HIV transmission and acquisition⁸⁴⁻⁸⁶. Although the role of HIV testing in HIV prevention is unclear, there is good evidence that people who know their HIV status do, in the short term at least, have less unprotected sexual intercourse⁸⁷. In addition, risk reduction techniques including seroadaptive behaviours and the use of antiretroviral therapy (as early initiation of ART, PEPSE or PrEP) to reduce HIV transmission depend upon accurate knowledge of an individual's current HIV status. Frequent re-testing (as often as every three months) may be appropriate for those at the highest risk of HIV infection⁸⁸⁻⁹⁰.

Recommendations

Re-testing for asymptomatic STIs should be recommended to all individuals with a prior STI diagnosis including HIV (Evidence level III, B).

Screening for asymptomatic STIs should be recommended at least annually (and in some cases as frequently as every three months) to all individuals at risk of acquisition or transmission of HIV (Evidence level IV, C).

HIV testing should be routinely recommended to all individuals attending GUM or sexual health services. Pre- and post-test discussions and counselling support should be available (Evidence level IV, C).

Hepatitis vaccination

Detailed information on sexually acquired Hepatitis infection is contained in BASHH guidelines⁹¹. Outbreaks of Hepatitis A transmitted through oro-anal or digital- anal contact have been reported among MSM in large UK cities. BASHH Guidelines recommend that clinics in these areas offer Hepatitis A vaccination to MSM and advice should be based on local clinic policy. Transmission of Hepatitis B (HBV) occurs in non-immune MSM, intravenous drug users, sex workers and heterosexual partners of people from areas where Hepatitis B infection is endemic (i.e. outside Western Europe, N. America and Australasia). All those at risk should be advised to test for Hepatitis B and vaccination offered to all at continuing risk. Vaccination against HBV is also recommended in all non-immune HIV infected adults⁹².

Recommendation:

Advice on the sexual transmission of Hepatitis A and Hepatitis B and the availability of vaccination should be given to all those at elevated risk of acquisition.

Advice specific to the prevention of sexual transmission of HIV infection

This guidance is applicable to those who are HIV negative, HIV positive and for those who as yet do not know their status. It is important that any discussion around HIV transmission acknowledges the complex issues relating to disclosure for those who are HIV positive. Standards for the psychological support for adults living with HIV address these issues and describe a hierarchy of interventions that correlate with those described in this document⁹³. Psychological factors affecting treatment adherence and safer sex behaviours may overlap and increase the risk of HIV transmission⁹⁴. Detailed advice on sexual and reproductive health for people living with HIV (PLHIV) is given in guidelines by BHIVA, BASHH and the Faculty of Sexual and Reproductive Health (FSRH)⁹⁵

HIV infectivity on antiretroviral therapy

HIV transmission through peno-vaginal sex is rarely observed where the quantitative plasma viral load is below 400 copies per ml⁹⁶. Most currently used laboratory assays detect levels of viraemia of 50 copies/ml and successful antiretroviral therapy reduces plasma viral load to below this level of detectability. However, a negative plasma viral load cannot always be considered as a marker of an undetectable seminal viral load⁹⁷⁻⁹⁹ and there are reports of HIV transmission with undetectable plasma viral load⁹⁶. The residual transmission risk is likely to be higher for anal sex than for vaginal sex¹⁰⁰⁻¹⁰¹. Irrespective of HIV status, couples may consider discontinuing use of condoms for a number of reasons, in a long term monogamous relationship, in the planning of a pregnancy etc. The Expert Advisory Group on AIDS provides additional guidance regarding disclosure of HIV status¹⁰².

Recommendations

Advice to people living with HIV, their sexual partners and those from groups with higher incidence of HIV infection should include:

Taking effective antiretroviral therapy and having a quantitative plasma viral load below the limit of detection of currently available assays significantly reduces the risk of HIV transmission (Evidence level Ia, A).

Despite routine undetectable plasma viral load measurements a residual risk of transmission is likely to exist (Evidence level IIb, B).

This residual risk is likely to be higher for anal sex than for vaginal or oral sex (Evidence level III, B).

The risks are increased with reduced ART adherence or the presence of STIs in either partner. The risks can be reduced by using condoms and having regular STI screens (Evidence level IV, C).

Serodiscordant couples should receive detailed expert counselling and support on the transmission risks and other relevant issues (Evidence level IV, C).

Initiation of ART to reduce transmission risk

A multi-national, randomised, controlled trial showed a 96% reduction in the risk of HIV transmission in heterosexual couples in which the infected partner was given immediate ART, compared to a deferred group¹⁰³. Although there is currently no public health policy

of treatment as prevention in the UK, the early initiation of treatment to reduce the risk of onward transmission may be appropriate as part of a risk reduction approach for some individuals.

Recommendation

Discussion regarding the early initiation of antiretroviral therapy to reduce the risk of HIV transmission should be considered as part of safer sex counselling for some people living with HIV (Evidence level Ib, A).

Seroadaptive behaviours including negotiated safety, serosorting and seropositioning

Seroadaptation includes serosorting (choosing partners with concordant HIV status), 'strategic positioning', also interchangeably termed 'seropositioning'¹⁰⁴ (choosing the position taken during sexual practices according to HIV status) and negotiated safety. Negotiated safety (NS) usually refers to the use or non-use of condoms according to a partner's HIV status. These strategies have mainly been described in MSM, in whom 14-44% report serosorting and 6-35% seropositioning¹⁰⁵, but also in heterosexual populations¹⁰⁶⁻¹⁰⁷, and may be more common and better adhered to than consistent condom use¹⁰⁸. Serosorting may be associated with a small decrease in the risk of seroconversion^{109 110} and is almost certainly safer than UAI with unselected partners but less safe than avoiding UAI altogether¹¹¹. It remains a controversial harm reduction technique¹¹² and has been characterised as seroguessing because around 30% of men have been found to assume rather than know the status of partners¹¹³. There is also evidence that there may be an increase in other STIs when serosorting occurs¹¹⁴. Rectal infection with LGV is particularly associated with HIV infection in MSM¹¹⁵, with between 67% and 100% of cases being HIV co-infected. Acute infection with Hepatitis C is associated with UAI and other unprotected sexual behaviours in HIV infected MSM¹¹⁶.

Recommendations

Negotiated safety and serosorting should be discussed with those who are known or suspected to be unable or unwilling to maintain 100% condom use (Evidence level IV,C).

MSM should be advised that serosorting is less effective than consistent condom use but more effective than non selective non-use in preventing HIV acquisition or transmission (Evidence level III, B).

HIV positive MSM should be advised of the risk of acquiring other STIs, in particular Lymphogranuloma venereum and Hepatitis C, through unprotected sex with other HIV positive men. (Evidence level III, B).

Post-exposure prophylaxis following sexual intercourse and pre-exposure prophylaxis

BASHH guidance on post exposure prophylaxis for HIV following sexual exposure (PEPSE) is available ¹¹⁷. A joint BHIVA/BASHH statement on PrEP recommends that *ad-hoc* prescribing is avoided, and that currently PrEP should only be prescribed in the context of a clinical research trial¹¹⁸.

Recommendation

All individuals at increased risk of HIV acquisition (including those in serodiscordant relationships, MSM and those from, or with partners from, populations with high HIV seroprevalence) and those at risk of transmitting HIV should receive verbal and written advice on the indications for and availability of PEPSE (Evidence level IV, C).

Male circumcision

Three randomised controlled trials have shown that male circumcision (MC) protects against the acquisition of HIV in men in the setting of a high prevalence (generalised) HIV epidemic¹¹⁹. There is currently no randomised control trial evidence on the role of MC in countries of low HIV prevalence or for anal sexual intercourse.

Recommendation

There is currently no public health evidence to recommend MC as a strategy for HIV transmission reduction in the UK, either at a population or individual level (Evidence level IV, C).

Evidence and consensus based patient advice statements

Condom advice:

- ***Use a condom every time you have vaginal, oral or anal sex to minimise the risk of transmission of HIV and other sexually transmitted infections (Ia)***
- ***Even if you don't use a condom every time, or for every type of sex, use one as often as possible – this is safer than not at all (IIb)***

- ***Even if you occasionally did not use a condom, that does not mean it is not worth using a condom every time in future (I Ib)***
- ***Non-Latex condoms are slightly more likely to break than latex condoms (I a)***
 - ***Use non-latex condoms if you have a latex allergy (or if you are using creams or treatments that damage latex condoms) (IV)***
 - ***Some men prefer the feel of latex condoms and find that they are less likely to lose erection (IV)***
 - ***Some men find latex condoms easier to put on (IV)***
- ***Female condoms are at least as good as male condoms at preventing STIs (I a)***
- ***You get better at using condoms the more you practice (I Ib)***
- ***Practising opening and using a condom alone, and in the dark, might make it easier to do when you have sex (IV)***
- ***Make sure you use a condom of the right size, as condoms are more likely to split if too tight (II a)***
 - ***The girth (circumference) may be more important than penis length (II a)***
 - ***A fitted condom is more likely to slip off during withdrawal (II a)***
- ***There is no need to use extra lubricant with condoms for vaginal sex – lubricant increases the chance that the condom will slip off (I Ib)***
- ***It isn't safe just to use a condom when you ejaculate (come) – infections including HIV are can be passed on without ejaculation (IV)***
- ***Using two condoms is NOT better than one as they are more likely to break (IV)***
- ***To avoid common condom errors, make sure you:***
 - ***remove all the air from the condom before putting it on***
 - ***hold the condom during withdrawal (pulling out)***
 - ***don't unroll it before putting it on***
 - ***put the condom before you start having sex***
 - ***if you put it on the wrong way by mistake, use another one - don't just flip it over***

For anal sex:

- ***Ordinary condoms are no more likely than thicker condoms to break or slip off during anal sex (I b)***

- ***Put water based lubricant all over the condom and inside the anus, but not inside the condom, before anal sex (Ib)***
- ***You can use female condoms instead of male condoms for anal sex: remove the ring at the end of the condom and place on the penis like a male condom (III)***

For HIV

- ***Taking effective antiretroviral therapy (ART) and having an undetectable plasma or blood HIV viral load significantly reduces the risk of HIV transmission during sex (Ia).***
- ***Even with an undetectable viral load, there is still a small risk of HIV transmission. This is higher for anal sex than for vaginal or oral sex (IIb).***
- ***Continuing to use condoms for vaginal, anal and oral sex will further reduce any remaining risk of transmission (IV).***
- ***Poor adherence (missing doses of ART) may increase the risk of HIV transmission (III).***
- ***If you are living with HIV, or you have partners who are or may be HIV positive, have an STI check at least once a year (IV).***

Audit standards

Standards 1, 3 and 4 are derived from Healthcare Improvement Scotland Standards for Human Immunodeficiency (HIV) Services, July 2011¹²⁰.

1. Information on HIV, which includes modes of transmission and ways of reducing HIV transmission risk:
 - a. is provided in all settings where testing takes place (Standard: Written information available in 100% of waiting areas) and
 - b. is provided to all patients having a first HIV test performed in a sexual health setting. (Standard: Documented provision of written information or appropriate audio or visual alternative in 80% of patients having a first HIV test)
2. Advice on safer sex is provided in an appropriate format to all those diagnosed with a STI. (Standard: Provision of advice and/or written information documented in 80% of cases)
3. A referral pathway for access to intensive, tailored behaviour change interventions is in place for those identified as

presenting with ongoing HIV/STI higher risk behaviour throughout all services where sexual health and/or HIV consultations occur. (Standard: Documented referral pathway is available in 100% of clinics)

4. All specialist sexual health and HIV clinics have a member of staff, available at each clinical session where STI testing occurs, who is trained in delivering a brief intervention shown to be effective in sexual risk reduction, and who is provided with regular ongoing supervision. (Standard: Availability at 95% of clinic sessions, Documentation of competency and ongoing supervision 100%)

**Appendix:
Levels and grading of evidence**

Recommendations have been graded according to the level of evidence, utilising the US Department of Health and Human Services agency for Healthcare Policy and Research (AHCPR) System.

Table A

Level	Type of evidence
Ia	Evidence obtained from meta-analysis of randomised controlled trials
Ib	Evidence obtained from at least one randomised controlled trial
IIa	Evidence obtained from at least one well-designed controlled study without randomisation
IIb	Evidence obtained from at least one type of well-designed quasi-experimental study
III	Evidence obtained from well-designed, non-experimental descriptive studies, such as comparative studies, correlation studies and case control studies
IV	Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities

Table B

Grade	Recommendation
A (Evidence levels Ia, Ib)	Requires at least one randomised controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation
B (Evidence levels IIa, IIb, III)	Requires availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation
C (Evidence level IV)	Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality

Rigour of development

The guideline was developed by review of Cochrane Library, Medline, Embase and Conference reports and existing guidelines from 2000-Week 40 2008. Following consultation main title searches and searches relating to seroadaptive behaviours and HIV transmission were repeated and updated to May 2011. Main title searches included keywords 'Condoms' (1762 citations), 'Behavioural interventions' and 'Motivational interviewing'. Other keyword searches included 'Sexual intervention', 'Intervention meta-analysis STI', 'Brief intervention sexual health', 'Safer sex behavioural intervention', 'CBT sexual health intervention', 'skill sexual', 'condom skill', 'STI prevention', 'combination prevention', 'safer sex', 'condom error/s', 'condom breakage', 'condom' and 'erectile dysfunction', 'female condom', 'partner reduction', 'abstinence', 'contraception', 'negotiated safety', 'serosorting', seroadaptive, 'testing in relationships', 'frequency AND rescreening', 'seminal viral load' and others.

'Oral sex', 'anal sex', 'digital', 'non-sexual', 'accidental', 'non-sexual' and 'kissing' were combined individually without mapping with sexually transmitted infections, HIV, syphilis, herpes, HSV, Chlamydia, gonorrhoea, warts. STI risk combined with 'sex workers', sex work, 'prisoners', 'looked after, accommodated, adolescents'. 'Sexual behaviour' combined with 'compulsion'. Title searches were used by individual co-authors to identify articles of relevance. Articles published in English only were included. In the

absence of directly applicable evidence, recommendations are based on expert opinion and practice.

Qualifying statement

The recommendations in this guideline may not be appropriate for use in all clinical situations. Decisions to follow these recommendations must be based on the professional judgement of the clinician and consideration of individual patient circumstances and available resource.

Writing Group

Dr Dan Clutterbuck, Consultant in Genitourinary & HIV Medicine, NHS Lothian/NHS Borders. Honorary Senior Lecturer, University of Edinburgh

Professor Paul Flowers, Professor of Sexual Health Psychology, Glasgow Caledonian University, Glasgow, UK

Dr Tristan Barber, Specialty Registrar in GUM/HIV, Mortimer Market Centre, NHS Camden, London UK (BASHH HIV Special Interest Group)

Dr Ade Fakoya, Consultant Physician (BHIVA) (pre consultation draft)

Heather Wilson, Senior Health Adviser, Barnet Hospital (BASHH, Society of Sexual Health Advisors)

Dr Mark Nelson, Consultant Physician, Chelsea and Westminster NHS Foundation Trust, London, UK (BASHH HIV Special Interest Group)

Dr Barbara Hedge, Consultant Clinical Psychologist, St Helens & Knowsley Hospitals (British Psychological Society's Faculty of Sexual Health and HIV)

Dr Sylvia Kapp, Clinical Psychologist, Mortimer Market Centre, London, (British Psychological Society's Faculty of Sexual Health and HIV) (pre consultation draft)

Dr Ann Sullivan, Consultant Physician in Genitourinary & HIV Medicine, Chelsea and Westminster NHS Foundation Trust, London, UK (BASHH CEG) – Editor

Consultation feedback

Dr Sophie Brady, Garry Brough, (BHIVA, UK CAB), Gus Cairns, Rachel Ellks for Cheshire and Mersey BASHH Group, John Holland,

Robert James, Dr Fiona Lampe, Dr Linda Lazarus for Expert Advisory Group on AIDS, Dr Danielle Mercey, Catherine Murphy for Terrance Higgin's Trust, National AIDS Trust, Professor Andrew Phillips, Elizabeth Pisani, Victoria Ripley, Dr Alison Rodger, Calvin Rufus, Dr Nathan Sankar, Dr Euan Stewart.

Membership of the CEG

Clinical Effectiveness Group: Chairman, Keith Radcliffe; David Daniels (BASHH National Audit Group); Mark FitzGerald; Margaret Kingston; Neil Lazaro; Gill McCarthy; Ann Sullivan (all are Consultant Physicians in genitourinary medicine)

Conflict of Interest

None

References

1. BPS. *British Psychological Society Good Practice Guidelines on Public Health NICE Guidance no.3: Prevention of Sexually Transmitted Infections and under-18 Conceptions – A Guide for Implementation Leads, Managers and Commissioners of Sexual Health Services. (in preparation).*
2. Merson M, Padian N, Coates TJ, Gupta GR, Bertozzi SM, Piot P, et al. *Combination HIV prevention. Lancet 2008;372(9652):1805-6.*
3. Hankins CA, de Zalduondo BO. *Combination prevention: a deeper understanding of effective HIV prevention. AIDS 2010;24 Suppl 4:S70-80.*
4. Buchbinder SP, Liu A. *Pre-exposure prophylaxis and the promise of combination prevention approaches. AIDS Behav 2011;15 Suppl 1:S72-9.*
5. Hughes G, Catchpole M, Rogers PA, Brady AR, Kinghorn G, Mercey D, et al. *Comparison of risk factors for four sexually transmitted infections: results from a study of attenders at three genitourinary medicine clinics in England. Sex Transm Infect 2000;76(4):262-7.*
6. Katz BP, Fortenberry JD, Tu W, Harezlak J, Orr DP. *Sexual behavior among adolescent women at high risk for sexually transmitted infections. Sex Transm Dis 2001;28(5):247-51.*
7. Peterman TA, Tian LH, Metcalf CA, Satterwhite CL, Malotte CK, DeAugustine N, et al. *High incidence of new sexually transmitted infections in the year following a sexually transmitted infection: a case for rescreening. Ann Intern Med 2006;145(8):564-72.*

8. NICE. *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.* <http://www.nice.org.uk/nicemedia/pdf/PHI003guidance.pdf>. Accessed 10th May 2011
9. Catchpole M, Connor N, Brady A, Kinghorn G, Mercey D, Band B, et al. *Behavioural and demographic characteristics of attenders at two genitourinary medicine clinics in England.* *Genitourin Med* 1997;73(6):457-61.
10. Bernstein KT, Marcus JL, Nieri G, Philip SS, Klausner JD. *Rectal gonorrhoea and chlamydia reinfection is associated with increased risk of HIV seroconversion.* *J Acquir Immune Defic Syndr* 2010;53(4):537-43.
11. Orr DP, Johnston K, Brizendine E, Katz B, Fortenberry JD. *Subsequent sexually transmitted infection in urban adolescents and young adults.* *Arch Pediatr Adolesc Med* 2001;155(8):947-53.
12. Ostrow DG, Plankey MW, Cox C, Li X, Shoptaw S, Jacobson LP, et al. *Specific sex drug combinations contribute to the majority of recent HIV seroconversions among MSM in the MACS.* *J Acquir Immune Defic Syndr* 2009;51(3):349-55.
13. Mimiaga MJ, Noonan E, Donnell D, Safren SA, Koenen KC, Gortmaker S, et al. *Childhood sexual abuse is highly associated with HIV risk-taking behavior and infection among MSM in the EXPLORE Study.* *J Acquir Immune Defic Syndr* 2009;51(3):340-8.
14. Brown AP, Lubman DI, Paxton SJ. *STIs and blood borne viruses - risk factors for individuals with mental illness.* *Aust Fam Physician* 2008;37(7):531-4.
15. Gabriel G, Burns T, Scott-Ram R, Adlington R, Bansi L. *Prevalence of Chlamydia trachomatis and associated risk factors in women inmates admitted to a youth offenders institute in the UK.* *Int J STD AIDS* 2008;19(1):26-9.
16. Shannon K, Csete J. *Violence, condom negotiation, and HIV/STI risk among sex workers.* *JAMA* 2010;304(5):573-4.
17. Ward H, Day S, Green A, Cooper K, Weber J. *Declining prevalence of STI in the London sex industry, 1985 to 2002.* *Sex Transm Infect* 2004;80(5):374-6.
18. Decker MR, Raj A, Gupta J, Silverman JG. *Sex purchasing and associations with HIV/STI among a clinic-based sample of US men.* *J Acquir Immune Defic Syndr* 2008;48(3):355-9.
19. Henderson M, Wight D, Raab G, Abraham C, Buston K, Hart G, et al. *Heterosexual risk behaviour among young teenagers in Scotland.* *J Adolesc* 2002;25(5):483-94.

20. Grov C, Parsons JT, Bimbi DS. Sexual compulsivity and sexual risk in gay and bisexual men. *Arch Sex Behav* 2010;39(4):940-9.
21. Kelly BC, Bimbi DS, Nanin JE, Izienicki H, Parsons JT. Sexual compulsivity and sexual behaviors among gay and bisexual men and lesbian and bisexual women. *J Sex Res* 2009;46(4):301-8.
22. Downing J JL, Cook PA, Bellis MA. Prevention of sexually transmitted infections (STIs): a review of reviews into the effectiveness of non-clinical interventions. *Evidence Briefing Update: Liverpool John Moores University, Q7 Centre for Public Health, Liverpool* 2009.
23. Noar SM. Behavioral interventions to reduce HIV-related sexual risk behavior: review and synthesis of meta-analytic evidence. *AIDS Behav* 2008;12(3):335-53.
24. Herbst JH, Sherba RT, Crepaz N, Deluca JB, Zohrabyan L, Stall RD, et al. A meta-analytic review of HIV behavioral interventions for reducing sexual risk behavior of men who have sex with men. *J Acquir Immune Defic Syndr* 2005;39(2):228-41.
25. Kamb ML, Fishbein M, Douglas JM, Jr., Rhodes F, Rogers J, Bolan G, et al. Efficacy of risk-reduction counseling to prevent human immunodeficiency virus and sexually transmitted diseases: a randomized controlled trial. Project RESPECT Study Group. *JAMA* 1998;280(13):1161-7.
26. Koblin B, Chesney M, Coates T. Effects of a behavioural intervention to reduce acquisition of HIV infection among men who have sex with men: the EXPLORE randomised controlled study. *Lancet* 2004;364(9428):41-50.
27. Johnson BT, Scott-Sheldon LA, Huedo-Medina TB, Carey MP. Interventions to reduce sexual risk for human immunodeficiency virus in adolescents: a meta-analysis of trials, 1985-2008. *Arch Pediatr Adolesc Med* 2011;165(1):77-84.
28. Berg R. The effectiveness of behavioural and psychosocial HIV/STI prevention interventions for MSM in Europe: A systematic review. *Euro Surveill* 2009;14(48).
29. Shepherd J, Kavanagh J, Picot J, Cooper K, Harden A, Barnett-Page E, et al. The effectiveness and cost-effectiveness of behavioural interventions for the prevention of sexually transmitted infections in young people aged 13-19: a systematic review and economic evaluation. *Health Technol Assess* 2010;14(7):1-206, iii-iv.
30. Ward DJ, Rowe B, Pattison H, Taylor RS, Radcliffe KW. Reducing the risk of sexually transmitted infections in genitourinary medicine clinic patients: a systematic review and meta-

- analysis of behavioural interventions. *Sex Transm Infect* 2005;81(5):386-93.
31. Carey MP, Senn TE, Venable PA, Coury-Doniger P, Urban MA. Brief and intensive behavioral interventions to promote sexual risk reduction among STD clinic patients: results from a randomized controlled trial. *AIDS Behav* 2010;14(3):504-17.
 32. NICE. National Costing Report (Prevention of STIs and Under 18 Conceptions), 2007. Available at <http://www.nice.org.uk/nicemedia/live/11377/31904/31904.pdf>. Accessed 10th May 2011.
 33. NICE. Prevention of sexually transmitted infections and under 18 conceptions: costing template 2007. Available at <http://guidance.nice.org.uk/PH3/CostingTemplate/xls/English>. Accessed 10th May 2011.
 34. Hatherall B, Ingham R, Stone N, McEachran J. How, not just if, condoms are used: the timing of condom application and removal during vaginal sex among young people in England. *Sex Transm Infect* 2007;83(1):68-70.
 35. Yarber WL, Graham CA, Sanders SA, Crosby RA. Correlates of condom breakage and slippage among university undergraduates. *Int J STD AIDS* 2004;15(7):467-72.
 36. Rollnick S, Butler CC, Kinnersley P, Gregory J, Mash B. Motivational interviewing. *BMJ* 2010;340:c1900.
 37. Rubak S, Sandbaek A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *Br J Gen Pract* 2005;55(513):305-12.
 38. Miller WR. Motivational interviewing and the incredible shrinking treatment effect. *Addiction* 2005;100(4):421.
 39. Petersen R, Albright J, Garrett JM, Curtis KM. Pregnancy and STD prevention counseling using an adaptation of motivational interviewing: a randomized controlled trial. *Perspect Sex Reprod Health* 2007;39(1):21-8.
 40. Miller WR, Yahne CE, Moyers TB, Martinez J, Pirritano M. A randomized trial of methods to help clinicians learn motivational interviewing. *J Consult Clin Psychol* 2004;72(6):1050-62.
 41. Hettema J, Steele J, Miller WR. Motivational interviewing. *Annu Rev Clin Psychol* 2005;1:91-111.
 42. Bailey JV, Murray E, Rait G, Mercer CH, Morris RW, Peacock R, et al. Interactive computer-based interventions for sexual health promotion. *Cochrane Database Syst Rev* 2010(9):CD006483.
 43. Noar SM, Black HG, Pierce LB. Efficacy of computer technology-based HIV prevention interventions: a meta-analysis. *AIDS* 2009;23(1):107-15.
 44. Warner L, Klausner JD, Rietmeijer CA, Malotte CK, O'Donnell L, Margolis AD, et al. Effect of a brief video intervention on

- incident infection among patients attending sexually transmitted disease clinics. *PLoS Med* 2008;5(6):e135.
45. Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev* 2002(1):CD003255.
 46. Golden M. HIV serosorting among men who have sex with men: implications for prevention. *Thirteenth Conference on Retroviruses and Opportunistic Infections*. Denver, 2006.
 47. Holmes KK, Levine R, Weaver M. Effectiveness of condoms in preventing sexually transmitted infections. *Bull World Health Organ* 2004;82(6):454-61.
 48. Hocking J, Fairley CK. Associations between condom use and rectal or urethral chlamydia infection in men. *Sex Transm Dis* 2006;33(4):256-8.
 49. Gallo MF, Grimes DA, Lopez LM, Schulz KF. Non-latex versus latex male condoms for contraception. *Cochrane Database Syst Rev* 2006(1):CD003550.
 50. Minnis AM, Padian NS. Effectiveness of female controlled barrier methods in preventing sexually transmitted infections and HIV: current evidence and future research directions. *Sex Transm Infect* 2005;81(3):193-200.
 51. French PP, Latka M, Gollub EL, Rogers C, Hoover DR, Stein ZA. Use-effectiveness of the female versus male condom in preventing sexually transmitted disease in women. *Sex Transm Dis* 2003;30(5):433-9.
 52. Wolitski RJ, Halkitis PN, Parsons JT, Gomez CA. Awareness and use of untested barrier methods by HIV-seropositive gay and bisexual men. *AIDS Educ Prev* 2001;13(4):291-301.
 53. Renzi C, Tabet SR, Stucky JA, Eaton N, Coletti AS, Surawicz CM, et al. Safety and acceptability of the Reality condom for anal sex among men who have sex with men. *AIDS* 2003;17(5):727-31.
 54. Crosby RA, Yarber WL, Sanders SA, Graham CA, McBride K, Milhausen RR, et al. Men with broken condoms: who and why? *Sex Transm Infect* 2007;83(1):71-5.
 55. Stone E, Heagerty P, Vittinghoff E, Douglas JM, Jr., Koblin BA, Mayer KH, et al. Correlates of condom failure in a sexually active cohort of men who have sex with men. *J Acquir Immune Defic Syndr Hum Retrovirol* 1999;20(5):495-501.
 56. Graham CA, Crosby R, Yarber WL, Sanders SA, McBride K, Milhausen RR, et al. Erection loss in association with condom use among young men attending a public STI clinic: potential correlates and implications for risk behaviour. *Sex Health* 2006;3(4):255-60.
 57. Smith AM, Jolley D, Hocking J, Benton K, Gerofi J. Does additional lubrication affect condom slippage and breakage? *Int J STD AIDS* 1998;9(6):330-5.

58. Reece M, Herbenick D, Sanders SA, Monahan P, Temkit M, Yarber WL. Breakage, slippage and acceptability outcomes of a condom fitted to penile dimensions. *Sex Transm Infect* 2008;84(2):143-9.
59. Golombok S, Harding R, Sheldon J. An evaluation of a thicker versus a standard condom with gay men. *AIDS* 2001;15(2):245-50.
60. Peterman TA, Tian LH, Warner L, Satterwhite CL, Metcalf CA, Malotte KC, et al. Condom use in the year following a sexually transmitted disease clinic visit. *Int J STD AIDS* 2009;20(1):9-13.
61. Edwards S, Carne C. Oral sex and transmission of non-viral STIs. *Sex Transm Infect* 1998;74(2):95-100.
62. Brook MG. Sexual transmission and prevention of the hepatitis viruses A-E and G. *Sex Transm Infect* 1998;74(6):395-8.
63. Campo J, Perea MA, del Romero J, Cano J, Hernando V, Bascones A. Oral transmission of HIV, reality or fiction? An update. *Oral Dis* 2006;12(3):219-28.
64. Hawkins DA. Oral sex and HIV transmission. *Sex Transm Infect* 2001;77(5):307-8.
65. Gilbert VL, Evans BG, Dougan S. HIV transmission among men who have sex with men through oral sex. *Sex Transm Infect* 2004;80(4):324.
66. Stone N, Hatherall B, Ingham R, McEachran J. Oral sex and condom use among young people in the United Kingdom. *Perspect Sex Reprod Health* 2006;38(1):6-12.
67. Imrie J, Lambert N, Mercer CH, Copas AJ, Phillips A, Dean G, et al. Refocusing health promotion for syphilis prevention: results of a case-control study of men who have sex with men on England's south coast. *Sex Transm Infect* 2006;82(1):80-3.
68. Yap L, Richters J, Butler T, Schneider K, Kirkwood K, Donovan B. Sexual practices and dental dam use among women prisoners - a mixed methods study. *Sex Health* 2010;7(2):170-6.
69. Dunne EF, Karem KL, Sternberg MR, Stone KM, Unger ER, Reeves WC, et al. Seroprevalence of human papillomavirus type 16 in children. *J Infect Dis* 2005;191(11):1817-9.
70. Goodyear-Smith F. What is the evidence for non-sexual transmission of gonorrhoea in children after the neonatal period? A systematic review. *J Forensic Leg Med* 2007;14(8):489-502.
71. Goh BT. Syphilis in adults. *Sex Transm Infect* 2005;81(6):448-52.
72. Kubo N, Furusyo N, Sawayama Y, Otaguro S, Nabeshima S, Sugauchi F, et al. A patient in whom only hepatitis B virus (HBV) was thought to have been contracted, by kissing, from

- a same-sex partner coinfecting with HBV and human immunodeficiency virus-1. *J Infect Chemother* 2003;9(3):260-4.
73. Zhou P, Qian Y, Lu H, Guan Z. Nonvenereal transmission of syphilis in infancy by mouth-to-mouth transfer of prechewed food. *Sex Transm Dis* 2009;36(4):216-7.
 74. Kwakwa HA, Ghobrial MW. Female-to-female transmission of human immunodeficiency virus. *Clin Infect Dis* 2003;36(3):e40-1.
 75. Marrazzo JM, Thomas KK, Agnew K, Ringwood K. Prevalence and risks for bacterial vaginosis in women who have sex with women. *Sex Transm Dis* 2010;37(5):335-9.
 76. van de Laar TJ, Paxton WA, Zorgdrager F, Cornelissen M, de Vries HJ. Sexual Transmission of Hepatitis C Virus in Human Immunodeficiency Virus-Negative Men Who Have Sex With Men: A Series of Case Reports. *Sex Transm Dis* 2011;38:102-4.
 77. White JA. Manifestations and management of lymphogranuloma venereum. *Curr Opin Infect Dis* 2009;22(1):57-66.
 78. Ward H, Martin I, Macdonald N, Alexander S, Simms I, Fenton K, et al. Lymphogranuloma venereum in the United Kingdom. *Clin Infect Dis* 2007;44(1):26-32.
 79. Underhill K, Montgomery P, Operario D. Abstinence-plus programs for HIV infection prevention in high-income countries. *Cochrane Database Syst Rev* 2008(1):CD007006.
 80. Bogart LM, Collins RL, Kanouse DE, Cunningham W, Beckman R, Golinelli D, et al. Patterns and correlates of deliberate abstinence among men and women with HIV/AIDS. *Am J Public Health* 2006;96(6):1078-84.
 81. Shelton JD, Halperin DT, Nantulya V, Potts M, Gayle HD, Holmes KK. Partner reduction is crucial for balanced "ABC" approach to HIV prevention. *BMJ* 2004;328(7444):891-3.
 82. Garnett GP, White PJ, Ward H. Fewer partners or more condoms? Modelling the effectiveness of STI prevention interventions. *Sex Transm Infect* 2008;84 Suppl 2:ii4-11.
 83. Hosenfeld CB, Workowski KA, Berman S, Zaidi A, Dyson J, Mosure D, et al. Repeat infection with Chlamydia and gonorrhoea among females: a systematic review of the literature. *Sex Transm Dis* 2009;36(8):478-89.
 84. Laga M, Crabbe F. [Definition of sexually transmissible diseases. Relationship between sexually transmitted diseases and HIV infection]. *Acta Urol Belg* 1993;61(1-2):55-60.
 85. Laga M, Manoka A, Kivuvu M, Malele B, Tuliza M, Nzila N, et al. Non-ulcerative sexually transmitted diseases as risk factors for HIV-1 transmission in women: results from a cohort study. *AIDS* 1993;7(1):95-102.

86. Jin F, Prestage GP, Imrie J, Kippax SC, Donovan B, Templeton DJ, et al. Anal Sexually Transmitted Infections and Risk of HIV Infection in Homosexual Men. *J Acquir Immune Defic Syndr* 2010;**53**;144-9.
87. Marks G, Crepaz N, Senterfitt JW, Janssen RS. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. *J Acquir Immune Defic Syndr* 2005;39(4):446-53.
88. McDaid LM, Hart GJ. Increased HIV testing and reduced undiagnosed infection among gay men in Scotland, 2005-8: support for the opt-out testing policy? *Sex Transm Infect* 2011;87(3):221-4.
89. CDC. Sexually Transmitted Diseases Treatment Guidelines, *MMWR* 2010;59;1-110
90. CDC. HIV Testing Among Men Who Have Sex with Men — 21 Cities, United States, 2008. *MMWR* 2011;60(21):694-99.
91. Brook G NM, Bhagani S, on behalf of the Clinical Effectiveness Group of the British Association for Sexual health and HIV. United Kingdom National Guideline [http: on the Management of the Viral Hepatitis A, B & C](http://www.bashh.org/documents/1927) 2008, 2008. See <http://www.bashh.org/documents/1927> (last checked 11th June 2012)
- Brook G NM, Bhagani S on behalf of the Clinical Effectiveness Group of the British Association for Sexual, HIV Ha. United Kingdom National Guideline on the Management of the Viral Hepatitis A, B & C 2008, 2008.
92. Geretti AM, Brook G, Cameron C, Chadwick D, Heyderman RS, MacMahon E, et al. British HIV Association guidelines for immunization of HIV-infected adults 2008. *HIV Med* 2008;9(10):795-848.
93. British Psychological Society, British HIV Association & Medical Foundation for AIDS & Sexual Health (2011) Standards for psychological support for adults living with HIV. London: MedFASH.
94. Kalichman SC. Co-occurrence of treatment nonadherence and continued HIV transmission risk behaviors: implications for positive prevention interventions. *Psychosom Med* 2008;70(5):593-7.
95. Fakoya A, Lamba H, Mackie N, Nandwani R, Brown A, Bernard E, et al. British HIV Association, BASHH and FSRH guidelines for the management of the sexual and reproductive health of people living with HIV infection 2008. *HIV Med* 2008;9(9):681-720.
96. Attia S, Egger M, Muller M, Zwahlen M, Low N. Sexual transmission of HIV according to viral load and antiretroviral

- therapy: systematic review and meta-analysis. *AIDS* 2009;23(11):1397-404.
97. Sheth PM, Kovacs C, Kemal KS, Jones RB, Raboud JM, Pilon R, et al. Persistent HIV RNA shedding in semen despite effective antiretroviral therapy. *AIDS* 2009;23(15):2050-4.
 98. Garnett GP, Gazzard B. Risk of HIV transmission in discordant couples. *Lancet* 2008;372(9635):270-1.
 99. Lorello G, la Porte C, Pilon R, Zhang G, Karnauchow T, MacPherson P. Discordance in HIV-1 viral loads and antiretroviral drug concentrations comparing semen and blood plasma. *HIV Med* 2009;10(9):548-54.
 100. Baggaley RF, White RG, Boily MC. HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *Int J Epidemiol* 2010;39(4):1048-63.
 101. Jin F, Jansson J, Law M, Prestage GP, Zablotska I, Imrie JC, et al. Per-contact probability of HIV transmission in homosexual men in Sydney in the era of HAART. *AIDS* 2010;24(6):907-13.
 102. EAGA. Minutes of the 86th Meeting of the Expert Advisory Group on AIDS;2 JUNE 2010:Para 27. Available at: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@ab/documents/digitalasset/dh_117972.pdf. Accessed 31st Oct 2011
 103. Cohen M CY, McCauley M. Antiretroviral treatment to prevent the transmission of HIV-1: results from the HPTN 052 randomised clinical trial. . Sixth International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention. Rome, 2011.
 104. Parsons JT, Schrimshaw EW, Wolitski RJ, Halkitis PN, Purcell DW, Hoff CC, et al. Sexual harm reduction practices of HIV-seropositive gay and bisexual men: serosorting, strategic positioning, and withdrawal before ejaculation. *AIDS* 2005;19 Suppl 1:S13-25.
 105. McDaid LM, Hart GJ. Sexual risk behaviour for transmission of HIV in men who have sex with men: recent findings and potential interventions. *Curr Opin HIV AIDS* 2010;5(4):311-5.
 106. Mizuno Y, Purcell DW, Latka MH, Metsch LR, Ding H, Gomez CA, et al. Is sexual serosorting occurring among HIV-positive injection drug users? Comparison between those with HIV-positive partners only, HIV-negative partners only, and those with any partners of unknown status. *AIDS Behav* 2010;14(1):92-102.
 107. Elford J, Ibrahim F, Bukutu C, Anderson J. Sexual behaviour of people living with HIV in London: implications for HIV transmission. *AIDS* 2007;21 Suppl 1:S63-70.

108. McFarland W, Chen YH, Nguyen B, Grasso M, Levine D, Stall R, et al. Behavior, Intention or Chance? A Longitudinal Study of HIV Seroadaptive Behaviors, Abstinence and Condom Use. *AIDS Behav* 2012;**16**;121-31.
109. Philip SS, Yu X, Donnell D, Vittinghoff E, Buchbinder S. Serosorting is associated with a decreased risk of HIV seroconversion in the EXPLORE Study Cohort. *PLoS One* 2010;5(9).
110. Cassels S, Menza TW, Goodreau SM, Golden MR. HIV serosorting as a harm reduction strategy: evidence from Seattle, Washington. *AIDS* 2009;23(18):2497-506.
111. Jin F, Crawford J, Prestage GP, Zablotska I, Imrie J, Kippax SC, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. *AIDS* 2009;23(2):243-52.
112. Heymer KJ, Wilson DP. Available evidence does not support serosorting as an HIV risk reduction strategy. *AIDS* 2010;24(6):935-6; author reply 36-8.
113. Zablotska IB, Imrie J, Prestage G, Crawford J, Rawstorne P, Grulich A, et al. Gay men's current practice of HIV seroconcordant unprotected anal intercourse: serosorting or seroguessing? *AIDS Care* 2009;21(4):501-10.
114. Truong HM, Kellogg T, Klausner JD, Katz MH, Dilley J, Knapper K, et al. Increases in sexually transmitted infections and sexual risk behaviour without a concurrent increase in HIV incidence among men who have sex with men in San Francisco: a suggestion of HIV serosorting? *Sex Transm Infect* 2006;82(6):461-6.
115. Ronn MM, Ward H. The association between lymphogranuloma venereum and HIV among men who have sex with men: systematic review and meta-analysis. *BMC Infect Dis* 2011;11:70.
116. Danta M, Brown D, Bhagani S, Pybus OG, Sabin CA, Nelson M, et al. Recent epidemic of acute hepatitis C virus in HIV-positive men who have sex with men linked to high-risk sexual behaviours. *AIDS* 2007;21(8):983-91.
117. Fisher M, Benn P, Evans B, Pozniak A, Jones M, Maclean S, et al. UK Guideline for the use of post-exposure prophylaxis for HIV following sexual exposure. *Int J STD AIDS* 2006;17(2):81-92.
118. Fidler S, Fisher M, McCormack S. BHIVA - BASHH Position Statement on PrEP in the UK: British HIV Association/British Association of Sexual Health and HIV, 2011.
119. Mills E, Cooper C, Anema A, Guyatt G. Male circumcision for the prevention of heterosexually acquired HIV infection: a meta-analysis of randomized trials involving 11,050 men. *HIV Med* 2008;9(6):332-5.

120. *Health Improvement Scotland. Human Immunodeficiency Virus (HIV) Services Standards: NHS Scotland, 2011. Available at <http://www.healthcareimprovementscotland.org/default.aspx?page=11954>. Accessed 31st October 2011.*