

Health Development Agency

HIV prevention: a review of reviews
assessing the effectiveness of interventions
to reduce the risk of sexual transmission

Evidence briefing

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Comments can be made by using our website www.hda.nhs.uk/evidence or email simon.ellis@hda-online.org.uk

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Summary

Introduction

This evidence briefing reports on a review of reviews assessing the effectiveness of interventions to impact on the factors – both personal and structural – which influence the sexual risk behaviours for HIV transmission. The review of reviews aimed to:

- Identify and synthesise review-level material to highlight ‘what works’ to prevent or reduce the sexual risk of HIV transmission for the UK’s priority populations
- Highlight conflicting evidence, and gaps in the evidence, and provide recommendations for research (as well as some initial recommendations for policy and practice).

As well as focusing on the priority populations for HIV transmission in the UK – men who have sex with men (MSM), African communities, commercial sex workers (CSWs), and people with HIV infection – this evidence briefing also specifically considers HIV voluntary counselling and testing. In addition, it attempts to draw out any findings in relation to inequalities in health and the cost effectiveness of interventions.

The HDA has been tasked by the Department of Health to develop the evidence base for HIV prevention and this evidence briefing is an important *first step*. The findings will be the most useful to those commissioning and undertaking research, including practitioners and agencies outside academia. Although it can also inform policy and practice, the evidence presented here from reviews has a number of limitations and should be considered alongside the best available non-review evidence and information from other sources, including: ‘promising practice’, existing formative research, local data and needs assessments, and expert and practitioner opinion.

Epidemiology According to the latest figures from the Public Health Laboratory Service, by the end of June 2002, a total of 49,477 individuals infected with HIV had been reported in the UK up to the end of December 2001 (PHLS, 2002). Of these, 14,437 have been recorded as having died from an AIDS-related illness. MSM remain the group at greatest risk of acquiring infection in the UK, with 1,415 new diagnoses reported for 2001 by the end of June 2002. However, reports of diagnoses attributed to this route of transmission have been overtaken recently by reports of heterosexually acquired HIV infection: there were 2,444 reports in 2001. Most of these heterosexual infections were probably acquired outside the UK, the great majority (an estimated 71%) in sub-Saharan Africa (PHLS, 2002).

Behaviour Sexual behaviour is a major factor determining the incidence of HIV. The 2nd National Survey of Sexual Attitudes and Lifestyles, or ‘NATSAL 2000’ (Johnson et al., 2001; Wellings et al., 2001), shows that there have been notable changes in sexual behaviour since the first survey in 1990. These include: a greater number of lifetime partners; lower age at first intercourse; a greater proportion of the sample with concurrent partnerships; a greater proportion with two or more partners in the past year who did not use condoms consistently. However, there has also been an increase in the proportion who use condoms at first intercourse. Data from Sigma Research (Hickson et al., 2001) show that MSM in 2000 reported increases in unprotected anal intercourse (UAI) with both regular and casual partners compared with 1995.

Data on sexual behaviour needs to be interpreted with caution, acknowledging that it is intercourse between people with a different HIV status that is ‘unsafe’, rather than unprotected intercourse per se. The appropriateness of different ‘risk behaviour’ indicators for measuring intervention success is considered in the Discussion section.

Policy The aims of the Department of Health (DH)'s *National Strategy for Sexual Health and HIV* (DH, 2001) include a 25% reduction in newly acquired HIV by 2007, a reduction in undiagnosed HIV and a reduction in HIV-related stigma. With regard to MSM, the DH advocates the local adoption of the CHAPS' *Making It Count* strategy (Hickson et al., 2000). For prevention with African communities, the DH will publish a *National Prevention (and Social Care) Framework* and fund the African HIV Policy Network to commission and manage national HIV health promotion with African communities in England.

Conceptual framework

The following outlines our overall approach to the evidence for intervention success and defines the terms used (see section 1.4):

- HIV incidence in a population is the result of: the number of exposures to HIV; average probability of transmission; and prevalence of HIV within a population
- Sexual behaviour is a key factor in determining exposure to HIV and the probability of transmission
- HIV prevention interventions focus on influencing behaviour to (for example):
 - Increase the use of condoms
 - Reduce the number of different partners
 - Reduce the number of concurrent partners
 - Encourage intercourse with people of the same HIV sero-status
- Interventions are not like 'magic bullets' which can be used to address a particular 'risk behaviour'. Instead, it is necessary to address the (personal and structural) 'modifying factors' that give rise to these behaviours, such as:
 - Low self-esteem
 - Lack of skills in using condoms
 - Lack of skills to negotiate safer sex, eg to say 'no' to sex without condoms
 - Lack of knowledge about the risks of different sexual behaviours
 - Availability of resources, like condoms or sexual health services
 - The opinions of peers
 - Attitudes (and prejudices) of society, which may then affect access to services
 - A discriminatory climate, which may affect access to services

- Interventions are delivered at different 'levels':
 - Individual, eg counselling, helpline
 - Group, eg group work, sex education
 - Community, eg community development, campaigns
 - Socio-political, eg legislation, resource allocation, professional development
- For most individuals and populations, there will be multiple modifying factors (or 'unmet needs') which influence their sexual risk behaviour. Some interventions are delivered across several levels and aim to address a range of modifying factors simultaneously. These large-scale, multi-level, multi-component interventions are sometimes called 'programmes'
- The impact of single, small-scale interventions should be evaluated by measuring 'health promotion outcomes' in order to assess their effectiveness in changing modifying factors like knowledge, skills, access to resources, or peer norms. This will then inform whether they may be usefully included as part of a large-scale, multi-level, multi-component intervention or programme. It is unrealistic to expect most single, small-scale interventions to have a significant impact on behaviour on their own
- Although some single interventions may have large enough an impact on a major modifying factor to result in measurable changes in behaviour, behavioural outcomes should normally be reserved for measuring the success of large-scale, multi-level, multi-component interventions or programmes
- Where used, behavioural outcomes should incorporate contextual data such as known HIV sero-status of partner and type of intercourse in order meaningfully to measure real HIV 'risk'
- Interventions based on a well articulated and tested theoretical model are more likely to achieve greater success since they tend to be more complex and more rigorous in design; it may be useful to combine theories focusing on both personal and structural modifying factors.

Methodology

The following process was applied (see section 2):

- Systematic searches of the English language literature since 1994
- Selection of relevant reviews
- Critical appraisal of the reviews (see below)

- Analysis and synthesis of the evidence for the different priority populations.

The critical appraisal process assessed the extent to which the reviews were:

- Systematic – does the review apply a consistent and comprehensive approach?
- Transparent – is the review clear about the processes involved?
- Analytically sound – are the appropriate methods undertaken?
- Relevant – is the review relevant to the UK’s priority populations?

A total of nine reviews were judged to pass the critical appraisal and were categorised as ‘Core’: these constitute the ‘data’ which give rise to ‘evidence statements’ about the effectiveness of interventions. Based on the findings of the reviews themselves and the primary data presented within them, the following types of evidence were identified (see section 2.4 for further details):

- Sufficient review-level evidence
- Tentative review-level evidence
- Insufficient review-level evidence
- No review-level evidence.

The evidence from the Core review papers is presented by priority population first, then by ‘level’ of intervention – individual, group, community and socio-political.

A further 14 reviews were judged not to pass the critical appraisal, but were deemed useful in adding further insights when considering how or why interventions are effective. These were categorised as ‘Supplementary’ review papers.

The review of reviews and the production of this evidence briefing benefited from discussion and guidance from an expert Reference Group, and was subject to ongoing internal and external appraisal and peer review.

Findings and discussion

In the Evidence section (4), we consider the evidence for each target population and make a series of ‘evidence statements’ according to the process set out in the Methodology. Since the reviews assessed intervention

‘effectiveness’ on the basis of behavioural outcomes (rather than health promotion outcomes), these evidence statements are about whether the intervention has been shown to influence behaviour rather than its impact on the modifying factors which give rise to these behaviours.

The Discussion section (5) considers how the findings relate to the key questions which the review of reviews set out to address:

- What works to change the modifying factors that influence sexual risk behaviours for HIV transmission among the priority populations in the UK?

We found that effectiveness is generally defined in terms of ‘health outcomes’ (eg incidence) or ‘intermediate health outcomes’ (eg behaviour). This means that we have been able to say little about which single interventions can successfully impact on modifying factors (eg knowledge, skills, access to resources, peer norms) and can be usefully incorporated into a programme of interventions to influence sexual risk behaviours.

- Are theory based interventions more likely to be effective?

We found no review-level evidence that theory based interventions are more effective than non-theory based interventions because none of the Core review papers considered the role of theory in enhancing effectiveness.

- Are multi-component interventions more likely to be effective?

The review-level evidence supports the case for the greater effectiveness of multi-component interventions in relation to group-work with MSM. It also shows that voluntary counselling and testing (VCT), when combined with another component, is more effective than on its own. However, we found no review-level evidence to support or discount the effectiveness of any other multi-component interventions with MSM, CSWs, Africans or people with HIV.

- What works to reduce inequalities in sexual risk for HIV transmission?

We did not find any review-level evidence which contained information about inequalities relevant to the UK priority populations; in particular, we found no

review-level evidence regarding the differential impact of HIV prevention interventions according to socio-economic status.

- What interventions are cost effective?

We did not find any review-level evidence relevant to the UK's priority target populations that had details about cost effectiveness. We are therefore unable to form any conclusions about the cost effectiveness of any HIV prevention interventions with these populations.

The Discussion section (5) revisits the evidence statements relating to each target population and considers their relevance to the UK, drawing on further insights from Supplementary review papers. The Discussion section also considers some methodological issues, including the role of behavioural indicators in intervention evaluation. Key among other issues and limitations discussed are that:

- Not all relevant research will 'fit' the requirements of reviews, which tend to include only randomised controlled trials (RCTs)* and other experimental evaluations. This means that important findings from qualitative research and process evaluations may be missed
- Reviews can date quite quickly, as they cannot capture the most recent primary research
- Potentially useful interventions may not have been evaluated well enough, or may not have been published.

Key gaps in the evidence base

Gaps are addressed in detail by the Research recommendations (see section 7), but the main ones are:

- Very little review-level evidence about the impact of interventions on the modifying factors which influence sexual behaviour
- Very little review-level evidence relevant to UK men who have sex with men (MSM)
- Very little review-level evidence relevant to UK commercial sex workers (CSWs)
- No review-level evidence relevant to UK African communities
- No review-level evidence about interventions with people with HIV

* Randomised controlled trials (RCTs). RCTs are studies in which participants are randomly allocated to either an intervention or a control group which does not receive the intervention.

- Very little review-level evidence about the majority of interventions – eg condom distribution schemes, small media (leaflets) and community development work
- No review-level evidence about interventions aimed at supporting professionals, for instance with training and information
- No review-level evidence about socio-political interventions
- No review-level evidence about addressing inequalities
- No review-level evidence about cost effectiveness.

In conclusion, the available review-level evidence is heavily skewed towards non-UK research about a narrow range of individual/group-level interventions, which are relatively easy to control and so lend themselves to experimental evaluation. However, no evidence does not equal evidence of ineffectiveness.

Recommendations for policy and practice

In the Evidence section (4), we make a number of 'evidence statements' relating to the effectiveness of interventions at the individual, group, community and socio-political levels for each UK priority population group. Where review-level evidence is considered 'sufficient' or 'tentative' (see Methodology – section 2), its transferability to UK populations is then assessed. Policy and practice recommendations are based on 'sufficient' or 'tentative' review-level evidence that is considered to be relevant to the UK (see section 6).

It is very important to note that 'no evidence' or 'insufficient evidence' does not equal evidence of ineffectiveness. It simply means that it is not possible to support or discount the effectiveness of an intervention in influencing sexual risk behaviour. Given this, practitioners should not be limited only to interventions which are supported by review-level evidence of effectiveness (eg group work), not least because those interventions may only reach certain sections of the target population (arguably those who are more motivated to take part in them).

In making decisions, practitioners and policy makers should take into account the best available non-review evidence and information from other sources, including:

- Information from practice studies (eg practice databases, 'promising practice' case studies)

- Evaluations that are often or usually excluded from systematic reviews and meta analyses, eg qualitative studies, non-controlled case studies, practitioner-based research
- Local data and project evaluations (local to your context and area)
- Formative research and local needs assessments
- Expert and practitioner opinion
- Client opinion and experience
- Theories of social and behavioural change.

Men who have sex with men (MSM)

In the Evidence section 4.1, we make an evidence statement that there is sufficient review-level evidence to conclude that cognitive behavioural group work, focusing on risk reduction, sexual negotiation and communication skills training and rehearsal (eg through role-play) *can* be effective in influencing the sexual risk behaviours for MSM. However, it is questionable how transferable these kinds of interventions may be to the UK and/or non-white, lesser educated MSM.

We also state that there is sufficient review-level evidence to conclude that community level interventions involving peers and popular opinion leaders *can* be effective in influencing the sexual risk behaviours for MSM. However, once again, there is insufficient review-level evidence to transfer findings to the UK's MSM population.

In relation to interventions targeting UK MSM, the following policy and practice recommendations are made:

- Place interventions within the broader context of men's lives, addressing the range of factors which influence risk at both the personal level (eg knowledge, skills) and the structural level (eg discrimination towards MSM, gay community norms towards condoms)
- Tailor and target interventions to specific sub-populations of MSM, for instance black MSM
- Undertake multi-component small group work, focusing on risk reduction, sexual negotiation and communication skills training and rehearsal (eg through role-play).

Commercial sex workers (CSWs)

Although we find that there is tentative review-level evidence to conclude that interventions delivered at the community level (particularly peer-led) *can* be effective in influencing the sexual risk behaviours for CSWs, given the lack of studies relevant to UK CSWs, we suggest that it is not possible to transfer findings to the UK's CSW population. We are therefore unable to make any specific policy and practice recommendations.

African communities in the UK

Although we find that there is sufficient review-level evidence to conclude that small group interventions delivered at the community level *can* be effective in influencing the sexual risk behaviours of *black and minority ethnic women*, given the cultural differences to UK African communities, we suggest that it is not possible to transfer findings to the UK's African population. We are therefore unable to make any policy and practice recommendations specific to African populations in the UK.

People with HIV

We found no review-level evidence either to support or discount the effectiveness of any interventions with people with HIV. We are therefore unable to make any recommendations for policy and practice.

HIV voluntary counselling and testing (VCT)

For all target populations other than MSM and CSWs, the review-level evidence shows that a positive diagnosis *can* influence sexual risk behaviour in some individuals. However, the effects of a negative diagnosis are not clear, due to insufficient evidence at review level. Our recommendation is therefore that VCT should be targeted only at high-risk individuals who are likely to test sero-positive. However, it is not possible to make assumptions about people's reactions to an HIV test result: the effects of HIV VCT on behaviour cannot be predicted.

Recommendations for research

The Research recommendations (see section 7) seek to address the gaps in the evidence base and inform the building of a more balanced picture of effectiveness. They are based on evidence statements regarding tentative, insufficient or no review-level evidence; and are further informed by Supplementary review papers and other miscellaneous papers.

We begin by making a series of general recommendations for reviews (section 7.1) and for primary research (section 7.2), but it is not always possible to determine where the gaps lie. These recommendations address issues concerning *how* to evaluate interventions (eg measure health promotion outcomes/intervention impact measures) and *what* interventions to evaluate (eg interventions at the socio-political level). A series of specific recommendations for each priority population are also made.

In summary:

- There is an urgent need for UK research about the majority of interventions with all of the UK's priority populations
- In particular, we need to know much more about socio-political and community level interventions
- There is a need for evaluations of multi-level, multi-component interventions or programmes
- Evaluations need to measure health promotion outcomes/intervention impact measures alongside any behavioural outcomes
- Similarly, reviews should cease to exclude studies that only include data on health promotion outcomes and should analyse intervention effect on health promotion outcomes alongside their effects on behavioural outcomes. Reviews should report fully all of these outcomes
- Reviews need to be much more systematic and transparent about the processes they have used to find, filter and combine evidence from primary studies
- More needs assessment and formative research is needed to inform the kinds of interventions that are required for particular populations
- Null findings should be published – there is a need to know about what doesn't work
- More research is needed on the influence of a positive HIV diagnosis on sexual risk-taking
- Research is needed on the effects of a negative HIV test result on sexual behaviour
- There is a need to test theories of behaviour change
- There is a need to evaluate interventions to determine their effectiveness in addressing inequalities; in particular, any differential impact according to the socio-economic circumstances of individuals. There is a need to routinely record socio-economic variables in all intervention research
- There is a need to conduct analyses of the cost effectiveness of interventions

- Reviews and primary studies need to include more information regarding the process and content of the interventions they report on.

1 Introduction

1.1 Background: the HDA's evidence base for public health

In 1999, the white paper *Saving Lives: Our Healthier Nation* was published (Department of Health, 1999). Among other proposals, it signalled that the Health Development Agency (HDA) would be established and that one of its tasks would be the building of the evidence base in public health, with a special focus on reducing inequalities in health.

In April 2001, the Department of Health (DH) published its *Research and Development Strategy* (DH, 2001a). This identified the HDA's task as 'maintaining an up to date map of the evidence base of public health and health improvement... and effective and authoritative dissemination of evidence to practitioners'. This evidence briefing is one of the first components of that evidence base and its publication is part of the first phase in dissemination. It is one of a series of evidence briefings about a range of different public health topics*.

HDA evidence briefings report on **reviews of reviews**, or what is sometimes referred to as tertiary level research. They consist of detailed expositions of the strengths and weaknesses of the evidence from reviews, identification of gaps in the evidence, an analysis of future primary and secondary research needs, and a discussion of the implications of the evidence for policy and practice. Each document has a freestanding summary that is published separately. The documents are also published on and supported by the HDA website, www.hda.nhs.uk/evidence. This website also contains

* Other topic areas include: physical activity, smoking, alcohol, low birth weight, obesity, accidents, drugs, community development, teenage pregnancy, sexually transmitted infections, hepatitis B, mobility in older people, and health impact assessment.

electronic copies of, or means of access to, the original reviews upon which the evidence briefings draw (if they are in the public domain).

The necessity for doing reviews of reviews has arisen because of the growing number of reviews of effectiveness (both systematic and otherwise) covering similar areas. Reviews of effectiveness have the advantage of aggregating large amounts of primary data which can be evaluated and summarised (Elliott et al., 2001). Reviews of effectiveness can potentially identify statistically significant effects through combining data from several primary evaluations. 'Systematic reviews' are particularly useful because they ensure a more balanced view of the available data.

Although traditionally many systematic reviews have only included evaluations using randomised controlled trials (RCTs), increasingly they include other types of evidence, eg non-randomised controlled trials and process evaluations, alongside outcome evaluations (Harden et al., 2001). And more often these days, qualitative data is presented alongside quantitative data.

Reviews of reviews can therefore analyse and bring together the evidence from different reviews of effectiveness to highlight conflicting evidence and gaps in the evidence. In so doing, reviews of reviews can suggest possible explanations for different conclusions. By using a systematic and transparent approach, reviews of reviews can highlight weaknesses in review methodologies and weigh up the evidence within them accordingly. This can result in recommendations for both primary and review-level research, as well as for policy and practice.

Providing comprehensive, up to date syntheses of the world literature available in reviews of effectiveness is our chosen first step in the process of building the evidence

base. But it is only a *first step*. As our programme of work on the evidence base continues, we will turn our attention to bringing into our syntheses the type of work that does not usually find its way into systematic reviews. Such work is potentially very important. It includes a very large amount of methodologically disparate work ranging from observational studies to qualitative work. At present there are several problems in attempting to incorporate such work into our reviews of reviews. Firstly, in some areas (and qualitative work is a good case in point), the thresholds to determine the acceptability of evidence are hotly contested. Secondly, there is no agreed method (yet) for synthesising or reviewing such work (although there are a number of research projects going on in different universities in the UK to develop such procedures). So for the time being, the HDA has taken a first step to pull together evidence drawn from review-level material. It is acknowledged that this does therefore limit the data pool from which we draw our material, and that our own method of judging whether the material should be included is a test of how sound the review is, rather than of how sound the original primary research was.

As the first step in the development of the evidence base, this evidence briefing tells us more about the gaps in research than it can about effective interventions. Therefore, it will be of greatest interest to policy makers, planners and commissioners of research operating at strategic levels, including those within the Department of Health. A secondary audience are those undertaking research, including practitioners and agencies outside of academia. In addition, this evidence briefing could be used to inform some areas of policy and practice.

However, there are severe limitations in basing policy and practice solely on the evidence presented within this document – the findings presented here need to be considered in conjunction with the best available evidence and information from other sources, including information from ‘promising practice’, existing formative research, local data and needs assessments, and expert and practitioner opinion. In future, the HDA will be looking at how it can identify and synthesise evidence from these other sources in a systematic and transparent manner.

This evidence briefing is not just a first step towards the analysis of a much larger range of evidence in HIV prevention, it is also the first step in the process of getting evidence into practice. It is recognised that, in

addition to evidence of effectiveness, policy and practice decisions at both national and local level will necessarily be informed by cost effectiveness, ethical concerns, feasibility and acceptability (Hickson et al., 2000). In order for the evidence to be used, an active approach to the evidence is required to make it accessible and usable.

To this end, the HDA is running another project in parallel to the development of the evidence base. This is the ‘Evidence into Practice’ project. The naive assumption that when research information is made available it is somehow accessed by practitioners, appraised and then applied in practice is now widely discredited. We therefore distinguish between distinct phenomena: the building of the evidence base, the conversion of evidence into advice and guidelines for policy and practice, and organisational change to bring practice in line with these guidelines and support the creation of the conditions for delivery.

Collecting and appraising evidence, the conversion of evidence into advice and guidelines, and organisational change, are fundamentally different types of activity. The collection of data, through systematic review to the production of summaries or syntheses of the state of the evidence, is an iterative but ultimately linear process. Its logic is rationalist, and while scientists may dispute the methodological and philosophical bases and definitions of evidence, the principles are relatively well-defined and the issues and disputes well-rehearsed (Egger et al., 2001).

However, the everyday practice of deliverers of services and their engagement with evidence is not linear (Greenhalgh, 2001; Dunning, 2001). The ways and means of changing practice in line with the evidence is also neither linear nor simple (NHS Centre for Reviews and Dissemination, 1999; Green, 2001; Nutbeam, 1996). We currently operate in a complex environment where the transfer of knowledge from researchers to policy makers and practitioners is far from ideal (Nutbeam, 1996). Over the next few years the HDA will be engaged in a programme to bring together these three activities.

Finally, it is important to acknowledge that there exist a number of debates regarding what constitutes evidence of effectiveness, what constitutes a successful ‘outcome’ and how evidence should be collated and analysed. The HDA is acutely aware that such discussions are far from being resolved and is actively seeking to facilitate further discussion; for example, through its convening of the

Public Health Evidence Steering Group, and a Reference Group on HIV (see Appendix D); and the commissioning of discussion papers on, for example, different approaches to evidence, and the use of quantitative and qualitative research.

This evidence briefing will be available on the HDA's website www.hda.nhs.uk/evidence and the electronic version will be updated on a regular basis as new evidence becomes available.

1.2 Scope of the HDA's review of reviews on HIV prevention

This evidence briefing reports on a review of reviews assessing the effectiveness of interventions to impact on the factors which influence the sexual risk behaviours for HIV transmission. The aims of the review of reviews focused on:

- Identifying and appraising all relevant 'reviews', including 'systematic reviews', literature reviews, syntheses and meta-analyses
- Analysing and synthesising these papers to highlight 'what works' to prevent or reduce the sexual risk of HIV transmission for the UK's priority populations
- Highlighting conflicting evidence, and gaps in the evidence, and providing recommendations for research (as well as some initial recommendations for policy and practice).

The review of reviews focused on:

- Interventions whose ultimate goal is to influence the sexual behaviour which puts individuals at risk of HIV infection – ie the sexual transmission of HIV
- Interventions which aim to impact on the structural determinants of HIV risk, including national and local policy, planning, organisational and community issues
- HIV voluntary counselling and testing (HIV VCT)
- Interventions which aim to address inequalities
- The cost effectiveness of interventions.

In relation to the above, the review of reviews concentrated on the priority populations for HIV transmission in the UK, namely:

- Men who have sex with men (MSM)
- African communities in the UK

- Commercial sex workers (CSWs)
- People with HIV.

The review of reviews excluded:

- The role of condom effectiveness, post-exposure prophylaxis (PEP), microbicides, treatment of sexually transmitted infections (STIs), or circumcision in reducing HIV transmission
- Interventions to prevent occupational, injecting drug use and mother-to-child transmission.

The HDA has produced separate evidence briefings which address interventions to prevent both STIs (Ellis and Grey, forthcoming) and teenage pregnancy (Swann et al., 2003).

1.3 Context

1.3.1 Policy context

In July 2001, the Department of Health published the first *National Strategy for Sexual Health and HIV* (DH, 2001b).

This set out five main aims:

- Reduce transmission of HIV and STIs, with a national goal of a 25% reduction in newly acquired HIV and gonorrhoea infections by 2007
- Reduce prevalence of undiagnosed HIV and STIs
- Reduce unintended pregnancy rates
- Improve health and social care for people with HIV
- Reduce stigma associated with HIV and STIs.

In the subsequent *Implementation Action Plan* (DH, 2002), which was published in June 2002, the DH reiterates the above aims. The plan makes clear that the DH will continue to support targeted work with MSM through the Community HIV and AIDS Prevention Strategy (CHAPS), coordinated by the Terrence Higgins Trust; and the DH encourages commissioners and providers to adopt the associated *Making It Count* strategy (Hickson et al., 2000) for local prevention activity. With regard to African communities, the DH will publish a *National Prevention (and Social Care) Framework* and fund the African HIV Policy Network (AHPN) to commission and manage national HIV health promotion for African communities in England. The *Action Plan* also commits the DH to publishing two Sexual Health and HIV Commissioning Toolkits, one on Commissioning and one on Health Promotion, by early 2003.

The *National Strategy for Sexual Health and HIV* recognises the need for HIV prevention to be informed by evidence, but it acknowledges that currently 'the evidence base for HIV and STI prevention is still dispersed and unsystematic' (DH, 2001b. para 3.18, p17). The document goes on to say that:

'Effective commissioning of HIV/STI prevention needs up to date evidence of what and how different interventions work. The Department has commissioned the Health Development Agency to draw together the available evidence, assess what works and make clear recommendations on future approaches by the end of 2002. The Department will use that work to set the direction for local prevention activity' (3.19, p17).

The *Implementation Action Plan* (DH, 2002) refers to the dissemination of the HDA's review of the evidence base by autumn 2002. It also sets out how further development of the 'evidence base' (ie the entire research agenda, of which evidence of effectiveness is just one part) will be supported by a new Sexual Health and HIV Research Strategy Committee at the MRC.*

1.3.2 Epidemiology – prevalence of HIV in the UK

According to the latest figures from the Public Health Laboratory Service**, by the end of June 2002, a total of 49,477 individuals infected with HIV had been reported as diagnosed in the UK up to the end December 2001 (PHLS, 2002). Of these, 14,437 have been recorded as having died from an AIDS-related illness. A total of 55% (27,340) probably acquired the infection through sex between men; 29% (14,221) through sex between men and women; 8% (3,827) through injection drug use; 3% (1,694) through contaminated blood/blood products; 2% (841) through mother-to-child transmission; and for 3% (1,554) the probable cause was undetermined.

Men who have sex with men (MSM) remain the group at highest risk of acquiring infection in the UK, with 1,415 new diagnoses reported for 2001 by the end of June 2002. However, reports of diagnoses attributed to this route of transmission have recently been overtaken by

* www.mrc.ac.uk/index/strategy/strategy-science_strategy/strategy-strategic_implementation/strategy-highlight_notices/strategy-sexual_health_and_hiv.htm

** See www.phls.co.uk/topics_az/hiv_and_sti/hiv/hiv.htm for the latest figures and summary reports.

reports of heterosexually acquired HIV infection: there were 2,444 reports in 2001. Most of these heterosexual infections were probably acquired outside the UK, the great majority (an estimated 71%) in sub-Saharan Africa (PHLS, 2002).

HIV therefore continues to impact unequally on particular communities, namely MSM and certain African communities. This is recognised in the government's *National Strategy for Sexual Health and HIV*, which identifies these populations for special targeting of HIV prevention activity. It also emphasises the need to target people living with HIV, an issue neglected by mainstream HIV prevention to date.

The figures cited above are from reports of HIV diagnoses and therefore represent only those individuals who come forward for HIV antibody testing. Further data is available from PHLS' Unlinked Anonymous Prevalence Monitoring Programme. The latest report estimates that there were 41,000 HIV-infected adults alive in the UK at the end of 2001, almost a third of whom were unaware of their infection (Unlinked Anonymous Surveys Steering Group, 2002).

1.3.3 Sexual behaviour

Sexual behaviour is a major factor determining the incidence of HIV (see section 1.4). The MRC-funded 2nd National Survey of Sexual Attitudes and Lifestyles – 'NATSAL 2000' – provides the most recent data on sexual behaviour among the general population in Britain (Johnson et al., 2001; Wellings et al., 2001). Since the first NATSAL in 1990, there have been notable changes in sexual behaviour during the intervening decade:

- A greater number of lifetime partners – from 8.6 to 12.7 for men; and from 3.7 to 6.5 for women
- A lower age at first intercourse – from 17 years to 16 years for men; and from 21 years to 16 years for women
- A greater proportion with concurrent partnerships (two or more partners at the same time) – 14.6% for men (20% for 15-24 year olds); and 9% for women (15% for 15-24 year olds)
- A greater proportion with two or more partners in the past year and who did not use condoms consistently – from 13.6% to 15.4% in men; and from 7.1% to 10.1% in women
- A greater proportion of men reporting ever had a homosexual partner – from 3.6% to 5.4%.

However:

- A greater proportion who use condoms at first intercourse – 80% of 16-19 year olds in NATSAL 2000, compared with 60% of 25-29 year olds in NATSAL 2000 (the latter group were 15-19 years old at the time of the first survey in 1990).

Data from Sigma Research* (Hickson et al., 2001) shows that MSM in 2000 reported increases in unprotected anal intercourse (UAI) with both regular and casual partners compared with 1995:

- A greater proportion have UAI with a regular partner – from 42.3% in 1995 to 54.9% in 2000
- Fewer men having anal intercourse with a regular partner in 2000 always used a condom compared with men in 1995
- A greater proportion of men have casual UAI – from 9.8% of all men in 1995 to 14.4% in 2000.

Data on sexual behaviour needs to be interpreted with caution, acknowledging that it is intercourse between an HIV sero-positive partner and an HIV sero-negative partner (ie sero-discordant intercourse) that presents a risk for HIV transmission, rather than unprotected intercourse per se. That is, unprotected intercourse between two HIV sero-negative partners (ie sero-concordant intercourse) presents no HIV transmission risk and is therefore not 'unsafe' sexual behaviour (although there may be a risk for other sexually transmitted infections). However, given the difficulty of confirming concordancy with casual partners, data on unprotected intercourse in these contexts provide a useful indicator of potential exposure to HIV.

Similarly, data on the number of partners can provide an indication of potential HIV risk, even where intercourse is protected. In these circumstances, the possibility of condom failure means that the greater the number of partners (of discordant or unknown sero-status), the greater the chance of exposure to HIV.

The appropriateness of these 'risk behaviour' data for measuring intervention success is discussed further in section 1.4.3.3.

1.3.4 Inequalities

The statistics on incidence clearly show how HIV disproportionately affects communities already suffering from considerable inequalities relating to their sexual orientation, ethnicity and gender. This can be further mitigated by socio-economic factors, for instance MSM with lower educational achievement are at greater risk of acquiring HIV (Weatherburn et al., 1999).

1.3.5 Economic costs

Aside from the obvious ethical reasons for averting infections, the economic arguments are substantial. According to the *National Strategy for Sexual Health and HIV*, 'the average lifetime treatment costs for an HIV positive individual is calculated to be between £135,000 and £181,000, and the monetary value of preventing a single onward transmission is estimated to be somewhere between £0.5 and £1 million in terms of individual health benefits and treatment costs' (DH, 2001, p11).

* www.sigmaresearch.org.uk

1.4 Conceptual framework

In the following section, we outline our overall approach to evidence for intervention success and define the terms that will be used throughout this document. The following provides a summary of each sub-section:

In section 1.4.1 – Factors contributing to HIV incidence – we discuss the factors which affect HIV transmission risk, focusing on those that contribute to sexual behaviour:

- HIV incidence in a population is the result of: average probability of transmission; number of exposures to HIV; and prevalence of HIV within a population
- Factors contributing to transmission are: physical, genetic and behavioural
- Factors contributing to exposure are: condom performance and behavioural
- Sexual risk behaviour therefore is a key factor in determining incidence
- Sexual risk behaviour is influenced by '**modifying factors**':
 - **Personal modifying factors** include: knowledge and awareness; attitudes, motivations and intentions; beliefs and perceptions; and skills
 - **Structural modifying factors** include: economic factors; policy factors; societal factors; and organisational factors.

In section 1.4.2 – Defining HIV prevention interventions – we explore how **modifying factors** can be incorporated into definitions for interventions, including the different 'levels' at which interventions are delivered:

- Health promotion and public health interventions aim to change the **modifying factors** which influence risk behaviours
- For a particular individual or population, a range of **modifying factors** will need to be addressed – these can be thought of as 'unmet needs'
- Interventions are defined by their: aims (reflecting the **modifying factors** that they are trying to change), setting, target population, objectives and resources
- Interventions are delivered at different 'levels':
 - Individual
 - Group
 - Community
 - Socio-political
- Some interventions are delivered across several levels and aim to address a range of **modifying factors** simultaneously
- A programme is a large-scale, multi-level, multi-component intervention.

In section 1.4.3 – Evaluating Interventions: the role of impact and outcome measures – we discuss the kinds of measures which are suitable for looking at whether and how interventions work:

- There are three main types of evaluation:
 - Process evaluation focuses on processes of planning and implementation
 - Impact evaluation uses **health promotion outcomes** (or **intervention impact measures**) to measure the *immediate* effects of single, small-scale health promotion activity, ie the changes in **modifying factors** (eg increased knowledge or skills)
 - Outcome evaluation uses **intermediate health outcomes** (eg behaviour) or **health outcomes** (eg morbidity) to measure the long-term effects of large-scale, multi-component interventions or programmes
- Behavioural outcomes should incorporate contextual indicators like HIV status of partner and type of intercourse in order to meaningfully measure real HIV 'risk'.

Finally, in section 1.4.4 – Theories of behaviour change – we explore the value of theoretical models of behaviour change in shaping HIV interventions:

- Theory based interventions tend to be more complex and more rigorous in design
- It may be useful to combine theories focusing on **personal modifying factors** with those which focus on **structural modifying factors**.

However:

- Theories tend not to address the unique nature of sexual behaviour
- Theories are more useful in suggesting *what* to change than *how* to change it.

1.4.1 Factors contributing to HIV incidence

We have adapted the model presented in *Making It Count* (MiC)* (Hickson et al., 2000), which shows that HIV incidence is a result of the **average probability of transmission**, the **number of exposures** and **prevalence of HIV** within a given population.

For sexual partners sero-discordant for HIV, the **average probability of transmission** during unprotected intercourse can be affected by a variety of factors. Some of these are **behavioural** (eg modality of intercourse), some are **physical** (eg presence of other STIs, presence of foreskin, anal trauma) and some are **genetic** (eg susceptibility of the uninfected partner). Other factors can also come into play, such as the use of post-exposure prophylaxis and the infectiousness of the infected partner (which can be influenced by anti-HIV drugs). Clearly some factors are fixed and some are modifiable to a greater or lesser extent.

The **number of exposures** is a result of the **number of occasions of sero-discordant unprotected intercourse** and the **number of condom failures during protected sero-discordant intercourse**. Again, **sexual behaviour** is a key factor in determining the incidence of HIV infection since it heavily influences the number of *potential* HIV exposures.

Figure (a) overleaf combines the MiC model (Hickson et al., 2000, fig 3.1b) with two other models of health risk factors/determinants, one by Tones, 1994 (Tones and Tilford, 1994, fig 3.2, p81) and the other by the International Centre for Health and Society, University College London (Acheson, 1998, fig 2, p7). This clearly shows how sexual behaviour plays a key role in affecting incidence within a population.

1.4.1.1 Factors that influence sexual (risk) behaviour

The model also shows that in turn an individual's sexual behaviour is influenced by a variety of factors (sometimes called 'behavioural determinants'). We shall refer to these as '**modifying factors**'.

An extensive literature draws on conceptions of the behaviours which lead to risk of HIV transmission and of what supports people in initiating and sustaining behaviour change, to provide theories on which to

* The national HIV prevention framework for homosexually active men, developed by the CHAPS partnership, a consortium of gay men's HIV prevention agencies in England.

base interventions. Appendix A describes some of these theories. All of the theories (regardless of their conception of how behaviour changes) identify **modifying factors**, which influence behaviour change.

Many authors have attempted to describe and group these **modifying factors**, but essentially they operate at two main 'levels': those that relate to the individual and those that relate to the environment. As Wong (1995) usefully states:

'Empirical research in the social and behavioural sciences has demonstrated two fundamental theories in the principles of behaviour:

- 1) for behaviour to change, individuals must recognise the problem, be motivated to act and have the knowledge and skills to perform the action*
- 2) to increase the likelihood of action, barriers in the social environment must be removed or overcome and support or reinforcement provided wherever possible'* (p602).

Varying degrees of evidence (see for example Appendix A) support the influence of these **modifying factors**. Figure (a) shows how they relate to each other, and it is clear that while some factors have a direct influence on behaviour, others have a more indirect influence, or may influence other **modifying factors** which in turn influence behaviour. We suggest that understanding these **causal pathways** between different modifying factors, and from modifying factors to behaviour – and the evidence that supports them – is vital to the development of practice in HIV prevention.

We use the term '**personal modifying factors**' to group the modifying factors at the individual/psychological/personal level:

- **Knowledge and awareness** – eg of HIV risk, of condom effectiveness, of resources (condom availability, services, HIV test availability), of the meaning of an HIV test result, of own/partner's sero-status
- **Attitudes, motivations and intentions** – eg attitudes towards condoms and safer sex, intentions to use condoms or refrain from sex, motivation to use condoms or refrain from sex, attitudes to HIV sero-status (one's own and that of one's partner)

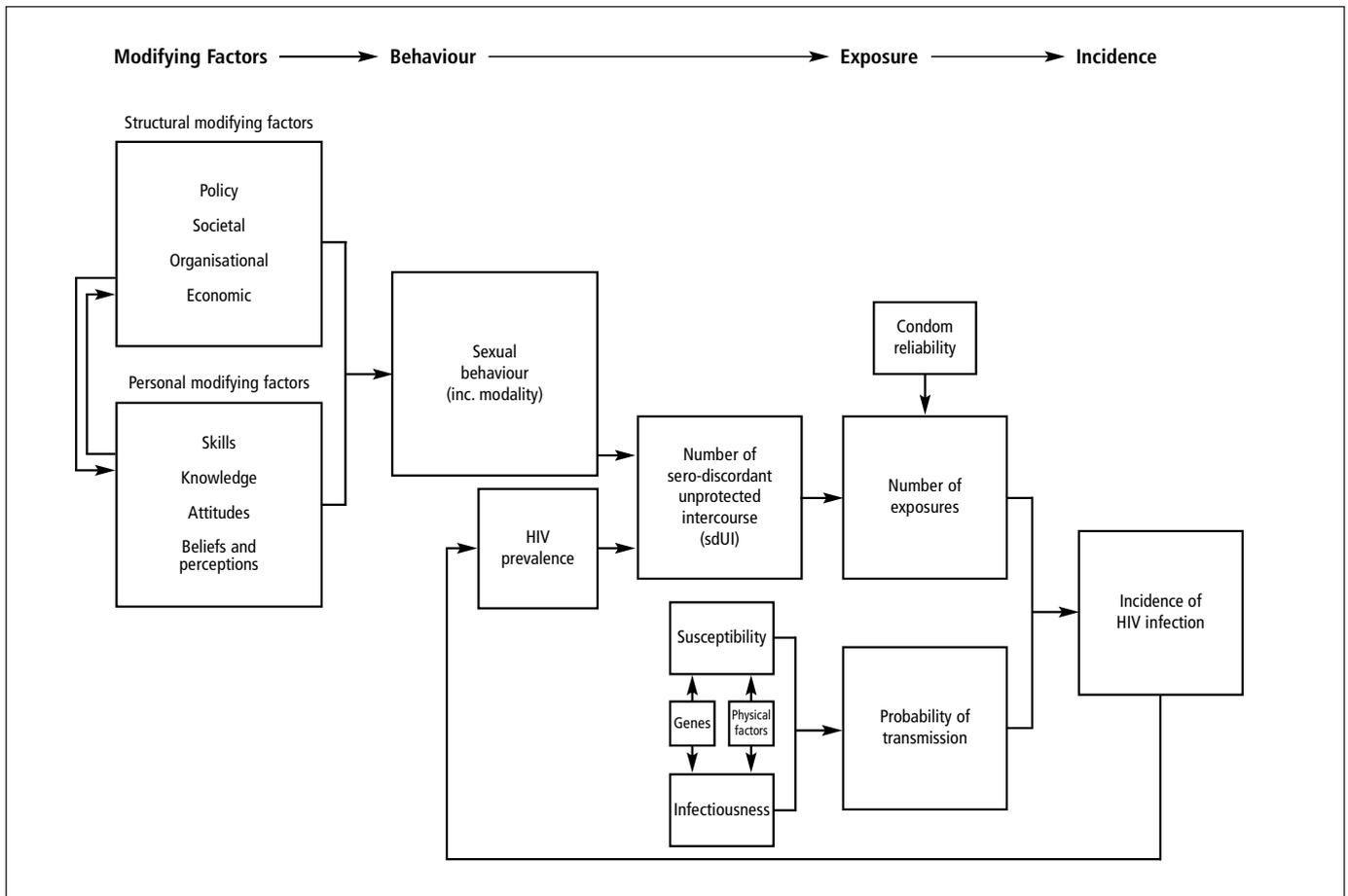


Fig. (a) Factors contributing to HIV incidence: overview of causal pathways

- **Beliefs and perceptions** – eg perceived vulnerability to HIV, perceived social norms (peer norms) regarding safer sex, beliefs about seriousness of HIV, self-efficacy (belief in own ability to effect change), self-esteem (belief in own self worth), cultural and religious beliefs about sexual practices
- **Skills** – communication skills, sexual negotiation skills, condom skills, sexual assertiveness skills.

We use the term '**structural modifying factors**' to group the modifying factors at the environmental/social/institutional/policy level. We divide these into the following (adapted from Sumartojo, 2000):

- **Economic factors** – ie funding
- **Policy factors** – eg laws and regulations, including age of consent and legal access to condoms
- **Societal factors** – eg community/peer norms regarding safer sex (attitudes to using condoms, attitudes to abstinence, cultural and religious beliefs/practices), broad social attitudes (including

- discrimination or stigmatisation towards groups such as MSM), accessibility of services*
- **Organisational factors** – eg the structures and functions of service organisations and their capacity to sustain prevention programmes, including availability of health services (eg availability of HIV testing)** , availability of condoms.

1.4.2 Defining HIV prevention interventions

Our starting point is that an ethical approach to behaviour change is one which empowers, rather than seeking to restrict or manipulate individuals; in other words, that health promotion encourages and equips people to change their behaviour voluntarily, or to '...take control over and improve their health' (World Health Organization, Ottawa Charter, 1986). It could be argued that this approach is better served by targeting modifying factors for change, rather than the behaviours arising from them.

* Services may be 'available' (see below), but not accessible – eg staff homophobia may influence gay men's use of services.

** Availability of services, an organisational factor, is distinguished here from 'accessibility' of services, a societal factor (see above).

Making It Count (MiC), the England-wide HIV prevention framework for MSM, has to date identified ten ‘aims’*. These ‘aims’, in turn, can be broken down into sub-aims, relating to the **personal** and **structural modifying factors** that need to be changed in order to influence HIV sexual risk behaviour (as the causal pathways in Figure (a) on p14 would lead us to expect). For example, the aim that ‘Men have maximum control over condom failure’ (aim 8) includes sub-aims targeting skills in the correct use of condoms/lubricant, and levels of knowledge about how and why condoms fail. Both of these sub-aims relate to personal modifying factors. However, this aim also includes the sub-aim that ‘Condoms and lubricant are clearly and unambiguously named and labelled’, which relates to a structural (policy) modifying factor.

These aims and sub-aims are the focus of HIV prevention interventions**, and achieving them can also be thought of as fulfilling ‘unmet needs’ (Hickson et al., 2000). We therefore define an intervention in the following way:

- **Aims** – reflecting the **modifying factors** that the intervention is trying to change
- **Setting** – where it takes place
- **Target population** – the specific focus of the intervention
- **Objectives** – the content and method of delivery
- **Resources** – staff, budgets, other material assistance, volunteers, etc.

MiC uses this ‘ASTOR’ model (Hartley, 1999) to describe interventions and suggests that we cannot fully describe an intervention without taking into account all of these elements. This has implications for the kind of details we would expect to see reported in intervention evaluation studies (see section 1.2.3).

* (1) Men have control over the sex they have; (2) men are equipped and competent to negotiate sex; (3) men are knowledgeable about HIV, its exposure, transmission and prevention; (4) men are aware of the possible HIV-related consequences of their sexual actions for themselves and their sexual partners; (5) men are free to choose whether and when to test for HIV; (6) men are knowledgeable about HIV testing and the meaning of HIV test results; (7) men have access to quality HIV testing services; (8) men have maximum control over condom failure; (9) all men are knowledgeable about gonorrhoea and non-specific urethritis, and how to prevent them, including their transmission, detection and treatment; (10) all men have access to quality sexual health clinical services.

** It is worth noting that MiC does not claim to have identified all the aims, and therefore modifying factors, necessary for equipping and empowering individuals to change behaviour.

1.4.2.1 Levels for interventions and the modifying factors they affect

In this evidence briefing, we group health promotion interventions according to their level of delivery and we use the following terms, which draw heavily on Exner et al. (1997)*.

Individual-level interventions are defined as any one-to-one or face-to-face, interactive interventions and include:

- Voluntary counselling and testing (VCT) – see below
- One-to-one counselling on its own (ie no HIV testing)
- Individual cognitive behavioural therapy
- Face-to-face detached or outreach work
- Couple counselling
- Telephone helplines
- Some Internet-based work.

The first of the above, *HIV voluntary counselling and testing* (VCT), is not a single intervention but includes a range of approaches and several elements. The elements, as categorised by Wolitski et al. (1997), are:

- Testing (leading to knowledge of sero-status), combined with
- Post-test counselling, or
- Pre- and post-test counselling, or
- Intensive risk reduction counselling.

So HIV VCT can hope to achieve, as a minimum, knowledge of sero-status. Counselling can hope to improve knowledge and awareness of HIV-related risks, as well as identifying ‘triggers’ and associated risk reduction strategies.

Individual-level interventions therefore operate mainly on personal modifying factors such as knowledge, attitudes, intentions, skills and self-esteem.

Group-level interventions are delivered to small groups of individuals, usually from the same peer group, and are facilitated in some way. Sessions can be one-off or multiple, of varying length and intensity, and either didactic or interactive (or a mixture of both). They include:

- School-based sex education
- Small group work, including cognitive behavioural therapy (CBT).

* Table (b) in Appendix B presents terms used by different authors to group health promotion interventions into levels.

Small group interventions usually provide a mixture of information and risk reduction skills training (including sexual negotiation skills), often involving role-play. Some interventions are explicit about the use of cognitive behavioural principles in getting group members to think about risky situations (including 'triggers') and to plan how they would respond. Kelly (1995) usefully defines cognitive behavioural conceptual principles as including:

'...risk education; strengthening perceived personal vulnerability, change readiness, positive beliefs about risk avoidance, and behaviour change intentions; and skills training and reinforcement in areas such as condom use, sexual assertiveness to refuse unwanted sexual coercions, safer sex negotiation skills, and risk reduction personal problem solving' (p347).

These interventions therefore mainly operate on personal modifying factors such as knowledge, attitudes, perceptions and skills. They can also take advantage of the make-up of the group in addressing structural (societal) modifying factors – ie peer norms regarding safer sex and attitudes to condoms.

Community level interventions are delivered by or within a defined 'community' – ie an 'at risk' population in a specific geographical region (Exner et al. 1997) – or target population, and include a wide variety of approaches. They include both interventions aimed at the population at risk – interventions which have involved the community in all aspects of their development and implementation – and interventions aimed at organisations and professionals working with these populations:

- Small media (leaflet/booklet)
- Mass media (eg gay press advertising)
- Condom and lubrication provision
- Peer education and social diffusion
- Community empowerment and development, including building infrastructures
- Some Internet interventions (eg chat rooms)
- Some organisational/institutional interventions (influencing the practice of organisations), including training and technical advice.

Because interventions take place in community settings (such as gay bars):

'...the main contrast with individual or small group interventions is that community-based projects do not usually require that individuals seek out or are recruited directly to the programme. Rather, community level strategies strive to reach out to MSM through various mechanisms (for example, diffusion of normative change through sociosexual networks...), and have the potential to contact a large number of men' (Kegeles and Hart 1998, S211).

However, there will still be an element of self-selection or bias in the study sample, assuming that it will not include the 'hard to reach', more vulnerable or non gay-identified MSM.

In their review, Oakley et al. (1996) state that 'research carried out by the Social Aspects of the Prevention of AIDS team (see Kippax et al., 1993b) has found that one of the most significant correlates of successful behaviour change in gay men is attachment to an organized gay community' (p28).

By their very nature, community level interventions can reach a greater number of persons, compared with individual face-to-face interventions. By creating peer norms and support favouring safer sex, community interventions may be able to help persons maintain behaviour change better than approaches that work with the individuals in isolation but do not change peer group norms.

Community level interventions therefore include both interventions that attempt to alter behaviour by influencing social norms (ie affect structural (societal) modifying factors) and interventions that provide information or skills through community based work (ie affect personal modifying factors), and/or provide resources such as condoms (ie affect structural (organisational) modifying factors). Mass media interventions, which affect both personal and structural (societal) modifying factors, are also classified here as community level interventions.

Socio-political level interventions include:

- Legislation, including anti-discrimination laws and laws about age of consent to sex
- Equality work (activities to reduce discrimination and social exclusion by influencing local and national policies), including 'climate setting'

- Facilitation interventions (research and development, programme planning, communication and collaboration between agencies)
- Resource allocation
- Regulation (eg labelling of condoms).

Ross and Kelly (2000) suggest that:

'Community structures, organisations, and capacity should be targeted for change. Examples of... outcomes might include an increase in the number, range, and quality of HIV prevention services for MSM offered by existing service organisations; improved health, social and HIV risk reduction services for persons with HIV infection; and decreases in indicators of homophobia. The extent to which... interventions can influence such community capacity and structural characteristics that are also likely to mediate HIV risk has not yet been explored' (p212).

These interventions therefore mostly affect structural modifying factors.

There is no neat correlation between the type of modifying factor and the level at which the intervention designed to change it is delivered. While some modifying factors can only be changed by interventions at one particular level, others are amenable to change by interventions delivered at various levels. **It therefore makes sense to view the modifying factor, rather than the risk behaviour or the intervention method, as the starting point for interventions.** This further suggests that it is entirely inappropriate to consider interventions as 'magic bullets' to change particular risk behaviours. Instead, the choice of intervention should be 'needs-led', based on first identifying the modifying factors which influence sexual risk for the population in question.

1.4.2.2 Multi-level and 'multi-component' interventions (programmes)

A number of authors have suggested that interventions designed to influence sexual behaviour, and in turn HIV incidence, are most likely to be effective if they operate at several levels to affect several modifying factors at once (Kelly, 1995; Sumartojo, 2000; Wolitski et al., 1997; Shepherd et al., 2000). They argue that some interventions may be 'successful' at changing one or two modifying factors, but may have little or no impact on sexual behaviour (or behaviour change may not be

sustained) unless there are simultaneous complementary interventions to change other personal or structural modifying factors influencing the sexual risk of HIV transmission.

Several implications arise from this position:

- We should expect more impact on behavioural outcomes from interventions which are delivered at several levels and aim to influence a range of personal and structural modifying factors (**multi-level and multi-component interventions**)
- A **programme*** depends on several related interventions acting in concert having more impact than the sum of those interventions delivered independently. A programme therefore acts as a larger-scale multi-level, multi-component intervention
- It is important to consider the context of interventions which are designed to influence single modifying factors – what other influences on modifying factors are supporting or hindering their impact?

1.4.3 Evaluating interventions: the role of impact and outcome measures

This section draws heavily on Lowe et al. (1999) in suggesting an evaluation framework for health promotion interventions and programmes. In so doing, it defines the appropriate measures for judging 'success', depending upon the aims, sophistication, intensity, size and length of the intervention.

1.4.3.1 Evaluation

Evaluations of health promotion interventions are designed to demonstrate how they are delivered and whether and how they are effective. They can provide the evidence that convinces funders that interventions will achieve policy goals, and the evidence that persuades practitioners that they are likely to work in their area.

Lowe et al. (1999) describe three main types of evaluation:

- **Process evaluation** focuses on and measures the processes, activities and methods of planning and implementation. It covers issues of reach, quality, client satisfaction and cost. Both qualitative and quantitative

* A set of interventions delivered to an identified population, according to their unmet 'needs' (ie. the modifying factors that require changing) for information, skills and resources, and at a range of levels, using a number of methods and at different points in time.

research can be used in process evaluation. Process evaluations are valuable to practitioners in giving an understanding of how and why interventions work, and whether they are practical in other settings

- **Impact evaluation** measures the *immediate* effects of health promotion activity, ie the changes in modifying factors (eg increased knowledge or skills, or availability of services). These effects may then contribute to longer-term outcomes such as sexual behaviour change. Impact evaluations indicate what changed and by how much
- **Outcome evaluation** measures the long-term effects of health promotion interventions in achieving higher level goals like behaviour change and incidence (Hawe, 1990).

In evaluating interventions, Lowe et al. (1999) point out that it is crucial to select outcomes which are appropriate to their aims:

'... a long term reduction in HIV incidence rates would not be expected from a single print media campaign which lasted six months. An increase in health literacy [knowledge, skills, etc] may be a more realistic objective for this type of intervention. The intervention would have been of insufficient time, intensity and sophistication to achieve higher level outcome types [eg behaviour change or incidence]' (p10).

On the other hand, Lowe et al. (1999) suggest that one should expect to measure changes in behaviour '...as a result of a series of coherent, multi-faceted interventions, over a significant period of time' (p10) – ie at the programme level. But, they argue, measures of incidence would only be appropriate in evaluations at a national level. Nutbeam (1998) has developed a useful framework for describing the outcomes of health promotion interventions, given in the box (a) below.

Box (a): Types of outcomes for health promotion interventions – Nutbeam's model (1998) (adapted)

Health promotion outcomes (or **intervention impact measures**) are the focus of impact evaluations and measure changes in the **personal** and **structural modifying factors** which influence sexual behaviour – ie the extent to which an intervention has achieved its aims. Health promotion outcomes/intervention impact measures provide an indication of whether the ultimate goals of interventions are likely to be achieved, since most single interventions are likely to be too short and too small scale to be able to impact on behaviour on their own. **Health promotion outcomes/intervention impact measures** are therefore the most appropriate measures for determining the 'success' of single small-scale interventions. Nutbeam identifies the same sorts of personal and structural modifying factors as set out above, but classifies them as follows:

- *Health literacy*, including personal skills (eg sexual negotiation, condom skills), knowledge (eg of HIV risk), attitudes, motivation, behavioural intentions and self-efficacy
- *Social action and influence*, for example to mobilise people towards the achievement of common health goals (eg level of connection to community networks, social norms, public opinion)
- *Healthy public policy and organisational practice* including condom quality control, resource allocation, planning regulations to ensure that facilities are accessible to target groups, or integration of health and voluntary services to provide a responsive service.



Intermediate health outcomes often result from the achievement of health promotion outcomes/intervention impact measures. They are the focus of outcome evaluations and include measures of changes in:

- *Healthy lifestyles*, including sexual **behaviour** (eg negotiated safety agreements)
- *Effective health services*, including both health and welfare services (eg health promotion services and access to appropriate health services for people living with HIV)
- *Healthy environments*, including safe physical environments (eg safe sex on premises venues), and social environments that allow ready access to friends, relations and social facilities, and encourage supportive communities.



Health and social outcomes are determined by intermediate health outcomes.

Health outcomes include morbidity and mortality. Social outcomes include wellbeing and quality of life. Better health and social outcomes are the ultimate goals of interventions.

1.4.3.2 Which type of measures for evaluating interventions?

Interventions are intended, ultimately, to bring about better **health and social outcomes**, by changing **health promotion outcomes/intervention impact measures** (ie changing modifying factors) in order to influence **intermediate health outcomes** (eg behaviour).

Nutbeam's model clearly indicates the type and range of interventions that may be required to achieve different types of outcomes along the causal pathway.

As already stated, the greater the sophistication, intensity, size and length of the intervention(s) or programme, the more feasible it is to measure changes in **intermediate outcomes** and **health and social outcomes**. Lowe et al. (1999) contend that both '*...intermediate health outcomes* and *health and social outcomes* [authors' emphasis] cannot be evaluated at the [single] *intervention level*' (p16, authors' emphasis). Rather, it is only possible to achieve changes in these outcomes as a result of '*...a coherent and multi-faceted range of health promotion interventions which comprehensively address a health issue*' (p12). **Therefore, the effectiveness of single small-scale interventions should be determined by impact evaluations which measure changes in health promotion outcomes/intervention impact measures.**

Jemmott and Jemmott (2000b) and Shepherd et al. (2000) also stress the importance of measuring health promotion outcomes/intervention impact measures for providing information on the operation of modifying factors to understand *how* interventions work. However, Holtgrave and Pinkerton (2000) argue that weak evidence supporting causal pathways from some modifying factors to some HIV-specific risk behaviours (intermediate health outcomes) means that studies which report on health promotion outcomes/intervention impact measures *alone* should be treated with caution.

Account should therefore be taken of the strength of evidence for the causal pathway linking the change in any modifying factor (measured by health promotion outcomes/intervention impact measures) to sexual behaviour (measured by intermediate health outcomes).

It is acknowledged that some 'single' interventions may have significantly large an impact on a major modifying factor influencing sexual risk for a particular population to result in measurable changes in behaviour. However, in

most populations, there will be multiple other modifying factors (or 'unmet needs') that need addressing simultaneously by other interventions in order to result in measurable changes in behaviour.

The above suggests that it would be sensible to include health promotion outcomes/intervention impact measures *and* intermediate health outcomes when evaluating interventions. It would be inappropriate for studies to focus on intermediate health outcomes (for instance, 'risk' behaviours) as their sole or dominant measures of intervention effectiveness. Instead, the most useful studies are those which, by reporting on several types of outcome, both inform practice and improve our knowledge of causal pathways.

1.4.3.3 Intermediate health outcomes – appropriate indicators

Where it is appropriate to measure behavioural outcomes, it is crucial to select the correct indicators of 'risk' for HIV transmission. In figure (a) on p14 we show that the number of exposures to HIV is a result of the number of occasions of *sero-discordant unprotected* intercourse and the number of condom failures during *sero-discordant protected* intercourse. Clearly, there is no risk of HIV transmission where both partners are sero-negative for HIV – in these instances, unprotected is not the same as unsafe (van de Ven, 2002).

However, until relatively recently, many studies have focused on unprotected intercourse per se – whether condoms were used – rather than on the context for intercourse. This was to some extent the result of an era when HIV testing was relatively uncommon (because there were no immediate benefits of knowing one's status) and there was much stigma associated with HIV infection. Therefore, it was considered unfeasible for sexual partners to be aware of one another's status. On the assumption that sexual partners are normally unaware of one another's HIV status, many studies include *any* unprotected sexual intercourse as a potential risk for HIV transmission. In this context, studies often choose to include other behavioural indicators of risk, such as number of sexual partners and frequency of sex. However, some (eg agencies subscribing to MiC*) would argue that these are not the appropriate goals of HIV prevention interventions and so measures of changes here are meaningless.

* The national HIV prevention framework for homosexually active men, developed by the CHAPS partnership, a consortium of gay men's HIV prevention agencies in England.

Clearly, if being used at all, behavioural outcomes ought to include contextual indicators such as (known) sero-status of sexual partner.

1.4.3.4 Outcome measures and reviews of effectiveness

From the above, it follows that we would expect reviews to use the health promotion outcomes/intervention impact measures from primary (impact) evaluation studies in making judgements about intervention effectiveness. A useful selection criterion for the inclusion of primary evaluation studies in reviews would therefore be provision of data on health promotion outcomes/intervention impact measures, ideally in addition to any data on intermediate health outcome measures (such as sexual behaviour). It is important that reviews do this for the following reasons:

- It allows us to identify interventions which are effective in changing modifying factors (ie changed health promotion outcomes/intervention impact measures), but which may not have had significantly large an impact on all the major modifying factors influencing sexual risk for this population to result in measurable intermediate health outcomes (most commonly, changes in behaviour). That is, they are *necessary* but not *sufficient*
- Findings about changes in modifying factors (health promotion outcomes/intervention impact measures) can provide vital information for practitioners about *how* interventions have their impact, and therefore what can be said about their transferability
- It allows us to test our hypotheses about the causal pathways between modifying factors (measured by health promotion outcomes/intervention impact measures) and sexual risk (measured by intermediate health outcomes).

1.4.3.5 Other measures

Measures of **participation** in the study (including how participants were recruited, what the response rates were and how many participants dropped out before the end of the study) give information about how well the intervention would work in the 'real world'. Some studies, through selection of untypical participants and attrition of many participants who do not respond well to the intervention, end up with findings that are only applicable to an unrepresentative group. These details are vital for practitioners in judging whether an intervention will work in their setting.

Confounding variables are characteristics of the participants, such as age and social class, which need to be taken into account because they can affect the impact of an intervention. They also help practitioners assess whether interventions are appropriate for the population they work with.

1.4.4 Theories of behaviour change

The following section briefly addresses the importance of theories of health behaviour change, along with some of their limitations. Bonell et al. (2000) and UNAIDS (1999) contain useful summaries of a range of such theories. For summaries of theories not covered by these authors, see Appendix A.

Although to date there is no empirical evidence that theory based interventions are more effective, there are a number of reasons to suggest that they might be.

Theory based interventions tend to include more complex material, addressing a range of factors such as skills and peer norms (Wingood and DiClemente 1996, p211), and involve multiple sessions. More recent theories also recognise a number of important factors to bear in mind when designing interventions. For example, behaviour change is acknowledged as a *process*, requiring that we address all elements of this process: in the case of stages of *change* models, the chronicity of its elements of change; in the case of the *determinants of change* models, its constructs, layers, and the dynamism between them. The impact of social and peer networks, of gender and of power, are similarly addressed by more current theories.

Theory can also provide the basis for increased rigour in study design. Theory based interventions are necessarily more explicit: Exner et al. (1997) identify an 'important design component [as] having explicitly stated goals or hypothesis, with clearly operationalised outcomes' (p97). The authors add that '...clear operationalisation is necessary to ensure replicability and cross-study comparison of the results', which introduces the further point that a sound theory base can facilitate evaluation. Theory requires that intervenors articulate the modifying factors which influence behavioural and clinical outcomes and are explicit about which of these they propose to change; how they propose to change them; how they will demonstrate that change; and how that change has contributed, if at all, to a behavioural or clinical outcome. Theory helps us to know why – as well as whether – an

intervention is effective, shedding light on the extent to which elements of interventions can be applied in different contexts with different populations. McKay (2000), citing Jemmott and Jemmott (2000b), states this clearly:

'By measuring the theoretical mediators of intervention-induced behaviour change, a better conceptual understanding of risk behaviour can emerge. If an intervention is ineffective, assessment of theoretical mediators can inform the analysis of why it is ineffective' (p114).

It is important to note, however, that theories differ in their emphasis on the need to impact on individual skills and cognitions, or personal modifying factors (eg AIDS Risk Reduction Model, Transtheoretical Model, Theory of Reasoned Action) versus impacting on wider social, cultural and structural modifying factors (eg Social Network Theory, Social Ecological Model). Over-reliance on any one theory may be unwise, and employing theories which complement one another has been advocated (UNAIDS, 1999; Wight et al., 1998).

It has been pointed out that existing theories do not take into account the unique nature of sexual behaviour. For example, very few theories address the fact that sexual behaviour is heavily dyadic (ie involving two people) (Beardsell, 1994; Fisher and Fisher, 2000). Also, even theories which focus on individual cognitions, emotions and perceptions 'do not address issues of love, sexual self-esteem, intimacy, sexual desire and perceptions of pleasure... Thus, behavioural theories target health behaviours, such as condom use, rather than sexuality per se' (Kalichman and Hospers, 1997).

It has also been suggested that theories do not inform certain key aspects of intervention delivery, such as dosage (Stephenson et al., 2000), although this does not mean that they lack the potential to do so.

Finally, theories are thin on application, particularly those which deal with wider societal or structural issues. Fisher and Fisher note that theories in general are 'actually better at providing a roster of objectives of change ... than they are at directly informing intervenors about specific strategies for achieving change' (p47).

We will return to these issues in the Discussion.

1.5 Research questions

In summary, we identify the following questions as the focus for this evidence briefing:

- What works to reduce the sexual risk of HIV transmission among the priority populations in the UK? What works to change the modifying factors that influence sexual risk behaviours for HIV transmission?
- Are theory based interventions more likely to be effective?
- Are multi-component interventions more likely to be effective?
- What works to reduce inequalities in sexual risk for HIV transmission?
- What interventions are cost effective?

2 Methodology

A standardised methodology has been developed by the HDA for the analysis and synthesis of review-level evidence (Kelly et al., 2002). The specific methodology used in the review of reviews is outlined below.

2.1 Identification of the literature

2.1.1 *Electronic searches*

A wide-ranging set of search strategies was developed* to support the review of reviews in an attempt to identify as many types of 'review' relevant to the subject.

Subject/topic search strategy Although the focus of the review was on the UK's priority populations**, a topic strategy was developed to identify papers with a focus on any intervention with the goal of reducing the sexual risk of transmitting or acquiring HIV. The topic search was developed using a combination of: specific HIV prevention terms (eg HIV prevention, AIDS prevention and control, sexual health promotion, abstinence, etc); terms for interventions specific to the topic area (eg condom provision, sex education, HIV testing and counselling); and general health promotion/health education/public health terms (eg health promotion, intervention, prevention, outreach, community development, etc) combined with topic terms such as HIV or sexual behaviour.

For each database, strategies were developed with a combination of Medical Subject Headings ('MESH') (using various 'operators' such as 'and', 'or', 'adjacent' and 'near') and textwords (appropriately truncated, eg 'HIV prevent\$') in order to achieve as many relevant reviews as

* The York Centre for Reviews and Dissemination conducted a large proportion of the searches.

** Men who have sex with men, African communities, commercial sex workers, people with HIV.

possible. Attempts were made to locate existing strategies for adaptation, including those developed by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Social Science Research Unit, Institute of Education, University of London (see appendices 2 and 4 in Peersman et al., 1999), both for health promotion in general and HIV/sexual health in particular. The search strategies were designed to be as similar as possible for the different databases, however index terms differ across databases.

The following exclusions were built into the searches in an attempt to limit the results to the scope of the review of reviews:

- Developing countries
- AIDS treatment
- Vertical transmission (mother-to-child)
- Transmission related to injecting drug use
- Post-exposure prophylaxis.

The individual topic search strategies for each database are given in Appendix C, together with the results of each.

Review search strategy The review search strategies were developed to be as wide-ranging as possible and so identify any type of review, ie they were 'high sensitivity', 'low precision' strategies (Boynton et al., 1998) which cast the net very wide. Where they existed for the different databases, we adopted these strategies from the York Centre for Reviews and Dissemination and Health Evidence Bulletin Wales; for some databases with a relatively narrow remit (eg Cochrane) or which were small in size (eg Cinahl), a review strategy was not necessary.

The following databases and websites were searched:

- The Cochrane Library
- The 'Wider Public Health' report
- MEDLINE
- TRIP (database with access to largest collection of 'evidence-based' material on the web)
- HTA (Health Technology Assessment) database
- SIGN (Scottish Intercollegiate Guidelines Network)
- Health Evidence Bulletins Wales
- National Guidelines Clearinghouse
- NCCHTA (National Co-ordinating Centre for Health Technology Assessment) website
- NICE (National Institute for Clinical Excellence) website
- REFER (Research Findings Electronic Register)
- National Research Register
- Clinical Evidence
- EMBASE (Excerpta Medica database, 1996-2001)
- Sociological Abstracts
- PsycINFO
- Cinahl (Cumulative Index to Nursing and Allied Health Literature)
- Sociofile
- York Centre for Reviews and Dissemination DARE (Database of Abstracts of Reviews of Effects) admin database*
- EPPI-Centre's** Register of Reviews of Effectiveness (RoRE).***

All databases were searched from January 1994**** to November 2001 for references published in the English language.

The results of electronic searching generated 800 references in total (after duplicates were removed). Where possible, the results were downloaded into a Reference Manager database.

* Reviews selected from monthly searches of Medline and CINAHL, weekly searches of Current Contents Clinical Medicine, annual searches of ERIC (Educational Resources Center), Biosis (world's largest abstracting and indexing services for the life sciences), Allied and Alternative Medicine (AMED) and PsycINFO, plus EMBASE; hand searching key major medical journals; and scanning grey literature. See <http://agatha.york.ac.uk/faq2.htm> for further details.

** Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Social Science Research Unit, Institute of Education, University of London.

*** Reviews up to 1998 (www.ioe.ac.uk/ssru – February 2002).

**** 1994 was chosen as a starting point to ensure the task was manageable.

2.1.2 Experts

In January 2002, the HIV Prevention Evidence Base Reference Group (see Appendix D for list of members and terms of reference) was asked to suggest any additional reviews for consideration; however, none were forthcoming.

2.1.3 Selection and filtering

The titles and abstracts of all 800 references were independently appraised by two reviewers to determine whether to retrieve the full paper on the basis of the following criteria:

- English language only
- Published since 1994
- Systematic review, synthesis, meta-analysis or literature review
- Relevance to HIV prevention in the UK and the priority populations identified
- Presents (and synthesises) data from primary evaluation studies of intervention effectiveness.

A joint decision was made as to whether the full paper would be retrieved for critical appraisal; if the reviewers disagreed, or no clear decision could be made on the basis of the title or abstract, the full paper was obtained for appraisal.

A total of 140 papers were selected for appraisal from the electronic searches and a further 19 papers were identified later from scanning the bibliographies of all of the appraised review papers. A final total of 159 papers were selected for appraisal.

Attempts were made to obtain all papers, including journal articles, reports and book chapters. In all, 151 (95%) of the papers were successfully obtained; the remaining eight could not be retrieved for a variety of reasons such as incomplete bibliographic details, item missing from British Library, an unobtainable 'grey literature' report.

2.2 Appraisal

The 151 papers (journal articles, book chapters, reports) were independently appraised by two HDA reviewers; however, there was no blinding to the authorship of papers. The appraisal process sought to identify the extent to which papers were:

- Systematic – do the review authors apply a consistent and comprehensive approach? If repeated, would this give the same results?
- Transparent – are the review authors clear about the processes involved, the individual study results, the findings and conclusions drawn from these? Is there sufficient detail to repeat?
- Analytically sound – do the authors undertake the appropriate methods of analysis and are they undertaken correctly?
- Relevant – is the content relevant to the UK and the priority populations under consideration?
- Supplementary review papers failed stage one of the CAT, but had some relevance to the priority populations under consideration here. These papers were judged to have something useful to say about the nature of the evidence and its translation into practice. Supplementary review papers are used in the Discussion to add further insights to our evidence statements and to help us to consider why or how certain interventions are effective (see 'Presentation of data' below).

Disagreements were resolved through discussion or, if necessary, by recourse to a third reviewer.

A protocol and critical appraisal tool (CAT) was developed (see Appendix E)* to assist the HDA reviewers in making their judgements. The CAT is divided into two stages. The first stage assesses the strengths of the methods used to identify and select all of the available literature, since this is regarded as one of the most important factors in ensuring a balanced view of the evidence. If a paper passes this first stage, then the quality of its methodological analysis and the appropriateness of its conclusions are assessed.

A total of nine papers were judged as Core review papers.

A further 14 papers were judged as Supplementary review papers.

The remaining 128 papers were judged not to meet the criteria of either Core or Supplementary review papers.

The CAT is not a scoring tool since it is a matter for some debate as to how different elements of reviews should be weighted. The questions in the CAT are articulations of the kinds of criteria usually implicit in judging reviews, here made explicit. While the critical appraisal process is designed to be as objective as possible, the authors acknowledge that decisions do contain a subjective element, and consideration of this must be given when reading the findings.

A summary of the main elements of the critical appraisal process for both Core and Supplementary review papers is provided in the Results. A summary of each Core review paper is provided in Appendix F. Complete bibliographic lists of the Core and Supplementary review papers are provided in the Bibliographic references (section 8).

A joint decision was made regarding whether the paper was to be classified as a 'Core' or 'Supplementary' review paper:

- Core review papers passed both stages one and two of the CAT – that is, they were judged to be sufficiently systematic and transparent, and applied the appropriate methods of analysis. They also have some relevance to the priority populations within the scope of the review. Core review papers constitute the 'data' which is the basis for analysis giving rise to the evidence statements (see 'Presentation of data' below).

2.3 Analysis and synthesis

Section 1.4 outlines our conceptual framework for how interventions affect the modifying factors influencing sexual behaviour, and thus our approach to evidence of effectiveness. We defined 'interventions' and discussed the appropriateness of different outcome measures for determining 'success' in HIV prevention.

Given this framework, we initially set out to analyse and present the data from the Core review papers by taking each modifying factor in turn and looking at the evidence for intervention success in changing it (ie changes in health promotion outcomes/intervention impact measures). It was foreseen that a further breakdown would be necessary by level of intervention (delivery), target population and/or setting.

However, it soon became apparent that the results of applying this process would be extremely complex and highly incomplete, for a number of reasons:

* The critical appraisal tool was adapted from the systematic review assessment forms used by the York Centre for Reviews and Dissemination and Health Evidence Bulletins Wales.

- There is no shared understanding or definition of the pertinent personal and structural modifying factors influencing sexual risk behaviour
- Primary studies and reviews tend not to focus on modifying factors (health promotion outcomes/intervention impact measures), rather they consider intermediate health outcomes (behavioural) as the only evidence of success
- If primary studies do gather information on health promotion outcomes/intervention impact measures, these tend not to be reported or analysed in reviews.

Instead, therefore, we first grouped and analysed the evidence according to each of the UK's priority populations. We then looked at the available data for interventions delivered at the individual, group, community and socio-political level.

2.4 Presentation of data

The data from Core review papers is presented and analysed in Section 4 – The Evidence. Each priority population section begins with an overview of the relevant Core review papers, including the range and number of primary studies within them. This is followed by an analysis of the overlap of primary studies within the reviews and the types of outcomes used to judge 'success'. However, as outlined above, very rarely did any of the reviews present any data about intervention effectiveness in terms of changing modifying factors (health promotion outcomes/intervention impact measures). Usually the primary studies, and in turn the reviews, considered intermediate health outcomes (sexual behaviour) alone as evidence of intervention effectiveness. Also, most studies count any unprotected sexual intercourse as 'risky' behaviour, even though both partners may have been sero-negative (see section 1.4.3.3 for discussion on the appropriate indicators for measuring risk).

We therefore present the *evidence that the reviews themselves* provide about the 'effectiveness' of interventions delivered at different levels (ie individual, group, community and socio-political), before going on to look at issues of inequalities and cost effectiveness.

We have taken slightly different approaches to presenting the data and findings within each target population section. For instance, within the MSM section, the Core

review papers between them cover a relatively small number of primary studies: therefore, we have chosen to provide a brief summary of each study (adapted from details given in both the Core and Supplementary review papers), as well as noting any comments by the reviewers. This is because many reviews merely cite study findings as evidence of effectiveness without coming to any overall conclusions (we have assumed that reviews endorse the findings of a cited study unless they comment to the contrary). We are therefore presenting this information in order to provide some detail about the content of the intervention; it is not for the purpose of allowing the reader to undertake a re-assessment and synthesis of the primary data*.

It was not possible to follow this approach for all of the priority population sections, either because there were too many primary studies or because the details were not available. In these instances, we report on and synthesise the overall findings from the reviews.

Within each section, we make a number of 'evidence statements', based on the findings from the Core review papers. These statements consider whether there is enough review-level evidence to show that certain types of interventions can have significantly large an impact on the major modifying factors influencing sexual risk to result in measurable intermediate health outcomes (most commonly, changes in behaviour).

Evidence statements are derived from the following factors:

- The findings of individual studies, according to details provided in the review
- The robustness of individual studies, according to details provided in the review
- The robustness of the method of the review
- The strength of the statement of the review, as expressed in the reviewers' own words
- The homogeneity of data, both within and across reviews.

Using the above, the following types of evidence are identified:

- **Sufficient review-level evidence** – a clear statement from at least one Core review paper which either

* For bibliographic references to the original primary studies, please refer to the review papers themselves.

supports or discounts the effectiveness of an intervention, or evidence from more than one robust study within the Core review papers

- **Tentative review-level evidence** – a tentative statement from a Core review paper, or consistent evidence from less robust studies within Core review papers, or conflicting evidence with the stronger evidence on one side and a plausible reason for the conflict
- **Insufficient review-level evidence** – some evidence (for instance, from a less robust study), but insufficient to support or discount effectiveness, either because there is too little evidence or the evidence is too weak
- **No review-level evidence** – no evidence presented within any of the reviews, possibly because of a lack of primary studies.

Where we make statements about sufficient or tentative review-level evidence of effectiveness, we believe that the intervention *can* be effective in having significantly large an impact on the major modifying factors influencing sexual risk to result in measurable changes in behaviour – ie it may ‘work’ in circumstances where a similar population has the same ‘unmet needs’ which can be adequately addressed by the intervention. These statements then inform our policy and practice recommendations.

If we conclude that there is either sufficient or tentative review-level evidence regarding effectiveness, we look at relevance to the UK population in question within the Discussion. Relevance is informed by similarity of study population to the UK population in terms of culture and socio-economic variables (although the geographical location and date of study might be all that the review provides).

Where we make statements about tentative, insufficient or no review-level evidence, we believe there needs to be more research either to support or discount the intervention’s effectiveness in influencing intermediate health outcomes. As discussed in section 1.4.3, a failure to demonstrate changes in intermediate health outcomes could occur because:

- The intervention did not succeed in changing the modifying factors which significantly influence HIV sexual risk behaviour for this population
- The intervention changed the modifying factors, but on its own a change in these modifying factors is not significant enough to influence behaviour change.

Therefore, statements about tentative, insufficient or no review-level evidence inform our research recommendations.

Supplementary review papers are used in the Discussion to add further insights to our evidence statements and consider why or how certain interventions are effective. However, Supplementary review papers do not form the basis of our evidence statements – the analysis and synthesis of the evidence is based on Core review papers alone.

In addition to Supplementary review papers, a number of other papers have informed this evidence briefing and are used in the Introduction, Discussion and Research recommendations sections – see References. For example, in describing interventions and overviewing theories of behaviour change, we have drawn on a number of papers which were identified in addition to those retrieved through systematic searching and appraising.

2.5 Peer review

A first draft of this evidence briefing was circulated to the members of Reference Group (see Appendix D) in May 2002 for comment. It was also sent out for formal peer review to:

- Kevin Fenton (Head of HIV/STI Division, Public Health Laboratory Service; and Senior Lecturer in Epidemiology and Public Health, University College London)
- Angela Harden (Senior Research Officer, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London)
- Graham Hart (Associate Director, MRC Social and Public Health Sciences Unit)
- Jack Summerside (Head of Health Promotion for People with HIV, Terrence Higgins Trust)
- Peter Weatherburn (Director, Sigma Research).

A number of significant changes were made in light of the feedback received, including the following:

- Core review papers were re-appraised and as a result some were re-assigned to the category of Supplementary review paper
- Evidence statements, research and policy/practice

recommendations were re-assessed in light of the above

- Discussion was restructured and rewritten.

A second draft was circulated to the above peer reviewers, the members of the Reference Group and the Department of Health in October 2002; this final draft addresses the comments received at that stage.

3 Results

Table (a) – Core and Supplementary review papers: summary of critical appraisal tool (CAT)

The CAT is divided into two sections. The first section assesses the strengths of the methods used to identify and select all of the available literature, since this is regarded as one of the most important factors in ensuring a balanced view of the evidence. If a paper passes this first stage, then the quality of its methodological analysis and the appropriateness of its conclusions are assessed.

The table overleaf provides a summary of the key areas of the CAT to show how Core review papers are distinguished from Supplementary review papers – see Appendix E for full details. Core review papers passed both stages one and two of the CAT – that is, they were judged to be systematic, transparent and of sufficient analytical quality. They also had to be relevant to the priority populations within the scope of the review of reviews. Supplementary review papers failed stage one of the CAT but were relevant to the priority populations under consideration.

Table (a) – Core and Supplementary review papers: summary of critical appraisal tool (CAT)

Author and date*	Stage one					Stage two			
	Specifies clear aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies**	Specifies search terms	Specifies inclusion criteria	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings
Core review papers									
Exner, T. M. et al. (1999)	✓	✓	✓	X	✓	✓ (in part)	✓	✓	✓
Exner, T. M. et al. (1997)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gibson, D. R. et al. (1998)	✓	✓	✓	X	✓	✓	✓	✓	✓
Ickovics, J. R. and Yoshikawa, H. (1998)	✓	✓	✓	✓	✓	✓	X	✓	✓
Kegeles, S. M. and Hart, G. J. (1998)	✓	✓	✓	✓	X	✓	✓	✓	✓
Oakley, A, et al. (1994)	✓	✓	✓	X	✓	✓	✓	✓	✓
Oakley, A. et al. (1996)	✓	✓	✓	X	✓	✓	✓	✓	✓
Weinhardt, L. S. et al. (1999)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wolitski, R. et al. (1997)	✓	✓	✓	X	✓	X	✓	✓	✓

* Complete bibliographic details of Core and Supplementary review papers are provided in the References

** Additional search strategies involve follow-up of references/journals, consultation with experts in the field and grey literature searches.

Table (a) – Core and Supplementary review papers: summary of critical appraisal tool (CAT) (cont.)

Author and date	Stage one					Stage two			
	Specifies clear aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Specifies inclusion criteria	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings
Supplementary review papers									
Aggleton, P. J. (1994)	✓	✓*	X	X	X**	-	-	-	-
Beardsell, S. (1994)	✓	X	X	X	X	-	-	-	-
Choi, K. H. and Coates, J. C. (1994)	✓	X	X	X	X	-	-	-	-
Coleman, L. M. and Ford, N. J. (1996)	✓	X***	X	X	X	-	-	-	-
Coyle, S. L. and Needle, R.H. (1998)	✓	X	X	X	X	-	-	-	-
Fenton, K. A. (2001)	✓	X	X	X	X	-	-	-	-
Hart, G. J. (1996)	✓	X	X	X	X	-	-	-	-
Holtgrave, D. R. et al. (1995)	✓	X	X	X	X	-	-	-	-
Kalichman, S. C. and Hospers, H. J. (1997)	✓	X	X	X	✓	-	-	-	-
Kelly, J. A. (1995)	✓	X	X	X	X	-	-	-	-
King-Spooner, S. (1999)	✓	X	X	X	X	-	-	-	-
McKay, A. (2000)	✓	✓****	X	X	✓	-	-	-	-
Stall, R. D. et al. (2000)	✓	X	X	X	X	-	-	-	-
Summerside, J. and Davis, M. (2001)	✓	✓	X	X	X	-	-	-	-

* Although this review searched a wide range of databases, only 13 of the papers identified in the search were selected and subjected to detailed review, because of time and space limitations.
 ** Some inclusion criteria given, but ultimately this was a purposive sample: 'thirteen... were subjected to detailed review, although many others could have been included' (p17).
 *** Years specified, however databases/sources not provided. **** Databases searched specified, however years searched not specified.

4 The evidence

This section is divided into the following sub-sections:

- 4.1 Men who have sex with men (MSM)
- 4.2 Commercial sex workers (CSWs)
- 4.3 People with HIV
- 4.4 African communities
- 4.5 Voluntary counselling and testing (VCT)

4.1 Men who have sex with men

Men who have sex with men (MSM) is a broad term and includes gay and bisexual men and those who have sex with men but do not identify as either gay or bisexual.

4.1.1 The reviews

Table (a) in the Results section shows the two Core review papers that met our appraisal criteria and are relevant to MSM:

- Oakley, A., Oliver, S., Peersman, G. et al. (1996). *Review of Effectiveness of Health Promotion Interventions for Men Who Have Sex with Men*. London: Institute of Education, Social Science Research Unit, EPPI-Centre.
- Kegeles, S. M. and Hart, G. J. (1998). HIV-prevention interventions for gay men: individual, small-group and community based studies. *AIDS* 12 (suppl A): S209-S215.

Both Core review papers report exclusively on the target population of MSM.

Taken together, these Core review papers report on 12 separate intervention evaluations, one of which is reported on in both reviews. The studies are summarised in Table (c) in Appendix G. As can be seen, most of the reviewed interventions are group-level interventions, though there are some community level interventions and there is one individual-level, one-to-one intervention*.

Types of outcomes selected

Oakley et al. (1996) refer to epidemiological studies which suggest that the sexual behaviours carrying the

highest risk of HIV transmission among MSM are receptive and insertive anal intercourse. They point out that the use of condoms has been shown to reduce the risk of HIV transmission, and suggest that the other behavioural factor consistently associated with HIV transmission is the number of sexual partners. Oakley et al. (1996) therefore select and analyse the primary data within their review according to the following intermediate health outcomes (or healthy lifestyle/behavioural outcomes): any UAI (unprotected anal intercourse), condom use, number of partners, and 'safer sex'. Interestingly, Oakley et al. (1996) do include one outcome evaluation (Honnen and Kleinke 1990) which looked at the take-up of condoms (ie not sexual behaviour) before and after an intervention in order to determine its effectiveness.

Kegeles and Hart (1998) used the following health and intermediate health outcomes in judging effectiveness within their review: HIV sero-conversion, STI incidence, UAI, condom use, and number of partners.

4.1.2 The findings

In the following sections, we look at evidence from reviews for the effectiveness of interventions delivered at the following levels: individual, group, community and socio-political. Since there are a limited number of original studies, within each level we present a brief summary of each study (adapted from details given in the Core review papers; where detail is sparse, additional information from Supplementary review papers has been used).

Within each level, we make **evidence statements** based on the strength and quality of the evidence from the Core review papers and the extent to which it is contested. We also consider the evidence on some general issues that are common across the different levels of intervention.

* Individual interventions include HIV counselling and testing, but this is covered in section 4.5.

Evidence statements consider whether there is enough review-level evidence to show that certain types of interventions *can* have significantly large an impact on the major modifying factors influencing sexual risk to result in measurable intermediate health outcomes (most commonly, changes in behaviour). We consider the **relevance** of the evidence to the UK population within the Discussion; this is informed by similarity of study population to the UK population in terms of culture and socio-economic variables (although geographical location and date of study might be all that the review provides).

See section 2.4 – Presentation of data – for details of how evidence statements are derived.

4.1.2.1 Individual-level interventions

Testing and counselling is the most frequently cited intervention delivered individually/one-to-one. See the separate HIV voluntary counselling and testing (HIV VCT) section (4.5) for discussion about its effectiveness.

See section 1.4.2.1 for the range of possible individual-level interventions and how they may change the modifying factors which influence behaviour.

Only one of the two Core review papers covered interventions at the individual level for MSM, based on one primary study.

Study no. 1 – Gold and Rosenthal (1995) (description taken from Kegeles and Hart, 1998). This intervention encouraged men to reflect on a recent occasion in which they broke their own rule on safer sex, and to consider such instances in terms of 23 self-justifications. There were three groups: the control, the standard group and the ‘self-justification’ group. The control group received no intervention and the standard group were shown HIV prevention posters on two occasions. After two months all participants completed a questionnaire on sexual behaviour.

According to Kegeles and Hart (1998), after two months the self-justification group was significantly less likely to report two or three instances of failure to maintain safer sex than the other two groups.

- Kegeles and Hart cite the study but add no comment of their own; they report that the authors suggest that encouraging men to reflect on the thinking they employ should be investigated further (S210).

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of any individual-level interventions in influencing the sexual risk behaviours of MSM.*

4.1.2.2 Group-level interventions

See section 1.4.2.1 for the range of possible group-level interventions and how they may change the modifying factors which influence behaviour.

Both of the Core review papers considered small-group interventions; between them, they cover a total of seven separate primary studies (seven reports)**. In this section, we first look at the effectiveness of small-group interventions generally, before going on to look separately at some specific issues relating to small-group work that may affect success, such as number of sessions, and number and type of components.

Study no. 2 – Choi (1996) (description taken from Kegeles and Hart, 1998). This was a three-hour intervention targeted at Asian and Pacific Islanders in the US and designed to increase positive ethnic and sexual identity, to enhance AIDS knowledge and attitudes toward safer sex, and to increase sexual negotiation skills and eroticise safer sex.

According to Kegeles and Hart, the authors judged the intervention effective in reducing the number of sex partners at three month follow-up (by 46%). Among the participants, Chinese and Filipino men reduced their rates of UAI by more than half, compared with men of other ethnicities.

- Kegeles and Hart cite the study but add no comment of their own, except that ‘longer-term outcomes were not reported’ (S211).

Study no. 3 and 4 – Kelly et al. (1989) and Kelly et al. (1990) respectively (descriptions here taken from Oakley et al., 1996, and Aggleton, 1994). This was a behavioural intervention which was delivered in two phases and which included AIDS education, cognitive behavioural self-management, sexual assertion training and affirmation of social support: it comprised twelve 70-90 minute weekly group sessions led by two clinical psychologists and two assistants (study no. 3).

* Other than voluntary counselling and testing (VCT) – see section 4.5

** See table (c) for further details of the overlap.

According to Oakley et al, the authors judged the intervention effective in reducing the frequency of anal intercourse and in increasing the use of refusal skills. After the intervention, the control group was offered a shorter version of the intervention over seven weeks (instead of 12), followed by a booster at three months and follow-up at eight months (study no. 4).

- Oakley et al. agree with the authors' conclusions regarding the effectiveness of the 1989 study (on the basis of intermediate health/behavioural outcomes), but suggest that the findings may be restricted to white MSM. Further, the 'lack of a control group in the second [shorter] study [Kelly et al., 1990] means that conclusions cannot be drawn about the effectiveness of the shortened course' (p15) – ie they do not classify the Kelly et al. (1990) study as 'sound'. However, on the basis of the 'sound' Kelly et al. (1989) study, Oakley et al. conclude that 'small group sessions providing a mixture of risk education, training in self-management and assertiveness skills and health problem solving' are effective in reducing UAI (p35).

Study no. 5 – Kelly et al. (1996) (description here taken from Kegeles and Hart, 1998). This was a day-long workshop focusing on relationship goals and how risk reduction can be addressed in new, ongoing, established or casual relationships.

According to Kegeles and Hart, the authors judged this single session intervention on its own to be effective in reducing reported rates of UAI, and it was *even more effective* when it included added monthly booster sessions and bi-weekly phone contact (S211).*

- Kegeles and Hart cite the study but add no comment of their own.

Study no. 6 – Valdiserri et al. (1989) (description taken from Oakley et al., 1996). This compared two different risk-reduction interventions. Subjects were randomly assigned to one of the two types of intervention: a small group lecture covering clinical information about HIV transmission and risk, information on risk reduction and condoms, and on testing; or a small group lecture identical to the first group, but also including a skills training component promoting the acceptability of safer sex, and teaching strategies for risk reduction.

According to Oakley et al., the authors judged the skills-training intervention to be effective in increasing condom use for insertive anal intercourse.

- Oakley et al. cite both reports of this study as 'sound' evidence that small group sessions with skills training increased condom use.

Study no. 7 – Peterson et al. (1996) (description here taken from Kegeles and Hart, 1998, and McKay, 2000). This was a nine-hour intervention delivered in three three-hour segments focusing on cognitive behavioural skills training, including an emphasis on safer sex negotiation skills, self-management skills, and developing a positive self-identity. It was delivered to African-American MSM.

The authors claimed to demonstrate a reduction in the proportion reporting any UAI (from 45% to 20% at 18 month follow-up).

- Kegeles and Hart cite the study but add no comment of their own.

Study no. 8 – Tudiver et al. (1992) (description here taken from Oakley et al., 1996). This intervention consisted of two different kinds of AIDS risk reduction programmes for MSM: (1) A highly structured three-hour group session (in a group member's home), led by two trained volunteer peers. Their training included discussion about AIDS impact on individuals and the community, condom demonstration and role-play; (2) Four weekly two-hour sessions led by two paid counsellors. Their training included building relationships and expression of emotions, tasks and discussions about safer sex, sharing experiences and coping strategies, and skills and role-play for negotiating safer sex.

According to Oakley et al., the authors judged both interventions to be effective in changing knowledge of AIDS risk and attitudes towards condom efficacy. Both were also effective in changing sexual behaviour, particularly the single session group.

- Oakley et al. point out that there was a high drop-out rate (18%) and also that there is insufficient information to make a clear decision about effectiveness.

* See later section regarding multi- versus single-session group work.

In this next section, we attempt to draw out some more detail about some of the common elements of interventions at the group level before making our evidence statements relating to these, and to group work as a whole.

4.1.2.2.1 *Multi-component small-group work*

Multi-component small-group work consists of a number of elements drawn together, usually to impart information and to build safer sex skills. However, as this section goes on to discuss, further components have sometimes been included with the aim of addressing broader needs, such as motivation, self-affirmation and mental health.

The evidence we present will show that both Core review papers contend that interventions which incorporate a range of components are more likely to prove effective.

Skills: Oakley et al. (1996) explicitly include skills-building as a key component of an effective intervention: 'there is a need for multiple approaches (information, demonstrations, skills development) delivered under natural conditions and sustained over time' (p36).

Elsewhere, the importance of multi-component approaches in imparting information and building skills is more implicit, with a range of components listed: 'There is some support for the importance and potential effectiveness of... intensive sessions which include role-play, assertiveness training, or other interactive approaches: skills training of this type seems to improve the possibility for the negotiation of safer sex among men who have sex with men' (Oakley et al., p37).

Broader range of personal resources: Multi-component interventions often include components which move beyond the provision of skills and information, to build up a broader range of personal resources or to enhance motivation. Kegeles and Hart (1998) suggest that 'addressing the wider health and psychosocial needs of gay men is of equal or greater importance in preventing HIV in a well-informed population as work with an exclusive focus on condom use or safer sex' (S214).

Pride/positive self-identity: Kegeles and Hart's findings (1998) suggest that interventions which encourage individuals to take pride in themselves and which seem to reinforce a positive sense of self-identity (be it as a gay

man, as an African-American etc) are more likely to be effective. They cite Peterson et al. (1996) (study no. 7), a risk reduction session for African-American MSM which included a focus on identity issues and social support enhancement. They also cite the Choi study (no. 2), an intervention of one three-hour session led by one trained, paid counsellor, with activities to build positive self-identity.

Eroticisation: The eroticisation of safer sex has also been included as a component in group interventions. Kegeles and Hart (1998) cite the Choi (1996) study (no. 2), a three-hour intervention targeted at Asian and Pacific Islanders in the US which included activities eroticising safer sex.

Evidence statement: There is sufficient review-level evidence to conclude that building a range of components into group-level interventions contributes to their effectiveness in influencing the sexual risk behaviours of MSM.

4.1.2.2.2 *Multi-session small-group work*

Most of the interventions that the Core review papers have concluded are effective are multi-session. However, this could be an artefact of multi-component interventions (see above) which necessarily take up more time and so need to be conducted over several sessions. It may also reflect the nature of the intervention; that is, cognitive behavioural skill building interventions are likely to be delivered through a number of sessions: 'Skills training interventions are intensive and require a commitment to attend multiple group sessions over an extended period of time' (Kalichman and Hospers, 1997, S197). Nevertheless, all of the multi-session interventions are judged effective by both of the Core review papers in achieving reductions in risk behaviour.

For instance, the Kelly 1989 study (study no. 3), cited by Oakley et al. (1996), consisted of twelve 70-90 minutes weekly group sessions. Peterson et al.'s 1996 study (study no. 7), cited by Kegeles and Hart (1998), consisted of a nine-hour intervention delivered in three three-hour segments. In the Peterson et al. (1996) study (study no. 7), Kegeles and Hart note that the 'researchers report that the results demonstrate the efficacy of multiple rather than single-occasion interventions for risk reduction' (S211).

Kelly (1996) (study no. 5), cited by Kegeles and Hart (1998), describes a single day-long workshop. However, although the authors judged this single session

intervention to be effective in reducing reported rates of UAI, crucially 'there were added benefits' when the intervention included further monthly booster sessions and bi-weekly phone contact (Kegeles and Hart, S211).

Caution should be exercised in deducing that it is the 'multi-session' nature of these interventions that makes them effective. It is much more likely that it is their content that makes them effective, particularly since Oakley et al. (1996) cite evidence from a 'sound' study that a *single* small group session by a trained volunteer may be more effective than a multiple session intervention given by paid counsellors (Tudiver et al., 1989 – study no. 8). Therefore, it is likely that content, method of delivery and intensity are much more important components of an intervention's success in achieving behaviour change.

Evidence statement: There is insufficient review-level evidence either to support or discount the conclusion that multi-session interventions are, in themselves, more effective than single session interventions in influencing sexual risk behaviours of MSM.

4.1.2.2.3 Overall conclusions regarding group interventions with MSM

- Oakley et al. (1996) conclude that 'small group sessions providing a mixture of risk education, training in self-management and assertiveness skills and health problem solving' are effective in reducing UAI (p35) and that the evidence presented 'points to the importance and potential effectiveness of group work, with intensive sessions which include role-play, assertiveness training, or other interactive approaches. Peer facilitation seems to have something to offer' (p36). Further, the reviewers say that 'skills training of this type [role-play] seems to improve the possibility for the negotiation of safer sex among men who have sex with men' (p37).

Evidence statement: There is sufficient review-level evidence to conclude that cognitive behavioural group work, focusing on risk reduction, sexual negotiation and communication skills training (and rehearsal, for instance through role-play) can be effective in influencing the sexual risk behaviours of MSM.

4.1.2.3 Community level interventions

See section 1.4.2.1 for the full range of community level interventions and how they may change the modifying factors which influence behaviour.

Both Core review papers cite evidence that peers and opinion leaders can be effective at the community level in affecting individual behaviour change, either via changing norms regarding safer sex and/or providing credible sources of information to increase knowledge of HIV risk and risk reduction among MSM. Between them, they cover four separate studies (six reports)*.

Study no.9 – Honnen and Kleinke (1990) (description taken from Oakley et al., 1996). This intervention took place in three gay bars in one city, and involved mounting a large sign giving statistics about the number of people who had died from AIDS and providing information about the efficacy of condoms.

Oakley et al. report that the study demonstrated that the presence of the sign increased condom uptake by 47%.

- Oakley et al. cite this as a 'sound' study showing intervention effectiveness, on the basis of uptake of condoms as an outcome (a proxy indicator for condom use).

Study no. 10 – Kegeles et al., 1996 (description taken from Kegeles and Hart, 1998). This was a community level prevention programme consisting of five inter-related components: (1) formal outreach, where teams of young gay men visit gay venues to distribute safer sex materials and encourage others to adopt safer sex; (2) a series of peer-led small groups which focus on both one's own behaviour and on communicating the need for safer sex to others; (3) informal outreach, where men use casual conversations to encourage safer sex; (4) a young gay men's community centre; (5) a publicity campaign.

According to Kegeles and Hart, the authors judged the intervention as effective in reducing the proportion of men reporting UAI (45% reduction from baseline with non-primary partners and 24% reduction with primary partners). Reductions in UAI were sustained one year later for the non-primary partners, but not seen for the primary relationships.

* See table (c) for details of overlap.

- Kegeles and Hart cite this as one of two examples that they give of effective interventions at the community level. In referring to the fact that the programme had to be scaled down in subsequent years, Kegeles and Hart comment that programmes need to be 'maintained over time, with continued funding at previous levels' (S212).
- Oakley et al. report this study as Kegeles et al., 1995 (in press*). They describe it as an intervention based on social learning theory and a diffusion model of social change, employing a variety of social, outreach and small-group activities. Oakley et al. report that the authors judged the intervention effective in reducing anal intercourse and in increasing communication skills; however, they comment that 'high attrition rates raised doubts about these conclusions' (p16).

Study no. 11 – Kelly et al., 1991; Kelly et al., 1992; St Lawrence et al., 1994 (description taken from Oakley et al., 1996). An intervention using opinion leaders to endorse HIV risk reduction behaviour change among MSM. This was conducted among MSM men attending bars and clubs in a city.

The authors of this study judged the intervention effective in reducing the proportion of men engaging in any UAI in a two-month period (from 37% to 28%) and reducing the proportion who had had unprotected *receptive* anal intercourse (from 27% to 19%). Condom use increased and the proportion of men with more than one partner decreased.

- Oakley et al. endorse the authors' findings. However, they also say that, although these changes were still apparent at three-year follow-up (St Lawrence et al., 1994), it is not possible to tell whether other factors could have been responsible since the original control cities had all received the intervention by then.

Study no. 12 – Kelly (1997) (description taken from Kegeles and Hart, 1998). This study was a larger trial of the one reported above (study no. 11). Popular people identified by bartenders received training of five two-hour sessions in which they were taught how to deliver safer sex messages, and then to have on average ten conversations with friends and acquaintances in which they encouraged the adoption or maintenance of safer sex.

* In press at the time of Oakley et al. (1996) writing.

According to Kegeles and Hart, the authors judged the intervention as effective at 12-month follow-up (among men who attended the bars and who were not in exclusive relationships), in reducing the mean number of occasions of UAI, increasing condom use and reducing the proportion of men reporting UAI during the previous two months.

- Kegeles and Hart cite the study but add no comment of their own.

4.1.2.3.1 Overall conclusions regarding community level interventions with MSM

- In summarising the evidence from 'sound' studies within their review, Oakley et al. (1996) conclude that 'some' studies have shown the effectiveness of using peers, opinion leaders and role models from the relevant community (p37).
- Kegeles and Hart (1998) make no overall comment about community level interventions, but instead go on to discuss two (then) ongoing trials: an AIDS Community Demonstration Project coordinated by the CDC, and a trial conducted by the MRC Medical Sociology Unit in Glasgow (where Hart himself is based). In support of community interventions, Kegeles and Hart express their concern that 'only men who already believe that HIV prevention is important or that they are at risk from HIV present for individual or small group interventions' (S212).

In summary, therefore, there is agreement between both Core review papers about the effectiveness of interventions using peers and opinion leaders at a community level.

Evidence statement: There is sufficient review-level evidence to conclude that community level interventions involving peers and popular opinion leaders can be effective in influencing the sexual risk behaviours of MSM.

4.1.2.4 Socio-political level interventions

See section 1.4.2.1 for the full range of socio-political interventions and how they may change the modifying factors which influence behaviour.

Among the Core review papers concerning interventions with MSM, we found none which examined the effectiveness of these kinds of interventions in changing

health, intermediate health or health promotion outcomes/intervention impact measures.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of any socio-political interventions in influencing the sexual risk behaviours of MSM.

4.1.2.5 General issues concerning the effectiveness of interventions with MSM

Duration

Oakley et al.'s Core review paper (1996) concludes that 'brief' interventions can be effective in achieving risk-reduction behaviour change. The reviewers draw this conclusion from all six of their 'sound' studies (ie study nos 3, 6, 8, 9, 10, 11), stating: 'The evidence of the five [sic] studies taken together is that relatively brief interventions consisting of small group sessions with some individual counselling, and which have some credibility in the gay community, are an effective way to reduce risk behaviour, at least in the short term' (p1).

However, one of the studies (Kelly et al., 1989 – study no. 3) consists of twelve 90-minute sessions. Whether this constitutes a 'brief' intervention is surely questionable, particularly in the light of Oakley et al.'s own definition of 'relatively brief' as consisting of one or two sessions (p37).

In fact, Oakley et al. cite direct evidence from only one 'sound' study (Tudiver et al., 1992 – study no. 8) to suggest that 'brief interventions may be as effective as longer ones' (p36), although in the reviewer's conclusion, the position on brief interventions is reiterated: 'There is good evidence that short interventions are as effective as longer ones' (p37). It may be that Tudiver et al. is considered by the reviewers to constitute 'good' evidence because it directly tests a longer intervention against a shorter one; however, further similar studies would be required to reach a firmer conclusion.

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of 'brief' interventions in influencing the sexual risk behaviours of MSM.

Tailoring, targeting and formative research

Both Core review papers cite evidence that interventions are more likely to be effective if they are targeted and tailored

for their specific audience, employing formative research to fine-tune the intervention's components.

From their review of six 'sound' primary studies (ie study nos 3, 6, 8, 9, 10, 11), Oakley et al. (1996) conclude that 'particular target groups within MWHWSM [men who have sex with men] need to be identified for tailor-made interventions, and to overcome the difficulties of accessing those MWHWSM who do not identify as gay or bisexual, are not part of any identifiable gay community, or have cultural or other inhibitions to recognizing safer sex messages as being relevant to their personal sexual activity' (p36); and 'Prior ethnographic research should be undertaken to identify the cultural context, values, beliefs, social mores and community norms of the targeted group, in order to provide the basis for the content and design of the intervention' (p37).

Kegeles and Hart's review (1998) cites evidence in support of this, albeit from a single primary study (reported as a conference abstract, Kelly et al., 1996 – study no. 5). They report that the authors suggest that 'prevention interventions need to be tailored to individuals' risk profiles, particularly in the context of relationships.' The reviewers make no comments of their own (S211).

Evidence statement: There is sufficient review-level evidence to conclude that interventions with MSM are more likely to be effective if they are targeted and tailored to the specific community and, ideally, if implementation follows a degree of formative research.

4.1.2.6 Inequalities

Neither of the reviews presented any data about the effectiveness of interventions in addressing inequalities in sexual health.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of interventions in addressing inequalities in sexual health for MSM.

4.1.2.7 Cost effectiveness

Neither of the reviews presented any data on the cost effectiveness of interventions with MSM.

Evidence statement: There is no review-level evidence either to support or discount the cost effectiveness of any interventions with MSM.

4.2 Commercial sex workers (CSWs)

The term commercial sex workers (CSWs) includes both male and female prostitutes, working on the street and from brothels.

4.2.1 The reviews

Table (a) in the Results shows the three Core review papers that met our appraisal criteria and are of some relevance to CSWs:

- Exner, T. M., Seal, D. W. and Ehrhardt, A. A. (1997). A review of HIV interventions for at-risk women. *AIDS and Behavior* 1 (2): 93-124.
- Oakley, A., Fullerton, D., Holland, J. et al. (1994). *SSRU Database Project Number 1. Reviews of Effectiveness: HIV Prevention and Sexual Health Education Interventions*. London: Institute of Education, Social Science Research Unit.
- Ickovics, J. R. and Yoshikawa, H. (1998). Preventive interventions to reduce heterosexual HIV risk for women: current perspectives, future directions. *AIDS* 12 (Suppl. A): S197-S208.

Each of these Core review papers reports separately on CSWs, among a number of other target populations. Taken together, these reviews report on 15 separate intervention evaluations, two of which (Ngugi et al., 1988 and Fox et al., 1993) are reported on by more than one of the reviews. The studies are summarised in Table (d) in Appendix G. As can be seen, most of the reviewed interventions for CSWs are community level interventions (including media interventions).

Types of outcomes selected

Primary studies include the following intermediate health outcomes (or healthy lifestyle/behavioural outcomes): condom use, number of sexual partners, frequency of unprotected intercourse. One health outcome, STI incidence, is reported by two studies. None of the studies report health promotion outcomes/intervention impact measures, according to the reviews, apart from one study, Dorfman et al., 1992, which reports only from formative findings on attitude to condom use, according to Oakley et al., 1994.

4.2.2 The findings

In the following sections, we look at the evidence from reviews regarding interventions delivered at the individual, group, community and socio-political level. Since there are a limited number of original studies,

within each level we present a brief summary of each study (adapted from details given in the Core review papers; where detail is sparse, additional information from Supplementary review papers has been used).

Within each level, we make **evidence statements** based on the strength and quality of the evidence from the Core review papers and the extent to which it is contested. These statements consider whether there is enough review-level evidence to show that certain types of interventions *can* have significantly large an impact on the major modifying factors influencing sexual risk to result in measurable intermediate health outcomes (notably, changes in behaviour). We consider the **relevance** of the evidence to the UK population within the Discussion; this is informed by similarity of study population to the UK population in terms of culture and socio-economic variables (although geographical location and date of study might be all that the review provides).

See section 2.4 – Presentation of data – for details of how evidence statements are derived.

4.2.2.1 Individual-level interventions

See section 1.4.2.1 for the range of possible individual-level interventions and how they may change the modifying factors which influence behaviour.

Two interventions reported in the reviews supplemented HIV testing and counselling *with additional information and skills training*. For a discussion of the evidence concerning voluntary counselling and testing (VCT) on its own, see the VCT section 4.5.

Study no. 1 – Corby et al. (1990) (description taken from Exner et al., 1997). In this study, Group 1 received HIV counselling and testing; Group 2 a 15 minute AIDS prevention programme with rehearsal of condom use; Group 3 received both interventions received by Groups 1 and 2; and Group 4 was a no-treatment control. Subjects were a convenience sample of 64 female street workers.

According to Exner et al., at one-month follow-up, women in Group 3 showed significant increases in condom use during vaginal intercourse with customers; women in Group 1 reported a significant decrease in proportion of condom use during oral sex with customers.

- Exner et al. described this study as an RCT that did not meet their reporting criteria.

Study no. 2 – Pickering et al. (1993) (description taken from Ickovics and Yoshikawa, 1998). This was a voluntary testing and post-test counselling intervention for CSWs in the Gambia, evaluated by a non-experimental method.

According to Ickovics and Yoshikawa the intervention was not effective in changing condom use.

- Ickovics and Yoshikawa cite the study but add no comment of their own.

4.2.2.1.1 Overall conclusions regarding individual-level interventions with CSWs

- Exner et al. (1997) are not able to ‘draw definitive conclusions’ about the effectiveness of interventions enhancing VCT with other training because of the absence of no-treatment controls (p109).
- Ickovics and Yoshikawa (1998) form no conclusion about this level of intervention for CSWs, but conclude more broadly from Pickering et al. (1993) and three other similar interventions addressed to other target groups that programmes involving individual counselling ‘appear less likely [than peer led community interventions] to be effective as a means of behaviour change for women’ (S202).

These two interventions offered voluntary testing and counselling enhanced with education or training. Neither of the studies meet robust methodological criteria and findings were not consistent. One showed an effect and one did not. One was probably conducted in the US and one in West Africa.

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of enhanced VCT in influencing the sexual risk behaviours of CSWs. There is no review-level evidence either to support or discount the effectiveness of any other individual-level interventions in influencing the HIV sexual risk behaviours of CSWs.

4.2.2.2 Group-level interventions

See section 1.4.2.1 for the range of possible group-level interventions and how they may change the modifying factors which influence behaviour.

Only one small-group intervention for CSWs is included in these reviews, which is Ngugi et al. (1988). This

intervention is included in two reviews (Ickovics and Yoshikawa, 1998, and Oakley et al., 1994), one of which classifies it as a community level intervention.

Study no. 3 – Ngugi et al., 1988 (description taken from Choi and Coates, 1994). In this intervention, Group 1 received AIDS education at general community meetings and at individual counselling before learning their HIV test results and receiving condoms during the counselling session; Group 2 received AIDS education at general community meetings; and Group 3 received no AIDS education or condoms. The subjects were 366 female Kenyan CSWs.

The authors were quoted in Oakley et al. (1994) as concluding that all programmes were effective. The intervention resulted in an increased proportion of sexual encounters where condoms were used (39% in Group 1, 35% in Group 2 and 30% in Group 3).

- Ickovics and Yoshikawa (1998) include this study among community studies, but make no specific comment on the authors’ findings.
- The study did not meet Oakley et al.’s ‘sound’ methodological/reporting criteria, and they judged the findings inconclusive because there was no true control group.

Ickovics and Yoshikawa and Oakley et al. rate this study as inconclusive because of lack of a true comparison group. Its relevance to UK CSWs needs to be demonstrated, because of its African setting.

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of any group-level interventions in influencing the sexual risk behaviours of CSWs.

4.2.2.3 Community level interventions

See section 1.4.2.1 for the full range of community level interventions and how they may change the modifying factors which influence behaviour.

All three of the reviews included some community level interventions; between them, they cover 12 separate studies.

Study no. 4 – Asamoah-Adu et al., 1994 (description taken from Ickovics and Yoshikawa, 1998 and Choi and Coates, 1994). Trained peer educators provided AIDS

education, and distributed condoms and spermicidal foaming tablets, to their peers in bars and health clinics in Ghana during a six month community wide intervention for female CSWs.

From analysis of findings from 382 subjects, consistent condom use with clients increased from 6% in 1987 to 71% in 1988 and 64% in 1991.

- Ickovics and Yoshikawa cite the study and note that it is not an RCT, but add no comment of their own.

Study no. 5 – Bhave et al., 1995 (description taken from Ickovics and Yoshikawa, 1998). This intervention included peer-led diffusion of innovation components including small-group education (fewer than five sessions), skill-building sessions and free condoms for female CSWs and pimps in two communities in Bombay.

The study showed a decline in STI incidence as well as increased condom use.

- Ickovics and Yoshikawa cite the study and note that it is quasi-experimental, but add no comment of their own.

Study no. 6 – Corby et al., 1993 (description taken from Exner et al., 1997). This intervention consisted of street outreach and media distribution of flyers containing risk reduction strategies of actual peer models in a pre-selected area versus a control non-intervention area. Subjects were CSWs assumed by Exner et al. to be female.

There were no differences over time between areas; from baseline to (unspecified) phase 1 follow-up, the proportion of sex workers using condoms with paying customers increased (61% to 74%); from intervention to phase 1 follow-up and maintained at (unspecified) phase 2 follow-up, the proportion of sex workers carrying a condom increased (22% to 34%).

- This quasi-experimental field design (serial cross-sectional) did not meet Exner et al.'s reporting criteria, however it was reported among a group of studies described by them as 'promising' (p113).

Study no. 7 – Corby and Wolitski, 1996 (description taken from Ickovics and Yoshikawa, 1998). This was a community wide peer-led diffusion of innovation intervention where peers were trained to intervene in

naturalistic settings as opposed to formal small groups, targeting US female CSWs who were IDUs of African-American or Latina descent and their sexual partners.

According to Ickovics and Yoshikawa, significantly increased condom use was reported at 'long-term' follow up.

- Ickovics and Yoshikawa cite the study and note that it is not an RCT, but add no comment of their own.

Study no. 8 – Dorfman et al., 1992 (description taken from Oakley et al., 1994). Former CSWs provided information about HIV transmission and supplied free condoms and bleach to female CSWs in the San Francisco bay area. Participants were recruited for 'outings' – sessions held in hotel rooms or mobile homes which explored participants' perceptions of AIDS risk.

Process evaluation showed that field staff readily gained access to participants and were appropriate role models for positive behaviour change. No outcome data were reported though clinical data on HIV status and STI rates were gathered.

- The study did not meet Oakley et al.'s methodological/reporting criteria and they add no comment of their own.

Study no. 9 – Ford et al., 1996 (description taken from Ickovics and Yoshikawa, 1998). This was a community wide and small group (fewer than five sessions) intervention in Indonesia involving peer-led diffusion of innovation components where peers were trained to intervene in naturalistic settings, targeting female CSWs and pimps.

According to Ickovics and Yoshikawa the study reported significantly increased condom use.

- Ickovics and Yoshikawa cite the study and classify it as quasi-experimental, but add no comment of their own.

Study no. 10 – Fox et al., 1993 (description taken from Oakley et al., 1994). This was an intervention to increase AIDS awareness and promote preventive behaviour, involving weekly talks and free condom distribution to all CSWs who attended an STI clinic in Honduras during a 10-week period. Pre- and post-intervention surveys were conducted to evaluate change in knowledge and condom use measured by condom diaries and follow-up interviews.

There was a statistically significant increase in mean condom use from 64% to 70% of client contacts. Oakley et al. imply that this increase was determined by interview. Factors associated with increased use included low baseline condom use and higher client fee.

- The study did not meet Oakley et al.'s methodological/reporting criteria, and the reviewers judge that the absence of a control group makes it difficult to identify the cause of any reported change in behaviour (p34).
- Ickovics and Yoshikawa (1998) cite the study and note that it is not an RCT, but add no comment of their own.

Study no. 11 – Fritz and Schaffer, 1992 (description taken from Exner et al., 1997). This community outreach programme in Chicago targeted 92 female CSWs among diverse groups.

According to Exner et al., at two month follow-up women CSWs increased their condom use and reduced the number of sex partners (no statistical analysis).

- The study design did not meet Exner et al.'s reporting criteria, deduced by them to be a field pre-test/post-test design.

Study no. 12 – Hunt et al., 1992 (description taken from Exner et al., 1997). This was a community based intervention to 1,103 female CSWs and female sex partners of IDUs in Bridgeport, Connecticut, US; Juarez, Mexico; and San Juan, Puerto Rico.

A comparison of aggregate responses on outcome indices, baseline and six-month follow-up showed a substantial increase in the proportion of women reporting 'never' having unprotected sex (US site 17% vs 29%, Mexican site 7% vs 20%, Puerto Rico site 5% vs 29%); using repeated-measures multiple regression and modelling, with dosage and demographics as intervening variables, and selection bias into follow-up modelled, change was less dramatic, and intervention participation was not a significant predictor of behaviour change (note: no significance level reported).

- This field pre-test/post-test design does not meet Exner et al.'s reporting criteria, who also found it unclear whether or not there was a control group.

Study no. 13 – Singh and Malavlya (1994) (description taken from Ickovics and Yoshikawa, 1998). This was a community wide peer-led diffusion of innovation intervention where peers were trained to intervene in naturalistic settings as opposed to formal small groups. Asian female CSWs were targeted.

According to Ickovics and Yoshikawa, the study reported significantly increased condom use.

- Ickovics and Yoshikawa cite the study and note that it is not an RCT, but add no comment of their own.

Study no. 14 – van Ameijden et al., 1994 (description taken from Choi and Coates, 1994*). The intervention comprised a weekly anonymous STI clinic offering check-up/treatment, with participants returning every four months for HIV and other STI screening tests. Subjects were also exposed to local and national HIV prevention media campaigns which began two years into the six to seven year study period. Subjects were 281 drug-using CSWs in the Netherlands.

Consistent condom use increased from 21% in 1986 to 58% in 1992. The HIV incidence declined from 14.6 per 100 per year in 1986 to 4.6% in 1992 and the STI incidence also declined from 61 episodes per 100 per year in 1989 to 40 in 1992.

- Ickovics and Yoshikawa (1998) cite the study and note that it is not an RCT, but add no comment of their own.

Study no. 15 – Visrutaratna et al., 1995 (description from Ickovics and Yoshikawa, 1998). This was a community wide peer-led diffusion of innovation intervention where peers were trained to intervene in naturalistic settings as opposed to in formal small groups. Female CSWs, brothel owners and clients in 43 brothels in Chiang Mai, Thailand, were targeted.

According to Ickovics and Yoshikawa, the authors reported significantly increased condom use. Condom use was based on direct observation of whether CSWs insisted that condoms were used when sex was solicited before and after the intervention. It is not clear from the reviewers' description whether the unit of analysis was brothels or CSWs.

* A Supplementary review paper, which includes this study as one targeted at IDUs.

- Ickovics and Yoshikawa (1998) cite the study and note that there was no comparison group. They give the study special attention because of its collection of condom use data by an objective 'confederate client', but add no comment of their own about the findings.

4.2.2.3.1 Overall conclusions regarding community level interventions with CSWs

- Ickovics and Yoshikawa (1998) draw no overall conclusions about the effect of the nine reviewed community level interventions for CSWs. The review concludes that, for women generally, 'community level interventions were likely to show significant results' (S204), and offers 'efforts to create change at the community level' as an explanation for the higher level of positive results among interventions for CSWs than for other target groups (S204). This conclusion is based on eight of the studies on CSWs reported above (nos 4, 5, 7, 9, 10, 13, 14 and 15), and three other studies not specifically addressed to CSWs. However, they acknowledge that none of the studies of interventions for CSWs used a randomised controlled design, and conclusions must be tentative.
- Exner et al. (1997) draw no overall conclusion about interventions for CSWs delivered at community level. None of those they reviewed met the reviewer's methodological and reporting criteria, and so these studies did not contribute to the overall review findings. The authors nonetheless conclude that, despite few methodologically robust studies, community based studies overall (for all target groups including CSWs) 'hold promise for reaching and effecting change in women who may not be reached by more traditional research approaches' (p118).
- Oakley et al. (1994) note that all three of the community level studies for CSWs they review are methodologically flawed (nos 8, 9 and 10), and draw no overall conclusion about community level interventions for CSWs.

All but one of the 12 studies at the community level cited here demonstrate a positive behaviour change. These changes cannot be clearly attributed to the intervention because of the lack of robust evaluation. They do, however, demonstrate an impressive consistency. Seven of the 12 studies used peer educators.

Evidence statement: There is tentative review-level evidence to conclude that interventions delivered at the community level (particularly peer-led) can be

effective in influencing the sexual risk behaviours of CSWs.

4.2.2.4 Socio-political level interventions

See section 1.4.2.1 for the full range of socio-political interventions and how they may change the modifying factors which influence behaviour.

Ickovics and Yoshikawa (1998) state that 'the effects of structural/policy changes were not included [within our review] because they did not meet our inclusion criteria' (S206), and Exner et al. (1997) report not being able to identify any institutional interventions (p118). Oakley et al. (1994) review 'behavioural interventions', specifically exclude media interventions, and this parameter also seems to exclude socio-political interventions.

Thus, none of the Core review papers provide evidence on socio-political level interventions for CSWs.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of any socio-political interventions in influencing the sexual risk behaviours of CSWs.

4.2.2.5 Overall conclusions of the reviews regarding CSWs

- Ickovics and Yoshikawa's review (1998) provides no evidence that can suggest what level or type of HIV prevention intervention might be effective with CSWs. It does, however, suggest that overall it is possible to intervene successfully with CSWs: their review reports that nine out of 10 studies (including all six RCTs) demonstrated that interventions with CSWs were effective. The evidence, therefore, is at least promising. The figure of six RCTs, however, conflicts with reports on the design of individual studies.

Ickovics and Yoshikawa consider two factors to explain their findings: 'Women in these high-risk groups [BMEG and CSWs] ... may have perceived greater risk, and thus have been more susceptible to behavior change'; and 'with low base rates of safer sex behavior at the initiation of many of these studies, there was a greater opportunity to induce and identify behavioral change (in other words no ceiling effect)' (S204). They contrast these findings

with poorer results from interventions to modify the sexual behaviour of injecting drug users and interventions targeting men and women together.

- Other review authors draw no conclusions or provide no evidence for conclusions on interventions for HIV prevention among CSWs.

A majority (13 out of 15) of the interventions for CSWs had some effect, although none were evaluated by robust designs.

4.2.2.6 Inequalities

None of the Core review papers presented any data about the effectiveness of interventions in addressing inequalities in sexual health.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of interventions in addressing inequalities in sexual health for CSWs.

4.2.2.7 Cost effectiveness

None of the Core review papers presented any data on the cost effectiveness of interventions with CSWs.

Evidence statement: There is no review-level evidence either to support or discount the cost effectiveness of any interventions with CSWs.

4.3 People with HIV

Reviews were judged to be relevant where they reported on evaluations of prevention interventions targeting people with HIV, either within a particular population, or across all population groups as a sub-group primarily defined by sero-status. The impact of voluntary HIV testing and counselling on the attitudes, intentions and behaviour of people diagnosed sero-positive is discussed in the separate section (4.5) on HIV voluntary counselling and testing (HIV VCT).

4.3.1 *The reviews*

Other than the review we found relating to voluntary HIV testing and counselling (Wolitski et al., 1997), we found **no reviews** which met our Core criteria and were relevant to HIV prevention with people with HIV. Instead, we have undertaken an analysis of two Supplementary review papers (see Appendix H), although these have not been used to derive evidence statements or recommendations for practice (see below).

4.3.2 *The findings*

In the following sections, we look at the evidence from reviews regarding interventions delivered at the individual, group, community and socio-political level.

Had we found any Core review papers relevant to people with HIV, these would have informed **evidence statements** about interventions within each level (see section 2.4 in the Methodology). However, since there are no Core review papers to draw upon, we conclude that there is **no review-level evidence either to support or discount the effectiveness of any interventions in influencing the sexual risk behaviours of people with HIV.**

In the Discussion, we return to the implications of these statements for research and practice in relation to people with HIV.

4.3.2.1 Inequalities

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of interventions in addressing inequalities in sexual health for people with HIV.

4.3.2.2 Cost effectiveness

Evidence statement: There is no review-level evidence either to support or discount the cost effectiveness of any interventions with people with HIV.

4.4 African communities in the UK

As discussed in Section 1.3 (Context), in England there are particular concerns about the transmission of HIV among certain African communities.

4.4.1 The reviews

Table (a) in the Results section shows that there was only one Core review paper which met our appraisal criteria and is of some relevance to the UK's African communities:

- Ickovics, J. R. and Yoshikawa, H. (1998). Preventive interventions to reduce heterosexual HIV risk for women: current perspectives, future directions. *AIDS* 12 (Suppl. A): S197-S208.

The review reports separately on interventions for African-American and Latina women in the US. It covers 18 primary studies – see Table (f) in Appendix G.

Types of outcomes selected

Ickovics and Yoshikawa's review (1998) uses the reporting of intermediate health outcomes (eg behaviour change) or health outcomes (incidence) as a criterion for inclusion. Primary studies include the following intermediate health outcomes (or healthy lifestyle/behavioural outcomes): condom use, unprotected intercourse, condom uptake (redeeming coupons), spermicide use, number of sexual partners; these are measured by self-report. STI incidence is an example of a health outcome used in the review's selection criteria.

4.4.2 The findings

In the following sections, we look at the evidence regarding interventions delivered at the individual, group, community and socio-political level.

Within each level, we make **evidence statements** based on the strength and quality of the evidence from the Core review papers and the extent to which it is contested.

These statements consider whether there is enough review-level evidence to show that certain types of interventions *can* have significantly large an impact on the major modifying factors influencing sexual risk to result in measurable intermediate health outcomes (notably, changes in behaviour). Because the evidence within the review relates to women from black and

minority ethnic groups (BMEGs), our evidence statements necessarily refer to BMEGs in general rather than African communities in the UK. We consider the **relevance** of the evidence to the UK African population within the Discussion; this is informed by similarity of study population to the UK population in terms of culture and socio-economic variables (although geographical location and date of study might be all that the review provides).

See section 2.4 – Presentation of data – for details of how evidence statements are derived.

4.4.2.1 Individual-level interventions

See section 1.4.2.1 for the range of possible individual-level interventions and how they may change the modifying factors which influence behaviour.

One individual-level intervention for black and minority ethnic groups (BMEGs) is included in Ickovics and Yoshikawa's review (1998). Birkel et al. (1993) targeted Latina intravenous drug users in the US and their sex partners with an individual counselling intervention. This intervention (the design of which is not reported in the review) is reported as finding a reduction in risk for male but not female participants. The reviewers form no conclusion about this level of intervention for BMEGs, but conclude more broadly from this intervention, and three other similar interventions addressed to other target groups, that programmes involving individual counselling 'appear less likely [than peer-led community interventions] to be effective as a means of behaviour change for women' (S202).

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of any individual-level interventions in influencing the sexual risk behaviours of BMEGs.

4.4.2.2 Group-level interventions

See section 1.2.2.1 for the range of possible group-level interventions and how they may change the modifying factors which influence behaviour.

Ickovics and Yoshikawa's review (1998) includes 11 studies of interventions with small groups of BMEG women, or of men and women where findings for women are presented separately (see table (f)). The review does not describe the interventions study by study, but states that small-group interventions (including these 11 interventions targeted to

BMEGs and eight others) were 'primarily cognitive-behavioural interventions, including AIDS education, motivation enhancement, condom-use skills, problem solving, assertiveness, and partner negotiation skills' and note that 'these interventions were targeted primarily to African-American and Latina women in the USA' (S201).

The review draws no overall conclusion on the impact of this level of intervention for BMEG women.

- The review rates seven of the small group studies involving BMEG women as effective on the basis of behavioural outcomes: Carey et al., 1997; Hetherington et al., 1996; Hobfoll et al., 1994; Kalichman et al.; 1996, Kelly et al., 1994; Nyamathi and Stein 1997; St Lawrence et al., 1997. The first five of these studies were RCTs; Nyamathi and Stein's study can be deduced to be an RCT from data in tables in the report, although the study design is not explicitly stated; and St Lawrence et al.'s study was designated quasi-experimental.
- Two studies are reported as showing no evidence of effectiveness (DiClemente and Wingood, 1995 and Mangura et al., 1995). The review does not report the design of these studies.
- The review provides conflicting information on El-Bassel et al. (1995), citing it as having both 'reported statistically significant effects' (S202) and 'reported no changes' (S200). This study is an RCT.
- For one study (Schilling et al., 1992), the review provides no specific information on effectiveness, nor on the study design.

In conclusion, there is evidence from six RCTs and one other study supporting the effectiveness of small-group interventions for BMEGs. Much information about effectiveness or study design is missing from the other six studies. Most of those with findings regarding effective interventions are addressed to a population which has limited relevance to our target group.

Evidence statement: There is sufficient review-level evidence to conclude that small group interventions can be effective in influencing the sexual risk behaviours of BMEG women.

4.4.2.3 Community level interventions

See section 1.4.2.1 for the full range of community level interventions and how they may change the modifying factors which influence behaviour.

Ickovics and Yoshikawa's review (1998) includes three media interventions for BMEG women (Kalichman et al., 1993; O'Donnell, 1995; Flaskerud and Nyamathi, 1990) and two other community level interventions for BMEG women (Corby and Wolitski, 1996; Santelli et al., 1995). All of these relate to US populations.

- The review rates three of the community studies involving BMEG women as effective on the basis of behavioural outcomes (Corby and Wolitski, 1996; O'Donnell, 1995; Santelli et al., 1995). The first two of these studies are described in the review as 'quasi-experimental or non-experimental' and the study design for Santelli et al. is not clear.
- One study is reported as showing no evidence of effectiveness (Flaskerud and Nyamathi, 1990). The design of this study is not reported.
- The review provides conflicting information about the effectiveness of the Kalichman et al. (1993) study, describing it both as reporting 'significant risk reduction post-intervention' (S200) and as 'reporting no change' (S202). The design of this study is not reported.

The review draws no overall conclusions about the effect of media or other community level interventions on BMEG women, although it does conclude that for women generally 'community-level interventions were likely to show significant results' (S204). The review cites in particular 'multi-component interventions including HIV prevention campaigns, outreach visits to village meetings, clinics and individual homes, and condom distribution in clinics and brothels', as well as community wide interventions which 'included peer-led diffusion of innovation components, where peers were trained to intervene in naturalistic settings' (S202).

This conclusion is based on the studies reported above, and 11 other studies not specifically addressed to US BMEGs (including three conducted in Africa, five conducted in Asia, one conducted in Nicaragua and two conducted in Holland).

None of the effective interventions targeted to BMEGs were evaluated using a randomised controlled design, and conclusions must be tentative. They are consistent with other studies on community based interventions (the majority of which are not RCTs) targeted to other groups. Neither those studies addressed to BMEGs, nor others on which the reviewers based their general positive

conclusions about community level interventions, are directly relevant to the UK's African population.

Evidence statement: There is tentative review-level evidence to conclude that interventions delivered at the community level can be effective in influencing the sexual risk behaviours of BMEG women.

4.4.2.4 Socio-political level interventions

See section 1.4.2.1 for the full range of socio-political interventions and how they may change the modifying factors which influence behaviour.

Ickovics and Yoshikawa (1998) state that 'the effects of structural/policy changes were not included [within our review] because they did not meet our inclusion criteria' (S206).

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of any socio-political level interventions in influencing the sexual risk behaviours of BMEGs.

4.4.2.5 Overall conclusions of the reviews regarding BMEGs

Ickovics and Yoshikawa (1998) do not draw conclusions about the effectiveness of different levels of intervention with BMEG women. The review does conclude, however, that compared to other target populations 'the six studies focusing on commercial sex workers and the 12 culturally sensitive programs serving African American and Latina women in the USA were most likely to show significant results in the expected direction. In addition, these studies, with two exceptions, were randomized, controlled trials, strengthening one's confidence in the robustness of their results' (S204).

The reviewers consider two factors to explain their findings: 'Women in these high-risk groups ... may have perceived greater risk, and thus have been more susceptible to behavior change'; and 'with low base rates of safer sex behaviour at the initiation of many of these studies, there was a greater opportunity to induce and identify behavioural change (in other words no ceiling effect)' (S204). They contrast these findings with poorer results from interventions to modify the sexual behaviour of injecting drug users and interventions targeting men and women together.

4.4.2.6 Inequalities

The review did not present any data about the effectiveness of interventions in addressing inequalities in sexual health.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of interventions in addressing inequalities in sexual health for BMEGs.

4.4.2.7 Cost effectiveness

Neither of the reviews presented any data on the cost effectiveness of interventions with BMEGs.

Evidence statement: There is no review-level evidence either to support or discount the cost effectiveness of any interventions with BMEGs.

4.5 HIV voluntary counselling and testing (HIV VCT)

See section 1.4.2.1 for an overview of the components of HIV VCT.

4.5.1 The reviews

Table (a) in the Results shows a total of seven Core review papers that met our appraisal criteria and are of some relevance to HIV voluntary counselling and testing. These are:

- Exner, T. M., Gardos, P. S., Seal, D. W. et al. (1999). HIV sexual risk reduction interventions with heterosexual men: the forgotten group. *AIDS and Behavior* 3 (4): 347-58.
- Exner, T. M., Seal, D. W. and Ehrhardt, A. A. (1997). A review of HIV interventions for at-risk women. *AIDS and Behavior* 1 (2): 93-124.
- Gibson, D. R., McCusker, J., and Chesney, M. (1998). Effectiveness of psychosocial interventions in preventing HIV risk behaviour in injecting drug users. *AIDS* 12 (8): 919-29.
- Ickovics, J. R. and Yoshikawa, H. (1998). Preventive interventions to reduce heterosexual HIV risk for women: current perspectives, future directions. *AIDS* 12 (Suppl. A): S197-S208.
- Oakley, A., Oliver, S., Peersman, G. et al. (1996). *Review of Effectiveness of Health Promotion Interventions for Men Who Have Sex with Men*. London: Institute of Education, Social Science Research Unit, EPPI-Centre.
- Weinhardt, L. S., Carey, M. P., Johnson, B. T. et al. (1999). Effects of HIV counseling and testing on sexual risk behavior: a meta-analytic review of published research, 1985-1997. *American Journal of Public Health* 89: 1397-1405.
- Wolitski, R. J., MacGowan, R. J., Higgins, D. L. et al. (1997). The effects of HIV counseling and testing on risk-related practices and help-seeking behavior. *AIDS Education and Prevention* 9 (Suppl. B): S52-S67.

Two Core review papers specifically examine the case for HIV VCT as an effective intervention for behaviour change (Wolitski et al., 1997 and Weinhardt et al., 1999). However, it is important to note that most primary research has not often been designed with the specific purpose of evaluating the effects of HIV VCT on behaviour.

The other six Core review papers include sections on HIV testing and counselling. Typically, these do not include

many studies and many are the same studies already included in Weinhardt et al. (1999) and Wolitski et al. (1997) – see Table (g) in Appendix G.

In total some 52 primary studies are covered by the Core review papers, 20 of which appear in more than one review.

Type of outcomes selected

The two Core review papers focusing exclusively on HIV VCT (Wolitski et al., 1997; Weinhardt et al., 1999) do not report on health promotion outcomes/intervention impact measures (eg changes in knowledge, attitudes, intentions, skills and self-esteem), but only on intermediate health outcomes (behavioural changes). The effectiveness of HIV VCT is defined in terms of self-reported behavioural measures such as condom use or number of sexual partners per se.

Wolitski et al. (1997) only included evaluations with behavioural outcomes – ie sexual behaviour, pregnancy related outcomes (eg termination), drug use, and help-seeking behaviour (eg access to healthcare – an intermediate health outcome). Help-seeking behaviour was defined very broadly, from help-seeking which was related to high-risk sexual behaviour, to that which related to coping with death anxiety. Studies which just measured and reported an intervention's impact on modifying factors (ie health promotion outcomes), such as intention to use condoms, were not included.

The outcomes typically assessed in the studies included in Weinhardt et al.'s review (1999) were intermediate health outcomes – ie number of sexual partners, condom use, and unprotected intercourse. Two studies provided data on HIV and STI incidence (health outcomes), which Weinhardt et al. (1999) describe as a proxy measure of sexual behaviour.

4.5.2 The findings

As Wolitski et al. (1997) point out, the evidence varies for different population groups and studies demonstrate mixed results regarding the behavioural effects of HIV VCT. It is helpful therefore to look at the findings by population groups, as categorised in the reviews.

For each population, we make **evidence statements** based on the strength and quality of the evidence from the Core review papers and the extent to which it is contested.

These statements consider whether there is enough review-level evidence to show that certain types of interventions *can* have significantly large an impact on the major modifying factors influencing sexual risk to result in measurable intermediate health outcomes (notably, changes in behaviour). We consider the **relevance** of the evidence to the UK within the Discussion; this is informed by similarity of study populations to the UK populations in terms of culture and socio-economic variables (although geographical location and date of study might be all that the review provides).

See section 2.4 – Presentation of data – for details of how evidence statements are derived.

4.5.2.1 Men who have sex with men (MSM)

Two reviews (Wolitski et al., 1997; Oakley et al., 1996) specifically discuss HIV VCT interventions with MSM, covering nine different studies between them. Weinhardt et al.'s meta-analysis (1999) includes studies with MSM (eight, five of which are different from those in the other two reviews), but does not discuss their findings separately.

The two studies in Oakley et al.'s review (McCusker, 1988; van Griensven, 1988) were not judged methodologically 'sound', and in any case showed no clear results. McCusker observed 'no behavioural effects of antibody status or test knowledge' (p20) and van Griensven's study of the effects of HIV VCT showed an equal shift away from anogenital intercourse in both the sero-positive and sero-negative group of subjects after they were informed of and counselled about their test results.

The studies in Wolitski et al.'s review provide inconsistent and in some cases conflicting results. Two studies (Huggins, 1991; Zapka, 1991) showed reductions in sexual risk practices over time but failed to find differences in behaviour change that were clearly associated with HIV sero-status or knowledge of test results. In another study, which controlled for length of time since being tested (Roffman, 1995), HIV-tested men (results not reported in study) reported more frequent condom use and had a larger proportion of 'protected sex acts and non-penetrative sex acts' (p56) than untested men. However, the tested men also reported significantly larger numbers of partners than untested men and similar numbers of unprotected sex acts compared with untested men. Dawson et al. (1991) did

not find evidence for decreased sexual risk-taking following HIV VCT among British MSM. In fact, tested men were more likely than untested men to have had receptive anal intercourse with a casual partner, unprotected receptive anal intercourse, and insertive anal intercourse with a regular partner. No differences between HIV sero-positive and sero-negative MSM were found for sexual practices in the prior month, although sero-positive men were more likely to have had receptive anal intercourse in the past year.

The three studies on help-seeking behaviour show clearer results: that HIV sero-positive men were more likely to seek help about their sexual risk behaviour than sero-negative and untested men, although Wolitski et al. point out that these differences may in some cases be related to symptomatic disease progression rather than to undergoing HIV VCT (p56).

In spite of these inconsistent findings, Wolitski et al. conclude that the studies 'document substantial risk-related behaviour change among MSM but do not provide consistent evidence regarding the effects of HIV VCT on different sexual risk practices' (p56). However, Wolitski et al. admit that there are methodological inadequacies with the studies.

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of HIV VCT in influencing the sexual risk behaviours of MSM, regardless of whether they test sero-positive or sero-negative.

4.5.2.2 Injecting drug users (IDUs)

Five of the reviews include studies involving HIV VCT with IDUs (Wolitski et al., 1997; Weinhardt et al., 1999; Gibson et al., 1998; Exner et al., 1997; Ickovics and Yoshikawa, 1998; Exner et al., 1999). Between them they cover some 15 primary studies. Wolitski et al., Exner et al., 1999 and Gibson et al. are the three reviews which discuss the evidence in relation to HIV VCT and IDUs in any depth.

Gibson et al.'s review of psychosocial interventions for preventing HIV risk behaviour in IDUs divided the interventions into categories, including counselling and testing. The reviewers' overall conclusion is that participation in evaluation research may itself constitute an effective intervention. For example, in two studies where subjects were assigned randomly to groups with

standard counselling and testing (15 minutes) or enhanced counselling and testing (50 minutes) (Gibson, 1998), or to groups with a 90-minute educational session, or to the same session with optional HIV testing, or to a waiting list control (Calsyn, 1990), there were substantial reductions in sexual risk taking in both the experimental and comparison groups but no difference between groups.

Exner et al.'s review (1999) included one study with heterosexual men who were themselves injecting, or who were the sexual partners of women who injected (McCoy, 1993). HIV VCT was compared with an enhanced intervention that additionally provided three four-hour group skills-building sessions. There was a gradual decline in sexual risk-taking at six, 12 and 18-month follow-ups in *both* groups.

Wolitski et al., however, are clear that there is evidence for the effectiveness of HIV VCT among IDUs. They conclude from the six studies in their review which report sexual behaviour outcomes that:

- 'Most [of these studies] reported positive changes in sexual risk that appeared to be associated with the effects of HIV VCT' (p57)
- Overall, those who tested sero-positive were more likely to reduce sexual risk behaviours than those who tested sero-negative or did not test.

These studies were carried out in a variety of locations, including: 12 European cities (Desenclos, 1993), New York City (Magura, 1991; Vanichseni, 1992, 1993), Bangkok (Vanichseni, 1992, 1993) and Puerto Rico (Colon, 1996).

Overall there was no difference in help-seeking behaviour between those who were asymptomatic who tested sero-positive and those who were asymptomatic who tested sero-negative.

Evidence statement: There is tentative review-level evidence to conclude that HIV VCT can be effective in influencing the sexual risk behaviours of some IDUs, in particular those who learnt that they were sero-positive.

4.5.2.3 Women and heterosexual couples

Two reviews include studies on women and heterosexual couples (Wolitski et al., 1997; Weinhardt et al., 1999)

and two (Exner et al., 1999; Ickovics and Yoshikawa, 1998) specifically focus on interventions with women. Overall some 14 studies are covered between them.

Wolitski et al. also found that HIV VCT appears to be most effective for sero-discordant couples. Wolitski et al. looked at two longitudinal studies (Allen, Tice et al., 1992; Allen, Sefufilia et al., 1992 – both in Rwanda) which compared women in sero-discordant relationships where both partners had received HIV VCT (ie know their sero-status) with couples where the woman had received HIV VCT but her partner had not. Condom use was significantly higher in the former. The second study measured HIV sero-conversion: there was a significant decrease in sero-conversion in the group where both partners had received HIV VCT, compared with couples where only the woman had received HIV VCT.

Five studies in the Wolitski et al. review examined the effects of HIV VCT on condom use according to whether the women were HIV sero-positive or sero-negative. Three of the studies (in Rwanda) reported that HIV sero-positive women were significantly more likely to report condom use in their relationship than were HIV sero-negative women. However, for the two other studies (conducted in Kenya and Gambia), findings were more mixed, with neither reporting any significant differences in condom use.

Wolitski et al. also reviewed another study (Wilson, 1996, carried out in Brooklyn), which followed a cohort of HIV sero-negative women, some of whom had received HIV VCT, and found no significant changes in self-reported risk behaviour associated with HIV VCT over a three month period. Another study (Ickovics, 1994, Connecticut), comparing changes in sexual risk behaviour over three months between a cohort of sero-negative women who had received HIV VCT and another cohort who had not, found no significant differences.

Ickovics and Yoshikawa found that, of the six HIV VCT interventions under review, three reported no significant changes in sexual risk behaviour; the other three reported significant declines in HIV-related risk. However, each of these included other components, such as group activities, health education or condom distribution (Mhaly, 1991; Allen, 1992; Nguigi, 1988).

Wolitski et al. conclude that there is insufficient evidence for a consistent effect on behaviour except from studies

of heterosexual HIV sero-discordant couples where there is the most consistent evidence for the beneficial effects of HIV VCT.

Weinhardt et al.'s meta-analysis supports this statement: 'Overall, HIV positive participants and HIV sero-discordant couples in the 27 studies examined reduced their frequency of unprotected intercourse and increased their condom use, relative to HIV negative and untested participants, after receiving HIV counselling and testing' (p1401).

Evidence statement: There is sufficient review-level evidence to conclude that HIV VCT can be effective in influencing the sexual risk behaviours of couples who learn that they are sero-discordant for HIV.

4.5.2.4 Heterosexual men

Exner et al.'s review (1999) is the only one which specifically looked at published evaluations of programmes targeted at heterosexual men. It discussed a range of interventions, including HIV VCT (four studies). Outcomes included biological markers and self-reported behaviour (studies evaluating only changes in knowledge, attitude and behavioural intention were excluded). The reviewers concluded that HIV VCT showed some efficacy: one study found a significant impact of HIV VCT on behaviour among HIV sero-positive men, reflected in STI rates (Zenilman, 1992). Interventions evaluated included HIV VCT and enhanced HIV VCT interventions (which combined standard counselling and testing with condom or relational skills training). One study showed that offering HIV sero-positive men referrals to free medical and social services following counselling led to lower STI rates (Golden, 1996).

Evidence statement: There is tentative review-level evidence to conclude that HIV VCT plus another component (for example, offering referrals to other services) can be effective in influencing sexual risk behaviours in heterosexual men who learn that they are sero-positive.

4.5.2.5 Commercial sex workers (CSWs)

Between them, three reviews cover just three studies on CSWs.

Pickering's study (1993) among prostitutes in the Gambia appears in both Weinhardt et al. (1999) and Wolitski et al. (1997), but it reported no significant difference in

condom use between the partners of HIV sero-positive and sero-negative women.

The Nguigi study (1988) was not randomised, and the Corby study (1990) had a small sample size.

Evidence statement: There is insufficient review-level evidence either to support or discount the effectiveness of HIV VCT in influencing the HIV sexual risk behaviours of CSWs.

4.5.2.6 STI clinic attenders

Three reviews (Weinhardt et al., 1999; Exner et al., 1997; Exner et al., 1999) include a total of four studies on STI clinic attenders. Although this is a small number of studies specifically focusing on STI patients, other studies (particularly of 'mixed populations' – see below) overlap in that they will have participants recruited elsewhere who are also STI clinic attenders.

Zenilman's study (1992), covered by three of the reviews, looked at behaviour change in patients following a positive HIV test result compared with those who received a negative result. All had received counselling. It found that 15% of the HIV sero-positive patients and 23% of the HIV sero-negative patients developed, or were exposed to, a new STI within one year. Another study, by Otten (1993), found a 29% decrease in six month gonorrhoea incidence in those who had a positive result compared with a 106% increase in those who received a negative result.

The Wenger study (1992) compared control subjects who received only AIDS educational counselling with experimental subjects who received counselling and testing, and found 40% of the experimental subjects reported condom use at eight week follow-up compared with 20% in the control group (Wolitski et al. describe this same study as comprising students who attended a university health clinic).

Golden's 1996 study showed that offering HIV sero-positive patients referrals to free medical and social services following counselling led to lower STI infection rates.

It appears that the results of these small number of studies support the findings in other groups, that HIV VCT has a beneficial effect for people diagnosed sero-positive and that, if interventions are combined, there is an increased chance of effectiveness.

Evidence statement: There is tentative review-level evidence to conclude that HIV VCT can be effective in influencing HIV sexual risk behaviours of STI clinic attenders who learn that they are sero-positive.

4.5.2.7 Mixed populations

'Mixed populations' is a term used by Wolitski et al. (1997) to cover seven studies where the participants were recruited in a variety of settings and comprised heterogeneous groups (ie MSM, IDUs etc).

Wolitski et al. conclude that HIV VCT was associated with reductions in sexual risk-related practices among those who learnt that they were HIV sero-positive but, in studies where the majority knew they were HIV sero-negative, there was little consistent evidence regarding the behavioural effects of HIV VCT.

Evidence statement: There is tentative review-level evidence to conclude that HIV VCT can be effective in influencing the sexual risk behaviours of people who learn that they are sero-positive.

4.5.2.8 Overall conclusions of the reviews regarding VCT

In summary:

- 'There is no question that HIV CT [sic] can and does motivate behaviour change in some individuals' (Wolitski et al., 1997, p65)
- HIV VCT can be an effective secondary HIV prevention strategy – in other words, people who learned that they were HIV sero-positive were more likely to have adopted risk-reducing practices following HIV VCT than were those who learned they were HIV sero-negative (Wolitski et al., 1997, p65; Weinhardt et al., 1999, p1401)
- There was no consistent evidence regarding the behavioural effects of HIV VCT where the majority of participants were HIV sero-negative (Wolitski et al., 1997), and in some cases those who received a negative HIV test result did not modify their behaviour any more than individuals who did not participate in counselling and testing (Weinhardt et al., 1999)
- HIV VCT can be effective when it is part of a multi-component intervention (Wolitski et al., p65; Weinhardt et al., p1401; Exner et al., 1997; Ickovics and Yoshikawa, 1998), but it is unclear whether 'enhanced' counselling with testing is more effective

than standard counselling and testing (Exner et al., 1997 and Gibson et al., 1998 found that it was not). However, definitions of 'enhanced' HIV VCT vary and may mean merely longer or more sessions rather than different activities

- Wolitski et al. conclude that most of the studies with IDUs report positive changes in sexual risk associated with HIV VCT and that, overall, those who tested sero-positive were more likely to reduce sexual risk behaviours than those who tested sero-negative
- There is sufficient review-level evidence to conclude that HIV VCT has a beneficial effect for sero-discordant heterosexual couples (Weinhardt et al., Wolitski et al.).

However, HIV VCT does not always lead to behaviour change, and is not equally successful in influencing behaviour across a wide range of settings and populations. MSM is the most striking example – there is insufficient evidence for any beneficial effects of HIV VCT with this population. This could be due to the inadequacies of the research available.

For some population groups it is not possible to say how successful HIV VCT is because the evidence is insufficient. For instance, the studies with commercial sex workers are not of high enough a standard to be able to make any conclusions about effectiveness.

4.5.2.9 Inequalities

None of the reviews presented any data about the effectiveness of HIV VCT in addressing inequalities in sexual health.

Evidence statement: There is no review-level evidence either to support or discount the effectiveness of HIV VCT in addressing inequalities in sexual health.

4.5.2.10 Cost effectiveness

None of the reviews presented any data on the cost effectiveness of HIV VCT.

Evidence statement: There is no review-level evidence either to support or discount the cost effectiveness of HIV VCT.

5 Discussion

In section 1.5, we identified the following research questions as the focus for this evidence briefing:

- What works to reduce the sexual risk of HIV transmission among the priority populations in the UK? What works to change the modifying factors that influence sexual risk behaviours for HIV transmission?
- Are theory based interventions more likely to be effective?
- Are multi-component interventions more likely to be effective?
- What works to reduce inequalities in sexual risk for HIV transmission?
- What interventions are cost effective?

Here we discuss the findings in relation to each of these questions, looking at the evidence from all of the Core review papers for each of the priority populations. In considering what we know and do not know, we also draw on Supplementary review papers and miscellaneous additional papers in discussing common methodological issues, and issues pertinent to the priority populations.

5.1 What works to reduce the sexual risk of HIV transmission? What works to change the modifying factors that influence sexual risk?

In section 1.4 (Conceptual framework), we discuss how sexual risk is influenced by personal and structural modifying factors. We defined 'interventions' as aiming to change these modifying factors and so made the case for evaluating 'what works?' by measuring health promotion outcomes/intervention impact measures. Additionally, we suggested that looking at these health promotion outcomes/intervention impact measures can also help us understand how and why an intervention is

effective. We contended that, without knowing which modifying factors were changed by the intervention, it is not possible to consider whether the intervention is likely to be effective in different circumstances, ie we cannot make assumptions about its transferability.

We further suggested that measuring 'intermediate health outcomes' (such as behaviour) is useful in testing our hypotheses about the role of modifying factors in influencing behaviours and in making judgements about the ultimate success of the intervention (or 'programme' of interventions) in achieving higher-level goals; that is, whether the intervention had significantly large an impact on the major modifying factors influencing risk to result in, for example, behaviour change. However, we contended that we are unlikely to see changes in these kinds of outcomes as a result of single small-scale interventions; instead, these types of outcomes are more suitable for measuring the effects of large-scale, multi-component interventions or programmes.

In analysing the Core review papers to establish 'what works?', we therefore set out to find data both on health promotion outcomes/intervention impact measures and on intermediate health outcomes. However, we found that all of the Core review papers had selected primary studies for inclusion on the basis of reporting on intermediate health outcomes: most commonly, changes in behaviour. Changes in modifying factors such as 'health literacy' (eg knowledge, attitudes, skills, self-efficacy etc) were not regarded by these reviews as legitimate evidence of 'effectiveness'. Even where health promotion outcomes/intervention impact measures were measured as part of the primary research, the Core review papers did not consider them at all, certainly not in making any judgement about an intervention's effectiveness. For example, Valdiserri et al. (1989) reported on health promotion outcomes/intervention

impact measures (changes in knowledge, motivation, attitudes and behavioural intention) in evaluating an intervention for men who have sex with men (MSM), but these were not assessed by the MSM Core review paper (Oakley et al., 1996) that covered this study. Instead, Oakley et al. focus on outcomes concerning unprotected anal intercourse (UAI) and condom use.

The same applies to the Supplementary review papers. For instance, Kalichman and Hospers (1997) review behavioural interventions to enhance behavioural skills (the three main components of which are HIV risk education, behavioural self-management skills and sexual communication skills). However, despite the objective of the review, there is no discussion about any measured improvement in behavioural skills: effectiveness is judged according to changes in reported sexual risk behaviour.

Another Supplementary review paper, Aggleton (1994), reports all of the outcomes available from the studies within his review; nevertheless he too makes a judgement about effectiveness on the basis of data about changes in behaviour (intermediate health outcomes), rather than changes in modifying factors (or health promotion outcomes/intervention impact measures). However, he comments that:

'As yet, relatively few investigations have sought to identify the key determinants of behaviour change within particular packages. Are all elements of the intervention needed to produce sexual risk reduction? Or are some elements more important than others? How is synergy achieved between the different components that make up an intervention programme?' (p13).

It is our suggestion that measuring outcomes at all points along the causal pathway would help address these questions. Aggleton states that: 'future research is therefore urgently needed to identify ... the specific factors contributing most to sexual risk behaviour change [and] the circumstances under which these factors have the greatest influence' (p24). In addition, Jemmott and Jemmott (2000b) suggest that 'all [HIV intervention] studies assess mediators, including intentions, self-efficacy, hedonistic beliefs, perceived norms, and behavioural skill' (p121).

In conclusion, the data available from the majority of reviews is inadequate for answering questions about the

effectiveness of single, small-scale interventions. As the Core review papers used intermediate health outcomes to judge the effectiveness of interventions, not surprisingly there are a limited number of studies where changes in these outcomes were observed. In these instances, the intervention must have had significantly large an impact on the major modifying factor(s) influencing sexual risk to result in measurable changes in behaviour. In addition, it might prove even harder to observe changes in behaviour among populations that have already significantly changed their behaviour to reduce the risk of HIV transmission. In such populations, even large-scale, multi-component interventions (or programmes) may not be able to demonstrate measurable changes in intermediate health outcomes. Again, this is why we suggest that it is crucial to measure health promotion outcomes/intervention impact measures.

The result of the above is that we can draw very few conclusions at all about whether, how and why interventions are effective. For further discussion of the implications of this, see the introduction to the Recommendations for policy and practice (section 6). For details of when there is sufficient or tentative evidence to make conclusions about the effectiveness of particular interventions, see the Evidence sections and the target population sections within the Discussion below.

Our key research recommendation therefore is that reviews should cease to exclude studies which only include data on **health promotion outcomes/intervention impact measures** (knowledge, attitudes, skills, intentions, etc). Reviews should analyse intervention effects on health promotion outcomes/intervention impact measures alongside their effects on intermediate health outcomes (behaviour) or health outcomes (incidence).

5.2 The role of theory in intervention effectiveness

In section 1.4 (Conceptual framework), we suggested that the use of one or more theories in designing interventions could help to identify, and so change, modifying factors; in this way, we posited that theory might enhance effectiveness. However, none of the Core review papers considered the role of theory in enhancing the effectiveness of interventions. One – Ickovics and Yoshikawa (1998) – noted exactly such a gap in the

research: 'few evaluations assessed the association between programs, potential mediators (for example, increases in knowledge, skills, risk perceptions, self-efficacy), and the outcomes themselves. Future research should focus on identifying empirically and theoretically important intervening variables' (S205).

From the wider literature, we can make a number of observations concerning weaknesses in using theory to design interventions. First, as Stephenson et al. (2000) note in their review, 'none of the published reports explain why a particular theory or combination of theories was chosen over possible alternatives' (S117). This has implications for effectiveness since, as outlined in Appendix A, some theories have greater empirical support than others.

Secondly, there is also the question of which theory is the most appropriate. In their review of interventions aimed at women, Shepherd et al. (2000) state: 'It is noticeable...that only two studies were based on theories which recognize that women often lack power in sexual relationships' (p687).

Finally, Stephenson et al. express doubts about the translation of theory into intervention: 'it is [sometimes] difficult to assess the fidelity of the translation because only brief information is provided about the content of the intervention. In other cases, the intervention did not accurately reflect the guiding theory' (S117).

Clearly, the role of theory in intervention design and implementation deserves more exploration.

5.3 Multi-component interventions

It is suggested in section 1.4 (Conceptual framework) that multi-component interventions ought to be more effective than those which consist of a single component. The Core review papers support this in the case of MSM (see MSM section 4.1.2.2.1 for more details). They also show that voluntary counselling and testing (VCT), when combined with another component, is effective. However, there is no review-level evidence either to support or discount the effectiveness of multi-component interventions with CSWs, Africans or people with HIV.

In the Supplementary review paper by Aggleton (1994), the author comments that:

'Perhaps one of the most striking features of the chosen studies, when viewed collectively, was the extent to which they involved multiple component interventions. In this way, they differ from some of the simpler kinds of intervention that were shown early in the epidemic to lack overall effectiveness (World Health Organization, 1993). Relatively few of the investigations relied upon the provision of information alone, or skills training alone, or the provision of particular services alone, to bring about specified effects. Rather, they generally took the form of discrete 'packages' of intervention, consisting typically of several elements, and employing a number of different health promotion approaches.' (p17).

Additionally, in the Supplementary review paper by Kelly (1995), the author cites six studies which:

'encouraged participants to discuss past, present and anticipated future relationships in which these skills could be used, as well as expected barriers to avoiding risk, with facilitators and group members assisting one another in problem-solving strategies that each member could use to personally reduce risk. Such efforts which help participants actively plan how to implement change in their own personal relationships distinguish these interventions from more traditional didactic risk education presentations often used in AIDS education programs' (p348).

We therefore endorse Ickovics and Yoshikawa's call (1998) for methodologically rigorous evaluations of 'multi-context interventions, such as those combining community wide efforts in media or policy with more intensive prevention in proximal settings' (S205).

5.4 Inequalities

None of the Core review papers contained any information about inequalities relevant to the UK priority populations; in particular we found no review-level evidence regarding the differential impact of HIV prevention interventions according to socio-economic status. Although one could argue that any interventions aimed at the priority populations are by default attempting to address inequalities relating to gender, ethnicity and sexuality, one would expect further focus on sub-populations affected by socio-economic inequalities. For instance, for MSM we would expect to look at

intervention efficacy in changing the factors that put some MSM at greater risk according to their socio-economic status or educational qualifications. Unfortunately we have found that reviews have not been concerned with the health inequalities dimension of effective interventions.

5.5 Cost effectiveness

We did not find any Core review papers relevant to the UK's priority populations which had details about cost effectiveness. We are therefore unable to form any conclusions about the cost effectiveness of any HIV prevention interventions with these populations. The few reviews identified during the appraisal process which contained some data and/or analysis of cost effectiveness (Holtgrave et al., 1995; McKay, 2000; Pinkerton et al., 1998; Schrappe and Lauterbach, 1998) did not relate specifically to the priority populations considered here. As with many of the other gaps in the evidence, it is not possible for us to tell whether this reflects the selection criteria of the reviews or a real lack of primary evaluation studies which collate and analyse data about costs. Oakley et al. (1996) comment that 'one of the notable gaps in existing research is information on the cost effectiveness of different HIV prevention efforts' (p72).

5.6 Methodological issues: general

Across the literature, there are numerous calls for more and better evaluations of HIV prevention interventions. Kegeles and Hart (1998) advocate a wider range of evaluation methodologies but remain committed to methodological and theoretical rigour. They emphasise the need for experimental research which allows us to distinguish the specific effects of an intervention by including comparison groups. Oakley et al. (1996) want to see this done by RCT, where feasible. We suggest that controlled trials can be suitable for some kinds of interventions, particularly those at individual and group level – but, as discussed above, it is important that they measure health promotion outcomes/intervention impact measures for small-scale single interventions. Other types of evaluation design might be necessary for community and socio-political level interventions; again, it is the choice of indicators that is most important.

The lack of rigour in primary research is one reason why there are sometimes only two or three studies within

each of the reviews' categories of analysis, one consequence of which is that the reviewers are relying on a very small amount of evidence.

5.6.1 Methodological issues – behavioural indicators

In section 1.4 (Conceptual framework), we suggest that sometimes it is appropriate to use intermediate health outcomes (such as sexual behaviour) as measures of effectiveness, for instance when looking at the impact of large-scale, multi-component, multi-level interventions or programmes.

However, we found that most of studies within the Core review papers counted any unprotected intercourse as a potential risk for HIV transmission, on the assumption that sexual partners are normally unaware of one another's HIV status. Studies often chose to include indicators of 'risk', such as the number of sexual partners and frequency of sex. In turn, most of the reviews used these indicators of risk too. That is, 'risk behaviours' were defined variously as 'no condom use' (eg Oakley et al., 1996), 'unprotected intercourse' (eg Exner et al., 1997) or 'number of partners' (eg Kegeles and Hart, 1998).

As discussed in the Introduction (see section 1.4.3.3), such indicators are limited in their meaning since unprotected intercourse is not necessarily unsafe (van de Ven, 2002). As Kalichman et al. (1996) comment, condomless sex with someone who is known to be sero-concordant for HIV carries no risk, while condom-protected sex with someone of unknown status is still a potential risk for HIV (if, for instance, the condom breaks). It could be argued that the success or failure of an intervention to influence these types of outcomes is entirely meaningless in HIV prevention terms; that is, such outcomes do not indicate real HIV risk. For example, a study by Choi (1996) (cited within the MSM section) judged the intervention effective in reducing the number of sex partners (by 46%). In addition, studies by Kelly (1989) and Kelly (1990) (also cited within the MSM section) judged the intervention effective in reducing the frequency of anal intercourse, regardless of whether that intercourse is protected or sero-discordant. Some practitioners (eg those subscribing to MiC*) would argue that these are not the appropriate goals of interventions and so measures of changes here would not constitute evidence of effectiveness.

* The national HIV prevention framework for homosexually active men, developed by the CHAPS partnership, a consortium of gay men's HIV prevention agencies in England.

The inadequacy of these types of indicators could reflect the age of the primary data within the reviews, since most intervention evaluation research studies presented here are from an era when HIV testing was relatively uncommon (because there were no immediate benefits of knowing one's status), and so knowledge of own/partner's HIV status did not feature highly in sexual encounters. However, one could argue that these general indicators are a valid measure of risk in (the majority of) situations where HIV concordance has not been established; that is, a reduction in numbers of partners per se will inevitably mean a proportionate reduction in the number of partners who are HIV positive. Even though intercourse may have been protected during sero-discordant sex (whether known or not), the possibility of condom failure means that there is still some risk of HIV transmission.

In light of the above, it is imperative that data on intermediate health outcomes (ie sexual behaviour surveys) are more specific about the context in which certain behaviours take place. Currently, too much research confuses unprotected intercourse with unsafe intercourse. Primary studies and future reviews should therefore focus on more meaningful risk indicators when making judgements about the relative effectiveness of interventions in influencing so-called 'risky' behaviours.

Finally, in looking at indicators, there are limitations which are generally present for research involving sexual behaviour: behaviour is self-reported retrospectively and social desirability responses may occur. Measures vary across studies and the wording of questions varies (with different interpretations of sexual terminology).

In conclusion, it is clear that we need a consensus on the appropriate indicators for assessing the effectiveness of HIV prevention programmes. In 1996, the US Centres for Disease Control (CDC) initiated a project to do just that (Rugg et al., 2000). They identified several hundred indicators related to the four sub-epidemics of MSM, IDUs, high-risk heterosexuals and childbearing women. These were narrowed down to 37 indicators on the basis of their relevance across all states, and fall into the following four categories: biological; behavioural (including 'behavioural determinants', ie modifying factors); services (ie access etc); and socio-political. Unfortunately, a large proportion of the indicators relate to heterosexual biological and behavioural measures. However, an example of a behavioural determinant

indicator is: 'Belief in efficacy of condoms'. An interesting socio-political indicator is: 'Gay anti-discrimination laws', measured by the absence or presence of state laws protecting or discriminating against people on the basis of sexual orientation.

In the UK, the Public Health Laboratory Service (PHLS) HIV and STI Division established a Behavioural Surveillance Unit* in early 2002 – one aim of which is to develop and collate a set of standardised and validated behavioural questions and indicators for use in primary behavioural research or HIV surveillance.

5.7 Gaps, inconsistencies and further limitations of the Core review papers

It is startling how little review-level evidence there is relating to the UK's priority target populations. Even where there is some data, we find a clustering of evidence about a limited number of interventions of a certain kind. There are a vast range of interventions (some would argue the majority) which have not been subject to controlled trials and/or have not been published in peer review journals and/or have not met the criteria for reviews and/or have not met the criteria for this review of reviews. This could in part reflect the non-systematic nature of research funding – for further discussion of this, see the Research recommendations (section 7). For further discussion about the implications of this for policy and practice, see the Policy and practice recommendations (section 6).

One important issue here is that of publication bias. There is a greater likelihood of:

- Papers that demonstrate 'effective' outcomes being submitted to journals
- Negative impacts being omitted from papers
- The publication of such papers by journal editors
- Such papers appearing in reviews
- And in turn, such papers appearing in reviews of reviews.

The implication of the above is that there is an accumulation of evidence supporting effectiveness, which is not balanced by evidence which shows an intervention

* See www.phls.org.uk/%5Ctopics_az/hiv_and_sti/behavioural/behavioural.htm for more details.

to be ineffective or even harmful. Indeed, it is interesting that we could make no evidence statements of sufficient, or even tentative, nature regarding either the ineffectiveness or negative impacts of any interventions. This was the case across the target populations and for HIV VCT.

It is particularly striking that we found no review-level evidence at all at the socio-political level of intervention, probably since these interventions are difficult to assess using experimental methodologies. As discussed in the Introduction, socio-political interventions include: legislation (eg anti-discrimination laws and laws about age of consent to sex); equality work (activities to reduce discrimination and social exclusion by influencing local and national policies), including 'climate setting'; facilitation interventions (research and development, programme planning, communication and collaboration between agencies); resource allocation; and regulation (eg labelling of condoms). Intervention evaluation research is therefore needed in this area, but there is work to do first in determining useful success indicators and the appropriate methods of evaluation (see Methodological issues – behavioural indicators, section 5.6.1).

As well as research on the interventions themselves, there is also a need for research to identify the structural modifying factors which influence sexual behaviour, often (but not exclusively) addressed by socio-political interventions: Ickovics and Yoshikawa's review (1998) draws attention to 'the greater social and economic contexts specific to women that impact their risk for HIV infection'. The reviewers call for research to identify 'characteristics of contexts that constrain or enhance preventive effects (for example communities, socio-economic characteristics, or proximal settings in which interventions take place)' (S206). Exner et al. (1997) call for 'greater attention to the environmental conditions impeding women's ability to successfully protect against HIV infection... AIDS is inseparably linked to other serious social problems affecting today's society. Widespread individual change will not occur in an environment that does not support such change' (p119). As Aggleton (1994) remarks, more research is needed to '...identify the environmental and policy factors most conducive to sustaining behaviour change' (p13).

Although there is some evidence relating to some community level interventions for MSM, CSWs and BMEG women, there is still a significant gap here. Community

level interventions include small media (leaflet); mass media (eg gay press advertising); condom and lubrication provision; community development including building infrastructures; some Internet interventions (eg chat rooms); and organisational/institutional interventions (influencing the practice of organisations), including training and technical advice.

For most of the priority target populations, there is very little research relating to individual-level interventions other than VCT, for instance: one-to-one counselling on its own (ie no HIV testing); individual cognitive behavioural therapy; face-to-face detached or outreach work; couple counselling; telephone helpline; or Internet-based work.

We need a better understanding of the transferability of interventions from one setting or target population to another. This means that more attention needs to be paid to factors such as subject recruitment, attrition and cost effectiveness, which affect transferability. At present, this information is not always presented within reviews. In addition, for some interventions, a further development phase is needed to test the programme in 'natural' settings and circumstances after initial effectiveness evaluation has been conducted. Aggleton (1994) (a Supplementary review paper) comments that there was a lack of formative and process evaluation in many of the studies within his review, and when considering the most effective interventions he states the importance of 'the extent to which researchers and health promotion specialists had taken care to ground their interventions in the specific needs of the groups concerned' (p17).

Even where we found review-level evidence about interventions with target populations similar to the UK's (eg MSM), we still have to question the cultural relevance of such evidence. Some of the Core and Supplementary review papers involved authors from the UK; however, only one or two of the primary studies cited in the reviews concerned UK interventions. As Aggleton comments in relation to his own review, this may 'limit the generalisability of the findings globally' (p17).

There is also the question of currency. For example, in relation to MSM, Kegeles and Hart (1998) only look at primary studies published since 1995, but the majority of the studies reviewed in Oakley et al. (1996) are older than a decade. One could question the relevance of evidence that is this old, although age in itself should not be a

reason for exclusion; what is important is the extent to which the cultural context has changed. For instance, some have suggested that the introduction of new therapies since 1996 may have affected people's perceptions of HIV and in turn their 'risk' behaviours. Indeed, a scale has been developed that attempts to measure this (van de Ven et al., 2000).

Finally, there appears to be some confusion over the importance of 'duration' in intervention effectiveness (see MSM section 4.1.2.5). One of the studies which Kelly (1995) describes as 'of sufficient duration' (Valdiserri, 1989*) is the same study which Oakley et al. (1996) and Choi and Coates (1994) describe as 'brief'. The intervention was actually a day's workshop consisting of six hours of contact time. So, there are clearly different definitions of 'brief interventions' in use, sometimes taking account of the number of sessions, or how spread out these are. These might be further mediated by factors such as intensity: for example, the amount of personal exposure to the facilitator. Until research is more explicit regarding what constitutes a 'brief' intervention – a one-off intervention, an opportunistic intervention, one lasting no more than x amount of time – it is difficult to draw firm conclusions, either about the effectiveness of brief interventions per se, or about how they compare with longer interventions.

A further problem with evidence supporting so-called 'brief' interventions is that it runs contrary to that which suggests that multi-component and/or multi-session interventions are effective. These kinds of interventions cannot by their nature be 'brief'. Descriptions of interventions therefore need to be more explicit before any firm conclusions can be reached about the effectiveness of 'brief' interventions.

Finally, if maintenance of behaviour change following interventions is a general issue across health promotion, it is surely particularly pertinent following 'brief' interventions, yet the literature is largely silent on this. Ickovics and Yoshikawa (1998) call for more interventions to be followed for more than six months. Choi and Coates (1994) suggest that more intense interventions are more likely to result in greater risk reduction and that 'there may be a point of diminishing returns; resources need to be sufficient to stimulate and maintain behavioural changes' (p1385). Research therefore needs to be more

explicit about these properties of an intervention before we can draw any firm conclusions about their relevance. As Aggleton (1994) suggests, we need research to determine the minimum length of time needed to promote behaviour change, the times when booster interventions may be needed, and the sort of follow-up intervention most appropriate. Related to this is the issue of time lag between intervention and effect, in terms of making judgements about the ultimate success of the intervention. Clearly, more research is needed here.

5.8 Men who have sex with men (MSM)

Although we found more evidence relating to interventions with MSM compared to the other priority populations, there was still a dearth of research into the majority of interventions undertaken in this country. It is important to note that the type of intervention for MSM most comprehensively covered by this review of reviews is small-group work. Community level interventions are much less well-served, and we found no reviews of interventions pitched at the socio-political level. This may be because the kinds of interventions which are subject to evaluation by researchers tend to be controllable and manipulable interventions such as small-group work.

There are further important points relating to the predominance of small-group work in the policy and practice recommendations for MSM below. Practitioners will be all too aware that small-group work is highly resource-intensive. In addition, it will not prove acceptable to a large number of men, requiring as it does a certain degree of interest, commitment and recognition that one is at risk (Kegeles and Hart, 1998, S212). Kegeles and Hart note that within the selected studies in their review, there was often a problem in persuading men to participate – in both recruiting them and getting them to turn up for all the sessions. It is likely that those MSM for whom small-group work proved effective were self-selecting and shared certain demographic characteristics, ie they were white, well-educated and middle class.

A number of Supplementary review papers have attempted to address the question of maximising acceptability: Aggleton (1994) recommends that skills-based training 'should be offered in accessible settings (eg gay AIDS prevention organisations, HIV counselling + testing sites etc)' (p42). Similarly, Kalichman and Hospers

* Study no. 6 cited by the Core review papers in the MSM section.

(1997) suggest that: 'Infusing HIV prevention into ... relationship building workshops for MSM ... will reach individuals who may not come to an HIV risk-reduction intervention or have completed such programs with limited success' (S199).

Kegeles and Hart suggest that it may be particularly important to provide small groups and individualised counselling to MSM with HIV infection or who require more intensive interventions focused on their unique psychosocial concerns – 'they could benefit from small-group and individually focused work undertaken in clinics, and agencies providing social and other support' (S213). They further suggest that MSM attending small group and individual interventions can be provided with skills and motivated to do informal outreach with their peers (S213).

The data presented within the Core review papers led us to conclude that there was sufficient review-level evidence that building a range of components into interventions contributed to their effectiveness. The Supplementary review papers offer some further insights into how and why this is the case. For instance, Kelly (2000) suggests that skills-building might include 'teaching participants critical risk reduction skills, and providing assistance in helping participants in planning how to apply those skills in personally relevant relationships and situations' (S37).

Kelly (1995) expands on the variety of components interventions might deploy. He cites two studies targeting MSM*, which:

'directed considerable attention to exercises that taught participants how to identify moods, emotional states, or substance use-related factors associated with their past episodes of risky sex, as well as applying self-management, problem-solving, and self-instructional procedures to help group members identify different ways to handle those 'triggers' so as to lessen their vulnerability to future risky behaviour' (p347).

McKay (2000) reports that the Kelly (1989) small-group intervention** included assisting participants in linking HIV risk reduction to themes of pride, self-respect, and the responsibility to protect one's self and others.

* Study nos 3 and 6 cited by the Core review papers in the MSM section.

** Study no. 3 cited by the Core review papers in the MSM section.

Both of the Core review papers for MSM conclude that interventions need to be placed within the broader context of men's lives and address wider determinants of health (ie structural modifying factors). Kegeles and Hart (1998) suggest that it is implicit in many of the studies they cite that 'addressing the wider health and psychosocial needs of gay men is of equal or greater importance in preventing HIV in a well-informed population as work with an exclusive focus on condom use or safer sex' (S214). Individual and small-group interventions are less likely to be effective if they do not take these factors into consideration: 'There are sound reasons to believe from health education research that, without a supportive environment and public policy for sexual risk reduction, the effects of more individualistically focused prevention efforts are likely to be short lived' (Aggleton, 1994, p24). Oakley et al. (1996) '...highlight the importance of not isolating HIV/AIDS prevention strategies from the broader context of knowledge and understanding about health and the social and material context in which MWHSSWM [men who have sex with men] live. There should be greater co-ordination between researchers, programme developers and practitioners in producing interventions for MWHSSWM' (p1).

Both of the Core review papers cite evidence that interventions are more likely to be effective if they are targeted and tailored for the specific audience, including the use of formative research to fine-tune the intervention's components.

Kelly (1995), a Supplementary review paper, suggests that interventions should be culturally tailored to the risk circumstances of participants: 'Even within what seems to be a relatively homogenous population group – gay men – there are wide variations in culture that contribute to HIV risk. Ethnic minority and young gay men may require different approaches than white, middle-class and older gay men' (p348).

Aggleton concludes from his review* that 'the extent to which researchers and health promotion specialists had taken care to ground their interventions in the specific needs of the groups concerned' (p17) was of particular importance. In addition, Coleman and Ford (1996) draw attention to 'the critical importance of researching the nature and extent of existing homosexual/bisexual sexual

* Which included study nos 3, 4 and 6 cited by the Core review papers in the MSM section.

behaviours before implementing an intervention, so allowing the intervention to be appropriately designed and implemented in the most suitable locality' (p329).

It is worth registering that there is a question as to the extent to which pre-existing formative research might be used to inform intervention development, as opposed to 'reinventing the wheel'.

There is a notable lack of research on some subgroups of MSM, including younger MSM, non-white MSM, MSM who do not identify themselves as gay, bisexual men and working class MSM. Regarding the latter, neither of the Core review papers presented any evidence pertaining to the effectiveness of interventions in reducing health inequalities. We would expect to look at intervention efficacy in changing the modifying factors that put some MSM at greater risk according to their socio-economic status or educational qualifications (Weatherburn et al., 1999). There is some limited effectiveness research regarding interventions with black MSM, but this is small and largely inconclusive.

Between them, the Core review papers provided sufficient review-level evidence to conclude that community level interventions involving peers and popular opinion leaders can be effective in influencing the sexual risk behaviours of MSM. However, as is the case with all of the primary studies in the MSM Core review papers, none were of UK interventions. We must therefore question the likely transferability of such interventions to the UK context.

5.9 Commercial sex workers (CSWs)

We found very little review-level evidence pertaining to interventions with CSWs. Apart from some tentative evidence for the effectiveness of peer-led community interventions, we were unable to identify other evidence either to support or discount the effectiveness of any other interventions with this population.

As is the case for all of the reviews, there is also the question of the cultural relevance of the included primary studies. None of these studies were conducted in the UK (although one was conducted in Europe) and several were conducted in developing countries (one in Africa, four in Asia and one in Honduras), which may be of limited relevance to the UK's CSWs.

All of the primary studies within the reviews which stated their target group clearly focused on interventions with female CSWs – we lack, therefore, studies of male CSWs. There is a lack of interventions targeting risk from sexual relationships between CSWs and their steady partners, where risk may be perceived as lower than that from clients. There is also a lack of interventions targeting the clients themselves.

Finally, there are several internal contradictions in the presentation of evidence in Ickovics and Yoshikawa's review (1998). In addition to conflicting reports on the levels at which interventions were delivered (ie group or community), there is a conflict in the number of RCT studies addressed to their target group category 'commercial sex worker' in different parts of the report (S200, S204).

5.10 African communities in the UK

The lack of review-level evidence for effective interventions for an important at-risk group for HIV, African communities in the UK, is striking.

Only one Core review paper specifically identifies black and minority ethnic groups (BMEGs) as a target group, but it covers African-American and Latina women (Ickovics and Yoshikawa, 1998). Although the review includes studies from across the world, only US BMEGs are specifically identified. This review provides very little evidence to suggest what level or method of HIV prevention intervention might be effective with the UK's African populations. However, it does suggest that, overall, it is possible to intervene successfully with BMEGs – the reviewers report that 13 of 18 interventions targeted to BMEG women were effective. While these populations may not be comparable to the UK's African populations, evidence of effectiveness may reflect an effort to take account of culture in designing interventions, a lesson which can be transferred to the UK. However, although BMEGs share some experiences of exclusion, this exclusion can take different forms for different communities. Furthermore, factors internal to communities, such as norms and values and social institutions, vary greatly between communities and within communities across time.

The relevance to African populations in the UK is therefore limited. Transfer of culturally sensitive

interventions therefore needs to pay close attention to specific features of the community among whom an intervention has been effective and the community to which it has been applied. Ickovics and Yoshikawa's review (1998) does not discuss or analyse the extent to which factors specific to minority communities – both external factors relating to discrimination and poor access to services, and internal factors such as social norms – are taken into account in the design of interventions.

There also appears to be both some missing information, and some apparent discrepancies in the reported findings within the review, which could be explained if fuller information were available. For instance, in addition to conflicting reports on the effectiveness of two interventions, there is a conflict in reports of the number of interventions addressed to their target group category 'African-American and Latina women'. In most places 18 studies are referred to, but the discussion refers to 'the 12 culturally sensitive programs serving African-American and Latina women in the USA' (p204). Since 12 of the 18 interventions for BMEG women are evaluated by RCTs, it is likely that the discussion is stating conclusions based on this study design alone.

Fenton's (2001) Supplementary review paper* argues that providing services which are accessible and acceptable to at-risk communities is an essential strategy for reducing the burden of STI, and quotes qualitative research about problems with the acceptability of STI services to HIV sero-positive black Africans living in London. He advocates community outreach screening and treatment where populations are particularly unlikely to access services. He also suggests that partnership with affected communities, and identifying and understanding cultural context, are likely to improve the effectiveness of interventions, although these may be time consuming and resource intensive.

Finally, we are aware of an ongoing Cochrane systematic review of HIV prevention interventions for minority communities in the US (Darbes et al., 2002a). This will draw on data from three narrative reviews by Darbes and colleagues at the University of California, San Francisco – on African-Americans (Darbes et al., 2002c), on Latinos/Hispanics (Darbes et al., 2002b), and on Asian Americans and Pacific Islanders (Darbes et al., 2002d).

* A non-systematic review of recent research evidence on improving the health of ethnic minority communities.

Each reviews the interventions, broken down by risk group (eg MSM, heterosexuals, IDUs etc); and for the African-American review, a separate quantitative analysis has been undertaken (Darbes et al., 2002e). These three reviews were published in March/April 2002 and so did not make it into our analysis; in any case it would still be questionable how relevant they are to the UK's African populations. With regards to the Cochrane review, it is hoped that this will be completed in spring 2003 (personal communication from L. Darbes) – this and the other reviews should be considered for inclusion in future editions of this evidence briefing.

5.11 People with HIV

In looking at intervention effectiveness with people with HIV, we found no reviews which passed our critical appraisal criteria (ie no Core review papers). We therefore state that there is no review-level evidence either to support or discount the effectiveness of any interventions in influencing the sexual risk behaviour of people with HIV. As a consequence, we are not able to make any recommendations for policy and practice (see below).

However, we have undertaken an analysis of two Supplementary review papers relevant to people with HIV (see Appendix H). Here we consider what they say and draw on them for our research recommendations.

The two Supplementary review papers report on 23 interventions, with one study reported on by both reviews (Padian et al., 1993). Both reviews only supply minimal detail of the content or setting of the intervention. In the Summerside and Davis review (2001)*, outcomes are given for only two studies out of 17. King-Spooner (1999), however, reports on outcomes – albeit very briefly – for all of the seven studies he reviews.

* Despite its limitations in outlining the elements underpinning the effectiveness of interventions, this review draws on evidence which is wide-ranging both in subject matter and in type, including the findings both from peer-reviewed literature at one end of the evidence spectrum, to those from grey literature and expert opinion at the other. It therefore provides an invaluable starting point for targeting HIV prevention interventions at people with HIV and for evaluating these interventions. The review provided the basis for NHPIS' Professional Briefing 4: *HIV prevention and sexual health promotion with people with HIV* (Summerside, 2001b), by one of the same authors, which summarises the literature and provides pointers for good practice.

Summerside and Davis specify their target population and are clear and comprehensive with regard to the databases and years searched; in terms of the latter, King-Spooner is not clear. However, neither review is explicit about inclusion criteria; nor do they systematically rate or assess the quality or strength of the evidence within the review. The section on HIV prevention interventions in Summerside and Davis is prefaced as identifying 'some methods (and supporting research) of HIV prevention' (p79); its purpose seems to be to provide some overview of those interventions which have already been undertaken in order to generate ideas for future work.

It is therefore not clear in either review whether the set of HIV prevention intervention studies under consideration is exhaustive of what was found, whether it is simply a representative 'slice', or whether these particular studies were chosen according to some other criterion. For example, in the case of Summerside and Davis' review, studies may have been included because they were judged to be particularly innovative or reflective of good practice. King-Spooner states that 'few interventions ... have been reported, but those that have are promising'. This implies that the studies he goes on to report on at this point are exhaustive of what he found; it also implies that everything he found reported positive findings.

In addition, in Summerside and Davis (2001), some of the discussion in the HIV prevention intervention section relates to the findings of needs assessments and to recommendations for service provision, rather than to evaluations of specific interventions, and is therefore not relevant for our purposes.

In Summerside and Davis, of the two studies for which outcomes were reported on, one (de Rosa and Marks, 1998) was undertaken in the US; the reviewers are not explicit about where the other study took place, raising some questions about transferability. King-Spooner is not explicit about where the interventions he describes were undertaken and does not consider the question of transferability.

Between them, these Supplementary review papers present very little evidence about the effectiveness of HIV prevention work with people with HIV. It could be that there are further studies not covered by these reviews which can provide more evidence, but it is not possible to determine this without conducting a systematic search of the literature.

There does appear to be some evidence for group work in non-clinical settings – this needs further investigation. Again, there may be more available data from primary studies, so it is not possible here to say whether more primary research is required, or whether there needs to be a systematic review of what already exists.

It is clear that the whole area of engaging people with HIV in HIV prevention, and of acknowledging this group in research, constitutes a significant gap in the evidence base, and one which it is vital to address. Summerside and Davis argue that this gap arises out of what they term 'HIV negative normativity' (p17): that is, both practitioners and researchers regard HIV sero-negative status as the norm. The reviewers point out that, until very recently, only the behaviour of uninfected people was studied, 'as they were seen as the sole focus of work to prevent new infections' (Summerside, 2001b, p2). Either this, or sero-negative status was automatically assumed, thus confounding findings and blurring the distinction between those HIV prevention and sexual health promotion needs which are specific to people with HIV, and those specific to people with sero-negative status.

Finally, there is an urgent need for research to recognise the HIV sero-positive sub-population within each target population (eg Africans, MSM), rather than make the assumption that all people are sero-negative. Researchers then need to be explicit about the distinction between the experiences and needs of people with HIV and those of negative people.

5.12 HIV voluntary counselling and testing (HIV VCT)

Although there may be a tendency to make assumptions about the relationship between testing and behaviour – for example, that a positive result will automatically translate into safer sexual behaviour – the way one affects the other is not necessarily straightforward.

For all target populations other than MSM and CSWs, the review-level evidence available here shows that a positive diagnosis can influence sexual risk behaviour in some individuals. Having said that, a positive result may not necessarily equate with a reduction in risk behaviour*.

* For discussion of the evidence of effective interventions with people with HIV, see section 4.3 People with HIV.

For MSM and CSWs, there was insufficient review-level evidence to form any conclusions about the effects of a positive diagnosis on risk behaviour.

The effects of a negative diagnosis on sexual risk behaviour are not clear due to insufficient evidence at review level. Some have suggested that learning of one's negative sero-status may lessen the sense of risk instilled by counselling, and lead to a false sense of security, perhaps increasing risky behaviour.

Beardsell (1994), a Supplementary review paper, usefully notes that the 'stimulus' of HIV testing and counselling is not uniform, and information regarding status and risk will not be understood and used by everyone in the same way.

In the Introduction (see 1.4.3.3) and the section on indicators in the Discussion above (see 5.6.1), we discuss the use of appropriate indicators for HIV 'risk'. However the choice of 'valid' outcomes by the Core review papers here clearly does not take into consideration 'negotiated safety' (Kippax et al., 1997). This is where choosing to have an HIV test may be part of a strategy to have unprotected (but safer) sex:

'a participant in an HIV-risk reduction programme who engages in unprotected intercourse only after knowing their partner has tested HIV negative is less at risk than is the participant who uses condoms with a partner of unknown (ie possibly infected) HIV antibody status; however, the former would be seen as a treatment failure whereas the latter would be counted as a success' (Kalichman et al., 1996, p12).

Clearly, there is no risk of HIV transmission where both partners are sero-negative for HIV – in these instances, unprotected is not the same as unsafe (van de Ven, 2002). Behavioural outcomes therefore need to include contextual indicators such as (known) sero-status of sexual partner.

It should be noted that many of the studies included in the reviews were conducted as long ago as the late 1980s and early 1990s and therefore may be restricted in their relevance today. Since 1996, with people responding well to new treatments, there is more incentive to test and know one's HIV sero-status. The research does not take into account that individuals might be making use of HIV VCT (and repeat testing) to

plan their own safer sex strategy. We cannot assume that someone who tests positive and then subsequently reports not using condoms for intercourse is in fact having so-called 'unsafe' or 'risky' sex, unless we know about the sero-status of their partner(s) and the context of their relationship(s).

Studies provided little or no detail about the counselling provided; if variations are not documented it limits the possibility of evaluating the effects of HIV VCT and makes it difficult to determine what components of HIV VCT are responsible for behaviour change (Weinhardt et al., 1999). For example, of the studies included in Weinhardt et al.'s meta-analysis, only four studies mentioned the length of the counselling sessions and seven studies provided no information at all. Very few of the studies included in the reviews were conducted in the UK or Europe, which raises the question of their relevance to this country. So, we need to know more about whether different amounts and qualities of pre- and post-test counselling result in differences in risk reduction. Weinhardt et al. point to one study that begins to answer this question: the CDC's project, 'RESPECT', found that, compared with standard HIV VCT procedures, enhanced counselling consisting of either two or four interactive sessions resulted in increased condom use and decreased STI infections. However, findings are contradictory – other research showed that there was a reduction in sexual risk behaviour following standard and enhanced HIV VCT (Gibson et al., 1998; Exner et al., 1999). Further research is needed to address these discrepancies in findings and to explore whether it is the quality rather than quantity of HIV VCT that is important.

Many studies included in the reviews are biased by the self-selecting nature of the sample; participation in studies was dependent on respondents coming forward wanting a test and coming back for results and agreeing to take part in follow-up. As Gibson et al. (1998) point out, one explanation for observed behaviour change is that study subjects who are well-motivated enough to participate in the study may have already begun the process of behaviour change (Gibson et al, p925).

More research is needed on the effects of HIV VCT on the sexual risk-taking of MSM and CSWs, regardless of whether they test negative or positive.

Finally, Weinhardt et al. conclude that theory driven research is needed to isolate the psychological

determinants of behaviour change associated with HIV VCT and to develop and evaluate theory guided interventions: 'HIV VCT studies have not been informed by theories of behaviour change and investigators have paid little attention to the psychological factors that may interact with testing behaviour' (Weinhardt et al., 1999, p1402). This underlines the need for measuring health promotion outcomes/intervention impact measures as part of evaluation.

5.13 Limitations of the review of reviews

In addition to the limitations presented by the reviews themselves and discussed above, there are a number of limitations to conducting a review of reviews and, in particular, to the methodology that we have deployed here.

It is accepted that we may have overlooked a number of reviews. First, the inclusion criteria for the search strategy was 1994 to November 2001 and English language papers only. This decision was taken to ensure that the task remained manageable given the limited staff and timeframe, however there may well have been a number of relevant reviews before this date which do not feature in our analysis. On the other hand, one could question the relevance of reviews which would contain primary data from over 10 years ago (see Gaps and inconsistencies, section 5.7). We may also have omitted reviews which are not in English. Secondly, no hand searches of the literature were undertaken – this is acknowledged as a limiting factor on the scope of this review, since bibliographic databases can sometimes miss relevant publications. Thirdly, no attempt was made to identify and obtain grey literature or conference abstracts, therefore publication bias plays a part in determining the kinds of reviews selected (for further discussion, see Kelly et al., 2002). However, we asked the members of the Reference Group at two stages whether there were any further papers to consider for inclusion and none were identified on either occasion.

The most recent Core review paper included was published in 1999 (Weinhardt et al.), so the most recent primary studies presented within the Core review papers were published in 1998. In fact, the majority of the primary studies cited within the reviews were published before 1996. The currency of data is of particular consequence in the area of HIV prevention, since some

have suggested that the introduction of new therapies since 1996 may have affected people's perceptions of HIV and in turn their 'risk' behaviours. Indeed, a scale has been developed that attempts to measure this (van de Ven et al., 2000). More specifically, the success of new therapies may well have had an impact on the numbers of people coming forward for HIV testing and their reasons for testing, for instance as part of a 'negotiated safety' strategy (see HIV VCT section 5.12, in Discussion above).

The subjectivity of the critical appraisal process also needs highlighting. While it is designed to be as objective as possible, the authors acknowledge that decisions do contain a subjective element, and hence consideration of this must be given when reading the evidence statements, Discussion and Recommendations.

Many of the reviews we came across appeared to have really useful insights but we were unable to include them as Core review papers simply because they did not provide enough detail about their approach; it is conceivable that they applied a systematic methodology, but it was not possible to tell this from the way in which they reported (ie they were not transparent).

Even the review papers which did make it through the critical appraisal process (ie Core review papers) often provided only sketchy descriptions of interventions and outcomes. As a result, it may not always be clear from the text of the review how the authors have reached their conclusions. It also means that in turn we are unable to provide very many details about the content of interventions for practitioners.

The Methodology (section 2) describes how Core review papers were ultimately selected on the basis of their relevance to the UK priority populations which are the focus of this evidence briefing. This meant that they needed to include evidence on interventions aimed at similar target populations. The result is that there are a number of reviews concerned with interventions to reduce the sexual risk for HIV transmission which may have passed our critical appraisal, but have been omitted from our analysis. These papers might have provided further evidence for or against some of the interventions highlighted in this evidence briefing. For instance, there may be substantial evidence supporting the use of peer-led group work focusing on negotiation skills with young people. Although relevance to the UK priority populations

is questionable, it might have been appropriate to use these review papers as additional Supplementary review papers, providing further insights to the Discussion and Research recommendations. The omission of these papers is acknowledged as a potential limitation here.

Although evidence statements and Policy and practice recommendations are based on Core review papers alone, the Introduction, Discussion and Research recommendations have also been informed by miscellaneous 'other papers' (as well as Supplementary review papers). These papers were not identified as a result of systematically searching and appraising all of the potential literature, so it is acknowledged that this poses a potential 'skew' to our Conceptual framework and ensuing Research recommendations.

It also needs to be acknowledged that our recommendations for research are limited by our decision to look at review-level evidence alone – it is not possible to tell whether any gaps represent problems with the reviews (eg in selection on behavioural outcomes) or whether the primary data simply are not there.

This evidence briefing necessarily considers a relatively narrow range of evidence – ie that which tends to be captured in well-conducted controlled trials and picked up in certain kinds of reviews. This has two implications. First, it is not balanced by evidence from other sources, including recently published single studies, non-published research, and 'promising practice'. For instance, the reviews relating to MSM lead us to conclude that community level interventions involving peers and popular opinion leaders can be effective in influencing the sexual risk behaviours for MSM. However, there is insufficient review-level evidence to transfer findings to the UK's MSM population. Rather than leave a question mark over how transferable these kinds of interventions may be to the UK, we could have referred to evidence from primary studies in the UK which suggests that they were not. An example would be a controlled trial reported by Flowers et al. (2002) of a similar intervention in Glasgow and Edinburgh* which failed to produce community wide changes in sexual health behaviours: significant differences in sexual behaviour were only observed among those men who had direct contact with the intervention. Flowers et al. 'question the replication and

transferability of peer-led, community level sexual health promotion for gay men outwith the USA and across time' (p102). However, it would not be appropriate to base any conclusions on this study, since we are not able to say whether there is equally strong primary level evidence to demonstrate the opposite – ie we have not systematically searched and appraised the literature for data of this kind.

Secondly, the nature of a review of reviews means that our Policy and practice recommendations are skewed, since the kinds of interventions which are easy to evaluate tend to be one-to-one and small-group work. So there is a huge range of interventions (some would argue the majority) which have not been subject to controlled trials and/or have not been published in peer review journals and/or have not been included in reviews and/or do not feature in this evidence briefing. Although many systematic reviews increasingly include other types of evidence, the traditional processes for identifying, selecting and appraising reviews tend to favour a relatively narrow spectrum of potential evidence: that which is mostly drawn from randomised controlled trials and/or sits easily within traditional evidence hierarchies. Other types of methodological approaches – especially, but not exclusively, qualitative work – still tend to be under-represented in reviews of effectiveness.

Finally, it is important to remember that this evidence briefing *excludes* a number of areas of HIV prevention, namely: the roles of condom effectiveness, post-exposure prophylaxis (PEP), microbicides, treatment of STIs, or circumcision in reducing HIV transmission; and interventions to prevent occupational, injecting drug use and mother-to-child transmission. Once again, the lack of practice recommendations here should not be taken to mean that these interventions are ineffective and that they should not be undertaken.

* Referred to by Kegeles and Hart in their 1998 review as an ongoing trial of a community based sexual health promotion programme for gay men.

6 Recommendations for policy and practice

It is crucial to view our policy and practice recommendations within the context of the discrepancy between what we would like to see in the literature and what our review of reviews found. The recommendations should therefore be read in conjunction with the Discussion, in particular sections 5.1 (What works...), 5.7 (Gaps and inconsistencies) and 5.13 (Limitations of this review of reviews).

We have restricted our policy and practice recommendations so that they are based solely on evidence statements regarding sufficient or tentative review-level evidence of effectiveness. In these instances, we believe that the intervention can be effective in having significantly large an impact on the major modifying factors influencing sexual risk to result in measurable changes in behaviour – ie it may be transferable to a similar population with the same ‘unmet needs’ which *might* be adequately addressed by the intervention.

However, as indicated in the Discussion, we need to register some caution because the reviews provide data on intermediate health outcomes only, which inevitably results in some significant gaps. A vast range of interventions may be effective in changing one or more modifying factors – our definition of ‘success’ – but if intermediate health outcomes are measured at the expense of health promotion outcomes/intervention impact measures, as in the reviews/primary studies considered here, this success will not be registered. This is an important loss resulting in considerable gaps in recommendations for practice.

First, it means we overlook interventions which are *necessary* but not *sufficient*. These are interventions which – by changing modifying factors – might play an important role in *contributing* to the overall achievement

of intermediate health outcomes (and ultimately health outcomes), even if they are unlikely to achieve them on their own. These interventions will not therefore be represented in the recommendations for practice below.

Secondly, we may also have ‘lost’ interventions which were *unnecessary* rather than *ineffective*. It is important to note that the effectiveness of an intervention is necessarily dependent on the need it is designed to meet. An intervention designed to meet a need in a population where none exists will obviously fail to result in any significant outcome and, if only intermediate health outcomes are used to judge success, this intervention might be dismissed as ineffective. However, the same intervention applied to a different population in which the relevant need is unmet may in fact prove extremely effective (if it is implemented appropriately), possibly even managing to achieve intermediate health outcomes where the modifying factor being changed is important enough to influence risk behaviour. Because the reviews and/or primary studies considered here have not gathered and presented data relating to unmet needs and the corresponding modifying factors, it is impossible to make this distinction. Again, this means that potentially successful interventions may not be represented in the following recommendations for practice.

Another point to note is that the full range of interventions is by no means represented in the literature. In relation to MSM, we found that most studies focused on small-group work; with CSWs, community level interventions predominated. We can only speculate as to the reason for this. The types of intervention chosen with any particular target population may reflect a number of factors, including the demographic nature of that population, their perceived needs, the kinds of interventions previously undertaken with them, the interests and expertise of researchers, the nature of

funding, the ease of sampling or the 'controllability' of the intervention. Indeed, the rationale for developing some interventions appears to have been affected by a variety of factors, including the ideology of provider agencies and the desire of researchers to use certain methodologies for experimental evaluation.

The restrictions to the evidence outlined here mean that many interventions are not represented in the practice recommendations below. However, this should not be taken to mean that these interventions are *ineffective*. Neither does it mean that practitioners should limit themselves only to delivering the narrow range of interventions represented here (eg group work), not least because those interventions may only reach certain sections of the target population (arguably those who are more motivated to participate). In other words, **a gap in the evidence should not be confused with evidence of ineffectiveness: it simply means there is either insufficient or no review-level evidence either to support or discount the effectiveness of an intervention**. In these instances, we make research recommendations (see section 7).

Therefore, practitioners and policy makers should take into account the best available non-review evidence and information from other sources, including:

- Information from practice studies (eg practice databases, 'promising practice' case studies)
- Evaluations that are often or usually excluded from systematic reviews and meta-analyses, eg qualitative studies, non-controlled case studies, practitioner-based research
- Local data and project evaluations (local to your context and area)
- Formative research and local needs assessments
- Expert and practitioner opinion
- Client opinion and experience
- Theories of social and behavioural change.

6.1 Recommendations for policy and practice with men who have sex with men (MSM)

Recommendations for policy and practice are derived from evidence statements regarding tentative or sufficient review-level evidence of effectiveness.

In the Evidence section, we make an evidence statement that there is sufficient review-level evidence to conclude that cognitive behavioural group work, focusing on risk reduction, sexual negotiation and communication skills training (and rehearsal, for instance through role-play) can be effective in influencing the sexual risk behaviours for MSM. However, it is questionable how transferable these kinds of interventions may be to the UK and/or non-white, lesser-educated MSM (see MSM section in the Discussion, 5.8). We also state that there is sufficient review-level evidence to conclude that community level interventions involving peers and popular opinion leaders can be effective in influencing the sexual risk behaviours for MSM. However, once again, there is insufficient review-level evidence to transfer findings to the UK's MSM population.

The following recommendations therefore need to be taken within the context of the MSM section of the Discussion (5.8) and the MSM evidence section (4.1):

- Place interventions within the broader context of men's lives, addressing the range of factors which influence risk at both the personal level (eg knowledge, skills) and the structural level (eg discrimination towards MSM, gay community norms towards condoms)
- Tailor and target interventions to specific sub-populations of MSM, for instance black MSM
- Undertake multi-component small-group work, focusing on risk reduction, sexual negotiation and communication skills training and rehearsal (eg through role-play).

6.2 Recommendations for policy and practice with commercial sex workers (CSWs)

In the Evidence section for CSWs (4.2), we make an evidence statement that there is tentative review-level evidence to conclude that interventions delivered at the community level (particularly peer-led) can be effective in

influencing the sexual risk behaviours for CSWs. However, given the lack of studies relevant to UK CSWs (see above), we suggest here that it is not possible to transfer findings to the UK's CSW population. We are therefore unable to make any specific practice recommendations – see CSW evidence section (4.2), the Discussion and the CSW section (5.9) in the Discussion for further details.

6.3 Recommendations for policy and practice with African communities in the UK

In the Evidence section for Africans (4.4), we made an evidence statement that there is sufficient review-level evidence to conclude that small group interventions delivered at the community level can be effective in influencing the sexual risk behaviours of BMEG women. However, given the cultural differences to UK African communities (see African section in the Discussion, 5.10), we suggest that it is not possible to transfer findings to the UK's African population. We are therefore unable to make any specific practice recommendations regarding African populations in the UK – see the African evidence section (4.4), the Discussion and the African section (5.10) in the Discussion for further details.

6.4 Recommendations for policy and practice with people with HIV

In the Evidence section for people with HIV (4.3), we stated that there is no review-level evidence either to support or discount the effectiveness of any interventions with people with HIV*. Therefore, it is not possible to make any recommendations for policy and practice. See the people with HIV evidence section (4.3), the Discussion and the people with HIV section (5.11) in the Discussion for further details.

* However, we have undertaken an analysis of two Supplementary review papers relevant to people with HIV – see Appendix H.

6.5 Recommendations for policy and practice in relation to HIV voluntary counselling and testing (VCT)

The following recommendations need to be taken within the context of the Discussion, in particular the VCT section (5.12) and the VCT evidence section (4.5).

For all target populations other than MSM and CSWs, the review-level evidence shows that a positive diagnosis *can* influence sexual risk behaviour in some individuals. However, the effects of a negative diagnosis are not clear, due to insufficient evidence at review level. Our recommendation is therefore that VCT should be targeted only at high-risk individuals who are likely to test sero-positive. The relative success of treatments and lessening stigma attached to HIV today make the promotion of HIV testing more ethical than it might have been a decade ago. However, it is not possible to make assumptions about people's reactions to an HIV test result – the effects of HIV VCT on behaviour cannot be predicted.

7 Recommendations for research

Whereas our policy and practice recommendations are necessarily both limited and skewed by the gaps in the evidence, our research recommendations fully seek to address these gaps and inform the building of a more balanced picture of what constitute effective interventions. These recommendations address issues concerning *how* to evaluate interventions (eg measure health promotion outcomes/intervention impact measures) and *what* interventions to evaluate (eg interventions at the socio-political level). They are based on evidence statements regarding tentative, insufficient or no review-level evidence.

Our research recommendations are further informed by Supplementary review papers and miscellaneous 'other' papers, since they can suggest areas for more and better primary and secondary research.

Although we have attempted to separate recommendations for primary and secondary research, in some instances it has not been possible to determine precisely where the gaps lie. So, in considering the distinct lack of evidence in relation to socio-political interventions, it is not possible to tell whether this reflects a problem with the reviews (eg in selection method on behavioural outcomes) or whether there are no primary studies of any kind in this area. This is acknowledged as a limitation to our recommendations.

Furthermore, it needs to be remembered that recommendations for primary research are based on the review material and so some of the areas which follow may already have been addressed in recent years.

There is also the issue of research coordination and funding. As outlined earlier (see Discussion), the evidence available from reviews is concentrated on a few interventions (eg group work) over which researchers

have most control. Most types of HIV prevention interventions have not been subject to evaluation, as research has failed to keep pace with shifts in practice. Clearly, the funding and undertaking of research needs to better engage with the needs of practitioners. However, there is no nationally agreed framework for identifying priorities in HIV prevention research, resulting in a patchy and unsystematic evidence base (with research often geared to meet the publishing needs of academics). In addition, there are examples where interventions have been tailored to meet evaluators' needs; they might also be pared down to fit the resources available, since evaluations are costly and of lengthy duration. There is also the pressure to report positive findings, but for information about effectiveness we need to know what doesn't work as well as what does.

Some of the issues relating to a national agenda for HIV prevention research may in part be addressed by a number of recent initiatives. First, the recommendations from this evidence briefing and the associated HIV Reference Group can provide some pointers for research priorities. Secondly, in summer 2002 the Medical Research Council (MRC) established a new Sexual Health and HIV Research Strategy Committee (SHHRSC)* to replace the Committee for the Epidemiological Studies of AIDS (CESA). The UK Health Departments provide around £1m a year to the MRC to commission epidemiological, behavioural and social research on sexual health and HIV, and the SHHRSC advises the MRC on research needs and funding priorities to be considered for funding under this programme. The DH's *Implementation Action Plan* for the *National Strategy for Sexual Health and HIV* (DH, 2002) indicates that the remit of the research programme is

* See www.mrc.ac.uk/index/strategy/strategy-science_strategy/strategy-strategic_implementation/strategy-highlight_notices/strategy-sexual_health_and_hiv.htm for latest call for proposals.

being reviewed to ensure that it effectively supports the implementation of this Strategy. Finally, the CHAPS *Making It Count* (Hickson et al., 2000) strategy provides a framework for MSM's research and the '*National Prevention Framework*' (NAT, 2001) provides a framework for research relating to African communities in the UK.

The following represents a summary of key recommendations reflecting cross-cutting themes. For research recommendations relating to particular target populations, see sub-sections below.

7.1 General recommendations for secondary research/reviews

There is a need to undertake reviews and analyses of the primary studies on those issues below marked with this symbol ❖ (see 7.2 – General recommendations for primary research), once sufficient data are available. A first step would be to undertake a thorough and systematic search of the available literature in each area.

What

- There needs to be a **review of theory driven interventions** versus interventions lacking an explicit theory base for preventing HIV infection*
- There need to be systematic and transparent **reviews of other kinds of evidence**, including that from 'grey literature'. Also, there is a need to review evidence from more qualitative research, which tends to have been excluded from the process we have used for selecting reviews
- There is a need to conduct a review of primary studies with respect to inequalities in sexual health.

How

- Reviews should cease to exclude studies which only include data on **health promotion outcomes/intervention impact measures** (knowledge, attitudes, skills, intentions, etc). Reviews should analyse intervention effect on health promotion outcomes/intervention impact measures alongside their effects on intermediate health outcomes

* In 2001, CDC logged a Cochrane protocol for such a review, but we understand that this has not gone ahead (Peersman, 2001).

(eg behaviour) or health outcomes (eg STI incidence). Reviews should fully **report all of these outcomes** where possible

- Reviews need to be much more **systematic and transparent** about the processes they have used to find, filter and combine evidence from primary studies. We would encourage reviews to adopt the reporting style from Cochrane
- Reviews need to report on more **details about the content of interventions**: ie the intervention's Aim, Setting, Target, Objectives, Resources ('ASTOR') (Hartley et al., 1999) and the context of primary studies included
- Reviews should report on **needs assessments and formative research** to show how they informed the interventions reported on
- Reviews should report on **data beyond six months**, ideally up to one year, post-intervention, to pick up on maintenance issues. In addition, the timing of **booster interventions** should be reviewed
- There is a need for open **forums between researchers and practitioners**, better links between social researchers and practitioners/policy makers, including better avenues of dissemination and skilling-up of practitioners to better understand research so that they can shape it.

7.2 General recommendations for primary research

What

- ❖ There is an urgent need for intervention (impact and outcome) **evaluation research related to priority target populations** for HIV prevention in the UK, ie African communities, people with HIV, commercial sex workers and men who have sex with men
- ❖ There is a need for (impact and outcome) **evaluations of socio-political interventions**, measuring the health promotion outcomes/intervention impact measures and intermediate health outcomes of:
 - **Legislation**, including anti-discrimination laws and laws about age of consent to sex
 - **Equality work** (activities to reduce discrimination and social exclusion by influencing local and national policies), including 'climate setting'
 - **Facilitation interventions** (research and development, programme planning, communication and collaboration between agencies)

- **Resource allocation**
- **Regulation** (eg labelling of condoms)
- There is a need for (impact and outcome) **evaluations of community level interventions**, looking at the health promotion outcomes/intervention impact measures, intermediate health outcomes and health outcomes of:
 - **‘Direct contact’ interventions**, including small media (leaflet), mass media (eg gay press advertising), condom and lube provision, and some Internet interventions (eg chat rooms)
 - **Community development** including building infrastructures
 - **Organisational/institutional interventions** (influencing the practice of organisations), including professional development and training, and technical advice
- ❖ There is a need for (impact and outcome) evaluations of **‘multi-level’ interventions (or programmes)**. Multi-level interventions are difficult to assess using experimental methodologies, but there is a need to pay greater attention to multiple levels of analysis
- ❖ There is an urgent need to conduct evaluations of interventions to determine their effectiveness in addressing **inequalities** in sexual health; in particular, whether there is any differential impact of interventions according to the socio-economic circumstances of individuals within the population being targeted. There is therefore a need to **routinely record socio-economic variables** in all intervention research
- ❖ There is a need to do analyses of the **cost effectiveness** of interventions
- There is a need for further (impact and outcome) studies evaluating **‘effectiveness’** – success when implemented by practitioners in the ‘real world’ **versus ‘efficacy’** – success when implemented under experimental conditions (Jemmott and Jemmott, 2000a, S50)
- ❖ Evidence relating to the **feasibility** of implementing an intervention needs to be reported via process evaluations
- ❖ Evidence relating to the **acceptability** of interventions needs to be reported, particularly the acceptability of services according to target audience, and levels of client satisfaction with different services on offer
- There is a need to empirically **test theories of behaviour change** (Stephenson et al., 2000). Where

interventions are theory based, primary studies need to provide more details of how theory informed the content of the intervention

- There is a need for further investigation into how **duration, dose and intensity** affect effectiveness
- Research is needed on the **availability and accessibility of HIV and STI services** (as opposed to ‘health promotion activities’).

How

- Intervention evaluations should **measure outcomes at different points along the causal pathway**, including health promotion outcomes/intervention impact measures which relate to modifying factors, both personal (eg knowledge, attitudes, skills, behavioural intentions) and structural (eg access to condoms, community/peer norms). This should be done in addition to the measurement of intermediate health outcomes (eg changes in behaviour) and, where appropriate (eg for large-scale multi-component interventions or programmes), health outcomes (changes in incidence, eg in a proxy such as STIs)
- In general terms, (impact and outcome) **evaluations of interventions need to be conducted with more ‘rigour’**, using experimental research if feasible to distinguish the specific impact of an intervention by including comparison groups. In these cases, research reports should include: power analysis; sample size for analysis; attrition rate; clear indication of follow-up period and assessment timeframe; clear health promotion outcomes; clear behavioural outcomes; reliability and validity information (including biological markers); detailed summary of intervention and control conditions, including attendance rates; calculation of effect sizes
- There needs to be a **consensus on the indicators** required to take account of risk-reduction strategies, such as negotiated safety, and consensus on the measurement of condom use, particularly in relation to different sexual behaviours (eg oral, vaginal or anal intercourse)
- ❖ Evaluations of interventions need to **describe all of its elements**: Aim, Setting, Target, Objectives, Resources (‘ASTOR’). In particular, evaluations need to collect and report on details of the **costs and resources** necessary to implement interventions
- ❖ Studies need to include more details of **process measures**, since they indicate how the intervention was delivered (eg length, intensity) and how it was received (including views of participants). They are

valuable to practitioners in giving an understanding of how and why interventions work, and whether they are practical in other settings

- There is a need to look at ways of **combining quantitative with qualitative** research when considering effectiveness
- ❖ **More needs assessment and formative research** is needed to inform the kinds of interventions that are required for particular populations. Studies need to report in greater detail on how needs assessment and formative research informed the content and delivery of the intervention. The extent of the transferability of pre-existing formative research also needs to be explored
- **Null findings should be published** – we need to know about what doesn't work. In addition, data should be routinely collected (and published) to resolve concerns about possible negative and unintended consequences of interventions
- There is a need for **long term follow-up** (data beyond six months), ideally up to one year post-intervention, to pick up on maintenance issues. In addition, the timing of booster interventions should be investigated
- Finally, **researchers need to better engage more closely with the concerns of practitioners** and service providers in scoping and conducting intervention evaluations.

7.3 Recommendations for research with men who have sex with men (MSM)

In addition to the general recommendations for research above, the following specifically apply to MSM.

- There is a need for more (impact and outcome) **evaluations of UK interventions**
- ❖ There is a need for (impact and outcome) **evaluations of socio-political interventions**
- There is a need for (impact and outcome) **evaluations of community level interventions**
- There is a need both for formative research and intervention evaluation research on some **subgroups of MSM**, including: younger MSM; non-white MSM; behaviourally bisexual men and other MSM who do not identify as gay; less well-educated MSM; and MSM with HIV
- There is a need for research looking at the **context of sex**, specifically the **strategies that MSM use for reducing risk** in both primary and casual relationships

(eg negotiated safety). Linked to this is a need for research which takes account of HIV status

- More research is needed to establish the effectiveness of **brief, in-situ interventions delivered by peers** (eg in pubs and clubs, public sex environments and gay community settings)
- There is a need for (impact and outcome) **evaluations of individual-level interventions**, looking at the health promotion outcomes/intervention impact measures, intermediate health outcomes and health outcomes of: one-to-one counselling on its own (ie no HIV testing); individual cognitive behavioural therapy; face-to-face detached or outreach work; couple counselling; telephone helpline; and Internet-based work.

7.4 Recommendations for research with commercial sex workers (CSWs)

- There is a need for **UK relevant (impact and outcome) evaluation research at all levels**, including individual, group, community and socio-political
- The effectiveness of **'enhanced VCT'** with CSWs needs further exploration via impact and outcome evaluations
- There need to be further (impact and outcome) evaluations and reviews of the effectiveness of **peer-led interventions** with CSWs
- Robust research is needed on the **accessibility and acceptability of STI services** to CSWs, and the effectiveness of improving these services in HIV prevention
- Research is needed to look beyond (male) condom use and partner reduction, considering 'the female condom and **other barrier methods** under a woman's control (eg diaphragm, cervical cap) as strategies for partial protection against HIV infection' (Exner et al., 1997, p119).

7.5 Recommendations for research with African communities in the UK

As discussed above, there is virtually no review-level evidence relevant to the UK's African populations. Given the increasing prevalence among these communities, there is an urgent need for more research. The key recommendations are therefore:

- There is an urgent need for (impact and outcome) **evaluations of interventions with UK African communities at all levels**
- When the primary data becomes available, there needs to be **secondary analysis/reviews of the data available from BMEG studies deemed relevant to UK African communities**
- **Group-level interventions with BMEG women** require further investigation via impact and outcome evaluations
- More research is needed to explore the added value of designing interventions specifically for these groups, and where necessary **involving the communities in the design, implementation and evaluation of interventions – and in the dissemination of findings.**
- **Theory driven research** is needed to isolate the psychological determinants of behaviour change associated with HIV VCT and to develop and evaluate theory guided interventions
- Research needs to provide **details about the counselling provided** so that it is possible to determine what components of HIV VCT influence behaviour change
- Research needs to capture the **context of testing** – studies would benefit from obtaining and reporting more specific information about participants' relationship status, reasons for seeking testing and testing history, reasons and benefits of seeking repeat testing, and on the notion of 'negotiated safety'
- Research is needed to maximise the **cost effectiveness** of HIV VCT
- In the light of the need for research into the effectiveness of negotiated safety (see research recommendations for MSM), there is also a need for research into the role of **repeat testing** in the maintenance of safer sex.

7.6 Recommendations for research with people with HIV

As discussed above, there is no review-level evidence relevant to people with HIV. The key recommendations are therefore as follows:

- Impact and outcome evaluations are needed on interventions which aim to change the factors which influence the behaviour of people with HIV at all levels: **individual, couple, group, community and socio-political**
- There is an urgent need for research to recognise the **HIV positive sub-population within populations** (eg Africans, MSM), rather than make the assumption that all people are negative. Researchers then need to be explicit about the distinction between the experiences and needs of people with HIV and those of negative people.

7.7 Recommendations for research in relation to HIV voluntary counselling and testing (VCT)

- More research is needed on the influence of HIV VCT on the sexual risk-taking of **MSM and CSWs, both for those testing positive and negative**
- We need research on the **effects of a negative result** on the behaviour of all populations
- More research is needed on the influence of HIV VCT according to **gender, ethnicity, age and degree of risk behaviour**

8 Bibliographic references (including Core and Supplementary review papers)

Note that Core review papers are marked with two ❖❖. Supplementary review papers are marked with a single ❖.

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Glossary

CAT – Critical appraisal tool, used to by the HDA authors to critically appraise review papers (see Appendix E).

CBT – Cognitive behavioural therapy. CBT targets both the internal processes and states that inform behaviour (thought-patterns, beliefs, self-concept etc) and behaviour itself (eg modelling behaviour through teaching new skills).

CHAPS – Community HIV/AIDS Prevention Strategy, a consortium of gay men’s HIV prevention agencies in England, funded by the Department of Health and coordinated by the Terrence Higgins Trust.

Commissioning – Process in which health service and local authority agencies identify local needs for services and assess them against the available public and private sector provision. Priorities are decided and services are purchased from the most appropriate providers through contracts and service agreements. As part of the commissioning process services are subject to regular evaluation. For commissioning in the NHS, see www.doh.gov.uk/commissioning/index.htm

Community – An ‘at risk’ population in a specific geographical region (Exner et al. 1997).

Control group – A group of people who, for the sake of comparison, are not given the treatment, service or other intervention that the researcher is interested in. For example, a study may divide people into two groups – an ‘experimental group’ which is given a new intervention and a ‘control group’ which receives the standard intervention or no intervention. The results from the two groups are then compared to assess the effect of the intervention.

Critical appraisal – The process of appraising a piece of research or a review for the quality of its method and content.

Cross-sectional study – A study in which information on putative risk factors and putative outcomes is gathered simultaneously, at one point in time.

CSW(s) – Commercial sex worker(s).

Epidemiology – The quantitative study of the causes, distribution, prevention and control of disease in populations. Epidemiologists collect and examine medical data and spot health trends to establish which diseases are on the increase and where, which treatments work and which do not.

Evaluation: impact – Measures the immediate effects of health promotion activity, ie changes in modifying factors (eg increased knowledge or skills, or availability of services). These effects may then contribute to longer-term outcomes such as sexual behaviour change. Impact evaluations indicate what changed and by how much.

Evaluation: outcome – Measures the long-term effects of health promotion interventions in achieving higher level goals like behaviour change and incidence.

Evaluation: process – Focuses on and measures the processes, activities and methods of planning and implementation. It covers issues of reach, quality, client satisfaction and cost. Both qualitative and quantitative research can be used in process evaluation.

Formative research – Research to improve the design of an intervention, either prior to implementation (through pre-testing) or for future introduction of similar initiatives. Often involves the use of focus groups.

Health inequalities – The gap in health status, and in access to health services, between different social classes and ethnic groups and between populations in different geographical areas. See www.doh.gov.uk/healthinequalities/index.htm

Health promotion – The process of enabling people to increase control over and improve their health. As well as covering actions aimed at strengthening people’s skills and capabilities, it also includes actions directed towards changing social and environmental conditions to prevent or to improve their impact on individual and public health. See the Ottawa Charter (World Health Organization, 1986) or www.doh.gov.uk/public.htm

IDU(s) – Injecting drug user(s).

Incidence – A measure of the number of new cases of a disease. It is the number of instances of persons falling ill during a given time in a specified population. It is often expressed as rates per million population.

Making it Count (MiC) – The national HIV prevention framework for homosexually active men, developed by the CHAPS partnership, a consortium of gay men's HIV prevention agencies in England.

Meta-analyses – Reports on specific areas where research results from various sources have been collated, often systematically, and subjected to a form of statistical analysis to ascertain overall effects or impact of an intervention, policy or programme.

MSM – Men who have sex with men (including bisexual men and non-gay identified men).

Needs assessment – A process by which information is used to judge the health of a population, on which decisions are made about what services should be provided to meet local needs. The aim is to identify unmet needs that can affect health (eg lack of access to services, skills deficits, etc) and make recommendations about ways to address these needs.

Negotiated safety – In which sexual partners practise unprotected intercourse with one another, within the framework of establishing sero-concordance (see definition below): both partners take the HIV test and, if sero-concordant, contract with one another to practise protected intercourse with casual/other sexual partners.

Non-experimental – ie observational: in which the role of the investigator is merely to observe what happens (eg a survey).

Pre-test/post-test design – In which the group is used as its own 'control', with data gathered before and after the intervention.

Programme – A set of interventions delivered to an identified population, according to their unmet 'needs' (ie the modifying factors that require changing) for information, skills and resources, and at a range of levels, using a number of methods and at different points in time.

Qualitative research – Research methods that use non-numeric information. They tend to examine subjective

meanings and interpretation, focusing on 'how' and 'why' type questions such as how do people feel about issues or why do they behave in a particular way.

Quantitative research – Research methods that gather information in numeric form, based on measuring and counting.

Quasi-experimental – A study which is well-designed, but which does not include all the key components of experimental research (eg randomisation).

RCT(s) – randomised controlled trial(s). RCTs are studies in which participants are randomly allocated to either a group which receives an intervention or a control group which does not receive the intervention. Both groups are followed up for a specific period. The outcomes, which are specified at the outset (eg reduction in risk behaviour), are measured to determine any difference between the two groups.

Sero-concordant intercourse – Intercourse between partners who share the same HIV sero-status (ie both are either HIV sero-positive or HIV sero-negative).

Sero-discordant intercourse – Intercourse between partners who have different HIV sero-status (ie one partner is HIV sero-positive and the other is HIV sero-negative).

Significance level – Expressed as a '*p*' value, this tells us the likelihood of an observed relationship between variables having occurred due to sampling error.

Socio-economic status – Description of a person's position in society that uses criteria such as income, level of education achieved, occupation, value of property owned.

STI(s) – Sexually transmitted infection(s).

UAI – Unprotected anal intercourse.

Unit of analysis – The unit from which information is obtained: in survey research, the unit of analysis would be usually be people.

Variable – An attribute or characteristic of a person that takes on different values (ie any quantity that varies such as age, gender, risk behaviour) within the group that is being studied.

VCT – Voluntary HIV counselling and testing.

Appendix A

Theories of behaviour change

The overview which follows is extensively based on Fisher and Fisher's chapter in Peterson and DiClemente's *Handbook of HIV Prevention* (2000). Although there is a large body of thought across the health field as to which theory might be preferred (for example, current smoking cessation interventions in the UK favour the transtheoretical model of behaviour change, discussed below), Fisher and Fisher consider theories specifically from the perspective of HIV prevention.

For full references to individual papers discussed below, please refer to Fisher and Fisher.

Content of and empirical support for the main theories

The Health Belief Model (HBM)

The 'grandparent of all health behaviour models' (Fisher and Fisher, p5), the Health Belief Model (HBM) (Rosenstock, 1974) is a model of conscious decision-making. Perceived susceptibility (to illness, damage etc) and perceived severity (of negative health outcomes) together lead to perceived vulnerability which in turn leads to readiness to act. Health behaviour options are evaluated by the individual in terms of their perceived benefits and costs. The effectiveness of the new behaviour is judged as one of the 'benefits' of behaviour change (ie whether it works in averting harm). The HBM recognises the importance of a 'cue stimulus' to kick-start the new health behaviour (eg symptoms, mass media messages, opportunistic interventions). In 1998, the concept of self-efficacy was added.

The HBM historically has focused on simple rather than complex behaviours (eg getting an injection rather than negotiating safer sex) and therefore its relevance to HIV prevention is questionable. There is only equivocal support for the HBM even outside of the HIV field. The model has been used more for its predictive power in terms of behaviour than for designing interventions, and 'is essentially a listing of constructs rather than a model per se' and merely 'suggests conditions that prompt one to seek health-relevant services' (Fisher and Fisher, p8).

AIDS Risk Reduction Model (ARRM)

The AIDS Risk Reduction Model (ARRM) was developed by Catania et al. (1990), and is one of two stage models of behaviour change; the other is the Transtheoretical Model (see below). Both assume change is a process, with different factors intervening at each step. However, the change processes are not viewed as irreversible or uni-directional.

The initial stage – the labelling of behaviour as 'problematic' – is facilitated by accurate information. Then comes the decision to commit to change, which is affected by a range of personal and social factors. Weighing the costs of behaviour change is important, taking into account factors such as enjoyment etc.

The final stage is taking action. Health education messages can be critical here. But, Fisher and Fisher argue, there has been little research on those variables connected with the enactment stage. Catania et al. outline few conditions affecting enactment of behaviour change (and 'thus suggest little in the way of content for effective interventions', Fisher and Fisher, p12). Internal/external cues facilitate movement from one stage to another and health messages can be crafted to whichever stage an individual or population has reached in the change process.

Fisher and Fisher point out that knowing which stage a population is at can be useful in effectively targeting interventions, but they acknowledge mixed support for the relationship between variables, stage attainment and outcomes, though many critical variables in the ARRM are shown in the literature to be linked with ultimate behavioural change. Importantly, little work has been done on how people move between stages. Also, there is little on incorporating the ARRM into interventions. Overall, empirical support is equivocal.

Transtheoretical Model (TM)

The Transtheoretical Model (TM) outlines six stages of change:

- Precontemplation – not interested in changing behaviour

- Contemplation – ready for information on behaviour and how to change
- Preparation – ‘appropriate recruits for traditional ‘action-oriented’ interventions’
- Action
- Maintenance – six months after action
- Termination – beyond temptation to relapse.

In addition, the authors of the model, Prochaska and Velicia (1997), suggest 10 processes (for example, consciousness raising; environmental evaluation) that assist the individual in changing behaviour, reflecting critical common elements in the hundreds of extant models of change, and which have been validated with safer sex and condom use. Some of these processes are more suited to earlier in the cycle, some to later; earlier, there should be more emphasis on experiential processes; later, on behavioural processes.

As with the ARRM, the intervention implications of the TM are that there is the need to know where the population is in terms of stage, then to deliver ‘stage-matched’ interventions. From other health areas, there is support for different change processes used at different stages.

Research suggests the TM can be applied to HIV as to other areas, but it is not clear how the components of the model interact: Fisher and Fisher note that there has been a lack of multivariate work done on this. They also note that few longitudinal or experimental studies have been done on the TM, and – an important point – that it may be very difficult to design interventions based on the TM.

Social Cognitive Theory (SCT)

The Social Cognitive Theory (SCT) has been effectively applied to behaviour change in a number of different health areas; Bandura (1994) has played a key role in making it applicable to HIV prevention. The SCT emphasises skills and self-beliefs: in other words, self-efficacy, which ‘affects whether people will attempt to change at all, how much effort they will exert and how much they will persist in a change attempt without giving up’ (Fisher and Fisher, p24). They state that knowledge and skills count for nothing without self-efficacy.

There are four components:

- Information (including convincing people that they can change their behaviour). Bandura emphasises the need

to put stress on perseverance so setbacks will not throw the individual; information needs to be culturally competent, credible etc

- Self-regulation/risk reduction skill development. Self-regulation skills consist of knowing one’s risk triggers, rehearsing arguments in favour of the new behaviour, the ability to self-reinforce; cognitive self-guidance (suggested intervention methods are the use of role models and of cognitive rehearsal); risk reduction, which can involve technical skills (use of condoms) or social skills (negotiating safer sex) (suggested intervention methods include, again, the use of role models, who should be identifiable with through culture, race, ethnicity, gender etc)
- Self-efficacy with regard to skills. There is the need to increase self-efficacy in relation to skills, by practising in progressively more difficult contexts, with constructive feedback
- Social support development/engagement. It is posited that the social support which is most proximate is most important.

As Fisher and Fisher point out, there is strong evidence for the role of self-efficacy in promoting behaviour change, though this is not universal (see O’Leary et al. for contradictory findings). They also note that there is empirical evidence for the importance of normative support. Kalichman’s review (1996) supports the effectiveness of interventions based on or incorporating ‘core’ elements of the SCT. Overall, the SCT is supported by evidence across a number of health behaviours. However, it shares many features with other models and doesn’t contain an explicit elicitation research component.

The Theory of Reasoned Action (TRA)

Fishbein and Ajzen’s Theory of Reasoned Action posits the following equation of behaviour change:

$$B \sim BI = [Aact]_{w1} + [SN]_{w2}$$

where B = behaviour, BI = behavioural intent, $Aact$ = attitude toward an HIV preventive act, SN = subjective norm or perception of referent support for performance of act, and $W1 + W2$ are regression weighting.

Attitudes and norms are themselves functions of psychological factors, eg beliefs and evaluations of consequences of acts etc. According to the theory, attitudes toward an HIV preventive act are a function of

beliefs about the consequences of performing the act (*B*) multiplied by evaluations of those consequences (*e*). Subjective norms concerning HIV preventive acts are a function of perceptions of whether specific categories of 'referent other' (eg peers, partners) want the individual to perform the act (*NB_j*) multiplied by the individual's motivation to comply with these referents' wishes (*MC_j*).

Elicitation research is seen as crucial to identify these beliefs. Personality, demographic and other variables are influential only via beliefs, attitudes and norms etc. The TRA states that it is necessary to strengthen intentions in order to increase preventive behaviour. Interventions can strengthen intentions by strengthening attitudes and norms, by changing psychological factors.

It is not clear that all factors external to the TRA influence behaviour only via the components proposed by the model: feelings about sexuality, information and skills, vulnerability perception, gender and ethnicity need crucial examination. However, overall, Fisher and Fisher judge the TRA to be '*well-specified and well-tested*' (p29), and that it has proved successful in predicting HIV preventive behaviour. Significantly, there is broad support for interventions based on the TRA.

Theory of Planned Behaviour (TPB)

The Theory of Reasoned Action (TRA) doesn't address the extent to which prevention does not fall within the individual's control. This is what Ajzen, the author of the Theory of Planned Behaviour (TPB), seeks to address. When an individual does not perceive that they have total control over their behaviour, behaviour is affected. Perceptions of control interact with attitudes, norms and intentions, such that perceived control should affect behaviour when attitudes norms and intentions are favourable to behaviour but not when they aren't. Where an individual perceives they have complete control over their behaviour, the TPB reverts to the TRA.

Perceived control and behavioural intention have been significantly correlated; there is inconsistent evidence on the direct relationship between perceived control and behaviour. Interventions have proved broadly supportive of the TPB, but the ability of the constructs to predict HIV preventive behaviour over the TRA seems negligible.

Perceptions of control play a significant role in influencing intentions to practise HIV preventive behaviour. 'Research

suggests that promoting perceptions of control is helpful in promoting HIV preventive behaviour, a fact that is consistent with the TPB' (Fisher and Fisher, p38).

The Information-Motivation-Behavioural Skills Model (IMB)

The Theory of Planned Behaviour (TPB) and Theory of Reasoned Action (TRA) are motivational models, with not much emphasis on information or sets of behavioural skills, an issue addressed directly by the Information-Motivation-Behavioural Skills Model (IMB) proposed by Fisher and Fisher (1993). HIV prevention information should be directly relevant to preventive behaviour and be enacted easily in the social ecology of the individual. HIV prevention motivation includes personal and social motivation and perceptions of personal vulnerability to HIV infection. Behavioural skills are made up of both objective ability and perceived self-efficacy, and can be categorised as either technical or personal skills.

The effects of information and motivation are chiefly expressed through behavioural skills. Where complicated skills are not necessary, information and motivation can directly affect behaviour. Information and motivation are held to be independent of each other. Information, motivation and behavioural skills are transferable across different target groups, though each construct will have content specific to sub-populations or particular sexual practices.

The IMB model advocates three stages:

- Elicitation research based on quantitative and qualitative research
- 'Design and implementation of conceptually-based, empirically targeted, population-specific interventions' (Fisher and Fisher, p43)
- Evaluation of intervention (the IMB advocates the collection of data, some of which appears to participants not to be related to the intervention per se).

Fisher and Fisher state that there is 'considerable empirical support for the fundamental assumptions of IBM' (p43). There is also support on its effectiveness in risk reduction behaviour change. A direct link is often found between motivation and behaviour change (the theory allows for this where the new behaviour is neither complicated nor uninstinctive). Fisher and Fisher raise questions about the model's information construct because it is an inconsistent predictor of behaviour,

though the IBM does specify when it is likely to be a better predictor of behaviour (ie earlier rather than later in epidemics).

In conclusion

Fisher and Fisher sum up as follows: 'In contrast [with the HBM, ARRM, TM and SCT], the TRA, TPB and IMB models have been thoroughly tested as integrated, multivariate models. Each has achieved a considerable degree of support and each explains considerable variance in HIV preventive behaviours across populations at risk' (p46).

It has to be noted that there is some contention as to the empirical basis for one theory over another. Stephenson et al. (2000) make the statement that differences in choice of theory and the way theory is implemented '[do] not appear to explain the differential effectiveness of the interventions' (S120), while Shepherd et al. (2000), citing Peersman and Levy (1998), also contend that 'there is little consensus about which theories are most powerful in affecting behavioural outcomes' (p687).

Finally, it is also important to note that the theories outlined above by no means constitute an exhaustive list: in addition, the literature makes reference to the Conservation of Resources Theory, the Theory of Gender and Power (Wingood and DiClemente, 1996); the Peer Influence Model, the Protection Motivation Theory and the Cognitive Dissonance Theory (Jemmott and Jemmott, 2000); Consumer Information-Processing Models, and the Decision Theory (Roe et al., 1997).

Appendix B

Intervention terms

Author (year)	Terms for types and levels of intervention
Wong (1995)	<ul style="list-style-type: none"> • Information dissemination • Motivation and persuasion • Increasing self-efficacy and skills training • Organisational and community support to initiate and sustain behaviour change
Exner et al. (1997 and 1999)	<ul style="list-style-type: none"> • Interpersonal (informational, condom skills/distribution, relational skills, HIV counselling and testing, and individual risk counselling interventions) • Institutional • Community • Mass media
Hickson et al. (2000) (2nd ed). Making It Count (MIC), the national gay men's HIV prevention framework	<ul style="list-style-type: none"> • Direct contact interventions (all interventions encountered by gay men whose aim is to meet their HIV prevention needs) • Community interventions (social diffusion, building community infrastructure) • Organisational/institutional interventions (influence policy and practice of organisations to enable them to increase their contribution to the ten MIC aims) • Facilitation interventions (research and development, programme planning, communication and collaboration between agencies) • Equality work (activities to reduce discrimination and social exclusion by influencing local and national policies)
Nutbeam (2000)	<ul style="list-style-type: none"> • Education, including school education, broadcast and print media communication • Social mobilisation, including community development, group facilitation, technical advice • Advocacy, including lobbying, political organisation and activism • Developing healthy public policy and organisational practice, including legislation, regulation, resource allocation

Appendix C

Search strategies

(1) HDA Searches – July 2001

HIV Topic Search Strategies for Medline, Sociological Abstracts, Embase, etc

Database: Sociological Abstracts <1963 to August 2001>

1 hiv.tw. (3009)
2 exp Acquired Immune Deficiency Syndrome/ (4841)
3 exp Prevention/ (3776)
4 prevent\$.tw. (12343)
5 1 or 2 (5060)
6 3 or 4 (13296)
7 5 and 6 (1522)
8 (hiv adj5 prevent\$.tw. (605)
9 (hiv adj5 educat\$.tw. (239)
10 (condom adj3 (scheme or distribut\$ or promot\$ or supply or provi\$)).tw. (53)
11 negotiated safety.tw. (3)
12 exp Mass Media/ (6617)
13 exp Peer Influence/ (543)
14 (peer adj3 educat\$.tw. (109)
15 outreach.tw. (682)
16 exp Sexual Behavior/ (4656)
17 exp RISK/ (3243)
18 (risk\$ adj (reduc\$ or prevent\$)).tw. (425)
19 exp Group Work/ (538)
20 group work.tw. (580)
21 exp Community Development/ (2341)
22 community development.tw. (1873)
23 hiv test.tw. (45)
24 exp ATTITUDES/ (16693)
25 attitude\$.tw. (27809)
26 exp BEHAVIOR/ (17908)
27 exp Behavior Modification/ (435)
28 exp INTERVENTION/ (3359)
29 exp PREVENTION/ (3776)
30 (interven\$ or prevent\$.tw. (25013)
31 exp Health Education/ (1388)
32 (health adj3 educat\$.tw. (2574)
33 (health adj3 promot\$.tw. (1228)
34 exp Health Behavior/ (1365)
35 (safe\$ adj sex).tw. (312)
36 or/10-35 (88403)
37 hiv\$.tw. (3017)
38 36 and 37 (2055)
39 7 or 8 or 9 (1640)
40 38 or 39 (2594)
41 exp Vaccination/ (104)
42 exp ILLNESS/ (2186)
43 exp TREATMENT/ (6190)

44 exp Medications/ (402)
45 zidovudine.tw. (10)
46 treatment.tw. (15976)
47 vaccin\$.tw. (189)
48 prognosis.tw. (456)
49 illness.tw. (6318)
50 exp "Occupational Safety and Health"/ (677)
51 (post exposure prophylaxis or pep).tw. (17)
52 needle exchange.tw. (50)
53 or/41-52 (26887)
54 40 not 53 (2001)
55 exp Developing Countries/ (5266)
56 exp ASIA/ (3471)
57 exp South America/ (7806)
58 exp AFRICA/ (4025)
59 or/55-58 (19811)
60 54 not 59 (1907)
61 exp CHILDREN/ (9478)
62 exp FAMILY/ (9334)
63 61 or 62 (18428)
64 60 not 63 (1857)
65 from 64 keep 1-10 (10)

EMBASE

1 Human Immunodeficiency Virus Infection/pc [Prevention] (6012)
2 exp Acquired Immune Deficiency Syndrome/pc [Prevention] (3728)
3 exp Human Immunodeficiency Virus/ (38027)
4 3 and prevent\$.tw. (2461)
5 Infection Prevention/ (7742)
6 3 and 5 (305)
7 4 or 6 (2634)
8 1 or 2 or 7 (9999)
9 (hiv adj5 prevent\$.tw. (3763)
10 (hiv adj5 educat\$.tw. (777)
11 Condom/ (3155)
12 (condom adj3 (scheme or distribut\$ or promot\$ or supply or provi\$)).tw. (235)
13 exp Condom/ (3155)
14 negotiated safety.tw. (8)
15 exp Mass Medium/ (2110)
16 (peer adj3 educat\$.tw. (250)
17 outreach.tw. (1300)
18 exp Sexual Behavior/ (18736)
19 (risk\$ adj (reduc\$ or prevent\$)).tw. (3096)
20 group work.tw. (203)
21 community development.tw. (192)
22 hiv test.tw. (442)
23 exp ATTITUDE/ (11253)

24 exp Behavior/ (275706)
 25 exp Behavior Modification/ (2449)
 26 (interven\$ or prevent\$.tw. (310150)
 27 exp Health Promotion/ (9527)
 28 (health adj3 promot\$.tw. (5166)
 29 exp Health Education/ (27619)
 30 (health adj3 educat\$.tw. (6027)
 31 exp Primary Prevention/ (2629)
 32 (prevention and control).mp. [mp=title, abstract,
 subject headings, drug trade name, original title,
 device manufacturer, drug manufacturer name]
 (12634)
 33 exp "PREVENTION AND CONTROL"/ (218173)
 34 (safer\$ adj sex).tw. (408)
 35 or/11-34 (733146)
 36 hiv\$.tw. (70384)
 37 35 and 36 (18006)
 38 8 or 9 or 10 (11604)
 39 37 or 38 (22035)
 40 exp Human Immunodeficiency Virus Vaccine/ (2106)
 41 aids vaccin\$.tw. (398)
 42 acquired immune deficiency syndrome/ or exp aids
 related complex/ (43176)
 43 exp AIDS Related Complex/ (1687)
 44 Acquired Immune Deficiency Syndrome/co, et, cn,
 rt, dm, rh, si, dt, su [Complication, Etiology, Congenital
 Disorder, Radiotherapy, Disease Management,
 Rehabilitation, Side Effect, Drug Therapy, Surgery]
 (10578)
 45 Human Immunodeficiency Virus Infection/co, et, cn, rt,
 dm, rh, si, dt, su [Complication, Etiology, Congenital
 Disorder, Radiotherapy, Disease Management,
 Rehabilitation, Side Effect, Drug Therapy, Surgery] (19723)
 46 exp OCCUPATIONAL DISEASE/ (20432)
 47 exp Occupational Exposure/ (19746)
 48 exp Antivirus Agent/ (136969)
 49 exp Antiretrovirus Agent/ (4345)
 50 exp ZIDOVUDINE/ (14367)
 51 exp PROGNOSIS/ (71095)
 52 exp Opportunistic Infection/ (5059)
 53 (post exposure prophylaxis or pep).tw. (1382)
 54 needle exchange\$.tw. (274)
 55 or/40-54 (282158)
 56 39 not 40 (20651)
 57 exp Developing Country/ (7838)
 58 exp africa/ or africa south of the sahara/ or north africa/
 or asia/ (28805)
 59 57 or 58 (35309)
 60 56 not 59 (19010)
 61 Child/ (187063)
 62 exp FAMILY/ (28576)
 63 61 or 62 (210419)
 64 60 not 63 (18081)
 65 from 64 keep 1-10 (10)

Medline

1 HIV Infections/pc [Prevention & Control] (8445)
 2 Acquired Immunodeficiency Syndrome/pc
 [Prevention & Control] (9957)
 3 (hiv adj prevention).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (1037)
 4 (safe\$ adj sex).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (709)
 5 Condoms/sd, ut [Supply & Distribution, Utilization]
 (869)
 6 (condom adj (scheme or distribution or promotion
 or provision)).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (107)
 7 negotiated safety.mp. (7)
 8 Mass Media/ (2811)
 9 peer education.mp. (106)
 10 outreach.mp. [mp=title, abstract, registry number
 word, mesh subject heading] (1954)
 11 hiv test.mp. (584)
 12 hiv\$.mp. [mp=title, abstract, registry number word,
 mesh subject heading] (101508)
 13 or/4-10 (6380)
 14 13 and 12 (1380)
 15 Risk-Taking/ (4476)
 16 risk\$.mp. [mp=title, abstract, registry number word,
 mesh subject heading] (465247)
 17 Sex Behavior/px [Psychology] (1007)
 18 Knowledge, Attitudes, Practice/ (15425)
 19 COUNSELING/ (13857)
 20 COGNITIVE THERAPY/ (2884)
 21 (group adj work).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (411)
 22 (intervention\$ or prevention).mp. [mp=title, abstract,
 registry number word, mesh subject heading] (245172)
 23 (health adj promotion).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (5957)
 24 (health adj education).mp. [mp=title, abstract, registry
 number word, mesh subject heading] (10378)
 25 22 or 23 or 24 (256974)
 26 25 and 12 (7831)
 27 or/15-21 (492204)
 28 27 and 26 (4133)
 29 1 or 2 or 3 (17372)
 30 29 or 28 or 14 or 11 (19892)
 31 exp AIDS VACCINES/ or vaccines.mp. or exp VACCINES/
 (84017)
 32 HIV Infections/bl, mi, cf, mo, ci, nu, ps, co, pa, cn,
 pp, dh, dt, ra, ri, em, rt, en, su, ge, us, im, ve, me,
 vi [Blood, Microbiology, Cerebrospinal Fluid, Mortality,
 Chemically Induced, Nursing, Parasitology, Complications,
 Pathology, Congenital, Physiopathology, Diet Therapy,
 Drug Therapy, Radiography, Radionuclide Imaging,
 Embryology, Radiotherapy, Enzymology, Surgery,
 Genetics, Ultrasonography, Immunology, Veterinary,
 Metabolism, Virology] (27305)
 33 Acquired Immunodeficiency Syndrome/bl, mi, cf, mo, ci,
 nu, ps, co, pa, cn, dh, dt, ra, ri, em, rt, en, su, ge, us, im,

ve, me, vi [Blood, Microbiology, Cerebrospinal Fluid, Mortality, Chemically Induced, Nursing, Parasitology, Complications, Pathology, Congenital, Diet Therapy, Drug Therapy, Radiography, Radionuclide Imaging, Embryology, Radiotherapy, Enzymology, Surgery, Genetics, Ultrasonography, Immunology, Veterinary, Metabolism, Virology] (30420)

34 OCCUPATIONAL DISEASES/ or OCCUPATIONAL EXPOSURE/ (60981)

35 Antiviral Agents/ (19112)

36 Anti-HIV Agents/ or Zidovudine/ (12587)

37 exp disease transmission, horizontal/ or exp disease transmission, vertical/ (6330)

38 exp AIDS-RELATED OPPORTUNISTIC INFECTIONS/ (11748)

39 exp PROGNOSIS/ (296524)

40 post exposure prophylaxis.mp. (156)

41 Needle-Exchange Programs/ (452)

42 or/31-41 (519222)

43 30 not 42 (13019)

44 exp Developing Countries/ (17338)

45 exp africa/ or exp caribbean region/ or exp central america/ or exp latin america/ or exp south america/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp atlantic islands/ or exp europe, eastern/ or exp indian ocean islands/ or exp pacific islands/ (402890)

46 44 or 45 (411781)

47 43 not 46 (10848)

48 Child/ (788826)

49 exp Family/ (107202)

50 48 or 49 (864468)

51 47 not 50 (10003)

PsychInfo

17 exp aids prevention/ (1649)

18 (hiv adj5 prevent\$.tw. (1757)

19 (hiv adj5 educat\$.tw. (666)

20 (safe\$ adj sex).tw. (752)

21 (condom adj3 (scheme or distribut\$ or promot\$ or supply or provi\$)).tw. (124)

22 exp CONDOMS/ (893)

23 negotiated safety.tw. (7)

24 exp mass media/ (3591)

25 (peer adj3 educat\$.tw. (389)

26 outreach.tw. (1307)

27 exp sexual risk taking/ (1123)

28 (risk\$ adj (reduc\$ or prevent\$)).tw. (1137)

29 (group adj work).tw. (1176)

30 (interven\$ or prevent\$.tw. (77519)

31 (health adj3 promot\$.tw. (3328)

32 exp health promotion/ (2191)

33 (health adj3 education).tw. (3122)

34 exp health education/ (5048)

35 exp community development/ (98)

36 or/22-35 (89645)

37 hiv\$.tw. (9955)

38 36 and 37 (4374)

39 or/17-21 (3396)

40 38 or 39 (5274)

41 exp syndromes/ or exp aids dementia complex/ or exp zidovudine/ (13890)

42 exp disease course/ (3101)

43 (treatment or therapy or antiviral).tw. (153388)

44 exp prognosis/ (1909)

45 post exposure prophylaxis.tw. (4)

46 or/41-45 (167492)

47 40 not 46 (2860)

48 exp south america/ or exp africa/ or exp asia/ (15908)

49 exp developing countries/ (765)

50 48 or 49 (16494)

51 47 not 50 (2743)

52 exp children/ (76642)

53 exp family/ (6624)

54 52 or 53 (82239)

55 51 not 54 (2672)

CINAHL

46 HIV Infections/pc [Prevention and Control] (1863)

47 Acquired Immunodeficiency Syndrome/pc [Prevention and Control] (1199)

48 (hiv adj5 prevent\$.tw. (1030)

49 exp hiv education/ (1254)

50 (hiv adj education).tw. (75)

51 exp safer sex/ (364)

52 (safe\$ adj sex).tw. (320)

53 condoms/lj, ed, ev, ut, td (769)

54 (condom adj3 (scheme or distribut\$ or promot\$ or supply or provi\$)).tw. (91)

55 "Control (Psychology)"/ (800)

56 negotiated safety.tw. (1)

57 mass media/ (932)58 (peer adj3 educat\$.tw. (151)

59 outreach.tw. (814)

60 exp Risk Taking Behavior/ (1911)

61 (risk\$ adj (reduc\$ or prevent\$)).tw. (704)

62 (group adj work).tw. (174)

63 (interven\$ or prevent\$.tw. (43923)

64 (health adj3 promot\$.tw. (4880)

65 exp health promotion/ (5843)

66 (health adj3 educat\$.tw. (5301)

67 exp health education/ (23627)

68 or/55-67 (74215)

69 hiv\$.tw. (8839)

70 68 and 69 (3076)

71 or/46-54 (4792)

72 70 or 71 (5865)

73 exp AIDS Vaccines/ (125)

74 aids-associated nephropathy/ or aids dementia complex/ or aids-related complex/ or aids-related opportunistic infections/ or hiv enteropathy/ or hiv wasting syndrome/ (782)

75 HIV Infections/bl, mi, dh, pa, dt, ra, et, ss, th, im, me, ur [Blood, Microbiology, Diet Therapy, Pathology, Drug Therapy, Radiography, Etiology, Symptoms, Therapy, Immunology, Metabolism, Urine] (1458)

- 76 aids-associated nephropathy/ or aids dementia complex/
or aids-related complex/ or aids-related opportunistic
infections/ or hiv enteropathy/ or hiv wasting syndrome/
(782)
- 77 Acquired Immunodeficiency Syndrome/bl, co, dh, dt, pr,
ra, rt, et, su, ss, th, me, mi, us, mo [Blood, Complications,
Diet Therapy, Drug Therapy, Prognosis, Radiography,
Radiotherapy, Etiology, Surgery, Symptoms, Therapy,
Metabolism, Microbiology, Ultrasonography, Mortality]
(1437)
- 78 exp Occupational Diseases/ (6344)
- 79 exp Occupational Exposure/ (3005)
- 80 antiviral agents/ (1145)
- 81 zidovudine/ (457)
- 82 exp disease transmission, horizontal/ or exp disease
transmission, vertical/ (730)
- 83 exp prognosis/ (12066)
- 84 post exposure prophylaxis.tw. (27)
- 85 exp Needle Exchange Programs/ (152)
- 86 or/73-85 (25372)
- 87 72 not 86 (4641)
- 88 exp developing countries/ (926)
- 89 exp africa/ or exp antarctic regions/ or exp arctic regions/
or exp asia/ or exp atlantic islands/ or exp developing
countries/ or exp historical geographic locations/ or exp
indian ocean islands/ or exp pacific islands/ (15999)
- 90 87 not (88 or 89) (4313)
- 91 child/ (35853)
- 92 exp family/ (22096)
- 93 91 or 92 (53204)
- 94 90 not 93 (3923)

(2) Supplementary searches conducted by York CRD: November 2001

Interventions to prevent/reduce transmission of HIV/AIDS (heterosexual and homosexual)

Limits

English language only

1994 to date

Human

NOT developing countries

Reviews only

Some search interfaces are relatively unsophisticated and extensive strategy searching is not possible. In those cases a range of high level terms were identified and used to search the resources, or publications lists will be scanned (for example with NCCHTA and SIGN websites).

Database checklist

Source	Version/service
Cochrane Library	CD-ROM 2001/3
DARE admin database*	CRD website 06/11/01
'Wider Public Health' report	CRD website 02/11/01
TRIP	WWW 02/11/01
HTA database	CRD website 06/11/01
SIGN	WWW 02/11/01
Health Evidence Bulletins Wales	WWW 02/11/01
National Guideline Clearinghouse	WWW 02/11/01
NCCHTA website	WWW 02/11/01
NICE web pages	WWW 02/11/01
REFER	WWW 02/11/01
National Research Register	CD-ROM 2001/3
Clinical Evidence	Issue 4
EMBASE (1996-2001)	Datatar 07/11/01
Sociological Abstracts	Datatar 07/11/01
PsycINFO (2001/1 to 2001/8)	WinSPIRS 07/11/01

* Reviews selected from monthly searches of Medline and CINAHL, weekly searches of Current Contents Clinical Medicine, annual searches of ERIC, Biosis, Allied and Alternative Medicine (AMED) and PsycINFO, plus EMBASE; hand searching key major medical journal; and scanning grey literature. See <http://agatha.york.ac.uk/faq2.htm> for further details.

Search facets:

Facet A: HIV/AIDS

Facet B: prevention, education etc.

NOT:

Facet C: vaccines, vertical transmission, blood transfusion, organ transplants

Searching notes:

As this search strategy retrieved a large number of records when HIV/AIDS terms were combined with a reviews strategy, terms representing prevention and educational interventions were also included to narrow down the search results.

References on AIDS/HIV vaccines, vertical transmission, blood transfusion and organ transplants were excluded. Results were sifted by hand.

1 Cochrane Library (2001/3) (searched 06/11/01)

acquired-immunodeficiency-syndrome*:me hiv*:me acquired next immunodeficiency next syndrome
aidshivhuman next immunodeficiency next virus
acquired next immuno next deficiency next syndrome
human next immuno next deficiency next virus
#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8)
prevent* or reduc* or minimis* or minimiz* or decreas*)
interven* or promot* or educat* or influenc*)
health-education:mehealth-promotion:me#11 or #12 or #13
safe* next sex or lifestyle next change* or attitude* next change*
condom* or barrier*
behavior* or behaviour*health-behavior:mesex-behavior:mecounsel*counseling:me#15 or #16 or #17 or #18 or #19 or #20 or #21#10 or #14 or #22
#9 and #23
vertical next transmission
aids-vaccines:mevaccinesanti-hiv-agents:meantiviral-agents*:me#25 or #26 or #27 or #28 or #29
#24 not #30Details of ten ongoing and two completed
Cochrane reviews were found on the prevention/reduction of the transmission of HIV/AIDS.

2 DARE admin database (searched 06/11/01)

s acquired(w)immunodeficiency(w)syndrome/kwos hiv/kwos
acquired(w)immunodeficiency(w)syndromes aids\$ hiv\$
human(w)immunodeficiency(w)virus
s acquired(w)immuno(w)deficiency(w)syndrome
s human(w)immuno(w)deficiency(w)virus
s s1 or s2 or s3 or s4 or s5 or s6 or s7 or s8s prevent\$ or reduc\$
or minimis\$ or minimiz\$ or decreas\$ interven\$ or promot\$ or
educat\$ or influenc\$ health(w)education/kwos
health(w)promotion/kwos s11 or s12 or s13s safe\$(w)sexs
condom\$ or barrier\$s behavior\$ or behaviour\$s
health(w)behavior/kwo
s sex(w)behavior/kwo s counsel\$s counseling/kwo
s attitude\$(w)change\$

s lifestyle(w)change\$s s15 or s16 or s17 or s18 or s19 or s20 or
s21 or s22 or s23s s10 or s14 or s24s s9 and s25s
vertical(w)transmissions aids(w)vaccines/kwos vaccin\$s
anti(w)hiv(w)agents/kwos antiviral(w)agents/kwos s27 or s28 or
s29 or s30 or s31s s26 andnot s32s (1994 or 1995 or 1996 or
1997 or 1998 or 1999 or 2000 or 2001)/dat
s s33 and s34

317 records in total were retrieved. These were scanned for relevancy, and reduced to 26 records.

3 'Wider Public Health' Report (searched 02/11/01) www.york.ac.uk/inst/crd/wph.htm

The Wider Public Health report was browsed for using the following terms:

hiv or aids

Two references were found on the prevention/reduction of the transmission of HIV/AIDS in the chapters on 'Social Care and Social Welfare' and 'Crime, Drugs and Alcohol'.

4 TRIP (www.tripdatabase.com) (searched 02/11/01)

search terms: hiv or aids

Other than records from CDSR, Health Evidence Bulletins Wales, DARE and NHS EED, one additional record was found on TRIP. This was an NIH Consensus Statement.

5 HTA database (<http://nhscrd.york.ac.uk/>) (searched 06/11/01)

s acquired immunodeficiency syndrome/kwos hiv/kwos acquired immunodeficiency syndromes aids\$ hiv\$
human(w)immunodeficiency(w)virus
s acquired(w)immuno(w)deficiency(w)syndrome
s human(w)immuno(w)deficiency(w)virus
s s1 or s2 or s3 or s4 or s5 or s6 or s7 or s8s prevent\$ or reduc\$
or minimis\$ or minimiz\$ or decreas\$ interven\$ or promot\$ or
educat\$ or influenc\$ health education/kwos health
promotion/kwos s11 or s12 or s13s safe\$(w)sexs condom\$ or
barrier\$s behavior\$ or behaviour\$s health behavior/kwo
s sex behavior/kwo s counsel\$s counseling/kwos
attitude\$(w)change\$
s lifestyle(w)change\$s s15 or s16 or s17 or s18 or s19 or s20 or
s21 or s22 or s23s s10 or s14 or s24s s9 and s25s
vertical(w)transmissions aids vaccines/kwos vaccin\$s anti hiv
agents/kwos antiviral agents/kwos s27 or s28 or s29 or s30 or
s31s s26 andnot s32s (1994 or 1995 or 1996 or 1997 or 1998
or 1999 or 2000 or 2001)/xyr
s s33 and s34

One record on the prevention/reduction of the transmission of HIV/AIDS was found on the HTA database.

6 SIGN (www.sign.ac.uk/guidelines/published/index.html) (searched 02/11/01)

No relevant guidelines found

7 Health Evidence Bulletin Wales (searched 02/11/01)

There is a whole bulletin on healthy living, which was produced in June 1999. The section of this bulletin on sexually transmitted infections (Chapter 5) contained seven relevant references.

8 National Guidelines Clearinghouse (www.guideline.gov/index.asp) (searched 02/11/01)

search terms:

Disease/Condition: hiv or aids

Publication Date: 2001 or 2000 or 1999 or 1998 or 1997 or 1996 or 1995 or 1994

CATEGORY: Counseling or Prevention or Risk

Assessment/Prognosis

Details of one relevant guideline were found on the NGC website.

9 NCCHTA (www.hta.nhsweb.nhs.uk/) (searched 02/11/01)

No relevant ongoing or completed technology assessments were found.

10 NICE (www.nice.org.uk/nice-web) (searched 02/11/01)

search terms: hiv or aids

No relevant references were found.

11 REFER www.doh.gov.uk/research/rd3/information/findings.htm#refer, (searched 02/11/01)

search terms: hiv or aids

No relevant references were found.

12 National Research Register (Issue 2001/3)

acquired-immunodeficiency-syndrome*:mehiv*:meacquired next immunodeficiency next syndrome
aidshivhuman next immunodeficiency next virus
acquired next immuno next deficiency next syndrome
human next immuno next deficiency next virus
#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8
prevent* or reduc* or minimis* or minimiz* or decreas*
interven* or promot* or educat* or influenc*

health-education:mehealth-promotion:me#11 or #12 or #13
safe* next sex or lifestyle next change* or attitude* next change*
condom* or barrier*behavior* or behaviour*)
health-behavior:mesex-behavior:mecounsel*counseling:me#15 or #16 or #17 or #18 or #19 or #20 or #21
#10 or #14 or #22
#9 and #23
vertical next transmission
aids-vaccines:mevaccinesanti-hiv-agents:meantiviral-agents*:me#25 or #26 or #27 or #28 or #29
#24 not #30
#24 not #30
review* or overview*
meta next analys* or metanalys* or metaanalysis
#33 or #34
#32 and #3

No relevant completed or ongoing ongoing projects were found on the prevention/reduction of the transmission of HIV/AIDS.

13 Clinical Evidence

No relevant information found.

14 EMBASE (searched on DataStar 07/11/01)

meta adj analysis.de.
metaanalys\$.ti,ab.
meta-analys\$.ti,ab.
meta adj analys\$.ti,ab.
cochrane.ti,ab,de.
(review\$ or overview\$).ti.
review.dt.
synthes\$ with ((literature\$ or research\$ or studies or data).ti,ab.)
(pooled adj analys\$).ti,ab.
(data with pool\$) and studies
(medline or medlars or embase or cinahl or scisearch or psychinfo or psycinfo or psychlit or psychlit).ti,ab.
((hand or manual or database\$ or computer\$) with search\$).ti,ab.
((electronic or bibliographic\$) with (database\$ or data adj base\$)).ti,ab.
(review\$ or overview\$) with ((systematic\$ or methodologic\$ or quantitativ\$ or research\$ or literature\$ or studies or trial\$ or effective\$).ab.)
1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14
(retrospective\$ with review\$).ti,ab,de.
(case\$ with review\$).ti,ab,de.
(record\$ with review\$).ti,ab,de.
(patient\$ with review\$).ti,ab,de.
(patient\$ with chart\$).ti,ab,de.
(peer with review\$).ti,ab,de.
(chart\$ with review\$).ti,ab,de.
(case\$ with report\$).ti,ab,de.

(rat or rats or mouse or mice or hamster or hamsters or animal or animals or dog or dogs or cat or cats or bovine or sheep).ti,ab,de.
 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24
 25 not (25 and 15)
 15 not 26
 editorial.dt.
 letter.dt.
 28 or 29
 27 not 30
 animal#
 human#
 32 not (32 and 33)
 nonhuman#
 human#
 35 not (35 and 36)
 34 or 37
 31 not 38
 acquired-immune-deficiency-syndrome#
 human-immunodeficiency-virus#
 (acquired adj immunodeficiency adj syndrome).ti,ab.
 aids.ti,ab.
 hiv.ti,ab.
 (human adj immunodeficiency adj virus).ti,ab.
 (acquired adj immun\$1 adj deficiency adj syndrome).ti,ab.
 (human adj immun\$1 adj deficiency adj virus).ti,ab.
 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47
 prevent\$ or reduc\$ or minimis\$ or minimiz\$ or decreas\$
 interven\$ or promot\$ or educat\$ or influenc\$
 health-education#
 (safe\$ adj sex).ti,ab.
 (condom\$ or barrier\$).ti,ab.
 (behavior\$ or behaviour\$).ti,ab.
 health-behavior.de.
 sexual-behavior.de.
 counsel\$.ti,ab.
 counseling.de.
 (attitude\$ adj change\$).ti,ab.
 (lifestyle adj change\$).ti,ab.
 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59
 or 60
 48 and 61
 ((vertical adj transmission) or (mother with child) or pediatric or paediatric or perinatal).ti,ab.
 human-immunodeficiency-virus-vaccine.de.
 vaccin\$.ti,ab.
 anti-human-immunodeficiency-virus-agent.de.
 antiviral-agent.de.
 antiretrovirus-agent.de.
 occupational-exposure.de.
 (hearing adj aid\$).ti,ab.
 ((blood adj transfusion\$) or (organ adj transplant\$)).ti,ab.
 developing-country.de.
 africa#
 (developing adj countr\$ or africa\$ or india\$).ti,ab.
 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73
 or 74
 62 not 75

39 and 76
 ..l 77 and lg=en

38 potentially relevant references were found from a total of 706 retrieved by the search.

15 Sociological Abstracts (searched on DataStar 07/11/01)

(acquired adj immunodeficiency adj syndrome).ti,ab.
 aids.ti,ab.
 hiv.ti,ab.
 (human adj immunodeficiency adj virus).ti,ab.
 (acquired adj immun\$1 adj deficiency adj syndrome).ti,ab.
 (human adj immun\$1 adj deficiency adj virus).ti,ab.
 1 or 2 or 3 or 4 or 5 or 6
 prevent\$ or reduc\$ or minimis\$ or minimiz\$ or decreas\$
 interven\$ or promot\$ or educat\$ or influenc\$
 (safe\$ adj sex).ti,ab.
 (condom\$ or barrier\$).ti,ab.
 (behavior\$ or behaviour\$).ti,ab.
 counsel\$.ti,ab.
 (attitude\$ adj change\$).ti,ab.
 (lifestyle adj change\$).ti,ab.
 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15
 7 and 16
 ((vertical adj transmission) or (mother with child) or pediatric or paediatric or perinatal).ti,ab.
 vaccin\$.ti,ab.
 (antivir\$ adj agent).ti,ab.
 (antiretrovir\$ adj agent).ti,ab.
 (occupational adj (exposure or safety or hazard\$ or risk\$)).ti,ab.
 (hearing adj aid\$).ti,ab.
 ((blood adj transfusion\$) or (organ adj transplant\$)).ti,ab.
 (developing adj countr\$ or africa\$ or india\$).ti,ab.
 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
 17 not 26
 ..l 27 and lg=en

5 potentially relevant references were found from a total of 2180 retrieved by the search.

16 PsycInfo (SilverPlatter version was searched on records added in updates during 2001; earlier record should form part of the DARE admin database)

meta analy* in ti,ab
 metaanaly* in ti,ab
 (synthes* with (literature* or research* or studies or data)) in ti,ab
 (review or overview) in ti
 (review or overview) in ab
 (systematic* or methodologic* or quantitative or research* or literature* or studies or trial* or effective*) in ab
 (medline or medlars or embase or scisearch) in ab
 pooled analys*

(data with pool with studies) in ti,ab
 ((hand or manual or computer or electronic or database) and
 search*) in ti,ab
 ((electronic* or bibliographic*) with database) in ti,ab
 (peto or der simonian or dersimonian or fixed effect*) in ti,ab
 "literature-review" in de
 "meta-analysis" in de
 #13 or #14
 exact{literature-review-research-review} in pt
 exact{meta-analysis} in pt
 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or
 #11 or #12 or #15 or #16 or #17
 acquired immunodeficiency syndrome
 aids in ti,ab
 hiv in ti,ab
 human immunodeficiency virus
 acquired immun* deficiency syndrome
 human immun* deficiency virus
 #19 or #20 or #21 or #22 or #23 or #24
 (prevent* or reduc* or minimis* or minimiz* or decreas*) in
 ti,ab
 (interven* or promot* or educat* or influenc*) in ti,ab
 safe* sex in ti,ab
 (condom or barrier*) in ti,ab
 (behavio?r* or counsel*) in ti,ab
 attitude* change* in ti,ab
 lifestyle change* in ti,ab
 #26 or #27 or #28 or #29 or #30 or #31 or #32
 #25 and #33
 (vertical transmission or mother adj2 child* or p?ediatric or
 perinatal) in ti,ab
 vaccin* in ti,ab
 antivir* agent* in ti,ab
 antiretrovir* agent* in ti,ab
 (occupational adj (exposure or safety or hazard* or risk*)) in
 ti,ab
 hearing aid* in ti,ab
 ((blood transfusion) or (organ transplant*)) in ti,ab
 (developing countr* or africa* or india* or third world) in ti,ab
 #36 or #37 or #38 or #39 or #40 or #41 or #42
 #34 not #43
 #18 and #44
 #45 and (ud >= "20001227")
 #46 and (la = "english")

18 potentially relevant references were found from a total of
 277 retrieved by the search.

Appendix D

Steering and reference groups

HIV Prevention Evidence Base Reference Group

Role of the Group

- 1 To advise the HDA on the process and priorities for searching, collating and interpreting the HIV evidence base.
- 2 To develop a rationale and framework for identifying and prioritising new primary and secondary research.

It is not a steering group, in that HDA priorities and workloads will ultimately be determined in liaison with the Department of Health. The Group has formal endorsement, however, from the Department of Health's Teenage Pregnancy, Sexual Health and HIV Unit.

Membership

Membership is by invitation. The membership of the Reference Group largely consists of academic researchers, but also includes some key national informants, commissioners, the Department of Health and the HDA's HIV evidence base team (Simon Ellis, Elaine Barnett-Page, Antony Morgan and Lorraine Taylor). The Group is chaired by Professor Mike Kelly, HDA Director of Research and Information.

Members will not be paid for their time, but will be reimbursed for reasonable expenses.

At date of publication of the first edition, members included (*Joined Reference Group in January 2003):

*Andrew Bibby (Croydon PCT)
Chris Bonell (Visiting Fellow at SSRU, Institute of Education, University of London)
Jonathon Elford (City University)
Barry Evans (Public Health Laboratory Service Communicable Disease Surveillance Centre)
Kevin Fenton (University College London and PHLS)
Angela Harden (EPPI-Centre, SSRU, Institute of Education, University of London)
Graham Hart (MRC Social and Public Health Sciences Unit, Glasgow)
Ford Hickson (Sigma Research)

John Imrie (Royal Free/University College London)
Susie McLean (National AIDS Trust)
Will Nutland (Terrence Higgins Trust)
Joseph O'Reilly (National AIDS Trust)
Kay Orton (HIV/Sexual Health, Department of Health)
Tim Rhodes (Centre for Research on Drugs and Health Behaviour)
Marsha Rosengarten (Royal Free/University College London)
Max Sesay (African HIV Policy Network)
*Jack Summerside (Terrence Higgins Trust)
Rod Thomson (English HIV Commissioners Group)
Peter Weatherburn (Sigma Research)
Kaye Wellings (London School of Hygiene and Tropical Medicine)
Danny Wight (MRC Social and Public Health Sciences Unit, Glasgow)
Sandra Williams (Research, Analysis & Information Directorate, Department of Health)

Timescales and commitments

The first meeting of the Reference Group was held in November 2001; this provided the context for the HDA's evidence base work and agreed the Group's terms of reference. In January 2002, the Group was asked to put forward suggestions for any additional relevant reviews to the ones that we had identified at that time.

Members of the Group are to be given an opportunity to provide their comment on drafts and other outputs from the evidence base work.

A further meeting will be arranged after publication of this first evidence briefing to review the work completed by the HDA by that date, and to provide an opportunity for gathering 'expert opinion', including views on the main gaps in the evidence.

The Reference Group is not expected to meet more than twice a year; however, individuals may wish to join working groups focusing on priority target audiences and meet more regularly.

Public Health Evidence Steering Group

Purpose

The Public Health Evidence Steering Group (PHESG) was established to quality assure the processes developed by the HDA in the discharge of its responsibilities in maintaining the map of the evidence base and delivering evidence and syntheses of evidence through the HDA's Evidence Base (HDA EB).

Membership

The Chief Medical Officer or his/her nominee will chair the PHESG.

Members will be nominated by the Chief Medical Officer in consultation with the chair of the Steering Group and the Director of Research and Information of the Health Development Agency.

The membership will reflect, as far as possible, a spectrum of expertise in all types of research relevant to public health, the professions practising public health, and users of public health evidence.

Members of the PHESG will normally serve for a period of three years. However, when the group is established one third of the members will initially serve for a period of two years to allow for rotation of membership.

Members may serve two continuous terms of office.

Terms of reference

The terms of reference are categorised under three headings: organisation and strategy, content and process, and liaison with stakeholders.

Organisation and strategy The PHESG will oversee and advise the Board of the Health Development Agency and the CMO about the overall organisation and strategic direction of the Health Development Agency's Evidence Base (HDA EB). To do this it will carry out a number of activities:

- Review annual milestones for the development of the evidence base and establish in consultation with the Director of Research and Information dates for their completion
- Oversee the evaluation of the HDA EB, aided by the receipt of regular reports about the evaluation of the website

- Support the editorial independence of the HDA
- Support the positioning of the HDA EB within the national R&D infrastructure, and the establishment of its distinct contribution
- Help to guide the strategic direction of the HDA EB
- Ensure the establishment of an effective mechanism/infrastructure to engage users (defined to include practitioners, managers, planners, policy makers, researchers) in guiding and evaluating the priorities and work for advancing the evidence base for public health
- Offer advice on the current state of HDA EB to the R&I Directorate, the Board of the HDA and the CMO
- Promote the HDA EB.

Content and process The PHESG has the overall responsibility to ensure that the processes and the content of the HDA EB are quality assured. To do this it will:

- Report to the Board of the HDA and to the CMO about progress towards the achievement of the HDA EB's milestones, on an annual basis
- Review the quality assurance mechanisms for the development of the HDA EB
- Quality assure the processes whereby the evidence base is developed
- Receive written reports and minutes from, review strategic aspects and approve the membership of, the Reference Groups and the Methodology Group (which will have the responsibility for the quality control of the content of the HDA EB)
- Assist the Director of Research and Information at the HDA to promote the interests of the development of an evidence-based approach to public health and health improvement
- Acknowledge and encourage methodological pluralism, and encourage rigour and excellence in different methodological approaches
- Assist the HDA refine and develop the criteria for inclusion in the HDA EB, with reference to a wide variety of types of evidence
- Help the HDA develop protocols for identifying evidence thresholds
- Work towards the standardisation and interchangeability of conceptual frameworks with particular reference to social inequalities.

Liaison with stakeholders The PHESG will be a forum for links with key stakeholders of the HDA EB. To do this it will:

- Work closely and collaboratively and in an integrated way with a range of agencies and institutions concerned with similar issues such as the King's Fund, the National Electronic Library for Health, Public Health Observatories (PHOs), the NHS Centre for Reviews and Dissemination (CRD), the Cochrane Collaboration, EPPI-Centre, the Public Health Institute of Scotland (PHIS), Health Evidence Bulletins Wales, the Campbell Collaboration, ESRC Evidence Based Policy Initiative, MRC and the British Library
- Act as a facilitator and a platform to bring together contributions concerning methodological and evidence matters from diverse academic and service backgrounds, link with international and other UK colleagues, and promote the sharing of information relevant to the development of the evidence based approach to public health and health improvement, and draw together experts in a range of activities relevant to public health and health improvement
- Consider the best and most appropriate ways of disseminating evidence and guidelines and of ensuring transfer and take up of best practice based on the evidence
- Assist in the development of concordant methodologies between the HDA, the CRD and EPPI-Centre
- Help develop a glossary of terms for the EB consistent with the CRD and EPPI-Centre
- Work closely with the Evidence User group of the HDA
- Help increase national capacity for systematic review
- Develop a UK and Ireland network for the sharing of best practice
- Bring together relevant contributors to the debates about evidence and methodology in public health and health improvement.

These terms of reference will be reviewed biannually

Appendix E

HDA Evidence Base – critical appraisal tool

Authors: _____

Title: _____

Source: _____

Does this paper address your topic area?	Yes	No	Unsure
Circle the type of paper: <ul style="list-style-type: none"> • Systematic review • Meta-analysis • Synthesis • Literature review • Other review (please specify) Does it address (circle as appropriate)? <ul style="list-style-type: none"> • Effectiveness (interventions and treatments) • Causation • Monitoring and surveillance trends • Cost • Other (please specify) 			
Does the paper have a clearly focused aim or research question?	Yes	No	Unsure
Consider whether the following are discussed:			
• The population studied	Yes	No	Unsure
• The interventions given	Yes	No	Unsure
• The outcomes considered	Yes	No	Unsure
• Inequalities	Yes	No	Unsure
Do the reviewers try to identify all relevant English language studies?	Yes	No	Unsure
Consider whether details are given for:			
• Databases searched	Yes	No	Unsure
• Years searched	Yes	No	Unsure
• References followed up	Yes	No	Unsure
• Experts consulted	Yes	No	Unsure
• Grey literature searched	Yes	No	Unsure
• Search terms specified	Yes	No	Unsure
• Inclusion criteria described	Yes	No	Unsure
Is it worth continuing?	Yes	No	
Why/why not?			

Do the authors address the quality (rigour) of the included studies? Consider whether the following are used:	Yes	No	Unsure
• A rating system	Yes	No	Unsure
• More than one assessor	Yes	No	Unsure
If study results have been combined, was it reasonable to do so? Consider whether the following are true:	Yes	No	Unsure
• Are the results of included studies clearly displayed?	Yes	No	Unsure
• Are the studies addressing similar research questions?	Yes	No	Unsure
• Are the studies sufficiently similar in design?	Yes	No	Unsure
• Are the results similar from study to study (test of heterogeneity)?	Yes	No	Unsure
• Are the reasons for any variation in the results discussed?	Yes	No	Unsure
What is the overall finding of the review? Consider: • How the results are expressed (numeric – relative risks, etc) • Whether the results could be due to chance (p-values and confidence intervals)			
Are sufficient data from individual studies included to mediate between data and interpretation/conclusions?	Yes	No	Unsure
Does this paper cover all appropriate interventions and approaches for this field (within the aims of the study)? If no, what?	Yes	No	Unsure
Can the results be applied/are generalisable to a UK population/population group?	Yes	No	Unsure
• Are there cultural differences from the UK?	Yes	No	Unsure
• Are there differences in healthcare provision with the UK?	Yes	No	Unsure
• Is the paper focused on a particular target group (age, sex, population sub-group etc)?	Yes	No	Unsure
Accept for inclusion onto Evidence Base?	Yes	No	Refer to third party
Additional comments			

Appendix F: Summary of Core review papers

Author and date	Title	Dates covered	Interventions/scope	No. studies*	Relevance to areas covered				
					MSM	African	CSW	PWHIV	VCT
Exner, T. M. et al., 1997	A review of HIV interventions for at-risk women	Up to 1995	Primary HIV prevention interventions for at-risk women addressing sexual risk reduction set in US, Canada or Puerto Rico	16 studies			✓		✓
Exner, T. M. et al., 1999	HIV sexual risk reduction interventions with heterosexual men: the forgotten group	Up to 1998	Selected interventions carried out in the US with a psychological, behavioural or educational component, designed specifically to address heterosexual risk reduction. Includes four HIV VCT studies	20 studies					✓
Gibson, D. et al., 1998	Effectiveness of psychosocial interventions in preventing HIV risk behaviour in injecting drug users	1990 to 1998	Review of interventions with IDUs, includes one HIV VCT study and one other examining enhanced versus standard counselling and testing.	19 studies					✓
Ickovics, J. R. and Yoshikawa, H. 1998	Preventive interventions to reduce heterosexual HIV risk for women: current perspectives, future directions	Up to 1997	Interventions to reduce risk behaviour associated with heterosexual transmission of HIV for women. Reports separately on interventions for CSWs, African-American women and Latina women in the US. Most of the interventions described are small group interventions, though there are a handful of community level interventions (including media interventions) and individual interventions.	51 studies		✓	✓		✓
Kegeles, S. M. and Hart, G. 1998	Recent HIV-prevention interventions for gay men: individual, small-group and community based studies	Up to 1997	Individual, small group and community interventions with MSM (including one on post-exposure prophylaxis)	6 published reports (plus 6 reports of studies in progress)	✓				

* There is sometimes a discrepancy between studies and reports of studies, since details of some studies are written up and published in more than one source

Appendix F: Summary of Core review papers (cont.)

Author and date	Title	Dates covered	Interventions/scope	No. studies	Relevance to areas covered			
					MSM	African	CSW	PWHIV VCT
Oakley, A. et al., 1994	SSRU Database Project Number 1. Reviews of effectiveness: HIV prevention and sexual health education interventions	Up to mid 1994	Behavioural interventions in HIV prevention and sexual health education	68 studies/ 18 Core methodologically 'sound'	✓		✓	
Oakley, A. et al., 1996	Review of effectiveness of health promotion interventions for men who have sex with men	Up to 1994	Behavioural interventions with MSM, including small group, community and peer-led	18 studies/ 6 Core methodologically 'sound' studies*	✓			✓
Weinhardt, L. S. et al., 1999	Effects of HIV counseling and testing on sexual risk behavior: A meta-analytic review of published research, 1985-1997	Up to 1997	Meta-analysis of 27 studies, representing a total of 19,597 participants. ** 70% of the studies were conducted in North America, 22% in Africa and 8% in Europe.	27 studies				✓
Wolitski, R. J. et al 1997***	The effects of HIV counselling and testing on risk-related practices and help-seeking behavior	Up to 1996	Studies which examined the influence of HIV VCT on risk-related practices and help-seeking behaviour. Included studies divided into four population groups: men who have sex with men, injecting drug users, women and heterosexual couples and 'mixed population'. The review includes studies in which clients received only post-test counselling, both pre-test and post-test counselling, or intensive risk reduction counselling and education.	35 studies are included				✓

* Oakley et al found references to studies concerned with MSM, of which 25 were references to evaluations assessing the impact of one or more HIV prevention interventions with MSM; these covered 19 separate outcome evaluations. The reviewers identified a subset of 'sound' studies with sufficient methodological strengths to generate reliable conclusions and only six studies were finally selected.

** Weinhardt et al. were testing the hypothesis that study participants who received HIV positive test results individually or with a partner would exhibit greater risk reduction than HIV negative participants who in turn would exhibit greater risk reduction than untested participants. Hypotheses about moderating variables (modifying factors) that might explain variations in effect sizes across studies were also tested.

*** This review updates an earlier review by Higgins, D. L. et al. 1991

Appendix G

Tables of primary studies included within the Core review papers*

*Note that bibliographic references to the primary studies can be found within the reviews – they are not provided in this document

Table (c) – Primary studies covered by the two reviews relevant to MSM

			Reviews	
			Kegeles and Hart (1998)	Oakley et al. (1996)
Primary studies				
Study no.				
Individual				
	1	Gold and Rosenthal (1995)	✓	
Total reports (studies)		1 (1)	1 (1)	0
Group				
Linked studies	2	Choi et al. (1996)	✓	
	3	Kelly et al. (1989)		✓
	4	Kelly et al. (1990)		'Not sound'
	5	Kelly et al. (1996)	✓	
	6	Valdiserri et al. (1989)		✓
	7	Peterson et al. (1996)	✓	
	8	Tudiver et al. (1992)		✓
Total reports (studies)		7 (7)	3 (3)	4 (4)
Community				
	9	Honnen and Kleinke (1990)		✓
	10	Kegeles et al. (1996)	✓	✓
Same study	11	Kelly et al. (1991)		✓
	11	Kelly et al. (1992)		✓
	11	St Lawrence et al. (1994)		✓
	12	Kelly et al. (1997)	✓	
Total reports (studies)		6 (4)	2 (2)	5 (3)
Total reports (studies)		14 (12)	6 (6)	9 (7)

Table (d) – Primary studies covered by the three reviews relevant to CSWs

		Reviews			Intervention	Study design (according to review)	Outcomes reported in review
		Exner et al. (1997)	Oakley et al. (1994)	Ickovics and Yoshikawa (1998)			
Primary studies							
Study no.	Individual						
1	Corby et al. (1990)	✓			Enhanced VCT	RCT, does not meet Exner core criteria	Condom use
2	Pickering et al. (1993)			✓	VCT	Non-experimental	Condom use
Total reports (studies)	2 (2)	1 (1)	0	1(1)			
Group							
3	Ngugi et al. (1988)		✓	✓	VCT involving group education/ community-wide	'Flawed' according to Oakley et al. (1994)	Condom use
Total reports (studies)	1 (1)	0	1 (1)	1 (1)			
Community							
4	Asamoah-Adu et al. (1994)			✓	Community-wide, wide, peer-led	Not RCT	Condom use
5	Bhave et al. (1995)			✓	Community-wide, peer-led	Quasi-experimental	Condom use, STI incidence
6	Corby et al. (1993)	✓			Community	Quasi-experimental	Condom use
7	Corby and Wolitski (1996)			✓	Community-wide, peer-led	Not RCT	Condom use
8	Dorfman et al. (1992)		✓		Community-wide, peer-led (prostitutes)	'Flawed', say Oakley et al. (1994)	'Descriptive'
9	Ford, Wirawan, Fajans (1996)		✓		Community-wide, peer-led	Quasi-experimental	Condom use
10	Fox et al. (1993)		✓	✓	Community/ media	Not RCT, 'flawed', say Oakley et al. (1994)	Condom use
11	Fritz and Schaffer (1992)	✓			Community	Non-experimental	Condom use, no. of sexual partners
12	Hunt et al. (1992)	✓			Community	Non-experimental	Frequency of unprotected intercourse
13	Singh, Malavlya (1994)			✓	Community-wide, peer-led	Not RCT	Condom use
14	van Ameijden et al. (1994)			✓	Community-wide	Not RCT	Condom use, STI incidence
15	Visrutaratna et al. (1995)			✓	Community-wide, peer-led	Not RCT	Condom use
Total reports (studies)	12 (12)	3 (3)	3 (3)	7 (7)			
Total reports (studies)	15 (15)	4 (4)	4 (4)	9 (9)			

Table (e) – Primary studies covered by the two reviews relevant to PWHIV

	Reviews		Intervention	Study design (according to review)	Outcomes reported in review
	Summerside and Davis (2001)	King-Spooner (1999)			
Primary studies					
Individual (and couples)					
Baker and Dixon		✓		Not clear from review	Motivation
de Rosa and Marks (1998)	✓		Counselling to promote disclosure	Not clear from review	Incidence of disclosure of status
Fenton et al. (1998)	✓		Partner notification	Not clear from review	None
Gerbert et al. (1999)	✓		Patient-doctor consultation	Qualitative?	None
Halkitis (2000)	✓		Not clear from review – disclosure and negotiating condom use	Not clear from review	None
Higgins et al.		✓	Couples counselling	Not clear from review	'Sexual safety'
Landis (1992)	✓		Partner notification	Not clear from review	None
Oertle et al. (1992)		✓	Methadone, treatment medical and social care	Not clear from review	Unsafe sex prostitution
Padian et al. (1993)	✓	✓	Couples counselling	Not clear from review	'Sexual safety'
Rogers et al. (1998)	✓		Partner notification	Not clear from review	None
Rose (2000)	✓		Not clear from review – disclosure and condom use	Not clear from review	None
Vazquez-Pacheco (2000)	✓		Not clear from review disclosure and negotiating condom use	Not clear from review	None
13 [?]* (1999)	✓		Couples counselling: communication skills and openness		
Total reports (studies)	13 (13)	4 (4)			

*Authors not supplied by the review.

Table (e) – Primary studies covered by the two reviews relevant to PWHIV (cont.)

		Reviews				
		Summerside and Davis (2001)	King-Spooner (1999)	Intervention	Study design (according to review)	Outcomes reported in review
Primary studies						
Group						
	Barton (2000)	✓		Peer education and experiential exercises	Not clear from review	None
	Cleary et al. (1995)	✓		'Structured intervention'	RCT	Condom use
	Coates et al. (1989)		✓	Not clear – assume group/stress reduction training	Not clear from review	Number of sexual partners, frequency of unsafe sex
	Gifford and Sangupta (1999)	✓		Self-management review	Not clear from review	None
	Gold and Rosenthal (1995)		✓	Not clear from review	Not clear from review	'Reduction in repeated slip ups'
	Greenberg (1996)		✓	'Community support group'	Not clear from review	'Sexual safety'
	James et al. (1998)	✓		Clinical setting	'Experimental evaluation design'	None
Total reports (studies)	7 (7)	4 (4)	3 (3)			
Community						
	Lefebvre (1992)	✓		Social marketing review	Not clear from review	None
	Morin et al. (2000)	✓		Social meetings in gay bars	Not clear from review	None
Total reports (studies)	2 (2)	2 (2)	0 (0)			
Socio-political						
	Aggleton (1999)	✓		Developing links between strategies	Not clear from review	None
Total reports (studies)	1 (1)	1 (1)	0 (0)			
Total reports (studies)	23 (23)	17 (17)	7 (7)			

Table (f) – Primary studies covered by the one Core review (Ickovics and Yoshikawa, 1998) relevant to black and minority ethnic groups (BMEG)/Africans

	Target group	Intervention	Study design (according to review)	Outcomes reported in review
Primary studies				
Individual level				
Birkel et al. (1993)	African American, Latina, IDUs, Mixed sex community-based	Individual: Counselling (no testing)	Not clear from review	Behavioural (not specified in review)
Number of reports (studies): 1 (1)				
Group level				
Carey et al. (1997)	African American, Latina	Small Group	RCT	Behavioural (not specified in review)
DiClemente and Wingood (1995)	African American, Latina	Small Group	Not clear from review	Behavioural (not specified in review)
El-Bassel et al. (1995)	African American, Latina, IDUs	Small Group	RCT	Behavioural (not specified in review)
Hetherington et al. (1996)	African American, Latina, IDUs	Small Group	RCT	Behavioural (not specified in review)
Hobfoll et al. (1994)	African American, Latina	Small Group	RCT	Behavioural (not specified in review)
Kalichman et al. (1996)	African American, Latina	Small Group	RCT	Behavioural (not specified in review)
Kelly et al. (1994)	African American, Latina	Small Group	RCT	Behavioural (not specified in review)
Mangura et al. (1995)	African American, Latina	Small Group	Not clear from review	Behavioural (not specified in review)
Nyamathi and Stein (1997)	African American, Latina	Small Group	Not clear from review	Number of sexual partners, other behavioural (not specified in review)
Schilling et al. (1992)	African American, Latina	Small Group	Not clear from review	Not clear from review
St Lawrence et al. (1997)	African American, Latina	Small Group	Quasi-Experimental	Behavioural (not specified in review)
Number of reports (studies): 11 (11)				
Community level (including media)				
Corby and Wolitski (1996)	Commercial sex workers, African American, Latina, IDUs, Partners of IDUs	Community wide	Not RCT	Condom use
Flaskerud and Nyamathi (1990)	African American, Latina	Media	Not clear from review	Behavioural (not specified in review)
Kalichman et al. (1993)	African American, Latina	Media	Not clear from review	Condom use, other behavioural (not specified in review)
O'Donnell (1995)	African American, Latina	Media	Not clear from review	Condom use
Santelli et al. (1995)	African American, Latina	Community wide	Not clear from review	Behavioural (not specified in review)
Number of reports (studies): 5 (5)				
Intervention level not clear				
Cohen et al. (1995)	African American, Latina	Not clear	Not clear	Behavioural (not specified in review)

Table (g) – Primary studies covered by the seven reviews relevant to VCT

	Exner et al. (1997)	Exner et al. (1999)	Gibson et al. (1998)	Ickovics and Yoshikawa (1998)	Oakley et al. (1996)	Weinhardt et al. (1999)	Wolitski et al. (1997)
Primary Studies							
MSM							
Catania (1991)							✓
Coates (1987)						✓	
Dawson (1991)							✓
Doll (1990)						✓	
Fox (1987)						✓	
Hays (1990)							✓
Huggins (1991)						✓	✓
Ostrow (1989)						✓	
Peterson (1995)							✓
Roffman (1995)							✓
Schechter (1988)						✓	
van Griensven (1989)						✓	
Zapka (1991)						✓	✓
Injecting drug users (IDUs)							
Calsyn (1992)			✓	✓		✓	
Casadonte (1990)						✓	
Colon (1996)							✓
Desenclos (1993)							✓
Friedman (1994)							✓
Gibson (1998)			✓				
MacGowan (1996)							✓
Magura (1990)						✓	✓
Magura (1991)						✓	
McCoy (1993)	✓	✓					
*McCusker (1996)						✓	
Nicolosi (1991)						✓	
Nyamathi (1993)	✓						
Nyamathi (1994)	✓						
Nyamathi (1995)	✓						
Pivnick (1991)							✓
Soloman (1991)							✓
Vanichseni (1992)							✓
Vanichseni (1993)							✓
Wild (1994)	✓						
Women and heterosexual couples							
Allen (1992)				✓		✓	✓
Allen (1993)							✓
Allen (1992)						✓	✓
*Cleary (1991)						✓	
Ickovics (1994)	✓			✓		✓	✓
Kamenga (1991)						✓	
Ladner (1996)							✓
*Padian (1993)	✓					✓	✓
*Pickering (1993)				✓			✓
Ryder (1991)							✓
Sunderland (1992)							✓

Table (g) – Primary studies covered by the seven reviews relevant to VCT (cont.)

	Exner et al. (1997)	Exner et al. (1999)	Gibson et al. (1998)	Ickovics and Yoshikawa (1998)	Oakley et al. (1996)	Weinhardt et al. (1999)	Wolitski et al. (1997)
Women and heterosexual couples (cont.)							
Temmerman (1990)							✓
Van der Straten (1995)							✓
Vogler (1989)	✓						
Wilson (1996)						✓	
CSWs							
Corby (1990)	✓						
Nguigi (1988)				✓			
Papaevangelou (1988)							
*Pickering (1993)				✓		✓	
STI clinic attenders							
Golden (1996)		✓					
*Otten (1993)						✓	
*Wenger (1991)						✓	
*Wenger (1992)						✓	
Zenilman (1992)	✓	✓					
Mixed population							
*Cleary (1991)							✓
Landis (1992)	✓	✓				✓	✓
*McCusker (1996)							✓
Muller (1992)						✓	
Muller (1995)							✓
*Otten (1993)						✓	✓
*Wenger (1992)							✓
Zenilman (1992)							✓
Other							
Jackson (1997)						✓	
Mhalu (1991)				✓			
Wenger (1991)						✓	
Wenger (1992)						✓	
'Not sound', according to Oakley							
McCusker (1988)					✓		
Van Griensven (1988)					✓		

Number of studies total more than 52 because some (marked with a '**') cover more than one 'population':

- Pickering (1993) covers CSWs and women and heterosexual couples
- Otten (1993) covers mixed populations and STDs
- Wenger (1991) and Wenger (1992) covers STDs and university clinic
- McCusker (1996) covers mixed populations and IDUs
- Wenger (1992) covers STD, university clinic and mixed populations
- Cleary (1991) covers mixed populations and women and heterosexual couples

Appendix H

People with HIV: analysis of two relevant Supplementary review papers

The reviews

As there were no reviews that met our Core criteria and were relevant to HIV prevention with people with HIV, here we analyse two relevant Supplementary review papers:

- King-Spooner, S. (1999). HIV prevention and the positive population. *International Journal of STD and AIDS* 10 (3): 141-50.
- Summerside, J. and Davis, M. (2001). *Keeping It To Ourselves: Strategic Directions in HIV Prevention and Sexual Health Promotion for People with HIV*. London: Terrence Higgins Trust.

Taken together, these two reviews report on 23 separate studies, with one study reported on by both reviews (Padian et al., 1993). The studies are summarised in Table (e) in Appendix G.

Type of outcomes selected

The Summerside and Davis review reported on outcomes for only two of the studies included. In both cases, these were intermediate health outcomes (ie behavioural): one study (Cleary et al., 1995) reported on condom use; the other (de Rosa and Marks, 1998) reported on disclosure. Health promotion (health literacy) outcomes (eg knowledge, attitudes, skills, self-efficacy etc) are not analysed at all in the review.

Out of the seven studies described in King-Spooner's review, intermediate health outcomes are reported on in six studies. Only one study (Baker and Dixon, 1991) reports on a health promotion outcome: namely, level of motivation to practise safer sex.

The findings

In the following sections, we look at interventions delivered at the individual, group, community and socio-political level.

Individual-level interventions

Between them, the two reviews reported on ten studies at the individual level.

Summerside and Davis (2001) report on three interventions which involved partner notification (Fenton et al., 1998; Landis, 1992; Rogers et al., 1998) and one which looked at doctor-patient interventions (Gerbert et al., 1999). They also report on three studies promoting disclosure and negotiation of use of condoms. (It is not clear on what level these latter three interventions took place but it is assumed, for current purposes, that they took place on the individual level). No outcomes are reported on for any of these studies. However, in addition, Summerside and Davis report on a further intervention using counselling to promote disclosure of status (de Rosa and Marks, 1998) for which outcomes are supplied.

King-Spooner reports on one intervention involving motivational interviewing (Baker and Dixon, 1991), and another – a methadone maintenance programme, incorporating medical and social care (Oertle et al., 1992) – which, it is assumed here, also took place at the individual level.

The three studies at the individual level, for which the reviewers report on outcomes, are considered below.

Disclosure

Summerside and Davis report on de Rosa and Marks (1998), who evaluated a study promoting disclosure of status to sexual partners among patients recruited to clinics in Los Angeles. No details of the intervention are given. Summerside and Davis note that disclosure was related to the number of times a health professional was reported to have discussed disclosure with the informant. However, Summerside and Davis judge the retrospective evaluation design employed by this study to be 'weak'. They also question the desirability of the blanket

promotion of disclosure (ie regardless of context) and highlight some of the difficulties in measuring 'success': 'the appropriateness of disclosure on its own and the consistency of communication about risk reduction facts or the limitations on the advice that clinical health care workers can provide were not discussed in the research' (p82). No evidence is provided by Summerside and Davis – and presumably none by the authors of the study – on the impact of disclosure on risk practices.

Although disclosure may form an important part of negotiated safety, this can only take place within the context of a range of skills and personal resources (eg communication skills, self-efficacy); the reviewers themselves question the appropriateness of promoting disclosure in all situations. Since the review does not provide evidence of impact on health promotion outcomes/intervention impact measures (health literacy) or intermediate health outcomes (behaviour), and notes a weak evaluation design, and since the study occurs in a very different social and legal context from that of the UK, it provides an insufficient basis for informing HIV interventions promoting disclosure.

Motivational interviewing

King-Spooner refers to a single case study in which motivational interviewing was employed to build on one individual's motivation to practise safer sex (Baker and Dixon, 1991). Given that this is one study reporting on an intervention with one individual, there is little that can be concluded in terms of the effectiveness of this approach. However, it is interesting to note an intervention which, by definition, places emphasis on the achievement of a health promotion outcome as a measurement of success.

Methadone maintenance programme, including social and medical care

King-Spooner also reports on a study of a methadone maintenance programme (Oertle et al., 1992) in which participants received additional medical treatment and extensive social care; it is assumed here that this was an individual-level intervention. The reviewer provides no further details of the intervention, but quotes from the original study to state that unsafe sex and prostitution were 'nearly eliminated' (King-Spooner, p145) as a consequence of this intervention.

Couples counselling

The counselling of sero-discordant couples is considered here as a separate 'level' from individual or group since it didn't seem to fit comfortably in either category.

Summerside and Davis report on two studies of couple counselling interventions ([?]* 1999; Padian et al., 1993), but do not report on outcomes for these.

King-Spooner reports on two studies of couple counselling interventions (Higgins et al., 1991; Padian et al., 1993). The reviewer provides no details of the interventions, other than to describe them as 'reflection-promoting' (defined by the reviewer as giving encouragement and structure to a person's consideration of his or her conduct and its consequences), but states that they provide 'clear evidence for [the intervention's] effectiveness in promoting sexual safety' (p145).

Group-level interventions

Four of the studies cited in Summerside and Davis reported on interventions in groups (Gifford and Sengupta, 1999; Barton, 2000; Cleary et al., 1995; James et al., 1998), but outcomes were reported on only for Cleary et al.

In the Cleary et al. study, Summerside and Davis report that people with HIV were randomly assigned to either a 'structural' intervention, which incorporated group work, or to a community referral. No further details about either the intervention or control are given.

At six and 12 month follow-up, the reviewers report that there were no significant differences in risk practices between the groups, with around a third of participants in both arms of the study reporting unprotected sex at 12 month follow-up. The reviewers note a disappointing take-up rate for the intervention arm (only 51 out of 135 people chose to do the group work) and conclude that 'group work provided in a clinical context may not be a desirable option, though this may be about content and style rather than context' (p82).

- Summerside and Davis conclude that 'group work is popular and acceptable but may not be easy to implement widely and is not supported by experimental evaluation in clinical settings' (p84). However, they only give outcome details for one study of group work in a clinical setting.

* Authors not supplied by Summerside and Davis' review.

King-Spooner reports on three interventions in small-group settings, all with MSM (Coates et al., 1989; Greenberg et al., 1996; Gold and Rosenthal, 1995).

- According to King Spooner, Coates et al.'s study, stress reduction training (no further details are provided) was associated with a reduction in number of partners (although not with a reduction in unsafe sex, which was reportedly already low).
- Greenberg et al.'s study on a community support group (no further details are provided) reported 'improved sexual safety', according to King-Spooner (p145).
- Finally, the reviewer cites Gold and Rosenthal's 1995 study of group work with a mixture of sero-positive and sero-negative MSM, which used a cognitive approach in which self-justifications for episodes of unsafe sex were examined retrospectively, 'with a resulting reduction in repeated 'slip-ups'' (p145).

Community level interventions

Summerside and Davis' review reported on one study at the community level, outlining an intervention taking place in gay bars (Morin et al., 2000). However, outcomes are not provided for any of these studies. The reviewers reach no conclusions about the effectiveness of interventions at the community level.

King-Spooner reports on no interventions at community level.

Socio-political level

Summerside and Davis' review reported on one study of an intervention at the socio-political level, which employed social marketing (Morin et al., 2000). They deem this a 'component of effective work with people with HIV' (p83), but outcomes are not reported on.

King-Spooner reports on no interventions at the socio-political level.

Inequalities

Neither of the reviews presented any data about the effectiveness of interventions in addressing inequalities in sexual health in relation to people with HIV.

Cost effectiveness

Neither of the reviews presented any data on the cost effectiveness of interventions with people with HIV.

Notes

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This evidence briefing focuses on the priority populations for HIV transmission in the UK – men who have sex with men, African communities, commercial sex workers and people with HIV infection. It also specifically considers HIV voluntary counselling and testing as an HIV prevention intervention.

It identifies gaps in primary and review-level research, makes recommendations for research methodology and suggests implications for policy and practice. In particular, the briefing highlights a lack of research relating to the UK's African communities and to people with HIV, as well as to community and socio-political interventions.

This and other evidence briefings can be found at www.hda.nhs.uk/evidence