

Review of effectiveness and cost effectiveness: Increasing the uptake of HIV testing to reduce undiagnosed infection and prevent transmission among black African communities living in England.

Final Full report

Ibidun Fakoya, Alison Evans, Gianluca Baio, Fiona Burns, Stephen Morris, Graham Hart

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Executive Summary

Background

Globally, the HIV epidemic continues to have an impact on the lives of millions of people. In 2008, there were an estimated 83,000 people living with HIV (both diagnosed and undiagnosed), equivalent to 1.3 per 1000 population in the UK. In that same year, 7,798 people were newly diagnosed with HIV. The global epidemic is reflected in the UK; around 38% (2,790) of these newly diagnosed infections were among black Africans who acquired their HIV through heterosexual contact. It is thought that most (87%) of these infections among black Africans in the UK were acquired abroad, mainly in sub-Saharan Africa Health Protection Agency 2009).

Late diagnosis of HIV is defined as diagnosis taking place after anti-retroviral treatment would normally have begun, or when the person has an illness which defines them as having AIDS. It is the most important factor associated with HIV-related disease and death in the UK and is a particular problem among black Africans. In 2007, over 40% of new diagnoses among black Africans were classified as 'late'.

HIV testing can help reduce transmission of the virus. People who find out they have HIV may change their sexual behaviour as a result of the diagnosis. A negative HIV test provides an opportunity for preventive education and advice and may also lead to changes in behaviour. Increasing the frequency of testing may result in earlier detection of HIV following infection - when it is most virulent - providing greater opportunity to reduce transmission.

Objectives

This review sought to systematically review the literature on the effectiveness and cost effectiveness of interventions that increase the uptake of HIV testing among migrant or Black and minority ethnic communities living in high income countries.

There was one overarching question to be addressed in the review:

- What are the most effective and cost effective ways of increasing the uptake of HIV testing to reduce undiagnosed infection among black Africans living in England?

Two primary questions were developed in order to explore the overarching question:

1. Which interventions have been effective and/or cost effective in increasing the uptake or awareness of HIV testing and its benefits in migrant or black and minority ethnic communities?
2. What interventions have successfully increased the opportunity for HIV testing for migrant or black and minority ethnic communities, whether aimed at this group or not?

Methods

A detailed search protocol based on the methodology in the NICE Methods Manual was developed. Searches for effectiveness and cost effectiveness studies were conducted separately.

For the effectiveness review nineteen electronic databases and nine websites were searched for studies that examined interventions that increased HIV testing among black and minority ethnic communities. Searches were restricted to studies published since 1996 (the introduction of highly active antiretroviral therapy) and written in English.

For the cost effectiveness review two literature searches were undertaken. First, the detailed search strategy used in the effectiveness review replicated in the Economic Evaluation Database within the Cochrane Library. Second, a less restrictive search, with fewer search strings, of the Cochrane Library databases and NHS EED was undertaken. No other sources were used to identify potential records.

Two reviewers independently screened all titles and abstracts. Papers selected for full paper screening were then independently screened by two reviewers and selected for full review. Data extraction was performed by one reviewer and checked for accuracy by another. Papers were quality assessed by one reviewer and checked for accuracy by another. Each paper was graded according to range of criteria which established whether potential sources of bias had been minimised and if study conclusions were open to any degree of doubt.

After the data extraction and completion of quality assessment for each study, studies were grouped according to intervention design and presented in evidence tables. Narrative summaries of each group of studies were used to derive a series of evidence statements.

Findings

No studies in the cost effectiveness review met the inclusion criteria for quality appraisal and data synthesis. Papers were rejected for two main reasons:

1. the study focused on the general population with no subgroup analysis about the populations of interest
and/or
2. the paper did not explicitly consider the cost-effectiveness of strategies for increasing uptake.

Evidence Statement 3.1 Cost effectiveness of interventions

No evidence was found from English-language studies published since 1996 about the cost effectiveness of interventions relating to HIV testing in migrant and/or black and minority ethnic communities in high income countries.

For the effectiveness review fifteen papers (representing 14 studies) were identified from the literature review and underwent quality appraisal. Most studies (10) were carried out in the USA, two from Australia, one from the Netherlands and one was carried out in the UK. Studies were grouped according to intervention type.

Mass Media Campaigns

Three studies examined the effectiveness of culturally and linguistically targeted mass media campaigns to increase HIV testing among target communities. Only one of these studies used statistical methods to analyse observed increases in uptake rates of testing.

Evidence statement 3.2 Mass Media

There is weak evidence that mass media campaigns aimed at ethnic minority and migrant communities can increase the uptake of HIV testing in these populations. Three before and after studies (McMahon et al, 2004[-]; Olshefsky et al 2007 [-]; Futterman et al 2001 [-]) were able to show a small or a large increases in the uptake of HIV testing among migrant and ethnic minority populations after implementation of mass media campaigns. Futterman et al (2001 BA[-]) showed an increase in mean number of HIV tests from baseline 86 per week to 462 tests per week during the campaign. McMahon et al (2004 BA[-]) showed an increase in the proportion of tests among ethnic and minority communities (16.3% up to 18.8% $p=0.31$). Olshefsky et al 2007 [-]; observed a small increase in testing during 6 months surrounding the campaign compared with the final quarter of the year. None of these effects were statistically significant.

This evidence is directly applicable to black African communities in England. The nature of social marketing campaigns makes it very difficult to show, through empirical evidence, that a campaign has achieved its desired outcome. Although these studies were conducted in other countries, the intervention target populations were made up of diverse linguistic and cultural sub-groups. Similarly, black African communities in England are not homogenous entities. Mass media social marketing campaigns that target heterogeneous black African communities as a whole have been developed and delivered in England.

Message Framing

Message framing may influence the effectiveness of a health appeal. One study examined this hypothesis and found that among those who viewed HIV testing as having a certain outcome (with a low risk of testing positive), gain framed messages better encouraged self-reported HIV testing than loss framed messages.

Evidence statement 3.3 Message Framing

There is weak evidence from one US study (Apanovitch et al, 2003 BA[+]) to suggest that videotaped health education messages that highlight the positive outcomes of HIV testing may increase uptake of HIV testing among low income, ethnic minority women who consider themselves to be at low risk of testing positive (38% vs 26% , $\chi^2=4.84$, $p<.05$).

This evidence is only partially applicable because the study was conducted in the USA among low income African American and Latina women who are culturally distinct from black Africans in England. Barriers to HIV testing among black Africans in England, (many of whom survive on low income), do include poor perception of individual risk. It follows that gain-framed messages might therefore

increase the uptake of HIV testing in this population. Further research is needed to examine if this evidence is directly applicable to black African groups in England and whether message framing has differing impacts on men and women.

Group Level Behavioural Interventions

Group level behavioural intervention programmes use workshops or seminars to bring together individuals to talk about sexual health issues. Three studies were found that examined how such interventions can be used to increase HIV testing in migrant and ethnic minority communities.

Evidence Statement 3.4 Group Level Behavioural Interventions

There is weak evidence from three studies to suggest that (workshop or opinion leader based) group level behavioural interventions can increase HIV testing in migrant and minority ethnic communities. Two non-randomised controlled trials (N-RCT) showed increased odds of self reported HIV testing (OR [95% confidence interval]) in the intervention groups: 2.50; [1.02, 6.12] (Raj et al 2002 N-RCT [-]); 2.5 [1.5-4.3] (Rhodes et al 2009 [-]). Another N-RCT (Lemieux et al 2008, N-RCT [-]) showed new HIV testing was more likely among those in the intervention group: (21.3% vs 6.7% χ^2 (1) = 6.39, $p < 0.01$).

This evidence is only partially applicable to black Africans in England. That is because all three studies were conducted in the US with migrant and minority ethnic communities that were largely culturally and linguistically homogenous. While it may be possible to develop group level behavioural interventions for specific black African communities in England, (for example Shona speaking Zimbabwean communities), developing effective interventions that cut across black African communities might be more challenging. Additionally, successful culturally based group level behavioural interventions should be underpinned by findings from extensive ethnographic, psychosocial or formative research. There is limited availability of such evidence from black African communities in England.

Changes in Clinic Policy

Four studies were identified that addressed changes in clinic policy and practice as a means to increasing the uptake of HIV testing. Two examined how simplified consent procedures and routine offers of tests could normalise HIV testing and increase uptake in clinics. One compared two different appointment systems and the final study compared rapid testing to standard testing.

Evidence statement 3.5 Changes in Clinic Policy

3.5a There is moderate evidence from one before and after study (Cassell et al 2003, BA [++]) to suggest that the uptake of HIV testing in GUM clinics can be increased by implementing a bookable appointment system. The study found that the proportion of HIV tests taken by new patients increased after the intervention (37.3% vs 31.0% $p = 0.04$).

This evidence is only partially applicable to black Africans in England. This is because the study was conducted before the introduction of universal 'opt-out' HIV

testing in sexual health clinics in England. Under this system patients are tested for HIV unless they specifically reject the test. Additionally, the study took place in a large clinic located in an ethnically mixed, socially deprived district in London. The evidence may not be applicable in smaller clinics or clinics in areas with a less ethnically diverse population.

3.5b There is moderate evidence from two studies to suggest that encouraging the routine offer of an HIV test may increase the uptake of HIV testing in among migrant and minority ethnic inpatients, outpatients and those attending GUM clinics. One interrupted time series study (Zetola et al 2008, ITS [++]) found that removing the need for separate signed consent documentation increased HIV testing among various ethnic and linguistic groups [mean increase (95% confidence intervals)]: Asian - 2.80 (1.37–4.23); Black - 5.58 (2.11–9.04); Hispanic -1.56 (-0.49–3.61); White - 5.58 (2.95–8.21); English-speaking - 5.04 (2.40–7.69); Spanish-speaking -0.95 (-3.31–1.40); Other primary language - 2.69 (1.16–4.22). Findings from another study, (Van der Bij et al 2008, BA [+]) showed routine offers of HIV testing to all new patients at a sexual health clinic increased rates of HIV testing among patients from sub Saharan Africa (OR: 8.0 95 % Confidence Interval: 6.5-9.8)

This evidence is only partially applicable to black Africans in England. This is because separate signed consent is not required for HIV testing in England. Additionally, most sexual health clinics in England use a universal 'opt-out' testing and the uptake among black Africans is more than 85%.(HPA 2009)

3.5c. There is moderate evidence from one randomised controlled trial (RCT [+]) that suggests that rapid HIV testing in clinical settings is acceptable to all ethnic minority groups but standard HIV testing is not. The study (Wurcel et al 2005, RCT [+]) showed that the acceptance rate of standard testing differed across ethnic groups (black/Caucasian Hispanic 18.2% vs black non-Hispanic 59% p=0.04).

This evidence is partially applicable to black Africans in England. This is because the study was conducted in the US using ethnic groupings not widely used in England. Additionally, unlike in the UK, the US healthcare system is not free at the point of care. It is therefore difficult to assess if the conclusions reached would be applicable to black and minority ethnic groups in England.

Physician Training

Physician training can improve the uptake of HIV testing by offering more opportunities for patients to test. In particular it may reduce levels of late diagnosis. One study examined this intervention.

Evidence statement 3.6 Physician Training

There is weak evidence from one study to suggest that training physicians can increase the frequency with which they perform HIV tests and increase the number of patients that are tested. One US before and after (Stanton et al, 2000 BA [-]) study showed an increase in the mean number of tests performed in patients aged under-20 after the intervention (19 to 29 p=0.006).

This evidence is not applicable to black Africans in England. This is because the study conditions are unique to the areas in the USA where a large proportion of Hispanic doctors treat predominantly Hispanic clients. It is unlikely that black African physicians in England treat predominantly black African patients.

Anonymous vs Confidential Testing

Anonymous testing allows individuals to find out their HIV status without fearing breaches in confidentiality. Two studies examined the effectiveness of anonymous testing at increasing the uptake of HIV testing.

Evidence statement 3.7 Anonymous Testing

3.7a There is moderate evidence from one study to suggest that individuals that test anonymously test earlier in the course of their HIV disease. One retrospective cohort (Bindman et al 1998 CT [+]) showed that anonymous testers received their HIV diagnosis on average 529 days earlier than those tested confidentially ($p < 0.001$).

This evidence is partially applicable to black Africans the UK. This is because the study was conducted in the USA where both anonymous and confidential testing are widely available. In England anonymous HIV testing is informally available in sexual health clinics but not in hospitals or GP surgeries. It is unclear whether this context substantially mirrors the formal provision of anonymous testing available in the USA.

3.7b There is weak evidence from one study to suggest that anonymous testing is more acceptable in minority ethnic communities than named testing. One before and after study (Miller et al 1998 BA [-]) found HIV testing rates increased from 1.6 tests per week to 11.4 tests per week. This increase was not shown to be statistically significant.

This evidence is not applicable to black Africans in England. This is because the study was conducted in Australia by an Aboriginal controlled health service providing health services to remote communities occupying ancestral homelands. This setting and political context differs considerably from the situation in England..

Conclusions

There is very little evidence available about the effectiveness of interventions to increase HIV testing in black African communities in England. The evidence used in this review is only partially applicable to the population of interest. From the literature available the strongest evidence came from interventions that try to increase the opportunity to test for HIV. These interventions are seemingly most likely to increase the uptake of testing among black African groups. Weaker evidence comes from studies of complex interventions that directly target migrant and black and minority ethnic communities. This is mainly because rigorous evaluation of such interventions is complicated and rarely undertaken. Additionally, it is difficult to assess the applicability when interventions are targeted at specific but different population groups to that of the population of interest. More evidence is needed

particularly about interventions that increase HIV testing among those living with undiagnosed HIV.

A number of gaps in the evidence have been uncovered which can only be filled with extensive research. The following actions are recommended:

- A smaller review focussed on evidence that will become available from September 2010 should be conducted to augment the results of this review.
- There should be further research to determine:
 - the factors that impact on the effectiveness of behavioural interventions that target individuals based on their ethnicity
 - how message framing impacts on the uptake of HIV testing in black African communities
 - how the normalisation of HIV testing and other changes to clinical practice affect the uptake of HIV testing among different sub-groups of black Africans
 - which interventions are effective in reducing late presentation
 - the cost effectiveness of HIV testing interventions targeted at black African communities

Glossary and Abbreviations

AIDS

Acquired Immune Deficiency Syndrome

Anonymous Testing

HIV testing where patients are given a code or number which is then linked to a blood (or other fluid) specimen. No names are recorded alongside the test or the result.

ART

Anti-retroviral therapy

BA

Before and After Study

BME

Black and Minority Ethnic Communities

CD4 + Cells

CD4+ or T Helper cells are a sub-group of T-lymphocytes that are used as a surrogate marker of the health of the immune system in HIV infection. A CD4+ count is a blood test that estimates how well a patient's immune system is working by counting CD4+ cells.

Confidential Testing

HIV testing linking an individual name to blood (or other fluid) specimen and recording the test result in a medical chart with a name. Confidentiality assured by clinical policy and practice.

CPHE

Centre for Public Health Excellence

CT

Cohort Study

GUM

Genitourinary Medicine - the clinics where sexually transmitted infections are diagnosed and treated

HAART

Highly Active Antiretroviral Therapy

HIV

Human Immunodeficiency Virus

HPA

Health Protection Agency

ITS

Interrupted Time Series

ITT

Intention To Treat Analysis

Late diagnosis

Diagnosis after anti-retroviral treatment would normally have begun, or when the person has an illness which defines them as having AIDS.

MSM

Men who have Sex with Men

NAHIP

National African HIV Prevention Programme

NICE

National Institute for Health and Clinical Excellence

N-RCT

Non- randomised controlled Trial

NSMC

National Social Marketing Centre

PHIAC

Public Health Interventions Advisory Committee

Rapid Testing

HIV test where patients are able to receive test results within 1-60 minutes.

RCT

Randomised Controlled Trial

Standard Testing

Most standard HIV tests use Enzyme-linked immunosorbent assay (ELISA). Blood is drawn from a vein and the ELISA is used to test for the presence of HIV antibodies. The results are generally available in 5-14 days.

STI(s)

Sexually transmitted infections

1. Introduction

This review was commissioned by NICE to support the development of guidance for interventions which aim to increase the uptake of HIV testing to reduce undiagnosed HIV infection among black African communities living in England. The guidance aims to provide recommendations for interventions that implement either client or provider initiated HIV testing and aim to:

- Increase awareness of HIV testing and its benefits. For example, mass-media and other media campaigns and one-to-one or group-based information provision (planned or opportunistic and offered by practitioners or peers).
- Increase the opportunity for, and uptake of, HIV testing. This could involve changes in service delivery (for example, changes to opening times or appointment systems), increasing the number or kinds of tests offered, and increasing the number and types of venue offering tests.
- Reduce the barriers to HIV testing, for example, peer education initiatives to reduce the stigma associated with HIV.

The guidance will identify ineffective as well as effective interventions and approaches.

1.1. *Background*

Globally, the HIV epidemic continues to have an impact on the lives of millions of people. UNAIDS estimates that in 2008 there were between 31.1 and 35.8 million people living with HIV, of whom 2.4-3.0 million were newly diagnosed that year (UNAIDS 2009). Sub Saharan Africa remains the region most heavily affected by HIV; in 2008 there were 22.4 million adults and children living with HIV (two thirds of global infections) and 1.4 million deaths due to AIDS. The prevalence of HIV among adults in sub Saharan Africa is on average 5.2%, although there is great variability among different regions (UNAIDS 2009).

In contrast, the number of HIV infections in the UK is much smaller. HIV in the UK concentrated among specific populations rather than the generalised epidemic seen in sub Saharan Africa. In 2008, there were an estimated 83,000 people living with HIV (both diagnosed and undiagnosed), equivalent to 1.3 per 1000 population in the UK (Health Protection Agency 2009). In that same year, 7,798 people were newly diagnosed with HIV. The global epidemic is reflected in the UK; around 38% (2,790) of these newly diagnosed infections were among black Africans who acquired their HIV through heterosexual contact. It is thought that most (87%) of these infections among black Africans in the UK were acquired abroad, mainly in sub-Saharan Africa (Health Protection Agency 2009).

1.1.1. Late Diagnosis

Late diagnosis of HIV is the most important factor associated with HIV -related disease and death in the UK (British HIV Association 2008). Patients diagnosed late are more likely to become ill (Health Protection Agency 2007), have impaired response to medication (Stöhr et al. 2007) and increase costs to healthcare services (Krentz et al. 2004). Late diagnosis is defined as diagnosis taking place after anti-retroviral treatment (ART) would normally have begun, or when the person has an illness which defines them as having AIDS. It is measured using a blood test known as a CD4+ count; this test estimates how well the patient's immune system is working by counting white blood cells that are targeted and destroyed by HIV (CD4+ cells).

Previous guidelines from the British HIV Association (BHIVA) recommended that patients begin ART when their CD4 + count measured fewer than 200 cells/mm³. Since 2008, BHIVA have recommended ART should be considered for patients with a CD4 count below 350 cells/mm³. Consequently the proportion of people who fit the definition of late diagnosis has increased.

Late HIV diagnosis is a particular problem among black Africans (Burns 2008; Health Protection Agency 2008). In 2007, over 40% of new diagnoses among black Africans were classified as 'late' (Health Protection Agency 2008).¹ More recent estimates, which look at diagnoses among heterosexual men and women (95% of whom are black African), suggests that 61% of women and 66% of men are diagnosed with a CD4+ count of fewer than 350 cells/mm³ (Health Protection Agency 2009).

Estimates from anonymised data suggest that approximately 25% of HIV-positive, African born heterosexuals leave sexual health clinics undiagnosed (Health Protection Agency 2009). This may in part reflect HIV positive persons accessing GUM care without disclosing their HIV status, however this could also be because they refused or were not offered an HIV test. Lack of a diagnosis – or late diagnosis – can deprive people (including the partners of those infected) of treatment and support. It can also increase the potential for onward transmission of HIV.

1.1.2. History of HIV Testing

HIV testing was introduced in genitourinary medicine (GUM) clinics in the UK in 1985. At that time HIV infection was often accompanied by stigma and discrimination, with very little to offer in the way of effective medication. Civil libertarians and gay rights advocates feared that HIV may become defined as a "dangerous disease" with registries of infected persons, and the possibility of behavioural restrictions, and even quarantine, imposed on those infected (Bayer 1991). There was broad consensus that people should only be tested with informed, voluntary and specific consent; this differs from other blood tests, which are usually obtained with the "presumed consent" of the patient. As a result pre- and post-test counselling has usually accompanied HIV testing. This process of managing HIV differently to other chronic and infectious health conditions became known as HIV exceptionalism (Bayer 1991).

¹ Defined as being diagnosed with CD4 count < 200cells/mm³

In 2008, while acknowledging that stigma is still associated with HIV infection, BHIVA published HIV testing guidelines that encourage the 'normalisation' of HIV testing. The guidelines sought to place HIV testing within the competence of any doctor, midwife, nurse or trained healthcare worker by formally addressing misconceptions about pre-and post-test discussions. The guidelines stated that lengthy pre-test HIV counselling is not a requirement and that the primary purpose of the pre-test discussion was to establish informed consent for HIV testing (British HIV Association 2008).

1.1.3. Benefits of HIV testing

HIV testing can help reduce transmission of the virus. People who find out they have HIV may change their sexual behaviour as a result of the diagnosis. For example, they may start using condoms with partners who are not HIV-positive or whose HIV status is unknown (Weinhardt et al. 1999; Coates et al. 2000; Marks et al. 2005). In addition, people diagnosed with HIV may choose to receive anti-retroviral therapy, which suppresses the virus and can reduce further transmission. A negative HIV test provides an opportunity for preventive education and advice and may also lead to changes in behaviour. For example, people who find out they do not have HIV might use condoms or have non-penetrative sex with partners who have HIV (or whose HIV status is unknown). Increasing the frequency of testing may result in earlier detection of HIV following infection - when it is most virulent - providing greater opportunity to reduce transmission.

1.1.4. Existing policy and guidance

Previous relevant public health guidance in this area include the following:

- Better prevention, better services, better sexual health. The national strategy for sexual health and HIV' (Department of Health 2001)
- HIV and AIDS in African communities: a framework for better prevention and care' (Department of Health et al. 2004)
- The knowledge, the will and the power. A plan of action to meet the HIV prevention needs of Africans living in England (Dodds et al. 2008)
- Progress and priorities – working together for high quality sexual health (Medical Foundation for AIDS and Sexual Health 2008)
- UK national guidelines for HIV testing 2008 (British HIV Association 2008)

1.1.5. Summary of effectiveness review

The effectiveness review found 14 studies (published in 15 papers) of varying quality and applicability. Most of the studies examined interventions delivered in the USA and were either group level behavioural interventions, changes in service delivery or mass media education campaigns. We were able to draw limited conclusions based on the findings. The cost effectiveness review did not identify any economic evaluation studies that met inclusion criteria

1.2. Aims and objectives

The aim of this project was to systematically review the literature on the effectiveness and cost effectiveness of interventions that increase the uptake of HIV testing among migrant or Black and minority ethnic communities living in high income countries.

1.3. Research Questions

There was one overarching question to be addressed in the review:

- What are the most effective and cost effective ways of increasing the uptake of HIV testing to reduce undiagnosed infection among black Africans living in England?

Two primary questions were developed in order to explore the overarching question:

1. Which interventions have been effective and/or cost effective in increasing the uptake or awareness of HIV testing and its benefits in migrant or black and minority ethnic communities?
2. What interventions have successfully increased the opportunity for HIV testing for migrant or black and minority ethnic communities, whether aimed at this group or not?

Also addressed were secondary questions:

1. What factors impact on the effectiveness of interventions that increase HIV testing among black-African, other BME, and migrant communities living in England?
2. Does effectiveness and cost effectiveness of interventions vary according to the diversity of the population (for example in terms of the person's age, gender, sexuality or faith)?
3. Does effectiveness and cost effectiveness of interventions vary according to the status, knowledge and influence of the person delivering the intervention?
4. Does the effectiveness and cost effectiveness vary according to where the intervention takes place (for example in a healthcare setting or community setting) and whether the intervention is transferable to other settings?
5. What, if any, are the adverse or unintended consequences (positive or negative) of the intervention?
6. Which interventions are ineffective or not cost effective?

1.4. Operational definitions

Black African: Black African communities encompass diverse population groups from a range of countries. The term also encompasses people who identify themselves as being black African – whether they are migrants from Africa, African descendants or African nationals. Throughout this review, 'black African' is used to describe all of these groups.

1.5. Review Team (Alphabetical order)

Team member / expertise	Project role
Dr Gianluca Baio, Lecturer in Health Services Research and a member of the Health Care Evaluation Group, University College London.	Developed and executed search strategies, study selection, data extraction, and quality assessment of cost effectiveness studies. Wrote the initial draft of the cost effectiveness findings and commented on various drafts of the report.
Dr Fiona Burns, NIHR Clinical Lecturer, Centre for Sexual Health and HIV Research. Programme Lead: Migration Ethnicity and Sexual Health (MESH) Programme	Overall management responsibility for the project, third reviewer in study selection. Commented on various drafts of the report and contributed to writing of report.
Dr Alison Evans, Research Associate, Centre for Sexual Health and HIV Research	Study selection, data extraction, and quality assessment of effectiveness studies. Commented on various drafts of the report and contributed to writing of report
Ms Ibidun Fakoya, Research Associate, Centre for Sexual Health and HIV Research. Programme co-ordinator: African Communities HIV Research Programme.	Developed and executed search strategies, study selection, data extraction, and quality assessment of effectiveness studies. Wrote the initial draft of the report and responsible for overall content of the final draft.
Professor Graham Hart, Head of the Department of Infection and Population Health and Director of the Centre for Sexual Health and HIV Research, University College London.	Overall management responsibility for the project. Commented on various drafts of the report and contributed to writing of report.
Professor Steve Morris, Professor of Health Economics, University College London.	Overall management responsibility for the cost effectiveness project. Commented on various drafts of the report and contributed to writing of report.

1.6. Declaration of interests

Professor Steve Morris is a member of the NICE Public Health Interventions Advisory Committee.

2. Methodology

This section details methodology used for the effectiveness review. The search for economic evaluation studies was conducted separately from the overall search for studies examining the effectiveness of interventions. Section 2.9 details the cost effectiveness review methodology and findings.

2.1. Search Strategy

Nineteen electronic databases were searched using detailed search strategies developed by the review team in collaboration with information specialists at NICE (see Appendix A). Searches were restricted to studies published since 1996 (the introduction of highly active antiretroviral therapy – HAART – when HIV testing became widely available and acceptable because of treatment availability) and written in English. The results were downloaded into a de-duplicated database in Reference Manager 11 (Thomson ResearchSoft). Items which were not able to be downloaded were saved into separate Microsoft Word or Excel documents.

The following databases were searched:

- Allied and Complementary Medicine
- Cumulative Index to Nursing & Allied Health Literature
- IBSS
- EMBASE
- Cochrane Library databases
- Current Contents
- Database of Abstracts of Reviews of Effects
- Health Management Information Consortium
- Health Technology Assessment
- ISI Web of Science (Social Science Citation Index)
- Medline (Ovid) Includes Medline In-Process & Other Non-Indexed Citations
- PsychINFO
- Social Policy and Practice
- UK Clinical Research Network Portfolio Database
- AEGIS (AIDSLine and International AIDS Society abstract archives)
- Eric (Education Resources Information Centre)
- EPPI Centre
- NHS Evidence (National Library for Public Health and National Library for Ethnicity and Health)
- Popline

In addition the websites of African-led community based organisations and other key websites were searched. The majority of the grey literature was retrieved from these searches.

Websites searched:

- African HIV Policy Network www.ahpn.org
- African HIV Research Forum www.ahrf.org.uk
- Avert www.avert.org
- Black Health Agency www.blackhealthagency.org.uk
- Centers for Disease Control (Diffusion of Effective Behavioural Interventions) www.effectiveinterventions.org
- Global Network of People Living with HIV (GNP+) www.gnpplus.net
- National Africa HIV Prevention Programme (NAHIP) www.nahip.org.uk
- Naz Project London www.naz.org.uk
- NICE website and former Health Development Agency www.nice.org.uk

The search process was documented by compiling the search strategies used to explore each resource. Audit information detailing numbers of records retrieved and retained from each resource, were also recorded.

2.2. Inclusion and exclusion criteria

2.2.1. Population

The review team had anticipated that there would be few studies about the effectiveness of HIV testing that focused exclusively on or included black Africans living in England. Our previous experience suggested that while some evidence on HIV testing among this specific population does exist, these interventions were evaluated using research methods of low quality. We were aware that there had been no randomised controlled trials (RCT) of interventions to increase the uptake of HIV testing among African communities or migrant groups in the UK. We also knew about a small number of exploratory studies and prospective or retrospective operational evaluations that were unlikely to provide sufficient evidence on which to base recommendations.

Although there is more evidence available about HIV testing from studies conducted in Africa, we concluded that the generalisability of these studies to African communities in England is questionable for several reasons. First, HIV testing, health service provision and care referral pathways in resource poor settings are very different from those in England. Second, the process of migration can change individual behaviour and present barriers to HIV testing not found in the country of origin. Third, many people living in the UK who identify as black African are part of long established minority ethnic communities. HIV-related stigma within these communities and race-related prejudice from the wider community present challenges to HIV testing interventions not encountered in the African context. Finally, black African communities in the UK are far more heterogeneous than those

in Africa. Country specific, tribal, cultural and linguistic differences are magnified in the UK context.

For these reasons we hypothesised that studies that aim to increase the uptake of HIV testing among migrant or black and minority ethnic communities in developed countries were more likely to reflect the experience of black African communities in England. Black African men who have sex with men are not included in this review, but will be included in the guidance. Evidence about this population is included in a NICE commissioned systematic review about increasing HIV testing among men who have sex with men.

Studies were eligible for inclusion if the study population included:

- Black African men and women **or**
- other Black, Asian and Minority Ethnic groups **or**
- migrant populations living in high income countries (World Bank classification - High Income OECD members: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea Republic, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States).

AND

- The study findings were disaggregated by race/ethnicity **or**
- at least 70% of the study participants were from included populations.

2.2.2. *Intervention*

Studies were eligible for inclusion if they assessed the effectiveness of interventions that:

- Increase awareness of provider or client initiated HIV testing in all settings except home testing or
- increase opportunity for provider or client initiated HIV testing in all settings except home testing.

Studies were excluded if they examined interventions that:

- focussed on HIV home testing (as this practice is currently illegal in the UK) or
- sought to increase uptake among pregnant women in ante-natal clinics (because HIV testing is undertaken by all a pregnant women in England unless the specifically request otherwise. The effectiveness of this policy has been established.) or
- sought to increase HIV testing among drug users, prisoners or men who have sex with men (the latter population is covered in another NICE systematic review) or

- evaluated the validity or diagnostic effectiveness of different types of HIV test or
- evaluated testing following exposure to HIV in the workplace.

2.2.3. *Comparators*

- No restrictions

2.2.4. *Outcomes*

Studies were eligible for inclusion if they reported any of these outcomes:

- increase / decrease in number of HIV tests
- increase / decrease in uptake of HIV tests
- increase / decrease in offers of HIV tests
- increase / decrease in the time elapsed between HIV infection and diagnosis
- increase / decrease in the reported history and frequency of taking HIV tests
- increase / decrease in the number and types of venue where HIV testing is offered

Studies that only reported on HIV testing intentions or changes in knowledge about HIV testing were excluded at the full paper screening stage.

2.2.5. *Study designs*

Studies considered for inclusion:

- randomised or non-randomised controlled trials
 - prospective or retrospective cohorts
- before and after or interrupted time series studies

2.3. *Implementation Process*

Studies were selected using a two stage screening approach. IF and AE used CPHE approved checklists to independently screen titles and abstracts. Where agreement could not be reached about study inclusion FB acted as third reviewer. Full paper copies of the selected studies were then screened and assessed independently by IF and AE using a full paper screening tool developed by the review team (Appendix B).

In total 5,899 references were returned from database and website searches. Reviewers identified 184 references eligible for full paper screening. Three papers could not be retrieved through library sources and three papers had been published before 1996. On examination of the full papers, a further three papers were excluded because the data collection period of the study did not overlap the introduction of HAART, that is, the studies began and ended before 1996.

Figure 1 summarises the search results and the outcome of the screening process. Fifteen papers met the inclusion criteria for quality appraisal (Appendix C). Studies

excluded at the full-paper screening stage, with reasons for their exclusion are presented in Appendix D.

Ten cross sectional/correlation studies met all inclusion criteria except study type and so were not included in quality appraisal. Cross sectional studies measure outcomes or exposures at one point in time; while this provides useful estimates of prevalence, such studies cannot be used to assess the relationship between cause and effect. The review team recognised that these studies might contain information useful for the Public Health Interventions Advisory Committee and so undertook abbreviated data extraction. This information is presented in Appendix E.

2.4. Data Extraction

Data about each included study's population, settings, methodology, analysis and results was extracted from using evidence tables created in Microsoft Word (see Appendix K of the NICE Methods Manual 2009). Data extraction was performed by one reviewer and checked for accuracy by another. Full evidence tables are presented in Appendix F.

2.5. Quality appraisal

Fifteen papers were quality assessed by one reviewer and checked for accuracy by another (IF and AE) using a Microsoft Excel Quality Appraisal checklist supplied by the NICE CPHE team. Where disagreements could not be resolved through consensus, FB acted as third appraiser.

Each study received a quality rating for both internal and external validity. Internal validity was rated according to a range of criteria which establish whether potential sources of bias have been minimised and if study conclusions are open to any degree of doubt. External validity was assessed by examining the extent to which the study findings were generalisable to the whole 'source population' (that is, the population they were chosen from, *not* the population for whom the Guidance will be developed).

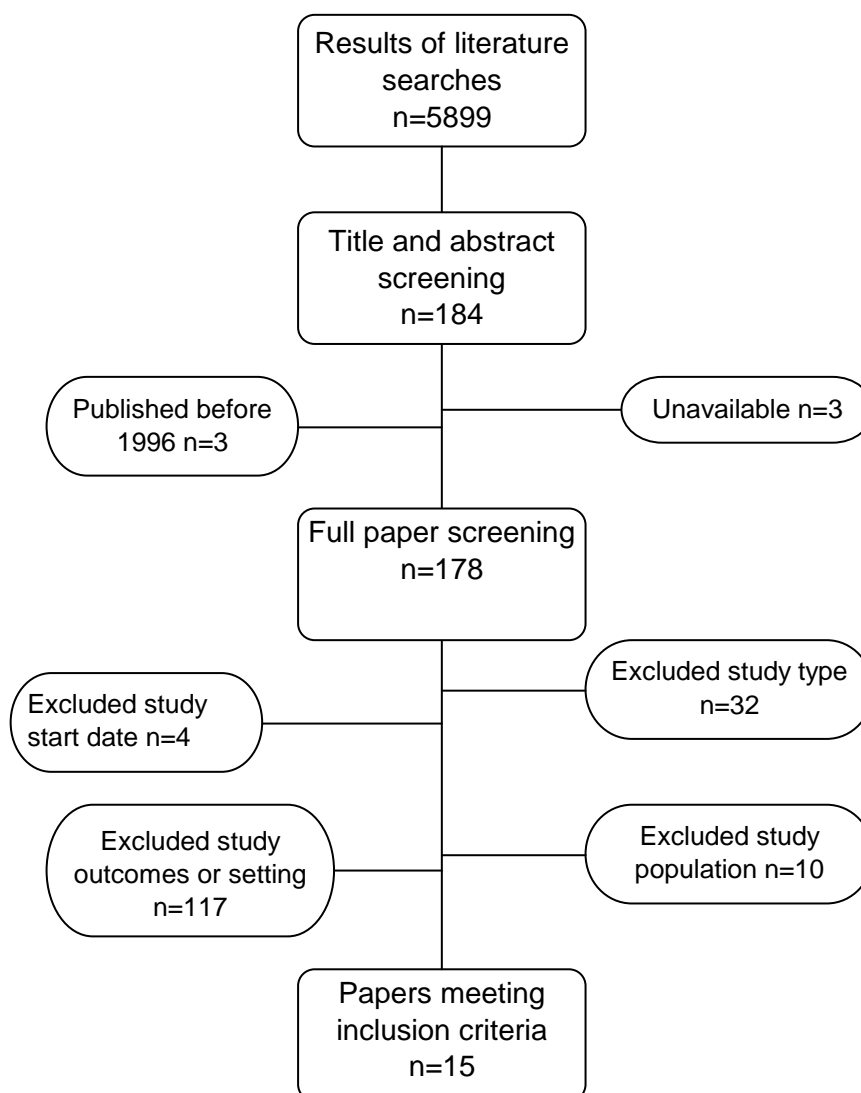


Figure 1. Summary of number of papers included and excluded at each stage in the study selection process

Each study was rated ('++', '+' or '-') to indicate its quality:

- ++ All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter
- + Some of the checklist criteria have been fulfilled, where they have not been fulfilled or not adequately described, the conclusions are unlikely to alter
- Few or no checklist criteria have been fulfilled and the conclusion are likely or very likely to alter

Inter-rater reliability of the quality appraisal process was calculated using Kappa scores (SPSS 14.0):

- Internal validity Kappa score: 1.0

- External validity Kappa score: 0.58
- Combined core: 0.80

These scores indicate there was a high level of agreement between the two reviewers for internal validity. The small number of papers retrieved meant that disagreement between reviewers on one or two studies would have a large impact on the Kappa score. This is reflected in the external validity score which is just below the 0.60 threshold for agreement highlighted in the NICE Methods Manual (2009). On discussion with the CPHE team the external validity kappa score was deemed acceptable.

2.6. Data Synthesis

After the data extraction and completion of quality assessment for each study, studies were grouped according to intervention design and presented in evidence tables. Formal meta analysis was not possible due to the small number of studies in each intervention type reporting the same outcome. Narrative summaries of each group of studies are presented below (Section 4) including discussion of study findings and limitations.

2.7. Assessing the Strength of the Evidence

Evidence statements for each intervention grouping were derived by examining the quality, quantity and consistency of the evidence. The methodology set out in the NICE Methods Manual 2009 was used to summarise the overall strength of the evidence in each intervention category. The following terms are used in the evidence statements:

- Weak evidence: small number of [-] studies or one [+] uncontrolled study
- Moderate evidence: One controlled [+] study, [++] studies or consistent findings from small number of [+] or [++] studies.

Where possible the Size of Effect has been reported or calculated for each study. The following terms are used to describe Size of Effect:

- Small: less than 5% increase in the uptake of testing/difference between two groups; and/or odds Ratio (OR) less than 1.5.
- Medium: greater than 5% but less than 20% increase in uptake of testing/difference between two groups; and/or OR greater than 1.5 but less than 5.0
- Large: greater than 20% increase in uptake of testing/difference between two groups. and/or OR greater than 5.0

2.8. *Applicability Assessment*

Each evidence statement was assessed for applicability to the UK context. The review team examined study groupings as a whole, assessing how similar (and applicable) the populations, settings, interventions and outcomes of the studies were to black African communities in England. Following assessment, we categorised each evidence statement as:

- directly applicable
- partially applicable
- not applicable

2.9. *Cost effectiveness Review*

Two literature searches were undertaken. First, the detailed search strategy used to identify studies in the effectiveness review (above) was replicated, with the searches restricted to the Economic Evaluation Database within the Cochrane Library (the search strings and hits are summarised in Table A2 in the Appendix). Second, a less restrictive search, with fewer search strings, of the Cochrane Library databases and NHS EED was undertaken (see Table A2 in the Appendix). No other sources were used to identify potential records.

The results of both searches were combined and are shown in Figure 2.

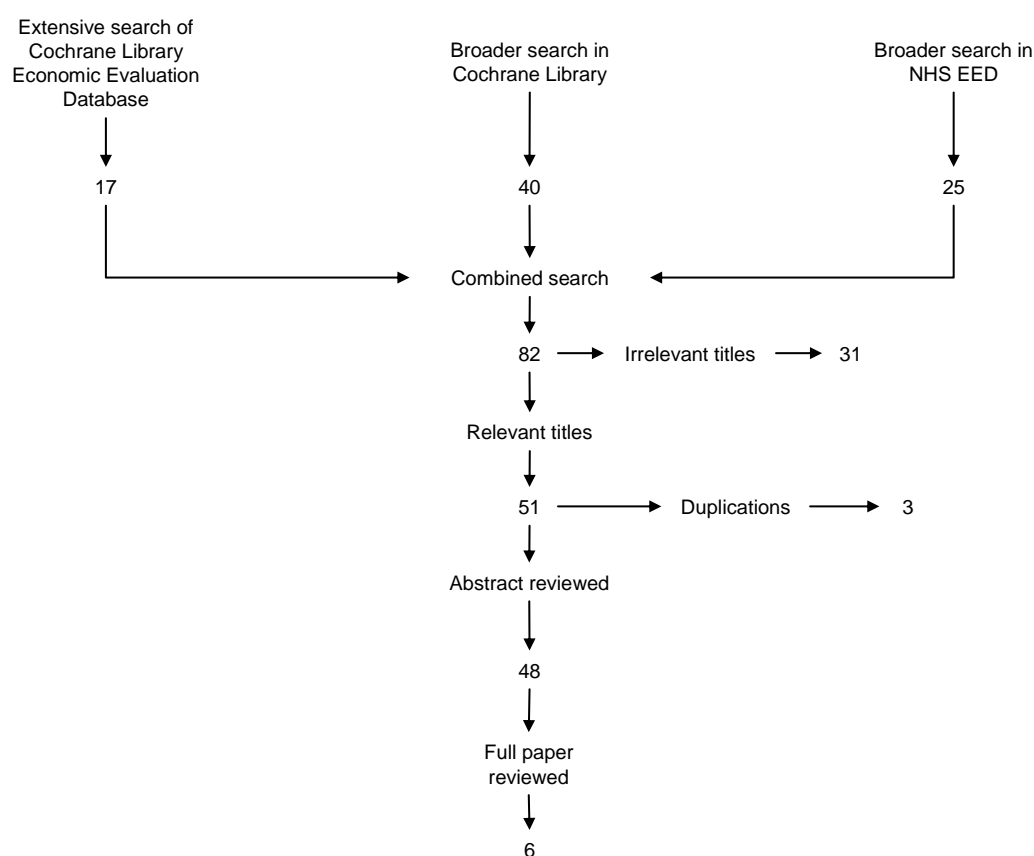


Figure 2. Search strategy and hits for review of cost-effectiveness studies.

The combined search produced 82 papers. The titles were reviewed independently by two health economists (GB, SM). Of these, 31 studies were not relevant to the

review and three were duplicates. The title and abstract of each of the remaining 48 studies was reviewed independently by two health economists (GB, SM) using the same screening checklists used in the main effectiveness review (Appendix B).

The 48 papers were classified according to the country in which the study was based and the at-risk population considered. The results are summarised in Table 2.1. Six papers focused on the Black African population, but did so in African settings. Only one study was UK-based. Thirteen studies were based in Africa. Eleven studies were focused on the general population.

Table 2.1. Summary of searches: results by country in which study was based and at-risk population considered

Country in which study was based	At-risk population considered				Total
	General population	Black Africans	Other at risk populations	Not available/not specified	
US	7	0	11	2	20
UK	0	0	1	0	1
Africa	0	6	4	3	13
Not available/not specified	2	0	3	4	9
Other	2	0	3	0	5
Total	11	6	22	9	48

Six papers which met the inclusion criteria were selected for full paper screening. Full copies of each paper were obtained and assessed independently by two health economists (GB, SM) using an amended full paper screening checklist (Appendix B). None of the studies met the inclusion criteria for quality appraisal and data synthesis. Papers were rejected for two main reasons:

1. the study focused on the general population with no subgroup analysis about the populations of interest
and/or
2. the paper did not explicitly consider the cost-effectiveness of strategies for increasing uptake.

Full references for the six studies that underwent full paper screening, plus the main reasons for their being discarded are presented in Appendix D.

3. Findings

Although no studies were selected for quality appraisal as part of the cost effectiveness review one study was identified as potentially useful. Phillips and Fernyak (2000), attempted to estimate the cost-effectiveness of approaches to expanded HIV counselling and testing in primary care practices in the USA. The study found that routine testing and using risk histories are both cost-effective compared with current practices in the USA. However, there was no sub-analysis by ethnicity and therefore no indication if the findings were specifically relevant to migrant or black and minority ethnic communities. So, while this study may be useful in developing a new cost-effectiveness model, evidence cannot be derived from the reported results.

Evidence Statement 3.1 Cost effectiveness of interventions

No evidence was found from English-language studies published since 1996 about the cost effectiveness of interventions relating to HIV testing in migrant and/or black and minority ethnic communities in high income countries.

3.1. Overview of selected studies

Fifteen papers (representing 14 studies) were identified from the effectiveness literature review and underwent quality appraisal. Most studies (10) were carried out in the USA, two from Australia, one from the Netherlands and one was carried out in the UK. A range of research methods were used: before and after studies (8); non-randomised controlled trials (3); retrospective cohort (1); interrupted time series (1) and randomised controlled trial (1). The review team grouped the papers according to intervention type and six categories were derived. Each category addressed one primary review question:

1. Which interventions have been effective in increasing the uptake or awareness of HIV testing and its benefits in migrant or black and minority ethnic communities?
 - Mass Media Campaigns
 - Message Framing
 - Group Level Behavioural Interventions
 - Physician Training
2. What interventions have successfully increased the opportunity for HIV testing for migrant or black and minority ethnic communities, whether aimed at this group or not?
 - Changes in Clinic Policy
 - Anonymous vs Confidential Testing

Table 3.1 provides an overview of studies identified by intervention and study design type and quality ratings.

Table 3.1 Overview of selected studies

Study Design	N identified	Quality Rating		
		++	+	-
Before and After Study (BA)	8	1	2	5
Interrupted Times Series (ITS)	1	1		
Non-Randomised Controlled Trial (N-RCT)	3			3
Randomised Controlled Trial (RCT)	1		1	
Retrospective Cohort (CT)	1		1	
Intervention Type				
Mass Media Campaigns	3			3
Message Framing	1		1	
Group Level Behavioural Interventions	3			3
Physician Training	1			1
Changes in Clinic Policy	4	2	2	
Anonymous vs Confidential Testing	2	1		1

3.2. Mass Media Campaigns

Social marketing is an important part of the sexual health promotion landscape in England. The National Social Marketing Centre (NSMC) is funded by the Department of Health as part of their commitment to developing a social marketing strategy for health in order to deliver behaviour change in the long-term. NSMC define health-related social marketing as the:

“systematic application of marketing alongside other concepts and techniques, to achieve specific behavioural goals, to improve health and reduce inequalities”

Key to social marketing is using behavioural theories to understand human behaviour, and to build programmes around this understanding.

Social marketing campaigns using mass media have been effective at increasing knowledge and promoting behaviour change for a number of public health interventions including smoking cessation, cancer, family planning and HIV prevention (Evans et al. 2008). These interventions are often culturally appropriate, that is, tailored to meet the specific needs of specific ethnic populations (McDermott 2000; Evans et al. 2008). Raising awareness of HIV by using posters, small media (booklets, information cards), radio and television advertisements has been part of HIV prevention since the start of the epidemic but not all campaigns have been based on behavioural theory. Recently mass media social marketing campaigns that target black African communities have been developed and delivered in England (Fenton et al 2004; Fakoya 2007; Fakoya 2009).

Measuring the effectiveness of mass media health education campaigns is complex and there is little empirical evidence of their effectiveness on specific health outcomes. Additionally, black African communities in England are not homogeneous

entities. They are composed of newly arrived, temporary, established and permanent migrants, as well as refugees and asylum seekers. Black African communities are also widely varied in their ethnic, cultural, linguistic and religious identities. The extent of this diversity makes it difficult to conceive and deliver uniform, effective ‘one-size-fits-all’ social marketing campaigns.

3.2.1. *Overview of identified evidence*

Three studies examined the effectiveness of mass media health education campaigns specifically targeted at migrant or minority ethnic communities. Two of the studies (Futterman et al 2001 BA[-]; Olshefsky et al 2007 BA[-]) were conducted in the USA and the other (McMahon et al 2004 BA [-]) in Australia. In each study HIV testing campaigns were designed and focus group tested by specialist social marketing agencies and then disseminated through a range of advertising and media outlets. Futterman et al (2001 BA [-]) used print and radio advertisements specifically targeted at young people from African American and Latino communities. Olshefsky et al (2007 BA [-]) targeted Spanish speaking Latino migrants living in California with radio advertisements, brochures and a website. McMahon et al (2004 BA[-]), promoted HIV testing in 14 different languages through adverts in print outlets and one radio station.

3.2.2. *Changes in uptake in HIV testing*

All three studies measured changes in the uptake of HIV testing at participating sexual health clinics in selected locations. Futterman et al (2001 BA[-]) developed the “Get Tested! Week” campaign through focus groups and interviews with the primary target group, but it was not based on an explicit behavioural theory. Radio advertisements, mass transit and outdoor advertising and a range of other marketing materials were used to disseminate the campaign. Data were collected on the number of HIV tests 3 months before (baseline), 1 month surrounding and 3 months after the campaign. They did not report the location or number of clinics that participated, but did report that the campaign was active in six US cities. The mean number of HIV tests at baseline was 86 per week and peaked during the campaign at 462 tests per week. The number of new HIV infections reported remained similar across the campaign period (13 new diagnoses at baseline, 19 during the campaign and 14 new infections during the 3 month follow up).

Similarly Olshefsky et al (2007 BA[-]) examined the uptake of HIV testing in four clinics before, during and after an 8 week Spanish language radio campaign. The campaign *Tu No Me Conoces* (You don’t know me) was based on the principles of behavioural Stages of Change theory. Messages were developed by an advertising agency and refined using focus groups. The campaign sought to promote HIV testing action using radio advertisement, a website, a telephone hotline and brochures to reach the target population of Latino migrants living in California. Across the clinics there was an increase in testing in the two quarters surrounding the campaign period compared to the final quarter of the year.

McMahon et al (2004 BA[-]) implemented a campaign that was disseminated in 14 different languages in print media outlets. The campaign messages were developed from the (unreported) outcomes of a national consultation process and refined using

focus groups. To assess the effectiveness of the campaign researchers collected data about the increase in the proportion of HIV tests taken by the target population in two sexual health clinics – one in Sydney and the other in Melbourne, Australia. The proportion of tests performed on the target population increased (16.3% up to 18.8%) but this was not significant ($p=0.31$).

3.2.3. *Quality Assessment*

Changes in HIV testing rates were measured by examining records at participating clinics before and after the delivery of testing campaigns. All three studies observed increased HIV testing rates among target populations after the campaign period. None of these increases were statistically significant.

All three studies had substantial sources of bias in the study design and were therefore rated poor quality. None of the studies clearly described why they had selected the clinics (quantity or location) which observed changes in the uptake of HIV testing. Olshefsky et al (2007 BA[-]) and Futterman et al (2001, BA[-]) did not report results in a way that could allow effect sizes to be calculated. Follow up time was particularly short in the Australian study – 15 days (McMahon et al 2004 BA[-]). None of the studies were able to provide evidence that any reported changes in uptake of HIV testing were due to exposure to their campaigns and not other factors, such as seasonal variation, simultaneous interventions and migration.

3.2.4. *Summary and evidence statements*

Mass media campaigns are a large part of the sexual health promotion landscape, yet few studies were identified that measured their effectiveness at reaching migrant and ethnic minority communities. Three studies examined the effectiveness of culturally and linguistically targeted social marketing campaigns that used mass media to increase HIV testing among target communities. Only one of these studies (McMahon et al, 2004 BA[-]) used statistical methods to analyse observed increases in uptake rates of testing.

It should be noted that each of these studies examined the impact of tailored mass media campaigns, using qualitative research methods to develop and refine messages targeted at specific ethnic minority groups. They did not all examine the same message, or messages based on the same theory.

Evidence statement 3.2 Mass Media

There is weak evidence that mass media campaigns aimed at ethnic minority and migrant communities can increase the uptake of HIV testing in these populations. Three before and after studies (McMahon et al, 2004[-]; Olshefsky et al 2007 [-]; Futterman et al 2001 [-]) were able to show a small or a large increases in the uptake of HIV testing among migrant and ethnic minority populations after implementation of mass media campaigns. Futterman et al (2001 BA[-]) showed an increase in mean number of HIV tests from baseline 86 per week to 462 tests per week during the campaign. McMahon et al (2004 BA[-]) showed an increase in the proportion of tests among ethnic and minority communities (16.3% up to 18.8% $p=0.31$). Olshefsky et al 2007 [-]; observed a small increase in testing during 6 months surrounding the

campaign compared with the final quarter of the year. None of these effects were statistically significant.

This evidence is directly applicable to black African communities in England. The nature of social marketing campaigns makes it very difficult to show, through empirical evidence, that a campaign has achieved its desired outcome. Although these studies were conducted in other countries, the intervention target populations were made up of diverse linguistic and cultural sub-groups. Similarly, black African communities in England are not homogenous entities. Mass media social marketing campaigns that target heterogeneous black African communities as a whole have been developed and delivered in England.

Table 3.2 Studies that examined Mass Media Campaigns

Study	Population and Setting	Intervention/control	Results
<p>Futterman et al 2001 BA [-] Aim: Describe methods and results of HIV testing project aimed at improving HIV testing and care among at risk youth External Validity: [-]</p>	<p>Selected: Young people aged 13-24 years attending participating clinics to obtain an HIV test Setting: New York City, Baltimore, Los Angeles, Miami, Philadelphia & Washington DC, USA.</p>	<p>Intervention: <i>Get Tested! Week</i> in each city advertised through social marketing campaign using culturally appropriate messaging and imagery. Delivered through radio and mass transit/outdoor advertising; peer dissemination of ambient media (youth-friendly magazine, referral cards) and media outreach to African American and Latino community leaders. Sample size: Total n=3737</p>	<p>Primary outcomes: HIV Tests taken: Baseline mean = 86 During peak =462 Secondary outcomes: New HIV diagnoses: Baseline n=13 During n=19 Post n=13</p>
<p>McMahon et al 2004 BA [-] Aim: Evaluate 2 week pilot mass media campaign External Validity: [-]</p>	<p>Selected: Patients attending three clinics in Melbourne and Sidney Setting: Sexual health clinics in Sydney and Melbourne, Australia.</p>	<p>Intervention: Mass media campaign promoting HIV testing in 14 different languages. Advertising in ethnic media print outlets and one radio station. 52 (156 insertions) sets of advertisements. Publicity for the campaign through press releases and phone promotion to media outlets. Sample size: n=1067</p>	<p>Primary outcomes: Non significant increase in proportion of tests performed on target population (16.3% vs 18.8% p=0.31)</p>
<p>Olshefsky et al, 2007 BA [-] Aim: Evaluate 8 week culturally specific social marketing campaign targeting Latinos living on California-Mexico border. External Validity: [-]</p>	<p>Selected: Patients attending 4 participating clinic sites Setting: HIV testing clinics in San Ysidro, Imperial County, Vista and San Diego, US .</p>	<p>Intervention: Mass media campaign featuring 1-min Spanish language radio ads aired 650 times on four radio stations in two cities. Campaign developed by marketing agency, messaging verified through focus groups. Target groups also reached through website and brochures. Control/comparison: Uptake of HIV testing in four participating clinics before, during and after campaign. Cross sectional media exposure survey of clinic testers. Sample sizes: Unclear</p>	<p>Primary outcomes: Increase in number of testers in campaign period Q2 and Q3 compared with Q4 Secondary outcomes: 30% (127/429) of testers who completed survey recalled seeing or hearing an ad about HIV testing.</p>

Full evidence tables available in Appendix F

3.3. Message Framing

As discussed above, social marketing, mass media and health education campaigns are often used to persuade groups of individuals to change or adopt a given behaviour. Campaigns are usually based on an overarching theory of behaviour change and messages are developed that try and elicit the wanted behavioural outcome. One factor that may influence the effectiveness of a health appeal is the frame of the health message. “Loss-framed” messages present a choice in terms of its associated costs. “Gain-framed” messages frame a choice in terms of its associated benefits. Both messages objectively describe equivalent situations, but may have different impacts on different groups of people.

3.3.1. Overview of identified evidence

One study addressed the issue of message framing in HIV testing (Apanovitch et al, 2003 BA [+]). The authors proposed that the moderating factor in understanding effects of message framing was likely to be an individual’s perception of the (un)certainty of the expected behavioural outcome. They tested this hypothesis by comparing videotaped messages promoting HIV testing among the target population. They hypothesised that women who viewed HIV testing as behaviour with a relatively uncertain outcome to be more persuaded to obtain an HIV test by a loss-framed than by a gain-framed video. Women who viewed HIV testing as behaviour with a relatively certain outcome would be more persuaded by a gain-framed than by a loss- framed video.

3.3.2. Reports of HIV testing

Participants were 480 women (87% Latina or African American) recruited from public housing developments and community centres in a low income neighbourhood in a US city. They were randomly assigned to watch one of four 15 minute, culturally appropriate, educational programmes, identical in informational content but framed differently. Structured questionnaires were administered face-to-face before and immediately after viewing the video. Telephone or face-to-face questionnaires were conducted 6 months after the intervention.

Overall, approximately one third (155/425) of the women who responded at 6 month follow up reported having had an HIV test. Two of those women tested HIV positive. Among women who viewed HIV testing as behaviour with a certain outcome, (with a low risk of testing positive), HIV testing was more likely to be reported in those viewing a gain framed video than women who saw a loss-framed message (38% vs 26% , $\chi^2=4.84$, $p<0.05$). Participants who considered HIV testing to be risky behaviour with uncertain outcome were not differentially affected by the framed messages.

3.3.3. Quality assessment

The main outcome measure in this study was the differences in self reported HIV testing. It is possible respondents’ desires to provide answers that researchers find favourable (social desirability bias) may have had an impact on the results. Women were randomised to decide which message they received therefore reducing the risk of systematic bias across conditions. Nonetheless, the authors did not assess the

impact of social desirability and so were unable to determine if the messages themselves were likely to encourage false reports of HIV testing.

There was also no unframed control condition to compare the framed versions of the video. It is possible that the results reflected unusually effective or ineffective messages in some conditions. While the authors were able to show a framing by certainty interaction, they were not able to fully explain the mechanisms driving the differential effect, particularly since they were only able to demonstrate the interaction in one direction. According to their hypothesis there should have been a strong loss-framed advantage for women who perceived HIV testing as a relatively risky behaviour with an uncertain outcome, but this was not observed.

Although the study had several limitations these were all identified by the authors and steps were taken in multivariate analysis to reduce confounding and bias. Additionally, the strong theoretical basis of the study and use of randomisation to allocate message conditions meant the study was rated as [+].

3.3.4. *Summary and evidence statements*

Apanovitch et al (2003 BA [+]) found that among those who viewed HIV testing as having a certain outcome (with a low risk of testing positive) gain framed messages better encouraged self-reported HIV testing than loss framed messages. The authors were unable to determine the mechanisms underpinning the framing by certainty interaction.

Evidence statement 3.3 Message Framing

There is weak evidence from one US study (Apanovitch et al, 2003 BA[+]) to suggest that videotaped health education messages that highlight the positive outcomes of HIV testing may increase uptake of HIV testing among low income, ethnic minority women who consider themselves to be at low risk of testing positive (38% vs 26% , $\chi^2 = 4.84$, $p < .05$).

This evidence is only partially applicable because the study was conducted in the USA among low income African American and Latina women who are culturally distinct from black Africans in England. Barriers to HIV testing among black Africans in England, (many of whom survive on low income), do include poor perception of individual risk. It follows that gain-framed messages might therefore increase the uptake of HIV testing in this population. Further research is needed to examine if this evidence is directly applicable to black African groups in England and whether message framing has differing impacts on men and women.

Table 3.3 Studies that examined Message Framing

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Apanovitch et al, 2003 BA [-]</p> <p>Aim: Identify factors that influence the persuasiveness of materials promoting HIV testing among low-income women</p> <p>External Validity: [+]</p>	<p>Selected:, Recruited door-to-door from public housing estates and a community centre. Uptake rates not reported.</p> <p>Excluded: Age only exclusion criterion at recruitment. HIV positive women excluded at analysis.</p> <p>Setting: Small North-eastern US city</p>	<p>Allocation: Participants randomly assigned to watch video tape. No details of randomisation.</p> <p>Intervention: Hypothesis: Women uncertain of outcome of an HIV test more likely to be persuaded to obtain HIV test by loss framed message than gain framed and visa versa. Researchers assigned women to watch one of 2 “gain framed” or “loss framed” 15 minute videotaped educational programmes. Perceived certainty of HIV test outcome assessed post exposure.</p> <p>Control/comparison: No control/comparison</p> <p>Sample size: n=480</p> <p>Baseline comparisons: No difference among the four video conditions.</p> <p>Study power: No power calculations reported. Unclear how many subjects allocated to each arm.</p>	<p>Primary outcomes: Gain framed advantage for women who viewed HIV testing as having certain outcome compared with loss framed: 38% vs 26% tested, $\chi^2(1, N=281) = 4.84, p < .05$.</p> <p>Attrition: 55 (11%) lost to follow-up. No details on loss per arm.</p>

3.4. Group Level Behavioural Intervention Programmes

Group level behavioural intervention programmes use workshops or seminars to bring together individuals to talk about sexual health issues. Based on theoretical models of behaviour change, programmes aim to address specific issues that participants might face when making decisions that affect their sexual health. Sessions are usually highly structured and facilitated by trained health professionals or community workers. Programmes try to modify behaviour by reframing participants' thinking about sexual behaviour (for example, offering techniques to avoid situations where they might be at risk or negotiating safer sex). Typically they combine educational and interactive approaches, (for example role playing or lectures) with approaches that develop participants' skills in developing the desired behaviour.

Group level behavioural interventions are often made up of many different components that are combined in order for the intervention to function as desired (Bonell 2001). The multifaceted nature of such interventions makes evaluation difficult and often presents problems for researchers who may struggle to reduce the impact of known and unknown confounders. While randomised controlled trials (RCT) are seen by some as the way to minimise such bias (Bonell 2001), they are often costly and random allocation is not always feasible.

3.4.1. Overview of identified evidence

Three studies (four papers) were identified which evaluated group level behavioural interventions. All studies were non-randomised controlled trials (N-RCT) conducted in the USA; two papers (Amaro et al 2002 and Raj et al 2001, N-RCT [-]), reported results from the same study at different follow-up time points.

All three studies assessed community-based, theoretically driven workshops with curricula specifically designed by researchers aimed at ethnically and linguistically distinct sub-groups. Rhodes et al (2009 N-RCT [-]) trained Latino men living in rural areas in the US to serve as community health advisers. Amaro et al (2002 N-RCT [-]) compared the effectiveness of two Spanish-language based, women-only workshops, to a control group. Lemieux et al (2008, N-RCT [-]) presented results from a music based intervention which took place in urban high schools. It should be noted that only Rhodes et al (2009 N-RCT [-]) designed their intervention with a view to increase HIV testing; all other programmes were primarily focussed on changing other behaviours associated with HIV risk, such as condom practice, sexual negotiation skills, partner reduction and abstinence.

3.4.2. Self-reported HIV testing

Although the studies examined very different intervention programmes there were some similarities between them. Lemieux et al (2008, N-RCT [-]) and Rhodes et al (2009 N-RCT [-]) both designed interventions that trained groups of community members to become opinion leaders that deliver health promotion messages to their peers.

Lemieux et al (2008, N-RCT [-]) recruited 6 “musical opinion leaders” at three urban US high schools predominantly made up of Latino and African American students . Over a period of 4 months, through a series of group discussion workshops, students were encouraged to develop a short, culturally appropriate song designed to reduce HIV and STI risks. The song, “Life’s too short”, was subsequently performed in ten health classes and disseminated via CD alongside other marketing materials (for example, T-shirts, leaflets).

Three months after the intervention, researchers compared the rate of self-reported HIV tests among sexually active students who received the intervention to those in control schools who had received standard health classes in the same period. They found that sexually active participants in the treatment group were more likely to obtain an HIV test than were sexually active participants in the control condition (21.3% vs 6.7% $\chi^2 (1) = 6.39, p < 0.01$).

Rhodes et al (2009 N-RCT [-]) used also used the existing structure to deliver their peer led intervention. Thirty soccer teams from a rural Latino soccer league were selected to participate in the study (15 controls and 15 interventions). Each team selected one individual to become a lay health adviser, known as a *Navegante* or Navigator, to the team. *Navegantes* underwent four sessions (16 hours) of training in which they learned how to become opinion leaders who make referrals to increase knowledge about HIV / STI testing and increase condom skills. Follow-up occurred 18 months later and found that self-reports of HIV testing increased from baseline for the intervention group (adjusted OR 2.5 [CI 1.5-4.3] $p < 0.001$).

Amaro/Raj et al (2001/2 N-RCT [-]) employed community health educators and trained them to deliver group based HIV prevention programmes based on differing theories of behaviour change. One programme was a general women’s health promotional programme (WHP), based on a range of theoretical concepts and reliant on didactic education and skills training exercises. The second programme was a HIV-intensive Programme (HIV-IP) whose curriculum focussed only on HIV and related health topics. The HIV-IP programme was based on social cognitive and empowerment theories and used more participatory methods (such as group problem solving and critical thinking) than the WHP. Both programmes were 12 weeks long and were compared to a control group made up of women wait-listed to receive the interventions.

Surveys were conducted before the interventions (pre-test), 12 weeks after pre-test (post test), and at three month and 15 month follow up. Participants were asked to report if they had tested for HIV in the previous 3 months. Only the WHP group was significantly more likely than the wait-list control group to report increased HIV testing at post-test (OR= 2.50; 95%CI 1.02, 6.12) but this significant effect was lost at follow up. There were no other significant differences in testing between each programme and/or the control group.

3.4.3. Quality Assessment

All three studies relied on self reports of HIV testing, but did not assess or try to adjust for social desirability bias.

Amaro/Raj et al (2001/2 N-RCT [-]) reported their methodology well and presented their data with a range of measure of effect with accompanying statistical tests. There were significant sources of bias that arose from not only the quasi-experimental study design but also from the recruitment criteria and the intervention settings. Limited attempts were made to adjust for this in analysis; nonetheless the small sample size would have made it likely that the study was underpowered.

The study by Lemieux et al (2008, N-RCT [-]) was also rated poor. The methodology used to select the controls was unclear and may have introduced unknown bias. Although the authors did try to adjust for rates of attrition this was not done when examining the outcome of interest. Rhodes et al (2009 N-RCT [-]) study methodology was also unclear; there was no description of how teams were selected, rates of attrition, or what information was given to those in control teams. Additionally, HIV testing rates increased from 9.0% at baseline to 41.8% at follow up for the control group but this result is not mentioned by the authors.

3.4.4. *Summary and evidence statements*

Three studies were found that looked at how group level interventions can be used to increase HIV testing in migrant and ethnic minority communities. All three studies were non-randomised controlled trials that showed significant short term increases in self reports of HIV testing after the interventions. But none of the studies were able to minimise the bias or flaws in their study design and were therefore rated with poor internal validity.

Evidence Statement 3.4 Group Level Behavioural Interventions

There is weak evidence from three studies to suggest that (workshop or opinion leader based) group level behavioural interventions can increase HIV testing in migrant and minority ethnic communities. Two non-randomised controlled trials (N-RCT) showed increased odds of self reported HIV testing (OR [95% confidence interval]) in the intervention groups: 2.50; [1.02, 6.12] (Raj et al 2002 N-RCT [-]); 2.5 [1.5-4.3] (Rhodes et al 2009 [-]). Another N-RCT (Lemieux et al 2008, N-RCT [-]) showed new HIV testing was more likely among those in the intervention group: (21.3% vs 6.7% $\chi^2 (1) = 6.39, p < 0.01$).

This evidence is only partially applicable to black Africans in England. That is because all three studies were conducted in the US with migrant and minority ethnic communities that were largely culturally and linguistically homogenous. While it may be possible to develop group level behavioural interventions for specific black African communities in England, (for example Shona speaking Zimbabwean communities), developing effective interventions that cut across black African communities might be more challenging. Additionally, successful culturally based group level behavioural interventions should be underpinned by findings from extensive ethnographic, psychosocial or formative research. There is limited availability of such evidence from black African communities in England.

Table 3.4 Studies that examined group level behavioural intervention programmes

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Amaro/Raj et al 2001/2 N-RCT [-]</p> <p>Aim: Compare effectiveness of two HIV prevention interventions in increasing safer sex behaviours and a wait-list control.</p> <p>External Validity: [-]</p>	<p>Selected: Women recruited from housing projects, community service agencies and clinics. Inclusion criteria as above. Possibility of selection bias – women were invited to participate by programme facilitators. Eligible & accepted: HIV Intensive Prevention (HIV-IP) =55% Women’s Health Programme (WHP) = 90%</p> <p>Setting: Community centres, Boston, US</p>	<p>Allocation: Participants allocated according to which facilitator enrolled them into the study. Wait-list controls enrolled by researchers.</p> <p>Intervention: Two Spanish based HIV prevention programmes delivered by trained facilitators in a community based setting. Both programmes delivered over 12 weeks (sessions: 1.5-2 hours each).</p> <p>HIV-IP: based on social cognitive theory. Includes participatory education strategies with > 16 hours HIV prevention & socio-cultural information.</p> <p>WHP: small group, largely didactic approach with 6-9 hours about HIV, remaining hours focused on general women’s health topics suggested by participants.</p> <p>Control/comparison: Wait-list control</p> <p>Sample Total n= 170 Intervention HIV-IP n= 44 WHP=56 Control n=70 Baseline comparisons: NR</p> <p>Study power: NR. Unlikely to be sufficiently powered with small sample size.</p>	<p>Primary outcomes: No significant difference in self reported testing across groups: increase in HIV testing for HIV-IP (7.5%); decrease in testing for WHP (3.7%); decrease in testing for wait-list control (1.61%).</p>
<p>Lemieux et al, 2008, N-RCT [-]</p> <p>Aim: Evaluate music-based HIV prevention intervention among urban adolescents.</p> <p>External Validity: [-]</p>	<p>Selected: Pupils enrolled in high school health classes</p> <p>Setting: Inner city schools, US</p>	<p>Allocation: NR.</p> <p>Intervention: Intervention took place in health classes. 6 MOLs (Musical Opinion Leaders) were selected by class peers. MOLs wrote and performed "Life is too short" a 5 min hip-hop/RnB style song focused on HIV prevention motivations. MOLs performed song in 10 health classes & disseminated information packs. 1 month after initial class presentation another</p>	<p>Primary outcomes: New HIV test more likely in treatment group. $\chi^2(1) = 6.39, p < .01$</p> <p>Attrition: 116/422 (27%) lost to follow up. MANOVA indicates no association between intervention and attrition.</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Rhodes et al, 2009, N-RCT [-]</p> <p>Aim: Evaluate efficacy of pilot lay health adviser intervention to increase condom use and HIV testing among Latino men.</p> <p>External Validity: -</p>	<p>Selected: Soccer teams selected to serve as intervention and control groups; random sample of men from each group participated in evaluation</p> <p>Excluded: NR</p> <p>Setting: North Carolina, US.</p>	<p>dissemination phase.</p> <p>Control/comparison: Pupils in control schools received normal health class lessons.</p> <p>Sample Total (sexually active): n=137 Intervention n=47 Control n= 90</p> <p>Baseline comparisons: NR</p> <p>Study power: NR. Sample size adequate.</p> <p>Allocation: Intervention teams were allocated according area. Control teams selected to be geographically and socially distinct</p> <p>Intervention: Fifteen lay health advisers from 15 soccer teams received 16 hours training (based on social cognitive theory) as health advisers who increase HIV knowledge and make referrals for HIV testing.</p> <p>Control/comparison: No description of input received by control group</p> <p>Sample Total n= 222 Intervention NR Control NR</p> <p>Baseline comparisons: No significant differences in socio-demographics. Adjusted for within team clustering.</p>	<p>Primary outcomes: HIV testing increased over baseline for intervention (9.0% vs 64.4%) adjusted odds ratio - 2.5 [CI 1.5-4.3] p<0.001)</p> <p>Attrition: NR</p>

NR = Not Reported NA= Not Applicable

3.5. Changes in Clinic Policy

In addition to trying to change individual attitudes and behaviours towards testing, structural changes to existing clinical practices can improve HIV testing uptake rates. The introduction of policies that change the personal experience of clinic attendees, for example through reduced waiting times, can influence HIV testing rates. Although these interventions are often not targeted at increasing HIV testing among migrant or black and minority ethnic groups they often increase the opportunity for HIV testing for individuals from these groups.

3.5.1. Overview of identified evidence

Four studies were found that examined the effect of changes in clinic policy on the uptake of HIV testing in migrant or black and minority ethnic communities. Two were before and after studies; one conducted in the UK (Cassell et al 2003, [++]) and one in The Netherlands (Van der Bij et al 2008 [+]). The other two studies (randomised controlled trial and interrupted time series) were conducted in the USA (Wurcel et al 2005 RCT [+]; Zetola et al 2008 ITS [++]).

Cassell et al (2003, BA [++]) examined the impact of clinic attendance and the uptake of HIV testing following changes to the clinic appointment system. Van der Bij et al (2008, BA [+]) and Zetola et al (2008, ITS [++]) examined clinic policies that tried to make HIV testing a routine part of clinic procedures. Wurcel et al (2005, RCT [+]) addressed the subject of rapid testing.

3.5.2. Changing appointment systems

Cassell et al (2003, BA [++]) conducted a natural experiment at a London GUM clinic. The study compared HIV testing rates before and after the introduction of a new clinic appointment policy. Before the change the clinic offered a wholly walk-in service, in which patients arriving before the end of clinic session could wait to be seen. The new appointment policy consisted of clinic sessions where 65% of slots were bookable on the day of attendance and 35% pre-booked appointments. Most of the patients attending the clinic were from black and minority ethnic communities. The authors found that there was higher rate of HIV testing among new patients after the implementation of the new appointments policy (37.3% vs 31.0% $p=0.04$). The ethnic profile of the clinic population remained the same after the policy change.

3.5.3. Normalising HIV testing

Zetola et al (2008, ITS [++]) examined the impact of a change in procedure for ordering HIV tests at a US hospital. The previous policy required physicians to obtain a patients signature on an informed consent document before they could order an HIV test. Laboratories rejected samples with incomplete documentation and the HIV test was not completed. The new policy added HIV antibody testing to routine laboratory forms and only required clinicians to document informed consent in medical records. The study analysed 20,710 HIV tests performed over a 53 month period and found a sustained increase in monthly HIV testing rates one year after the policy change. Patients were stratified according to ethnicity; there was an increased number of HIV tests per month per 1000 patient visits after the policy among African

Americans and Asians but not among Hispanics. However, the increasing HIV testing trends were similar across ethnic groups when compared to each other. There was also a significant increase in the average number of tests among patients speaking a primary language other than English or Spanish.

In the Dutch study, (Van der Bij et al 2008, BA [+]) the uptake of HIV testing was measured before and after a change in policy that introduced the routine offer of an HIV test. Before the change, HIV testing was available but not routinely offered to all attendees. The authors also conducted half-yearly, cross-sectional, anonymous HIV prevalence surveys in order to assess the proportion of HIV positive attendees aware of their serostatus. Overall there was a significant increase in HIV testing rates when comparing the period before and after the policy change (OR: 5.7 95%CI 5.6-5.9). This increase was more pronounced among patients from sub-Saharan Africa (OR: 8.0 CI: 6.5-9.8) than among white patients. There was no change in the proportion of individuals aware of their HIV infection before and after the policy change.

3.5.4. Rapid vs. Standard Testing

One RCT examined whether patients would be more likely to accept HIV testing if they were offered a rapid test versus a standard test. Rapid testing allows patients to receive their results after a 20 minute waiting period, whereas standard results are received after two weeks. Wurcel et al (2005, RCT [+]) had hypothesised that fewer patients would accept rapid testing because of the heightened fear of finding out immediately that they were HIV positive. When standard testing was offered, the results showed there were significant difference between acceptance rates among different ethnic groups ($p=0.04$); black Hispanic/Caucasian Hispanic group displayed the lowest acceptance (18.2%) and black non-Hispanics the highest (59%). In contrast, there was no difference in the rates of rapid testing among the ethnic groups ($p=0.16$). None of the tests performed returned with positive results.

3.5.5. Quality assessment

Cassell et al (2003, BA [++]) conducted a good study that reported a clear and concise methodology. While the study was unable to collect accurate data on the numbers turned away from the clinic after the policy change, this source of bias was not thought to significantly influence the results. This study took place before routine opt-out testing was introduced in GUM clinics. It is therefore unclear whether that the observed changes in the rate of testing reflected an increase in the offers of an HIV test by healthcare workers or whether patients were more likely to accept the offer.

The other before and after study, Van der Bij et al (2008, BA [+]), was moderately well conducted but some aspects of the methodology were unclear. The results show that characteristics of the clinic population changed over time but multivariate analysis was not used to examine HIV testing before and after intervention. It is also difficult to assess how representative this clinic sample is of the source population and the authors do not address these issues in the paper.

Zetola et al (2008, ITS [++]) conducted a very well designed interrupted time series study, describing the methodology in detail and presenting results with pre-specified

sub-group analyses. The authors also conducted sensitivity analysis and were able to establish that external factors, such as the introduction of same-day testing, had not significantly contributed to the observed effect. Although the study did report on those who tested HIV positive, no time series analysis was conducted for this group.

The only RCT to be identified in this review was moderately well conducted. Wurcel et al (2005, RCT [+]) did not report the method used to randomly allocate patients. Additionally the study was underpowered and so was not able to determine which method of testing was more acceptable.

3.5.6. *Summary and evidence statements*

Only four studies were identified that addressed changes in clinic policy and practice as a means to increasing the uptake of HIV testing. One before and after study Van der Bij et al (2008, BA [+]) and one interrupted time series (Zetola et al 2008, ITS [++]) examined how simplified consent procedures and routine offers of tests could normalise HIV testing and increase uptake in clinics. Cassell et al (2003, BA [++]) compared two different appointment systems and Wurcel et al (2005 RCT [+]) compared rapid testing to standard testing.

Evidence statement 3.5 Changes in Clinic Policy

3.5a There is moderate evidence from one before and after study (Cassell et al 2003, BA [++]) to suggest that the uptake of HIV testing in GUM clinics can be increased by implementing a bookable appointment system. The study found that the proportion of HIV tests taken by new patients increased after the intervention (37.3% vs 31.0% $p=0.04$).

This evidence is only partially applicable to black Africans in England. This is because the study was conducted before the introduction of universal 'opt-out' HIV testing in sexual health clinics in England. Under this system patients are tested for HIV unless they specifically reject the test. Additionally, the study took place in a large clinic located in an ethnically mixed, socially deprived district in London. The evidence may not be applicable in smaller clinics or clinics in areas with a less ethnically diverse population.

3.5b There is moderate evidence from two studies to suggest that encouraging the routine offer of an HIV test may increase the uptake of HIV testing in among migrant and minority ethnic inpatients, outpatients and those attending GUM clinics. One interrupted time series study (Zetola et al 2008, ITS [++]) found that removing the need for separate signed consent documentation increased HIV testing among various ethnic and linguistic groups [mean increase (95% confidence intervals)]: Asian - 2.80 (1.37–4.23); Black - 5.58 (2.11–9.04); Hispanic -1.56 (-0.49–3.61); White - 5.58 (2.95–8.21); English-speaking - 5.04 (2.40–7.69); Spanish-speaking -0.95 (-3.31–1.40); Other primary language - 2.69 (1.16–4.22). Findings from another study, (Van der Bij et al 2008, BA [+]) showed routine offers of HIV testing to all new patients at a sexual health clinic increased rates of HIV testing among patients from sub Saharan Africa (OR: 8.0 95 % Confidence Interval: 6.5-9.8)

This evidence is only partially applicable to black Africans in England. This is because separate signed consent is not required for HIV testing in England.

Additionally, most sexual health clinics in England use a universal 'opt-out' testing and the uptake among black Africans is more than 85%.(HPA 2009)

3.5c. There is moderate evidence from one randomised controlled trial (RCT [+]) that suggests that rapid HIV testing in clinical settings is acceptable to all ethnic minority groups but standard HIV testing is not. The study (Wurcel et al 2005, RCT [+]) showed that the acceptance rate of standard testing differed across ethnic groups (black/Caucasian Hispanic 18.2% vs black non-Hispanic 59% p=0.04).

This evidence is partially applicable to black Africans in England. This is because the study was conducted in the US using ethnic groupings not widely used in England. Additionally, unlike in the UK, the US healthcare system is not free at the point of care. It is therefore difficult to assess if the conclusions reached would be applicable to black and minority ethnic groups in England.

Table 3.5 Studies that examined Changes in Clinic Policy

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Cassell et al 2003 BA [++]</p> <p>Aim: Determine whether policy change in STI clinic affected access to clinic and clinical outcomes including HIV testing</p> <p>External Validity: [+]</p>	<p>Selected: All new patients in the GUM clinic.</p> <p>Excluded: Patients previously diagnosed with HIV at the clinic</p> <p>Setting: London, UK</p>	<p>Allocation: Non applicable. Natural experiment</p> <p>Intervention: Policy change in GUM clinic: Walk-in only (phase 1) to (phase 2) all sessions either mixed pre-booked slots (35%) or slots available on the day (65%). Nurse triage offered to patients in phase 2 who could not be offered an appointment on the day.</p> <p>Control/comparison: NA</p> <p>Sample sizes: Phase 1: n= 836, Phase 2: n=1514</p> <p>Baseline comparisons: NA</p> <p>Study power: NR.</p>	<p>Primary outcomes: Higher uptake of HIV testing among new patients in phase 2 (37.3% vs. 31.0% p=0.04)</p> <p>Attrition: No information collected on those turned away from the clinic as walk-in patients.</p>
<p>Wurcel et al 2005, RCT [+]</p> <p>Aim: To determine whether patients would be more or less likely to accept HIV testing if it were offered as a rapid test versus standard test</p> <p>External Validity: [-]</p>	<p>Selected: New inpatients (medical, surgical, tuberculosis, orthopaedic services) or outpatients.</p> <p>Excluded populations: Patients who were acutely intoxicated; psychotic; depressed or incompetent excluded from enrolment. Patients also exclude if they had been tested within one month of enrolment. Number of exclusions not reported. Potential bias: attending physician determining eligibility could exclude from study due to other criteria.</p>	<p>Allocation: Patients randomised to 1:1. No details of randomisation process</p> <p>Intervention: Patient offered rapid HIV test, if agreed received 10 -30 minute pre-test discussion. Rapid testing results delivered after 20-minute waiting period.</p> <p>Control/comparison: Patient offered Standard HIV test, if agreed received 10 -30 minute pre-test discussion. Results delivered in follow-up appointment to be booked by the patient two weeks post-test. No results provided over the phone.</p> <p>Sample Total n= 203 Intervention: 101 Control: 102</p> <p>Baseline comparisons: No significant difference.</p> <p>Study power: Not powered for statistical significance.</p>	<p>Primary outcomes: Significant difference between acceptance rates of standard testing among different ethnic groups (p=0.04). Hispanic groups lowest acceptance of standard testing; non-Hispanic black highest rate of acceptance. No ethnic differences in acceptance of rapid testing (p=0.16).</p> <p>Attrition: NR.</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Authors: Zetola et al 2008 ITS [++]</p> <p>Aim: To describe the change in HIV testing rates after introduction of policy to eliminate the requirement of separate written consent for HIV testing.</p> <p>External Validity: [+]</p>	<p>Setting: Hospital, Boston, US</p> <p>Selected: All Patients attending health care settings where HIV screening is routinely performed: ED; urgent care clinic, inpatient services, primary care clinics; specialty clinics and affiliated community clinics.</p> <p>Excluded populations: None</p> <p>Setting: Large University-based hospital, San Francisco, US.</p>	<p>Allocation: NA.</p> <p>Intervention: May 16 2006 policy change eliminating the need for physicians to submit signed patient informed consent document alongside HIV test laboratory requisition form. Prior to policy change laboratory rejected samples with incomplete documentation.</p> <p>Control/comparison: Tests undertaken before change in policy and monthly HIV testing rates compared with similar San Francisco hospital where policy change did not occur.</p> <p>Sample Total (tests) n= 20,710 Intervention: 3791 Control: 16919 Baseline comparisons: NA</p> <p>Study power: No power calculations. Large sample sufficient.</p>	<p>Primary outcomes: Mean HIV tests per month per 1000 patient visits over the expected number of tests 13 months after the change in policy (95% confidence interval):</p> <p>Asian - 2.80 (1.37–4.23) p<0.001;</p> <p>Black - 5.58 (2.11–9.04) p= 0.002;</p> <p>Hispanic -1.56 (-0.49–3.61) p=0.132;</p> <p>White - 5.58 (2.95–8.21) p<0.001;</p> <p>English-speaking - 5.04 (2.40–7.69) p= <0.001;</p> <p>Spanish-speaking -0.95 (-3.31–1.40) p=0.419;</p> <p>Other primary language - 2.69 (1.16–4.22) p= 0.001</p> <p>Attrition: NR.</p>
<p>Van der Bij et al 2008 BA [+]</p> <p>Aim: To evaluate whether routinely offering HIV testing to STI clinic patients increased the uptake of HIV testing and awareness of HIV status among heterosexuals</p>	<p>Selected: During data collection periods: 1,000 consecutive patients interviewed</p> <p>Excluded: NR</p> <p>Setting: Public health service STI clinic, Amsterdam, Netherlands</p>	<p>Allocation: NA</p> <p>Intervention: Implementation of routine offers of HIV testing to STI clinic patients in 1999</p> <p>Control/comparison: Before and after implementation</p> <p>Sample size: Total number of consultations = 144,466; survey participants = 17,093</p>	<p>Primary outcomes: Increase in HIV testing rates pre- vs. post-intervention (OR: 5.7, CI 5.6-5.9); increase more pronounced among non-Dutch ethnicity. Surinamese/Dutch Antillean (OR: 7.7, CI 6.8-8.6) / Turkish (OR: 9.0, CI 6.9-11.8) / North-African (OR: 6.7, 5.3-8.5) / Sub-</p>

Study Details

External Validity: [+]

Population and Setting

Method of allocation to intervention/control

Study power: NR

Results

Saharan African (OR: 8.0 CI: 6.5–9.8) / Eastern-European (OR: 4.8 4.0-6.0) / South-American (OR: 9.6, CI 8.0–11.8) / Other Ethnicity (OR 6.0, 5.4-6.5)

Secondary outcomes: 19% of HIV positive people aware of infection – no change over time (p=0.6)

Attrition: NA

NR = Not Reported NA= Not Applicable ITT=Intention to Treat analysis

3.6. Physician Training

Although medical students learn about HIV testing during their training not all general practitioners or hospital-based doctors may feel confident offering an HIV test. This could be due, in part, to misconceptions about the HIV pre- and post-test discussions. Educational preparation and extended training of physicians, particularly those working in primary care or emergency departments, could potentially reduce late diagnosis and increase HIV test rates in communities less likely to attend sexual health clinics.

3.6.1. Overview of identified evidence

One study that looked at the effect of a physicians' HIV testing training programme on the screening and testing of patients was retrieved. This before and after study (Stanton et al, 2000 BA [-]) was conducted in the USA. It aimed to train Hispanic primary care physicians to offer HIV tests to Hispanic patients at risk of contracting the virus.

3.6.2. Frequency of performing HIV tests

Stanton et al (2000 BA [-]) conducted a before and after study to evaluate the effects of an education intervention on physicians' attitudes towards, practice patterns related to, and knowledge about, the testing and referral process related to HIV infection. Participants were recruited from the Hispanic physician's medical society using a convenience sample. A total of 114 physicians (98% Hispanic) were given one-to-one educational training in their offices and included in the sample. Participants rated the frequency with which they performed HIV tests and the number of patients they tested using self-completed questionnaires administered before and after the course. The rating for frequency of HIV tests increased from 0.62 (SD 0.07) before to 0.81 (SD 0.05) after the course ($p=0.10$). The mean number of HIV tests performed on those under the age of 20, increased from 19 (SD 33) before to 29 (SD 50) after the intervention ($p=0.006$).

3.6.3. Quality assessment

The methods and results were poorly described and so this study was subsequently rated low quality [-]. The frequency with which HIV tests were performed and the number of patients tested were measured using a self reported questionnaire which had not been validated. It was unclear whether the frequency with which of tests were performed varied daily, weekly or monthly. The change in frequency of testing was significant at the 10% level, which does not provide strong statistical evidence. There was also no explanation for reporting the change in the average number of patients tested in the under-20's only.

3.6.4. Summary and evidence statement

Physician training can improve the uptake of HIV testing by offering more opportunities for patients to test. In particular it may reduce levels of late diagnosis. We found one study that examined the role of physician HIV education training had on the uptake of HIV testing in primary care.

Evidence statement 3.6 Physician Training

There is weak evidence from one study to suggest that training physicians can increase the frequency with which they perform HIV tests and increase the number of patients that are tested. One US before and after (Stanton et al, 2000 BA [-]) study showed an increase in the mean number of tests performed in patients aged under-20 after the intervention (19 to 29 p=0.006).

This evidence is not applicable to black Africans in England. This is because the study conditions are unique to the areas in the USA where a large proportion of Hispanic doctors treat predominantly Hispanic clients. It is unlikely that black African physicians in England treat predominantly black African patients.

Table 3.6 Studies that examine physician training

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Stanton et al 2000 BA [-]</p> <p>Aim: Examine effects of training programme for Hispanic primary care physicians on screening and testing patients at risk for HIV/AIDS</p> <p>External Validity: [-]</p>	<p>Selected: Self-selection of physicians practicing in predominantly urban areas with mostly Hispanic or Latino patients</p> <p>Excluded: NR</p> <p>Setting: Training in physicians' offices, across eastern and southeastern US</p>	<p>Allocation: NA – all volunteers assigned to intervention programme</p> <p>Intervention: Four-part modular one-to-one programme (of three-hour sessions) on screening, testing and referral, delivered by six trained Hispanic instructors following lesson plans with specific, standardized content; developed using survey of members of national Hispanic physicians medical society</p> <p>Control/comparison: NA</p> <p>Sample Total n= 114</p> <p>Baseline comparisons: NA</p> <p>Study power: No power calculation</p>	<p>Primary outcomes: Self-reported frequency of performing HIV tests increased from mean of 0.62 (SD=0.07) to 0.81 (SD=0.05), p=0.10</p> <p>Secondary outcomes: Mean number of patients tested increased from 19 (SD=33) to 29 (SD=50), p=0.006</p> <p>Attrition: NR</p>

NR = Not Reported NA= Not Applicable

3.7. Anonymous vs. Confidential Testing

The stigma associated with HIV means that HIV testing can be the cause of serious anxiety for those who choose to undergo the procedure. As well as the fear of testing HIV positive, people may also be anxious about breaches in the confidentiality of their test result. Anxiety about loss of confidentiality may deter some from testing at all, particularly those from communities where there are high levels of HIV related stigma.

Confidential HIV testing involves linking a person's name to their blood (or other bodily fluid) specimen and recording the test result in a medical chart with a name. In anonymous testing a unique identifier (typically a number) rather than a patient's name is used to link the specimen and the result to the patient. Anonymous test results are not recorded in a medical chart that has a patient's name.

In England anonymous HIV testing is not formally available at sexual health clinics. However, services are free at the point of care, with no need to supply proof of identity. This allows patients to provide false names and in essence, test anonymously. In contrast those who test after being admitted into hospital or through their general practitioner are only able to use confidential testing.

3.7.1. Overview of identified evidence

Two studies were found that examined anonymous testing. One study (Bindman et al 1998 CT [+]) was a retrospective cohort conducted in the USA which assessed whether anonymous HIV testing was associated with earlier HIV testing. The second study was conducted in Australia; Miller et al (1998 BA [-]) used a before and after study to assess the impact of using coded tests in the uptake of testing.

3.7.2. Anonymous testing

Both studies examined the impact of anonymous testing on HIV testing rates. Miller et al (1998 BA [-]) introduced coded HIV testing in a clinic serving remote Aboriginal communities in South Australia. Previously, HIV testing had been available, but only through named records. The authors measured uptake of HIV testing and found that HIV tests increased from 1.6 per week to 11.4 per week four years after the introduction of anonymous testing. No statistical analysis was performed.

In the US study (Bindman et al 1998 CT [+]) probability sampling was used to select patients from clinics in eight states across the US. A cohort of patients completed interviews in English and Spanish and were asked to recall the type of HIV test they received and the number of days between their HIV positive diagnosis and the onset of an AIDS defining illness. Persons tested anonymously presented earlier in the course of HIV disease than person tested confidentially. The mean time from learning they were HIV positive to the diagnosis of AIDS was 526 days longer for those tested anonymously than for those tested confidentially ($P < 0.001$). Anonymous testers tended to be younger, white, men who have sex with men and slightly more educated than persons testing confidentially. Further, multivariate analysis which adjusted for ethnicity, found that anonymous testing was still associated with earlier diagnosis.

3.7.3. *Quality Assessment*

Miller et al (1998 BA [-]) used unclear methods to conduct their before and after study and reported their results poorly. No statistical analysis was performed to assess whether the differences observed were significant. Neither did the study compare the study or the healthcare worker population pre- and post-intervention. The authors acknowledge that anonymous testing was only one part of a larger community-wide HIV prevention programme which may have contributed to improved acceptability of HIV testing.

Bindman et al (1998 CT [+]) presented in-depth, clear accounts of the methods used in this moderately well conducted retrospective cohort, although there were some flaws in the study design. Participants were asked to recall details of their HIV medical care such as their CD4+ count at diagnosis and whether their first positive HIV test had been anonymous or confidential. The authors did try to minimise the effects of this recall bias through multivariate analysis.

HAART was introduced in 1996 and the accompanied change in attitude to HIV testing would have had an impact on both patients and healthcare workers. Both of these studies were carried out during that period of change, but did not assess how this affected their study results.

3.7.4. *Summary and evidence statement*

Anonymous testing allows individuals to find out their HIV status without fearing breaches in confidentiality. Two studies examined the effectiveness of anonymous testing at increasing the uptake of HIV testing. Bindman et al (1998 CT [+]) were able to show that anonymous testing was associated with earlier testing, even after adjusting for ethnicity but anonymous testers were more likely to be white. Miller et al (1998 BA [-]) showed improved acceptability of HIV testing among Aboriginal communities after anonymous testing was introduced.

Evidence statement 3.7 Anonymous Testing

3.7a There is moderate evidence from one study to suggest that individuals that test anonymously test earlier in the course of their HIV disease. One retrospective cohort (Bindman et al 1998 CT [+]) showed that anonymous testers received their HIV diagnosis on average 529 days earlier than those tested confidentially ($p < 0.001$).

This evidence is partially applicable to black Africans the UK. This is because the study was conducted in the USA where both anonymous and confidential testing are widely available. In England anonymous HIV testing is informally available in sexual health clinics but not in hospitals or GP surgeries. It is unclear whether this context substantially mirrors the formal provision of anonymous testing available in the USA.

3.7b There is weak evidence from one study to suggest that anonymous testing is more acceptable in minority ethnic communities than named testing. One before and after study (Miller et al 1998 BA [-]) found HIV testing rates increased from 1.6 tests

per week to 11.4 tests per week. This increase was not shown to be statistically significant.

This evidence is not applicable to black Africans in England. This is because the study was conducted in Australia by an Aboriginal controlled health service providing health services to remote communities occupying ancestral homelands. This setting and political context differs considerably from the situation in England..

Table 3.7 Studies that examined anonymous vs confidential testing

Study Details	Population and Setting	Method of allocation to intervention/control	Results
<p>Bindman et al, 1998 CT [+]</p> <p>Aim: To assess whether anonymous HIV testing is associated with earlier HIV testing and HIV-related medical care than confidential testing</p> <p>External Validity: +</p>	<p>Selected: All patients included in states where incidence was fewer than 500 cases; randomly sampled in remaining states. Eligible cases: living in state, speaking Spanish or English, healthy to consent / take part; tested positive in state where sampled; voluntarily sought testing. 68.3% of eligible cases interviewed</p> <p>Excluded: States not offering both anonymous and confidential testing (Mississippi); those initially testing HIV positive in a different state from the one which they were sampled; if the reason for testing was not voluntary; if participant provided false name at a confidential testing site.</p> <p>Setting: Arizona, Colorado, Missouri, New Mexico, North Carolina, Oregon, Texas, USA</p>	<p>Allocation: NA</p> <p>Intervention: Comparison of those reporting anonymous vs confidential HIV testing</p> <p>Control/comparison: (as above)</p> <p>Sample size: Total n = 835; anonymous testers = 192; confidential testers = 643</p> <p>Baseline comparisons: Anonymous testers were younger, white (p=0.001), more educated, more MSM. Confidential testers were more likely to have HIV related symptoms</p> <p>Study power: NR</p>	<p>Primary outcomes: Anonymously tested presented for testing earlier in the course of HIV disease and were younger, white (p=0.001), more educated, MSM; in multivariate analysis: race / ethnicity not associated with time to medical care or AIDS diagnosis</p> <p>Attrition: NA</p>
<p>Miller et al, 1998 BA [-]</p> <p>Aim: to assess the impact of voluntary confidential HIV testing on uptake of testing</p> <p>External Validity: -</p>	<p>Eligible: People aged 12 and over, living in the Anangu Pitjantjatjara Lands in NW Australia, attending six clinics for HIV testing (1992 – 1996)</p> <p>Selected: NA</p> <p>Excluded: under 14s</p> <p>Setting: Clinics in Anangu Pitjantjatjara Lands, NW Australia</p>	<p>Allocation: NA</p> <p>Intervention: Implementation of confidential testing in August 1994</p> <p>Sample size: total = 1189; pre-intervention = 83; post-intervention = 1106</p> <p>Baseline comparisons: NR</p> <p>Study power: NR</p>	<p>Primary outcomes: HIV tests increased from 1.6/week in 1992 to 6.5/week in 1994. reaching 11.4/week in 1996</p> <p>Attrition: NA</p>

NR = Not Reported NA= Not Applicable ITT=Intention to Treat analysis

4. Discussion

4.1. *Findings into context*

This review aimed to provide evidence to support those developing guidance for interventions which aim to increase the uptake of HIV testing to reduce undiagnosed HIV infection among black African communities living in England.

There was one overarching question addressed in the review:

- What are the most effective and cost effective ways of increasing the uptake of HIV testing to reduce undiagnosed infection among black Africans living in England?

In order to explore this question two primary questions were developed:

1. Which interventions have been effective and/or cost effective in increasing the uptake or awareness of HIV testing and its benefits in migrant or black and minority ethnic communities?
2. What interventions have successfully increased the opportunity for HIV testing for migrant or black and minority ethnic communities, whether aimed at this group or not?

The evidence base about the HIV epidemic as it affects Africans living in England is poor and there have been few studies that address HIV testing. Searching such a narrow field of interest was unlikely to yield many results. With this in mind, the review team expanded the search criteria to include evidence from studies conducted in countries similar to the UK in terms of economic and political development.

The search for economic evaluations yielded no studies that met the inclusion criteria. As a result the cost effectiveness aspect of the primary and secondary questions could not be answered.

Fourteen studies were found and included in the effectiveness review. Nine of the studies were conducted in the USA, two in Australia, one in The Netherlands and one in the UK. The retrieved studies were categorised according to six intervention types: mass media campaigns; message framing; group level behavioural interventions; physician training; changes in clinic policy and anonymous testing.

Most of the studies retrieved were rated poor or moderate quality. Consequently most of the evidence statements in this review are weak or moderate in strength. The review was therefore able to provide limited answers to the research questions posed.

4.2. *Implications of findings*

There was very little evidence that addressed the first primary research question. The studies that examined the effectiveness of interventions that specifically targeted groups based on their ethnicity, (mass media campaigns, message framing, group level behavioural interventions and physician training), were mostly poor quality, with low internal and external validity. While much of this evidence is directly or partially applicable to black African communities in England there are some caveats.

Social marketing campaigns are difficult to evaluate because they often consist of many different components disseminated to large numbers of individuals at once in an uncontrolled, unlimited fashion. With so many different elements, researchers struggle to link directly to the intervention any measured changes in health-related outcomes. Not only is it difficult to ascertain whether the campaign has produced the desired change in behaviour, teasing out which elements of the campaign were successful for which group is also very complex. Many questions are raised when examining social marketing campaigns: does the campaign only work for women? Is it effective among young people? Is the campaign successful because it contains culturally appropriate messaging? Was it successful merely because it raised awareness in settings frequented by the target audience?

Many of these types of questions can be answered with appropriate evaluation metrics but these were not used in the studies found. Subsequently, it is unclear whether mass media campaigns would increase HIV testing among black Africans in England, and if so, whether culturally and linguistically targeted messaging would be more effective than generic messages aimed at the entire population.

The other types of interventions directly targeting ethnic and migrant groups, (for example, group level behavioural interventions), were more contained in their delivery. This made it easier for researchers to determine the effectiveness of the intervention. Regardless of their compact nature, these interventions were also made up of many different components.

Two of the three studies that examined group level behavioural interventions were not specifically designed to change HIV testing behaviours. Indeed, in one study, (Lemieux et al 2008, N-RCT [-]) the intervention workshops did not even address HIV testing. It might not be necessary to fully understand the mechanisms behind the observed increases in HIV testing. But without knowing which elements were the key contributors to the observed increases in HIV testing, translating such interventions for use in other settings with other populations becomes, in large part, guesswork.

This review was able to provide stronger evidence that addressed the second primary research question. The evidence from the studies which increased the opportunity for HIV testing at all groups was generally stronger and more likely to have implications for black African communities in England. Changes to clinic policy and practice can increase HIV testing across all populations, regardless of ethnicity. Cassell et al (2003, BA [++]) showed that changing the clinic appointment system increased HIV testing rates in an ethnically diverse sexual health clinic in London. Two studies indicated that normalising HIV testing - either by removing the need for separate consent or by routinely offering HIV tests - also increased the uptake of HIV testing. Migrant and black and minority ethnic groups tended to benefit more from these particular changes in clinic policy and practice more than those from the majority ethnic group.

While it may be tempting to extrapolate from this evidence and assume any attempts to increase the opportunity for HIV testing will benefit migrant and black and minority ethnic communities, it should be noted that some of the studies in this review were equivocal in their findings. Wurcel et al (2005 RCT[+]) found that

standard HIV testing was acceptable to some minority ethnic groups but not others. Bindman et al (1999 CT [+]) provided moderate evidence to suggest that anonymous testers were diagnosed earlier in the course of their HIV disease, but anonymous testers were more likely to be white. It is therefore necessary to assess how each change in practice or policy affects different ethnic and migrant groups.

4.2.1. *Limitations of the evidence and gaps*

There are a number of limitations and gaps in the evidence. No economic evaluations were retrieved so there is no evidence about the cost effectiveness of interventions that increase the uptake of HIV test.

Most of the evidence statements about the effectiveness of interventions were derived from single studies which examined interventions in single locations. Some of these were pilot studies, with low statistical power, that were designed to measure either the feasibility of an intervention or its efficacy. Other studies did not include any statistical analysis at all or did not conduct multivariate analysis. As a result these studies were limited by biases inherent in their study design. For example, most of the studies relied on self-reported measures, but did try to assess or adjust for social desirability bias.

There is no evidence about how interventions affect subgroups *within* migrant or black and minority ethnic communities. For example, there is little information about the impact of interventions according to gender, age or sexuality.

Only two studies in this review included black Africans in their study population. Consequently it is unclear exactly how applicable the evidence statements are to black Africans in England. This is particularly true of the interventions that were underpinned by behavioural change theories. While it is likely that these theories are applicable to black Africans in England, additional ethnographic research would need to be undertaken before adapting the interventions on which they are based. Most studies in this review described these theories poorly and failed to discuss them in relation to the study findings.

Many of these limitations are likely to be due to the nature of health services research in peer review journals. Complex behavioural interventions are interdisciplinary, sometimes involving elements of sociology, psychology, organisational management, marketing and economics. Subject specific medical journals, with strict word limits, rarely publish the detail associated with complex behavioural interventions. It is therefore difficult to confidently draw conclusions about the transferability and adaptability of interventions from the condensed descriptions published in journals.

The most striking limitation of the evidence and the most substantial gap in the literature arises from the fact only four studies reported the number of new HIV diagnoses. Although there was weak or moderate strength evidence that interventions could increase HIV testing rates, none of the interventions were able to show these interventions effectively increased HIV testing *among the undiagnosed*.

Additionally, much more evidence is needed to examine the following (secondary questions):

- What factors impact on the effectiveness of interventions that increase HIV testing among black-African, other BME, and migrant communities living in England?
- Does effectiveness vary according to the diversity of the population (for example in terms of the person's age, gender, sexuality or faith)?
- Does effectiveness vary according to the status, knowledge and influence of the person delivering the intervention?
- Does the effectiveness vary according to where the intervention takes place (for example in a healthcare setting or community setting) and whether the intervention is transferable to other settings?
- What are the adverse or unintended consequences (positive or negative) of the intervention?
- Which interventions are ineffective?

4.2.2. *Limitations of the review*

This review includes findings from a relatively small number of studies which is reflected in the weakness of most of the evidence statements. While we were able to group studies according to intervention type, it should be noted that the similarities between these interventions were partially superficial. Many of the interventions were underpinned by differing theories of behaviour change or examined different changes in clinic policy.

The cut off date for study inclusion was 1996. We chose this year because this is when effective anti-retroviral therapy became widely available, therefore altering the backdrop against which an HIV test was offered. From 1996 onwards individuals could test for HIV knowing that treatment was available. Since then there have been many additional changes in HIV prevention, treatment and care. Developments in rapid testing, oral testing and post exposure prophylaxis have also brought about changes in the context and the environment in which HIV testing occurs. Many of the studies included in this review were conducted before these changes. Some of the evidence is therefore slightly out of touch with England's current HIV testing practice.

The strongest evidence in the review came from studies that increased the opportunity for HIV testing through changes in clinic policy and services. Studies about changes in clinic policy and practice that did not disaggregate their data according to ethnicity were excluded from the review. It is possible that the data from these studies would have been relevant to this review and to black African communities in England. However, as noted above, it is also quite possible that attempts to increase the opportunity for HIV testing might present unintended barriers to testing for some sub-populations and not others. Without analysis examining the impact on migrant and ethnic minority groups, it would have been difficult to assess the applicability of evidence derived from such studies.

We retrieved details of nine ongoing studies commissioned by the Department of Health in September 2009. These studies all aimed to determine the effectiveness of

innovative interventions to increase the uptake of HIV testing. Two of these studies were specifically focussed on black Africans in England. We contacted the principle investigators, but they were unable to provide us with any findings and therefore this evidence is not included in the review. It is therefore likely more up-to-date evidence will be available from September 2010 onwards.

5. Conclusion and Recommendations

There is very little evidence available about the effectiveness of interventions to increase HIV testing in black African communities in England. The evidence used in this review is only partially applicable to the population of interest. From the literature available the strongest evidence came from interventions that try to increase the opportunity to test for HIV. These interventions are seemingly most likely to increase the uptake of testing among black African groups. Weaker evidence comes from studies of complex interventions that directly target migrant and black and minority ethnic communities. This is mainly because rigorous evaluation of such interventions is complicated and rarely undertaken. Additionally, it is difficult to assess the applicability when interventions are targeted at specific but different population groups to that of the population of interest.

More evidence is needed particularly about interventions that increase HIV testing among those living with undiagnosed HIV.

A number of gaps in the evidence have been uncovered which can only be filled with extensive research. The following actions are recommended:

- A smaller review focussed on evidence that will become available from September 2010 should be conducted to augment the results of this review.
- There should be further research to determine:
 - the factors that impact on the effectiveness of behavioural interventions that target individuals based on their ethnicity
 - how message framing impacts on the uptake of HIV testing in black African communities
 - how the normalisation of HIV testing and other changes to clinical practice affect the uptake of HIV testing among different sub-groups of black Africans
 - which interventions are effective in reducing late presentation
 - the cost effectiveness of HIV testing interventions targeted at black African communities

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7. Appendix A

7.1. Sample Search Strategy

Strategy used to search Medline (Ovid) for effectiveness studies. This strategy was adapted for other databases and websites.

#	Searches	Results
1	(hiv adj3 test* adj3 (uptake or take up or decreas* or encourag* or increas* or interven* or promot* or adher* or aware* or opportunit* or access* or attitude*)).ti,ab.	818
2	(hiv adj3 counsel* adj3 (uptake or take up or decreas* or encourag* or increas* or interven* or promot* or adher* or aware* or opportunit* or access* or attitude*)).ti,ab.	171
3	((vct or "voluntary counsel*") adj3 (uptake or take up or decreas* or encourag* or increas* or interven* or promot* or adher* or aware* or opportunit* or access* or attitude*)).ti,ab.	128
4	(hiv-ct adj3 (uptake or take up or decreas* or encourag* or increas* or interven* or promot* or adher* or aware* or opportunit* or access* or attitude*)).ti,ab.	5
5	or/1-4	1000
6	exp attitude to health/	213476
7	patient satisfaction/	41573
8	health services accessibility/	35569
9	Access to Information/	2020
10	health education/ or consumer health information/ or patient education as topic/ or sex education/	107250
11	Health Promotion/	37036
12	Preventive Health Services/	8779
13	exp Sexual Behavior/	61862
14	"patient acceptance of health care"/ or patient compliance/ or treatment refusal/	67046
15	risk reduction behavior/ or risk-taking/	15983
16	(health* adj3 (educat* or aware* or opportunit* or attitude* or access* or inform* or promot* or prevent* or behavio?r*)).ti,ab.	97899
17	(sex* adj2 (behavio?r* or educat*)).ti,ab.	22008
18	(risk* adj3 (taking or factor* or behavio?r* or educat* or reduc*)).ti,ab.	290173
19	(patient* adj3 (satisfaction or educat* or behavio?r* or compliance or comply or complie*)).ti,ab.	52019
20	or/6-19	762301
21	(hiv adj3 (test* or counsel* or vct or voluntary counsel*)).ti,ab.	11851
22	hiv-ct*.ti,ab.	80
23	AIDS serodiagnosis/	5223
24	or/21-23	14545
25	20 and 24	5476
26	5 or 25	5781
27	exp Africa/	139726
28	africa*.ti,ab.	98682
29	(migrant* or migration).ti,ab.	107474
30	immigra*.ti,ab.	15412
31	"Emigrants and Immigrants"/	1545
32	minorit*.ti,ab.	30009
33	black*.ti,ab.	69508
34	Minority groups/	8022

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35	(hispanic* or latino* or Latina* or south american* or Japanese or Chinese or Korean* or Guamanian or Chamorro or Filipin* or Vietnamese or Samoan* or Cuban* or Puerto Rican* or Afro Caribbean* or Caribbean* or Pakistani* or Bangladeshi* or Arab* or Somali* or Indian* or Asian* or Eastern European* or afrocaribbean*).ti,ab.	288407
36	(european union adj3 accession).ti,ab.	23
37	(aborigin* adj5 (canada or australia)).ti,ab.	533
38	(Afghan* or Albanian* or Algerian* or Andorran* or Angolan* or Antiguan* or Barbudan* or Argentine or Argentinean* or Armenian* or Azerbaijani or Bahamian* or Bangladeshi* or Barbadian* or Bajuns* or Belarusian* or Belizean* or Beninese or Bhutanese or Bolivian* or Bosnian* Herzegovinian* or Mootswana or Batswana or Brazilian* or Bruneian* or Bulgarian* or Burkinabe or Burundian* or Cambodian* or Cameroonian* or Cape Verdian* or Cape Verdean* or Central African* or Chadian* or Chilean* or Colombian* or Comoran* or Congolese or Costa Rican* or Ivorian* or Croat* or Czech or Cuban* or Djibouti or East Timorese or Ecuadorean* or Egyptian* or Salvadoran* or Equatorial Guinean* or Equatoguinean* or Eritrean* or Estonian* or Ethiopian* or Fijian* or Gabonese or Gambian* or Ghanaian* or Grenadian* or Grenadan* or Guatemalan* or Guinean* or Guinea-Bissauan* or Guyanese or Haitian* or Honduran* or Hungarian* or Indonesian* or Iranian* or Iraqi* or Jamaican* or Jordanian* or Kazakhstani or Kenyan* or I-Kiribati or Latvian* or Lao or Laotian* or Lebanese or Lithuanian* or Mosotho or Basotho or Liberian* or Libyan* or Macedonian* or Malagasy or Malawian* or Malaysian* or Malian* or Maltese or Marshallese or Mauritanian* or Mauritian* or Mexican* or Micronesian* or Monegasque or Mongolian* or Montenegrin* or Moroccan* or Mozambican* or Burmese or Myanmarese or Namibian* or Nauruan* or Nepalese or Nicaraguan* or Nigerien* or Nigerian* or Omani or Palauan* or Panamanian* or Polish or Papua New Guinean* or Paraguayan* or Peruvian* or Qatari or Romanian* or Russian* or Rwandan* or Kittian* or Nevisian* or Saint Lucian* or Samoan* or Sammarinese or Sao Tomean* or Senegalese or Serbian* or Seychellois or Sierra Leonean* or Slovak* or Slovenian* or Solomon Islander* or Somali* or South African* or Sri Lankan* or Sudanese or Surinamer or Swazi or Syrian* or Tanzanian* or Thai or Togolese or Tongan* or Trinidadian* or Tobagonian* or Tunisian* or Tuvaluan* or Ugandan* or Ukrainian* or Uruguayan* or Uzbek* or Ni-Vanuatu or Venezuelan* or Yemeni* or Zambian* or Zimbabwean*).ti,ab.	154849
39	american indian*.ti,ab.	3346
40	pacific islander*.ti,ab.	1325
41	Indians, North American/	9769
42	african continental ancestry group/ or american native continental ancestry group/ or asian continental ancestry group/ or oceanic ancestry group/ or exp ethnic groups/	124022
43	ethnic*.ti,ab.	54914
44	(race or racial*).ti,ab.	55308
45	refugee/	5420
46	(asylum seeker* or refugee*).ti,ab.	4882
47	or/27-46	856875
48	26 and 47	2132
49	limit 48 to yr="1996 -Current"	1736
50	limit 49 to english language	1677
51	animals/	4463959
52	humans/	10942558
53	51 not 52	3331330
54	50 not 53	1677

Table A2. Search strategy used to identify cost-effectiveness studies in the extensive search of the Cochrane Library Economic Evaluation Database.

#	Search string	# hits
#1	(HIV):ti,ab and (TEST*):ti,ab in Cochrane Reviews, Clinical Trials and Methods Studies	54
#2	MeSH descriptor AIDS Serodiagnosis explode all trees	123
#3	(#1 OR #2)	90
#4	MeSH descriptor Ethnic Groups explode all trees	1875
#5	MeSH descriptor Africa explode all trees	3058
#6	(africa*):ti,ab	129
#7	(ethnic*):ti,ab	20
#8	MeSH descriptor Transients and Migrants explode all trees	33
#9	(migrant*):ti,ab or (migration):ti,ab	5
#10	(immigra*):ti,ab	17
#11	(minorit*):ti,ab	7
#12	MeSH descriptor Minority Health explode all trees	4
#13	MeSH descriptor Minority Groups explode all trees	174
#14	(hispanic* or latino* or Latina* or south american* or Japanese or Chinese or Korean* or Guamanian or Chamorro or Filipin* or Vietnamese or Samoan* or Cuban* or Puerto Rican* or Afro Caribbean* or Caribbean* or Pakistani* or Bangladeshi* or Arab* or Somali* or Indian* or Asian* or Eastern European* or afrocaribbean*):ti,ab	132
#15	(european union NEAR accession) (Afghan* or Albanian* or Algerian* or Andorran* or Angolan* or Antiguan* or Barbudan* or Argentine or Argentinean* or Armenian* or Azerbaijani or Bahamian* or Bangladeshi* or Barbadian* or Bajuns* or Belarusian* or Belizean* or Beninese or Bhutanese or Bolivian* or Bosnian* Herzegovinian* or Motswana or Batswana or Brazilian* or Bruneian* or Bulgarian* or Burkinabe or Burundian* or Cambodian* or Cameroonian* or Cape Verdian* or Cape Verdean* or Central African* or Chadian* or Chilean* or Colombian* or Comoran* or Congolese or Costa Rican* or Ivorian* or Croat* or Czech or Cuban* or Djibouti or East Timorese or Ecuadorean* or Egyptian* or Salvadoran* or Equatorial Guinean* or Equatoguinean* or Eritrean* or Estonian* or Ethiopian* or Fijian* or Gabonese or Gambian* or Ghanaian* or Grenadian* or Grenadan* or Guatemalan* or Guinean* or Guinea-Bissauan* or Guyanese or Haitian* or Honduran* or Hungarian* or Indonesian* or Iranian* or Iraqi* or Jamaican* or Jordanian* or Kazakhstani or Kenyan* or I-Kiribati or Latvian* or Lao or Laotian* or Lebanese or Lithuanian* or Mosotho or Basotho or Liberian* or Libyan* or Macedonian* or Malagasy or Malawian* or Malaysian* or Malian* or Maltese or Marshallese or Mauritanian* or Mauritian* or Mexican* or Micronesian* or Monegasque or Mongolian* or Montenegrin* or Moroccan* or Mozambican* or Burmese or Myanmarese or Namibian* or Nauruan* or Nepalese or Nicaraguan* or Nigerien* or Nigerian* or Omani or Palauan* or Panamanian* or Polish or Papua New Guinean* or Paraguayan* or Peruvian* or Qatari or Romanian* or Russian* or Rwandan* or Kittian* or Nevisian* or Saint Lucian* or Samoan* or Sammarinese or Sao Tomean* or Senegalese or Serbian* or Seychellois or Sierra Leonean* or Slovak* or Slovenian* or Solomon Islander* or Somali* or South African* or Sri Lankan* or Sudanese or Surinamer or Swazi or Syrian* or Tanzanian* or Thai or Togolese or Tongan* or Trinidadian* or Tobagonian* or Tunisian* or Tuvaluan* or Ugandan* or Ukrainian* or Uruguayan* or Uzbek* or Ni-Vanuatu or Venezuelan* or Yemeni* or Zambian* or Zimbabwean*):ti,ab	0
#16	(american indian*):ti,ab	128
#17	(black*):ti,ab	4
#18	(pacific islander*):ti,ab	2
#19	(pacific islander*):ti,ab	2
#20	MeSH descriptor Continental Population Groups explode all trees	2712
#21	(race or racial*):ti,ab	23
#22	(asylum seeker* or refugee*):ti,ab	9
#23	MeSH descriptor Refugees explode all trees	48
#24	(#4 OR #5)	595
#25	(#6 OR #7 OR #8 OR #9)	157
#26	(#10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23)	437
#27	(#24 OR #25 OR #26)	912
#28	(#3 AND #27)	17
#29	(#28), from 1996 to 2010	17

Table A3. Search strings used to identify cost-effectiveness studies in the broader search of the Cochrane Library database and NHS EED

#	Search string	# hits (Cochrane)	# hits (NHS EED)
#1	(HIV OR AIDS) AND Test	704	372
#2	MeSH descriptor AIDS Serodiagnosis explode all trees	123	69
#3	(#1 AND #2), from 1996 to 2010	40	25

8. Appendix B

8.1. Methodology Checklists

8.1.1. HIV Testing in Black Africans

8.1.2. Effectiveness/Cost effectiveness Title/Abstract screening checklist

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <p>1. Does the study population include:</p> <p>Black African men and women</p> <p>OR</p> <p>Other Black, Asian and Minority Ethnic groups</p> <p>OR</p> <p>Migrant populations living in high income countries (World Bank: OECD members): Australia, Austria, , Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea Rep, Luxembourg, Netherlands, New Zealand, , Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States)</p> | <p>YES/UNCLEAR – NO – exclude go to Q2</p> |
| <p>2. Was they study carried out in any of the following countries? Australia, Austria, , Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea Rep, Luxembourg, Netherlands, New Zealand, , Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States</p> | <p>YES/UNCLEAR – NO – exclude go to Q3</p> |
| <p>3. Is the paper/study about interventions that aim to increase awareness/uptake of HIV testing?</p> | <p>YES/UNCLEAR – NO – exclude go to Q4</p> |
| <p>4. Was the study published in 1996 or later?</p> | <p>YES/UNCLEAR – NO – exclude go to Q5</p> |
| <p>5. Does this paper describe a primary study or is a review (of primary studies)? E.g. randomised or non-randomised controlled trials, prospective observational, retrospective observational, cost benefit analysis; cost-consequence analysis; cost-effective analysis and cost utility analysis</p> | <p>YES/UNCLEAR – NO – go to Q6 go to Q6</p> |
| <p>6. Is the Interventions focussed on HIV home testing; Studies exclusively measuring the validity or diagnostic effectiveness of different types of HIV test; Interventions examining testing following exposure to HIV in the workplace</p> | <p>YES - Exclude NO/Unclear – <u>Include for Full paper review</u></p> |

8.1.3. HIV Testing in Black Africans

8.1.4. Effectiveness/Cost effectiveness Full paper Screening

1	<p>Does the study population include:</p> <p>Black African men and women</p> <p>OR</p> <p>Other Black, Asian and Minority Ethnic groups</p> <p>OR</p> <p>Migrant populations living in high income countries (World Bank: OECD members): Australia, Austria, , Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea Rep, Luxembourg, Netherlands, New Zealand, , Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States)</p>	YES/UNCLEAR – go to Q2	NO – exclude
2	<p>Was they study carried out in any of the following countries? Australia, Austria, , Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea Rep, Luxembourg, Netherlands, New Zealand, , Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, United States</p>	YES/UNCLEAR – go to Q3	NO – exclude
3	<p>*Is the paper/study about interventions that include any of the following outcomes:</p> <ul style="list-style-type: none"> • Increase / decrease in number of HIV tests • Increase / decrease in uptake of HIV tests • Increase / decrease in offers of HIV tests • Increase / decrease in the time elapsed between HIV infection and diagnosis • Increase / decrease in the reported history and frequency of taking HIV tests • Increase / decrease in the number and types of venue where HIV testing is offered 	YES/UNCLEAR – go to Q4	NO – exclude
4	<p>Does the study period include 1996 or later?</p>	YES/UNCLEAR – go to Q5	NO – exclude
5	<p>Does this paper describe a primary study or is a review (of primary studies)? E.g. randomised or non-randomised controlled trials, prospective observational, retrospective observational, cost benefit analysis; cost-consequence analysis; cost-effective analysis and cost utility analysis</p>	YES/UNCLEAR – go to Q6	NO – exclude
6	<p>Does the intervention:</p> <ul style="list-style-type: none"> • focus on HIV home testing • seek to increase uptake among pregnant women in ante-natal clinics • seek to increase HIV testing among drug users, prisoners or men who have sex with 	YES - Exclude	NO/Unclear – go to Q7

	<p>men</p> <ul style="list-style-type: none"> • evaluate the validity or diagnostic effectiveness of different types of HIV test • evaluate testing following exposure to HIV in the workplace. 		
7	<p>Is the study design:</p> <ul style="list-style-type: none"> • Cross sectional • Ecological (correlation study) 	<p>YES – compile for Appendix</p>	<p>NO/Unclear – <u>Include for full paper review</u></p>

* Not included in criteria for cost effectiveness review.

9. Appendix C

9.1. Included Papers

1. Amaro, H., Raj, A., Reed, E., & Cranston, K. 2002. Implementation and long-term outcomes of two HIV intervention programs for Latinas. *Health Promotion Practice*, 3, (2) 245-254
2. Apanovitch, A.M., McCarthy, D., & Salovey, P. 2003. Using message framing to motivate HIV testing among low-income, ethnic minority women. *Health Psychology*, 22, (1) 60-67
3. Bindman, A.B., Osmond, D., Hecht, F.M., Lehman, J.S., Vranizan, K., Keane, D., & Reingold, A. 1998. Multistate evaluation of anonymous HIV testing and access to medical care. Multistate Evaluation of Surveillance of HIV (MESH) Study Group. *JAMA*, 280, (16) 1416-1420
4. Cassell, J.A., Brook, M.G., Mercer, C.H., Murphy, S., & Johnson, A.M. 2003. Maintaining patient access to GUM clinics: is it compatible with appointments? *Sexually Transmitted Infections*, 79, (1) 11-15
5. Futterman, D.C., Peralta, L., Rudy, B.J., Wolfson, S., Guttmacher, S., & Rogers, A.S. 2001. The ACCESS (Adolescents Connected to Care, Evaluation, and Special Services) Project: social marketing to promote HIV testing to adolescents, methods and first year results from a six city campaign. *Journal of Adolescent Health*, 29, (3S) 19-29 available from:
6. Lemieux, A.F., Fisher, J.D., & Pratto, F. 2008. A music-based HIV prevention intervention for urban adolescents. *Health Psychology*, 27, (3) 349-357 available from: ISI:000257446800008
7. McMahan, T., Fairley, C.K., Donovan, B., Wan, L., & Quin, J. 2004. Evaluation of an ethnic media campaign on patterns of HIV testing among people from culturally and linguistically diverse backgrounds in Australia. *Sexual Health*, 1, (2) 91-94
8. Miller, P.J. & Torzillo, P.J. 1998. Private business: the uptake of confidential HIV testing in remote aboriginal communities on the Anangu Pitjantjatjara Lands. *Australian & New Zealand Journal of Public Health*, 22, (6) 700-703
9. Olshefsky, A.M., Zive, M.M., Scolari, R., & Zuniga, M. 2007. Promoting HIV risk awareness and testing in Latinos living on the U.S.-Mexico border: the Tu No Me Conoces social marketing campaign. *AIDS Education & Prevention*, 19, (5) 422-435
10. Raj, A., Amaro, H., Cranston, K., Martin, B., Cabral, H., Navarro, A., & Conron, K. 2001. Is a general women's health promotion program as effective as an HIV-intensive prevention program in reducing HIV risk among Hispanic women? *Public Health Reports*, 116, (6) 599-607
11. Rhodes, S.D., Hergenrather, K.C., Bloom, F.R., Leichter, J.S., & Montano, J. 2009. Outcomes from a community-based, participatory lay health adviser HIV/STD prevention intervention for recently arrived immigrant Latino men in rural North Carolina. *AIDS Education & Prevention*, 21, (5:Suppl) Suppl-8

12. Stanton, M. & Johnson, P. 2000. Effect of training program on physicians' attitude towards knowledge and practice patterns related to assessment and screening of clients with HIV/AIDS. *Online Journal of Rural Nursing & Health Care*, 1, (3) -13p
13. Wurcel A, Zaman T, Zhen S, Stone D. Acceptance of HIV antibody testing among inpatients and outpatients at a public health hospital: a study of rapid versus standard testing. *AIDS PATIENT CARE STDS* 2005; 19(8):499-505.
14. Van der Bij, A.K. et al., 2008. Low HIV-testing rates and awareness of HIV infection among high-risk heterosexual STI clinic attendees in The Netherlands. *European journal of public health*, 18(4), 376-9.
15. Zetola, N.M., Grijalva, C.G., Gertler, S., Hare, C.B., Kaplan, B., Dowling, T., Colfax, G., Katz, M.H., & Klausner, J.D. 2008. Simplifying consent for HIV testing is associated with an increase in HIV testing and case detection in highest risk groups, San Francisco January 2003-June 2007. *PLoS ONE [Electronic Resource]*, 3, (7) e2591

10. Appendix D

10.1. Excluded Studies

10.1.1. Reason for excluding papers at full paper screening: cost effectiveness review

Study	Reason for exclusion
D. U. Ekwueme, S. D. Pinkerton, D. R. Holtgrave, and B. M. Branson. Cost comparison of three HIV counseling and testing technologies. <i>American Journal of Preventive Medicine</i> 25:112-121, 2003.	Considered cost of different testing protocols, not increasing uptake of HIV testing. No disaggregated population data.
P. G. Farnham, R. D. Gorsky, D. R. Holtgrave, W. K. Jones, and M. E. Guinan. Counseling and testing for HIV prevention: costs, effects, and cost-effectiveness of more rapid screening tests. <i>Public Health Reports</i> 111(1):44-53, 1996.	Considered cost-effectiveness of rapid versus usual testing protocols; assumed 100% uptake. No disaggregated population data.
J. Li, S. M. Marks, C. R. Driver, F. A. Diaz, A. F. Castro, A. F. De-Regner, A. E. Gibson, Okereke K. Dokubo, and S. S. Munsiff. Human immunodeficiency virus counseling, testing, and referral of close contacts to patients with pulmonary tuberculosis: feasibility and costs. <i>Journal of Public Health Management and Practice</i> 13:252-262, 2007.	Considered cost-effectiveness of counselling, not increasing uptake of HIV testing. Some sub-group analyses by race/ethnicity.
K. A. Phillips and S. Fernyak. The cost-effectiveness of expanded HIV counselling and testing in primary care settings: a first look. <i>AIDS</i> 14(14):2159-2169, 2000.	Considered cost-effectiveness of increasing uptake. No disaggregated population data
B. B. Varghese, T. A. Peterman, and D. R. Holtgrave. Cost-effectiveness of counseling and testing and partner notification: a decision analysis. <i>AIDS</i> 13(13):1745-1751, 1999.	Considered cost-effectiveness of counselling, not increasing uptake of HIV testing. No disaggregated population data
R. P. Walensky, K. A. Freedberg, M. C. Weinstein, and A. D. Paltiel. Cost-effectiveness of HIV testing and treatment in the United States. <i>Clinical Infectious Diseases</i> . 45:S248-S254, 2007.	Considered cost-effectiveness of counselling, not increasing uptake of HIV testing. No disaggregated population data

10.1.2. Reason for excluding papers at full paper screening: effectiveness review

Study	Reason for exclusion
Albarracin D, Gillette JC, Earl AN, Glasman LR, Durantini MR, Ho MH. 2005. A test of major assumptions about behavior change: A comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. <i>Psychological Bulletin</i> 131, no. 6:856-897.	No relevant HIV testing outcomes
Albarracin D, Durantini MR, Earl A. 2006. Empirical and theoretical conclusions of an analysis of outcomes of HIV-prevention interventions. <i>Current Directions in Psychological Science</i> 15, no. 2:73-78.	No relevant HIV testing outcomes
Anderson ES, Wagstaff DA, Heckman TG, Winett RA, Roffman RA, Solomon LJ, Cargill V, Kelly JA, Sikkema KJ. 2006. Information-	No relevant HIV testing outcomes

Study	Reason for exclusion
<p>Motivation-Behavioral Skills (IMB) model: Testing direct and mediated treatment effects on condom use among women in low-income housing. <i>Annals of Behavioral Medicine</i> 31, no. 1:70-79.</p>	
<p>Baldwin JA, Daley E, Brown EJ, August EM, Webb C, Stern R, Malow R, Dévieux JG. 2008. Knowledge and perception of STI/HIV risk among rural African-American youth: lessons learned in a faith-based pilot program. <i>Journal of HIV AIDS Prevention in Children & Youth</i> 9, no. 1:97-114.</p>	<p>No relevant HIV testing outcomes</p>
<p>Barragan M, Hicks G, Williams MV, Franco-Paredes C, Duffus W, C del Rio. 2005. Low health literacy is associated with HIV test acceptance. <i>Journal of General Internal Medicine</i> 20, no. 5:422-425.</p>	<p>No intervention</p>
<p>Beadnell B, Baker S, Knox K, Stielstra S, Morrison DM, Degooyer E, Wickizer L, Doyle A, Oxford M. 2003. The influence of psychosocial difficulties on women's attrition in an HIV/STD prevention program. <i>AIDS Care</i> 15, no. 6:807-820.</p>	<p>No disaggregated data for minority ethnic / migrant populations</p>
<p>Bertens MGB, Eiling EM, van den Borne B, Schaalma HP. 2009. Uma Tori! Evaluation of an STI/HIV-prevention intervention for Afro-Caribbean women in the Netherlands. <i>Patient Education and Counseling</i> 75, no. 1:77-83.</p>	<p>No relevant HIV testing outcomes</p>
<p>Bolu, OO, Lindsey C, Kamb ML, Kent C, Zenilman J, Douglas JM, Malotte CK, et al. 2004. Is HIV/sexually transmitted disease prevention counseling effective among vulnerable populations?: a subset analysis of data collected for a randomized, controlled trial evaluating counseling efficacy (Project RESPECT). <i>Sexually Transmitted Diseases</i> 31, no. 8:469-474.</p>	<p>No relevant HIV testing outcomes</p>
<p>Bowles KE, Clark HA, Tai E, Sullivan PS, Song B, Tsang J, Dietz CA et al. 2008. Implementing rapid HIV testing in outreach and community settings: results from an advancing HIV prevention demonstration</p>	<p>Cross sectional study</p>
<p>Boyer CB, Sieverding J, Siller J, Gallaread A, Chang YJ. 2007. Youth united through health education: Community-level, peer-led Outreach to increase awareness and improve noninvasive sexually transmitted infection screening in urban African American youth. <i>Journal of Adolescent Health</i> 40, no. 6:499-505.</p>	<p>No relevant HIV testing outcomes</p>
<p>Brewer, DD. 2005. Case-finding effectiveness of partner notification and cluster investigation for sexually transmitted diseases/HIV. <i>Sexually Transmitted Diseases</i> 32, no. 2:78-83.</p>	<p>Review paper</p>
<p>Brown EJ. 2002. Recruitment feasibility and HIV prevention intervention acceptability among rural north Florida blacks. <i>Journal of Community Health Nursing</i> 19, no. 3:147-160.</p>	<p>Non-comparative study</p>
<p>Brown EJ, Smith FB. 2005. A tri-level HIV-prevention educational intervention. <i>International Journal of Nursing Education Scholarship</i> 2.</p>	<p>No relevant HIV testing outcomes</p>
<p>Buchbinder S. 2009. The epidemiology of new HIV infections and interventions to limit HIV transmission. <i>Topics in HIV Medicine</i> 17, no. 2:37-43.</p>	<p>Review paper</p>
<p>Burns FM, Johnson AM, Nazroo J, Ainsworth J, Anderson J, Fakoya A, Fakoya I, et al. 2008. Missed opportunities for earlier HIV diagnosis within primary and secondary healthcare settings in the UK. <i>AIDS</i> 22, no. 1:115-122.</p>	<p>No relevant HIV testing outcomes</p>
<p>Calderon Y, Leider J, Hailpern S, Haughey M, Ghosh R, Lombardi ,</p>	<p>No disaggregated data</p>

Study	Reason for exclusion
Bijur P, Bauman L. 2009. A randomized control trial evaluating the educational effectiveness of a rapid HIV posttest counseling video. <i>Sexually Transmitted Diseases</i> 36, no. 4:207-210.	for minority ethnic / migrant populations
Carey MP, Braaten LS, Maisto SA, Gleason JR, Forsyth AD, Durant LE, Jaworski BC. 2000. Using information, motivational enhancement, and skills training to reduce the risk of HIV infection for low-income urban women: a second randomized clinical trial. <i>Health Psychology</i> 19, no. 1:3-11.	No relevant HIV testing outcomes
Carey MP, Venable PA, Senn TE, Coury-Doniger P, Urban MA. 2008. Evaluating a two-step approach to sexual risk reduction in a publicly-funded STI clinic: Rationale, design, and baseline data from the Health Improvement Project-Rochester (HIP-R). <i>Contemporary Clinical Trials</i> 29, no. 4:569-586.	All participants were tested for the study
Centers for Disease Control and Prevention (CDC). 2001. HIV testing among racial/ethnic minorities--United States, 1999. <i>MMWR - Morbidity & Mortality Weekly Report</i> 50, no. 47:1054-1058.	No relevant HIV testing outcomes
Centers for Disease Control and Prevention (CDC). 2007. Rapid HIV testing in outreach and other community settings--United States, 2004-2006. <i>MMWR - Morbidity & Mortality Weekly Report</i> 56, no. 47:1233-1237.	Cross sectional study
Cohan D, Gomez E, Greenberg M, Washington S, Charlebois ED. 2009. Patient perspectives with abbreviated versus standard pre-test HIV counseling in the prenatal setting: a randomized-controlled, non-inferiority trial. <i>PLoS ONE [Electronic Resource]</i> 4, no. 4:e5166.	Ante-natal testing
Davila YR, Bonilla E, Gonzalez-Ramirez D, Grinslade S, Villarruel AM. 2008. Pilot testing HIV and intimate partner violence prevention modules among Spanish-speaking Latinas. <i>Journal of the Association of Nurses in AIDS Care</i> 19, no. 3:219-224.	No relevant HIV testing outcomes
Dancy BL, Crittenden KS, Talashek M. 2006. Mothers' effectiveness as HIV risk reduction educators for adolescent daughters. <i>Journal of Health Care for the Poor and Underserved</i> 17, no. 1:218-239.	No relevant HIV testing outcomes
Dancy BL, Hsieh Y, Crittenden KS, Kennedy A, Spencer B, Ashford D. 2009. African American adolescent females: mother-involved HIV risk-reduction intervention. <i>Journal of HIV/AIDS and Social Services</i> 8, no. 3:292-307.	No relevant HIV testing outcomes
de Anda, D. The GIG: An Innovative Intervention To Prevent Adolescent Pregnancy and Sexually Transmitted Infection in a Latino Community. 2002. <i>Social Work with Multicultural Youth</i> 11, 251-277.	No relevant HIV testing outcomes
de la Fuente L, Delgado J, Hoyos J, Belza MJ, Alvarez J, Gutierrez J, Neira-Leon M, Suarez M. 2009. Increasing Early Diagnosis of HIV through Rapid Testing in a Street Outreach Program in Spain. <i>AIDS Patient Care and STDs</i> 23, no. 8:625-629.	No relevant HIV testing outcomes
DeLamater J, Wagstaff D, Klein K. 1998. The Impact of a Culturally Appropriate, STD/AIDS Education Intervention on Black Male Adolescents' Sexual and Condom Use Behavior.	No relevant HIV testing outcomes
Delgado M, Santiago J. 1998. HIV/AIDS in a Puerto Rican/Dominican community: A collaborative project with a botanical shop. <i>Social Work</i> Vol.43, no. 2:183-186.	No relevant HIV testing outcomes
Diaz PMJ, Farley T, Cabanis C. 2004. A Program to Improve	No relevant HIV testing

Study	Reason for exclusion
Access to Health Care Among Mexican Immigrants in Rural Colorado. <i>Journal of Rural Health</i> 20, 258-264.	outcomes
DiClemente RJ, Wingood GM, Harrington KF, Lang DL, Davies SL, Hook EW, Oh MK, et al. 2004. Efficacy of an HIV prevention intervention for African American adolescent girls - A randomized controlled trial. <i>Jama-Journal of the American Medical Association</i> 292, no. 2:171-179.	No relevant HIV testing outcomes
DiClemente RJ, Wingood GM, Rose ES, Sales JM, Lang DL, Caliendo AM, Hardin JW, Crosby RA. 2009. Efficacy of Sexually Transmitted Disease/Human Immunodeficiency Virus Sexual Risk-Reduction Intervention for African American Adolescent Females Seeking Sexual Health Services A Randomized Controlled Trial. <i>Archives of Pediatrics & Adolescent Medicine</i> 163, no. 12:1112-1121.	No relevant HIV testing outcomes
Dietz CA, Ablah E, Reznik D, Robbins DK. 2008. Patients' attitudes about rapid oral HIV screening in an urban, free dental clinic. <i>AIDS Patient Care & STDs</i> 22, no. 3:205-212.	No relevant HIV testing outcomes
DiFrancisco WH. 1998. HIV seropositivity rates in outreach-based counseling and testing services: Program evaluation. <i>Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology</i> 19, no. 3:01.	Study initiated before 1996
Dilorio C, Resnicow K, McCarty F, De AK, Dudley WN, Wang DT, Denzmore P. 2006. Keepin' it REAL! Results of a mother-adolescent HIV prevention program. <i>Nursing Research</i> 55, no. 1:43-51.	No relevant HIV testing outcomes
Dilorio C, McCarty F, Resnicow K, Lehr S, Denzmore P. 2007. REAL men: A group-randomized trial of an HIV prevention intervention for adolescent boys. <i>American Journal of Public Health</i> 97, no. 6:1084-1089.	No relevant HIV testing outcomes
Di Noia J, Schinke SP, Pena JB, Schwinn TB. 2004. Evaluation of a brief computer-mediated intervention to reduce HIV risk among early adolescent females. <i>Journal of Adolescent Health</i> 35, no. 1:62-64.	No relevant HIV testing outcomes
Doswell WM. 1999. Sexually risky behaviour in adolescents was reduced by a safer sex, condom based intervention [commentary on Jemmott JB 3rd, Jemmott LS, Fong GT. Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial. <i>JAMA</i> 1998 May 20;279(19):1529-36]. <i>Evidence-Based Nursing</i> 2, no. 1:14.	Comment
Duffy TA, Wolfe CD, Varden C, Kennedy J, Chrystie IL. 1998. Women's knowledge and attitudes, and the acceptability of voluntary antenatal HIV testing. <i>British Journal of Obstetrics & Gynaecology</i> 105, no. 8:849-854.	No intervention
Durantini MR, Albarracin D, Mitchell AL, Earl AN, Gillette JC. 2006. Conceptualizing the influence of social agents of behavior change: A meta-analysis of the effectiveness of HIV-prevention interventionists for different groups. <i>Psychological Bulletin</i> 132, no. 2:212-248.	No relevant HIV testing outcomes
Dushay RA, Singer M, Weeks MR, Rohena L, Gruber R. 2001. Lowering hiv risk among ethnic minority drug users: Comparing culturally targeted intervention to a standard intervention. <i>American Journal of Drug and Alcohol Abuse</i> 27, no. 3:501-524.	Population – drug users

Study	Reason for exclusion
El-Bassel N, Witte SS, Gilbert L, Sormanti M, Moreno C, Pereira L, Elam E, Steinglass P. 2001. HIV prevention for intimate couples: A relationship-based model. <i>Families, Systems, & Health</i> Vol.19, no. 4:379-395.	No quantitative evaluation of effectiveness of intervention
Eldred L, Cheever L, Parham Hopson D. 2006. Accessing care for U.S./Mexico border populations living with HIV/AIDS: the role of HRSA's HIV/AIDS bureau and the special projects of national significance. <i>Journal of HIV/AIDS and Social Services</i> 5, no. 2:2006-2013.	No appropriate evaluation of intervention
Falvo N, Norman S. 2004. Never too old to learn: the impact of an HIV/AIDS education program on older adults' knowledge. <i>Clinical Gerontologist</i> 27, no. 1/2:103-117.	No relevant HIV testing outcomes
Fenton KA, French R, Giesecke J, Johnson AM, Trotter S, Petruckevitch A, Copas A, et al. 1998. An evaluation of partner notification for HIV infection in genitourinary medicine clinics in England. <i>AIDS</i> 12, no. 1:95-102.	No disaggregated data for minority ethnic / migrant populations
Fernandez MI, Bowen GS, Perrino T, Royal S, Mattson T, Arheart KL, Cohn S. 2003. Promoting HIV testing among never-tested Hispanic men: a doctor's recommendation may suffice. <i>AIDS & Behavior</i> 7, no. 3:253-262.	No relevant HIV testing outcomes
Feudo R, Vining-Bethea S, Shulman LC, Shedlin MG, Burleson JA. 1998. Bridgeport's Teen Outreach and Primary Services (TOPS) project: a model for raising community awareness about adolescent HIV risk. <i>Journal of Adolescent Health</i> 23, no. 2:Suppl:Suppl-58.	No appropriate evaluation of intervention
Fisher MD, V. 2009. Experience in the UK. <i>International Journal of STD and AIDS</i> 20, no. SUPPL. 1:April.	No disaggregated data for minority ethnic / migrant populations
Flaskerud JH, Nyamathi AM, Uman GC. 1997. Longitudinal effects of an HIV testing and counseling programme for low-income Latina women. <i>Ethnicity & Health</i> 2, no. 1-2:89-103.	All participants were tested for the study
Foley K, Duran B, Morris P, Lucero J, Jiang Y, Baxter B, Harrison M, et al. 2005. Using motivational interviewing to promote HIV testing at an American Indian substance abuse treatment facility. <i>Journal of Psychoactive Drugs</i> 37, no. 3:321-329.	Population – drug users
Forbes KM, Rahman N, McCrae S, Reeves I. 2008. Integrated community-based sexual health services for young people in urban areas: are we meeting the needs of the local community? <i>International Journal of STD & AIDS</i> 19, no. 10:713-714.	No disaggregated data for minority ethnic / migrant populations
Ford CL, Konrad TR, Godette DC, Corbie-Smith G. 2008. Acceptance of routine ELISA testing among black women STD patients: Relationship to patient-provider racial concordance. <i>Sexually Transmitted Diseases</i> 35, no. 3:211-213.	Cross sectional study
Galvan FHB. 2000. Accessing HIV testing and care. <i>Journal of Acquired Immune Deficiency Syndromes</i> 25, no. SUPPL. 2:15.	Review paper
Gaydos CA, Hsieh YH, Galbraith JS, Barnes M, Waterfield G, Stanton B. 2008. Focus-on-Teens, sexual risk-reduction intervention for high-school adolescents: impact on knowledge, change of risk-behaviours, and prevalence of sexually transmitted diseases. <i>International Journal of STD & AIDS</i> 19, no. 10:704-710.	No relevant HIV testing outcomes
Gibb DM, MacDonagh SE, Gupta R, Tookey PA, Peckham CS, Ades AE. 1998. Factors affecting uptake of antenatal HIV testing in	Ante-natal testing

Study	Reason for exclusion
London: results of a multicentre study. <i>BMJ</i> 316, no. 7127:259-261.	
Gillmore MR, Morrison DM, Richey CA, Balassone ML, Gutierrez L, Farris M. 1997. Effects of a skill-based intervention to encourage condom use among high risk heterosexually active adolescents. <i>AIDS Education and Prevention</i> 9, no. 1:22-43.	No relevant HIV testing outcomes
Golden MR, Hogben M, Potterat JJ, Handsfield HH. 2004. HIV partner notification in the United States - A national survey of program coverage and outcomes. <i>Sexually Transmitted Diseases</i> 31, no. 12:709-712.	No disaggregated data for minority ethnic / migrant populations
Gollub EL, Brown EL, Savouillan M, Waterlot J, Coruble G. 2002. A community-based safer-sex intervention for women: results of a pilot study in south-eastern France. <i>Culture Health & Sexuality</i> 4, no. 1:21-41.	No relevant HIV testing outcomes
Grinstead OA. 1997. HIV Counseling for Behavior Change. <i>AIDS Education and Prevention</i> 9, no. 2:125-132.	Review paper
Guzman B, Casad B, Schlehofer S, Villanueva C, Feria A. 2001. C.A.M.P.: A Community-Based Approach to Promoting Safe Sex Behavior in Adolescence. <i>Journal of Community and Applied Social Psychology</i> 13:269-283.	No relevant HIV testing outcomes
Hacker K, Brown E, Cabral H, Dodds D. 2005. Applying a transtheoretical behavioral change model to HIV/STD and pregnancy prevention in adolescent clinics. <i>Journal of Adolescent Health</i> 37, no. 3:S80-S93.	No relevant HIV testing outcomes
Harling G, Wood R, Beck EJ. 2005. Efficiency of interventions in HIV infection, 1994-2004. <i>Disease Management & Health Outcomes</i> 13, no. 6:371-394.	Review paper
Harper G, Bangi A, Sanchez B, Doll M, Pedraza A. 2009 A Quasi-Experimental Evaluation of a Community-Based HIV Prevention Intervention for Mexican American Female Adolescents: The SHERO's Program. <i>AIDS Education and Prevention</i> 21, supplement B 101-123.	No relevant HIV testing outcomes
Haukoos JS, Hopkins E, Byyny RL, and Denver Emergency Department HIV Testing Study Group. 2008. Patient acceptance of rapid HIV testing practices in an urban emergency department: assessment of the 2006 CDC recommendations for HIV screening in health care settings. <i>Annals of Emergency Medicine</i> 51, no. 3:303-309.	No disaggregated data for minority ethnic / migrant populations
Hertz-Picciotto I, Lee LW, Hoyo C. 1996. HIV test-seeking before and after the restriction of anonymous testing in North Carolina. <i>American Journal of Public Health</i> 86, no. 10:1446-1450.	Study initiated before 1996
Hovell M, Blumberg E, Sipan C, Hofstetter CR, Burkham S, Atkins C, Felice M. 1998. Skills training for pregnancy and AIDS prevention in Anglo and Latino youth. <i>Journal of Adolescent Health</i> 23, no. 3:139-149.	No relevant HIV testing outcomes
Hudson MM, Nelson WL, Ronalds CJ, Anderson J, Jeffries DJ. 1997. HIV antibody testing: Genito-Urinary Clinic or additional site same-day testing service. <i>AIDS Care</i> 9, no. 2:209-215.	No disaggregated data for minority ethnic / migrant populations
Ito KE, Kalyanaraman S, Ford CA, Brown JD, Miller WC. 2008. "Let's talk about sex": Pilot study of an interactive CD-ROM to prevent HIV/STIs in female adolescents. <i>AIDS Education and Prevention</i> 20, no. 1:78-89.	No relevant HIV testing outcomes

Study	Reason for exclusion
Jemmott JB, Jemmott LS, Fong GT, McCaffree K. 1999. Reducing HIV risk-associated sexual behavior among African American adolescents: Testing the generality of intervention effects. <i>American Journal of Community Psychology</i> 27, no. 2:161-187.	No relevant HIV testing outcomes
Jemmott JB, Jemmott LS, Braverman PK, Fong GT. 2005. HIV/STD risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic - A randomized controlled trial. <i>Archives of Pediatrics & Adolescent Medicine</i> 159, no. 5:440-449.	No relevant HIV testing outcomes
Jemmott LS, Jemmott JB, O'Leary A. 2007. Effects on sexual risk Behavior and STD rate of brief HIV/STD prevention interventions for African American women in primary care settings. <i>American Journal of Public Health</i> 97, no. 6:1034-1040.	No relevant HIV testing outcomes
Jennings TSD. 1996. Screening for human immunodeficiency virus in inner city females with abnormal cervical cytology. <i>Infectious Diseases in Obstetrics and Gynecology</i> 4, no. 5:1996.	Study initiated before 1996
Jha S, Gee H, Coomarasamy A. 2003. Women's attitudes to HIV screening in pregnancy in an area of low prevalence. <i>BJOG: An International Journal of Obstetrics & Gynaecology</i> 110, no. 2:145-148.	Ante-natal testing
Johnson AD. The effects of culturally sensitive messages and health beliefs. -unknown. 1998. TriService Nursing Research Program (TSNRP).	Population - military
Johnson BT, Scott-Sheldon LAJ, Smoak ND, LaCroix JM, Anderson JR, Carey MP. 2009. Behavioral Interventions for African Americans to Reduce Sexual Risk of HIV: A Meta-Analysis of Randomized Controlled Trials. <i>Jaids-Journal of Acquired Immune Deficiency Syndromes</i> 51, no. 4:492-501.	No relevant HIV testing outcomes
Kalichman SC, Rompa D, Coley B. 1997. Lack of positive outcomes from a cognitive-behavioral HIV and AIDS prevention intervention for inner-city men: lessons from a controlled pilot study. <i>AIDS Education & Prevention</i> 9, no. 4:299-313.	No relevant HIV testing outcomes
Keenan PA, Keenan JM. 2001. Rapid hiv testing in urban outreach: a strategy for improving posttest counseling rates. <i>AIDS Education & Prevention</i> 13, no. 6:541-550.	Population – drug users, homeless, sex offenders
Kimbrough LW, Fisher HE, Jones KT, Johnson W, Thadiparthi S, Dooley S. 2009. Accessing social networks with high rates of undiagnosed HIV infection: The social networks demonstration project. <i>American Journal of Public Health</i> 99, no. 6:1093-1099.	Non-comparative study
Kipke MD, Boyer C, Hein K. 1993. An evaluation of an AIDS risk reduction education and skills training (ARREST) program. <i>The Journal of adolescent health: official publication of the Society for Adolescent Medicine</i> 14:533-539.	No relevant HIV testing outcomes
Klein JD, Handwerker L, Sesselberg TS, Sutter E, Flanagan E, Gawronski B. 2007. Measuring quality of adolescent preventive services of health plan enrollees and school-based health center users. <i>Journal of Adolescent Health</i> 41, no. 2:153-160.	No relevant HIV testing outcomes
Kocken P, Voorham T, Brandsma J, Swart W. 2001. Effects of peer-led AIDS education aimed at Turkish and Moroccan male immigrants in The Netherlands - A randomised controlled evaluation study. <i>European Journal of Public Health</i> 11, no. 2:153-159.	No relevant HIV testing outcomes

Study	Reason for exclusion
Lee NR, Spoeth S, Smith K, McElroy L, Frazee JL, Robinson A, and Kravs Taylor M. 2006. Encouraging African-American women to "Take charge. Take the test": The audience segmentation process for CDC's HIV testing social marketing campaign. <i>Social Marketing Quarterly</i> Vol.12, no. 3:16-28.	Review paper
Lewis DA, McDonald A, Thompson G, Bingham JS. 2004. The 374 clinic: an outreach sexual health clinic for young men. <i>Sexually Transmitted Infections</i> 80, no. 6:480-483.	Non-comparative study
Li J, Marks SM, Driver CR, Diaz FA, Castro III AF, de Regner AF, Gibson AE et al. 2007. Human immunodeficiency virus counseling, testing, and referral of close contacts to patients with pulmonary tuberculosis: feasibility and costs. <i>Journal of Public Health Management & Practice</i> 13, no. 3:252-262.	Cross sectional study
Liddicoat RV, Losina E, Kang M, Freedberg KA, Walensky RP. 2006. Refusing HIV testing in an urgent care setting: results from the "Think HIV" program. <i>AIDS Patient Care & STDs</i> 20, no. 2:84-92.	Cross sectional study
Lin JS, Whitlock E, O'Connor E, Bauer V. 2008. Behavioral counseling to prevent sexually transmitted infections: A systematic review for the U.S. Preventive Services Task Force. <i>Annals of Internal Medicine</i> 149, no. 7:497-W99.	No relevant HIV testing outcomes
Lindley LL, Coleman JD, Gaddist BW, White J. 2010. Informing Faith-Based HIV/AIDS Interventions: HIV-Related Knowledge and Stigmatizing Attitudes at Project FAITH Churches in South Carolina. <i>Public Health Reports</i> 125:12-20.	No intervention
Lowe J. 2008. A Cultural Approach to Conducting HIV/AIDS and Hepatitis C Virus Education Among Native American Adolescents. <i>Journal of School Nursing</i> 24, no. 4:229-238.	No relevant HIV testing outcomes
Lyons MS, Lindsell CJ, Hawkins DA, Raab DL, Trott AT, Fichtenbaum CJ. 2008. Contributions to early HIV diagnosis among patients linked to care vary by testing venue - art. no. 220. <i>BMC Public Health</i> 8:220.	No relevant HIV testing outcomes
MacKellar DAH. 2009. Exposure to HIV partner counseling and referral services and notification of sexual partners among persons recently diagnosed with HIV. <i>Sexually Transmitted Diseases</i> 36, no. 3:March.	No relevant HIV testing outcomes
Martin M, Camargo M, Ramos L, Lauderdale D, Krueger K, Lantos J. 2005. The Evaluation of a Latino Community Health Worker HIV Prevention Program. <i>Hispanic Journal of Behavioral Sciences</i> 27, 371384.	No relevant HIV testing outcomes
Martinez-Donate A P, Zellner JA, Fernandez-Cerdeno A, Sanudo F, Hovell MF, Sipan CL, Engelberg M, Ji M. 2009. Hombres Sanos: exposure and response to a social marketing HIV prevention campaign targeting heterosexually identified Latino men who have sex with men and women. <i>AIDS Education & Prevention</i> 21, no. 5:Suppl:Suppl-36.	Population - MSM
Maxwell AE, Bastani R, Warda US. 2002. Pilot test of a single-session AIDS workshop for young Hispanic U.S. immigrants. <i>Journal of Immigrant Health</i> Vol.4, no. 2:73-79.	No relevant HIV testing outcomes
Mccoy HV, Hlaing WM, Ergon-Rowe E, Samuels D, Malow R. 2009. Lessons from the Fields: A Migrant HIV Prevention Project. <i>Public Health Reports</i> 124, no. 6:790-796.	No relevant HIV testing outcomes

Study	Reason for exclusion
Mercey D, Helps BA, Copas A, Petruckevitch A, Johnson AM, Spencer J. 1996. Voluntary universal antenatal HIV testing. <i>British Journal of Obstetrics & Gynaecology</i> 103, no. 11:1129-1133.	Ante-natal testing
Merchant RC, Clark MA, Seage III GR, Mayer KH, Degruittola VG, Becker BM. 2009. Emergency department patient perceptions and preferences on opt-in rapid HIV screening program components. <i>AIDS Care</i> 21, no. 4:490-500.	Cross sectional study
Metzler CW, Biglan A, Noell J, Ary DV, Ochs L. 2000. A randomized controlled trial of a behavioral intervention to reduce high-risk sexual behavior among adolescents in STD clinics. <i>Behavior Therapy</i> 31, no. 1:27-54.	No relevant HIV testing outcomes
Milhausen R, DiClemente R, Lang D, Spitalnick J, Sales J, Hardin J. 2008. Frequency of Sex after an Intervention to Decrease Sexual Risk-Taking among African-American Adolescent Girls: Results of a Randomized, Controlled Clinical Trial. <i>Sex Education</i> 8, 47-57.	No relevant HIV testing outcomes
Mishra S, Fernando Sanudo I, Conner RF. Collaborative research toward HIV prevention among migrant farmworkers. 69-95. 2004.	No relevant HIV testing outcomes
Mize SJS. 2002. Meta-analysis of the effectiveness of HIV prevention interventions for women. <i>AIDS Care</i> 14, no. 2:April-180.	No relevant HIV testing outcomes
Mueller T, Castaneda C, Sainer S, Martinez D, Herbst J, Wilkes A, Villarruel A. 2009. The Implementation of a Culturally Based HIV Sexual Risk Reduction Program for Latino Youth in a Denver Area High School. <i>AIDS Education and Prevention</i> 21, Supplement B 164-170.	No relevant HIV testing outcomes
Mullen PD, Ramirez G, Strouse D, Hedges LV, Sogolow E. 2002. Meta-analysis of the effects of behavioral HIV prevention interventions on the sexual risk behavior of sexually experienced adolescents in controlled studies in the United States. <i>Journal of Acquired Immune Deficiency Syndromes</i> 30:S94-S105.	No relevant HIV testing outcomes
NIMH Multisite HIV/STD Prevention Trial. 2008. Eban Health Promotion Intervention: Conceptual basis and procedures. <i>Jaids-Journal of Acquired Immune Deficiency Syndromes</i> 49:S28-S34.	No relevant HIV testing outcomes
Obermeyer CM, Osborn M. 2007. The utilization of testing and counseling for HIV: A review of the social and behavioral evidence. <i>American Journal of Public Health</i> 97, no. 10:1762-1774.	Review paper
O'Donnell L, Bonaparte B, Joseph H, Agronick G, Leow DM, Myint U, Stueve A. 2009. Keep It Up: development of a community-based health screening and HIV prevention strategy for reaching young African American men. <i>AIDS Education & Prevention</i> 21, no. 4:299-313.	No relevant HIV testing outcomes
O'Leary A, Jemmott LS, Jernmott JB. 2008. Mediation analysis of an effective sexual risk-reduction intervention for women: The importance of self-efficacy. <i>Health Psychology</i> 27, no. 2:S180-S184.	No relevant HIV testing outcomes
Oliva G, Rienks J, Udoh I, Dillard Smith C. 2005. A University and Community-Based Organization Collaboration to Build Capacity to Develop, Implement, and Evaluate an Innovative HIV Prevention Intervention for an Urban African American Population. <i>AIDS Education and Prevention</i> Vol.17, no. 4:300-316.	All participants were tested for the study
Paikoff RL. 2007. Overview of community collaborative partnerships and empirical findings: the foundation for youth HIV prevention.	No relevant HIV testing outcomes

Study	Reason for exclusion
Social Work in Mental Health 5, no. 1/2:2007-2026.	
Payne NS, Beckwith CG, Davis M, Flanigan T, Simmons EM, Crockett K, Ratcliff TM, Brown LK, and Sly KF. 2006. Acceptance of HIV Testing among African-American College Students at a Historically Black University in the South. <i>Journal of the National Medical Association</i> Vol.98, no. 12:1912-1916.	Cross sectional study
Peralta L, Constantine N, Griffin DB, Martin L, Ghalib K. 2001. Evaluation of youth preferences for rapid and innovative human immunodeficiency virus antibody tests. <i>Archives of Pediatrics & Adolescent Medicine</i> 155, no. 7:838-843.	No relevant HIV testing outcomes
Prost A, Elford J, Imrie J, Petticrew M, Hart GJ. 2008. Social, behavioural, and intervention research among people of Sub-Saharan African origin living with HIV in the UK and Europe: literature review and recommendations for intervention. <i>AIDS & Behavior</i> 12, no. 2:170-194.	No relevant HIV testing outcomes
Prost A, Griffiths CJ, Anderson J, Wight D, Hart GJ. 2009. Feasibility and acceptability of offering rapid HIV tests to patients registering with primary care in London (UK): a pilot study. <i>Sexually Transmitted Infections</i> 85, no. 5:326-329.	Cross sectional study
Ramos R L, Green NL, Shulman LC. 2009. Pasa la Voz: using peer driven interventions to increase Latinas' access to and utilization of HIV prevention and testing services. <i>Journal of Health Care for the Poor & Underserved</i> 20, no. 1:29-35.	Non-comparative study
Resnicow K, Dilorio C, Soet JE, Borrelli B, Hecht J, Ernst D. 2002. Motivational interviewing in health promotion: It sounds like something is changing. <i>Health Psychology</i> 21, no. 5:444-451.	No relevant HIV testing outcomes
Risner D, Thompson S. HIV/AIDS in Dance Education: A Pilot Study in Higher Education. <i>Journal of Dance Education</i> 5, 70-76. 2005.	No relevant HIV testing outcomes
Rodger AJ, Story A, Fox Z, Hayward A. 2010. HIV prevalence and testing practices among tuberculosis cases in London: a missed opportunity for HIV diagnosis? <i>Thorax</i> 65, no. 1:63-69.	Cross sectional study
Roye C, Silverman PP, Krauss B. 2007. A brief, low-cost, theory-based intervention to promote dual method use by black and Latina female adolescents: A randomized clinical trial. <i>Health Education & Behavior</i> 34, no. 4:608-621.	No relevant HIV testing outcomes
Safren SA, Wingood G, Altice FL. 2007. Strategies for primary HIV prevention that target behavioral change. <i>Clinical Infectious Diseases</i> 45:S300-S307.	Review paper
Schinke SP, Gordon AN, Weston RE. 1990. Self-instruction to prevent HIV infection among African-American and Hispanic-American adolescents. <i>Journal of Consulting and Clinical Psychology</i> 58:432-436.	No relevant HIV testing outcomes
Shain RN, Piper JM, Newton ER, Perdue ST, Ramos R, Champion JD, Guerra FA. 1999. A randomized, controlled trial of a behavioral intervention to prevent sexually transmitted disease among minority women. <i>New England Journal of Medicine</i> 340, no. 2:93-100.	No relevant HIV testing outcomes
Sherr L, Bergenstrom A, Bell E, McCann E, Hudson C. 1998. Antenatal HIV screening and ethnic minority women. <i>Health Trends</i> 30, no.4:115-119	No relevant HIV testing outcomes
Silitsky C, Jones S. Mothers' Voices: Enhancing Mother-Child	No relevant HIV testing

Study	Reason for exclusion
Communication for HIV Prevention. <i>Journal of HIV/AIDS Prevention in Children & Youth</i> 6, 33-46. 2004.	outcomes
Simon PA, Weber M, Ford WL, Cheng F, Kerndt PR. 1996. Reasons for HIV antibody test refusal in a heterosexual sexually transmitted disease clinic population. <i>AIDS</i> 10, no. 13:1549-1553.	Study initiated before 1996
Sperber E. 2008. Adapting and disseminating a community-collaborative, evidence- based HIV/AIDS prevention programme: lessons from the history of CHAMP. <i>Vulnerable Children and Youth Studies</i> 3, no. 2:August-158.	No relevant HIV testing outcomes
Stephens T, Braithwaite RL, Taylor SE. 1998. Model for using hip-hop music for small group HIV/AIDS prevention counseling with African American adolescents and young adults. <i>Patient Education & Counseling</i> 35, no. 2:127-137.	No quantitative evaluation of effectiveness of intervention
Sturdevant MS, Kohler CL, Williams LF, Johnson JE. 1998. The University of Alabama Teenage Access Project: a model for prevention, referrals, and linkages to testing for high-risk young women. <i>Journal of Adolescent Health</i> 23, no. 2:Suppl:Suppl-14.	No quantitative evaluation of effectiveness of intervention
Surah S, O'shea S, Dunn H, Mitra R, Fitzgerald C, Ibrahim F, Sethi G. 2009. Utilization of HIV point-of-care testing clinics in general practice and genitourinary medicine services in south-east London. <i>International Journal of STD & AIDS</i> 20, no. 3:168-169.	Correlation study
Tookey PA, Gibb GM, Ades AE, Duong T, Masters J, Sherr L, Peckham CS, Hudson CN. 1998. Performance of antenatal HIV screening strategies in the United Kingdom. <i>Journal of Medical Screening</i> 5, no. 3:133-136.	No relevant HIV testing outcomes
Torrone EA, Wright J, Leone PA, Hightow-Weidman LB. 2010. Pregnancy and HIV Infection in Young Women in North Carolina. <i>Public Health Reports</i> 125, no. 1:96-102.	No intervention
Tseng AL. 1996. Anonymous HIV testing in the Canadian aboriginal population. <i>Canadian Family Physician</i> 42:1734-1740.	Review paper
Turner M, Rhodes W, Harper P, Quinton S. 2008. Hip-Hop to Prevent Substance Use and HIV among African-American Youth: A Preliminary Investigation. <i>Journal of Drug Education</i> 38, 351-365.	No relevant HIV testing outcomes
Valdiserri RO, Holtgrave GR, West GR. 1999. Promoting early HIV diagnosis and entry into care. <i>AIDS</i> 13, no. 17:2317-2330.	Review paper
Vargo S, Agronick G, O'Donnell L, Stueve A. 2004. Using peer recruitment and OraSure to increase HIV testing. <i>American Journal of Public Health</i> 94, no. 1:29-31.	1067
Vayssiere C, Mazaubrun CD, Breart G. 1999. Human immunodeficiency virus screening among pregnant women in France: results from the 1995 National Perinatal Survey. <i>American Journal of Obstetrics & Gynecology</i> 180, no. 3:Pt 1:t-70	Ante-natal testing
Vidanapathirana J, Abramson MJ, Forbes A, Fairley C. 2005. Mass media interventions for promoting HIV testing. <i>Cochrane Database of Systematic Reviews: Reviews 2005 Issue.3</i> John.Wiley.& Sons., Ltd.Chichester, UK DOI.: 10.1002/146518.	Review paper
Villarruel AM, Jemmott III JB, Jemmott LS. 2006. A randomized controlled trial testing an HIV prevention intervention for Latino youth. <i>Archives of Pediatrics & Adolescent Medicine</i> 160, no. 8:772-777.	No relevant HIV testing outcomes

Study	Reason for exclusion
Villarruel AM, Cherry CL, Cabriaes EG, Ronis DL, Zhou Y. 2008. A Parent-Adolescent Intervention to Increase Sexual Risk Communication: Results of A Randomized Controlled Trial. <i>AIDS Education and Prevention</i> 20, no. 5:371-383.	Based in Mexico
Wang FL, Larke B, Gabos S, Hanrahan A, Schopflocher D. 2005. Potential factors that may affect acceptance of routine prenatal HIV testing. <i>Canadian Journal of Public Health Revue</i> , no. 1:60-64.	Ante-natal testing
Weinhardt LS. 2002. Effects of a detailed sexual behavior interview on perceived risk of HIV infection: Preliminary experimental analysis in a high risk sample. <i>Journal of Behavioral Medicine</i> 25, no. 2:195-203.	No relevant HIV testing outcomes
Weinhardt L. 2005. Changing HIV and AIDS-Related Behavior: Promising Approaches at the Individual, Group, and Community Levels. <i>Behavior Modification</i> 29, 219-226.	No relevant HIV testing outcomes
White E, Katz MH, McFarland W. 1999. Whom does partner notification for HIV infection serve in San Francisco? A review of counseling and testing data from 1995-1997. <i>AIDS and Behavior</i> Vol.3, no. 3:205-211.	No intervention
Williams PB. 2003. HIV/AIDS case profile of African Americans - Guidelines for ethnic-specific health promotion, education, and risk reduction activities for African Americans. <i>Family & Community Health</i> 26, no. 4:289-306.	No relevant HIV testing outcomes
Wolfers MEG, van den Hoek C, Brug J, de Zwart O. 2007. Using Intervention Mapping to develop a programme to prevent sexually transmittable infections, including HIV, among heterosexual migrant men. <i>BMC Public Health</i> 7.	No quantitative evaluation of effectiveness of intervention
Yeatman SE. 2007. Ethical and public health considerations in HIV counseling and testing: policy implications. <i>Studies in Family Planning</i> 38, no. 4:271-278.	Review paper
Zinski A. 2009. Who is in a hurry for HIV test results? An exploration of presentation for oraquick rapid result HIV antibody testing in urban clinical and outreach settings in Alabama.	No relevant HIV testing outcomes

10.1.3. Reason for excluding grey literature at full paper screening: effectiveness review

Study	Reason for exclusion
National HIV prevention information service. 1999. <i>A resource guide on antenatal HIV testing policy</i> . http://www.nice.org.uk/nicemedia/documents/antenat.pdf	No data
National HIV prevention information service. 2002. <i>Current research</i> . http://www.nice.org.uk/nicemedia/documents/cher13.pdf	No data
National HIV prevention information service. 2000. <i>Current research</i> . http://www.nice.org.uk/nicemedia/documents/cher10.pdf	No data
National HIV prevention information service. 1999. <i>Current research</i> . http://www.nice.org.uk/nicemedia/documents/cher9.pdf	No data
National HIV prevention information service. 1999. <i>A resource guide on HIV health promotion with African community groups in England</i> . http://www.nice.org.uk/nicemedia/documents/african.pdf	No data

Health Development Agency. <i>HIV prevention: a review of reviews assessing the effectiveness of interventions to reduce the risk of sexual transmission.</i> http://www.nice.org.uk/nicemedia/documents/HIV_review_summary.pdf	No data
Fisher M. HIV Testing in acute admissions. http://public.ukcrn.org.uk/search/	Study not complete
Sullivan D. HIV Testing in Non-traditional settings -The HINTS Study. http://public.ukcrn.org.uk/search/	Study not complete
Interagency Coalition on AIDS and Development. 2009. <i>Prevention programmes in developed countries: lessons learnt.</i> http://www.ahpn.org/publications/index.php	Review paper – not methodology criteria
Dodds C, Hickson F, Weatherburn P, Reid D, Hammond G, Jessup K, Adegbite G. 2008. <i>Bass Line survey 2007.</i> http://www.nahip.org.uk/downloads/376.pdf	No intervention
Hickson F, Owuor J, Weatherburn P, Reid D, Hammond G, Jessup K. 2009. <i>Bass Line 2008-09.</i> http://www.nahip.org.uk/downloads/477.pdf	No intervention
National African HIV Prevention Programme. 2009. <i>African HIV prevention handbook</i> http://www.nahip.org.uk/downloads/473.pdf	No data
Fakoya I. <i>Improving HIV testing in African Communities.</i> http://www.nahip.org.uk/downloads/444.pdf	No quantitative evaluation of effectiveness of intervention
Borawski EA, Trapl ES, Adams-Tufts K, Hayman LL, Goodwin MA, Lovegreen LD. 2009. Taking be proud! Be responsible! to the suburbs: a replication study. <i>Perspectives on Sexual and Reproductive Health</i> 41, no. 1:12-22	No relevant HIV testing outcomes
Wingood GM, DiClemente RJ, Harrington KF, Lang DL, Davies SL, Hook III EW, Oh MK, Hardin JW. 2006. Efficiency of an HIV prevention program among female adolescents experiencing gender-based violence. <i>American Journal of Public Health</i> 96, no.6:1085-1090	No relevant HIV testing outcomes
Fenton KA. 2001. Strategies for improving sexual health in ethnic minorities. <i>Current Opinion in Infectious Diseases</i> 14:63-69	No relevant HIV testing outcomes
Koniak-Griffin D, Stein JA. 2006. Predictors of sexual risk behaviors among adolescent mothers in a human immunodeficiency virus prevention program. <i>Journal of Adolescent Health</i> 38:297.e1-297.e11	No relevant HIV testing outcomes
Peragallo N, DeForge B, O'Campo P, Lee SM, Kim YJ, Cianelli R, Ferrer L. 2005. A randomized clinical trial of an HIV-risk-reduction intervention among low-income Latina women. <i>Nursing Research</i> 54, no. 2:108-118	No relevant HIV testing outcomes
Stanton B, Cole M, Galbraith J, Li X, Pendleton S, Cottrel L, Marshall S, Wu Y, Kaljee L. 2004. Randomized trial of a parent intervention. <i>Archives of Pediatrics & Adolescent Medicine</i> 158:947-955	No relevant HIV testing outcomes

11. Appendix E

11.1. Cross Sectional Studies

Study Details	Population and Setting	Results	Notes
<p>Authors: Prost A, Griffiths, CJ, Anderson, J, Wright D, Hart GJ</p> <p>Year: 2009</p> <p>Citation: Feasibility and acceptability of offering rapid HIV tests to patients registering with primary care in London (UK): a pilot study. <i>Sexually Transmitted Infections</i> 85, no. 5:326-329.</p> <p>Aim of study: to assess the acceptability and feasibility of offering rapid HIV tests to patients registering with primary care in London</p> <p>Study design: Cross sectional</p>	<p>Source population: Patients who register with primary care in London</p> <p>Eligible population: Anglophone and Francophone new patients aged 18-55 years registering at a large inner city general practice in London (December 2007 – March 2008)</p> <p>Selected population: 47 out of 85 eligible patients took part</p> <p>Setting: Large inner city general practice in London, UK</p>	<p>Primary outcomes: 44.7% (38/85) of patients agreed to have rapid HIV test; black Caribbean and black African patients more likely to test than other ethnic groups (p=0.014)</p>	<p>Limitations identified by author: data not collected on patients' HIV risk and serostatus</p> <p>Source of funding: UK Medical Research Council</p>
<p>Authors: Merchant RC, Clark MA, Seage III GR, Mayer KH, DeGruttola VG, Becker BM</p> <p>Year: 2009</p> <p>Citation: Emergency department patient perceptions and preferences on opt-in rapid HIV screening program components. <i>AIDS Care</i> 21, no. 4:490-500.</p> <p>Aim of study: to assess emergency</p>	<p>Source population: ED patients in the USA</p> <p>Eligible population: Patients attending an ED in New England aged 18-55 years; English-speaking; no relevant mental, psychiatric or physical disability; not prison inmates, pregnant, critically ill / injured, known to be HIV infected or in HIV vaccine study (July 2005 –</p>	<p>Primary outcomes: 24% (571 / 2155) of selected patients agreed to be tested (no breakdown by race / ethnicity)</p> <p>Secondary outcomes: Compared to white patients, Hispanic / Latinos prefer standard to rapid HIV tests, RR=2.82 (CI:1.31-6.06); and more willing to be tested even if departure delayed, RR=1.73 (CI:1.09–2.75), as were those with</p>	<p>Limitations identified by author: conducted in one ED so findings may not be generalisable; responses to questionnaire affected by: low risk for HIV among respondents; social desirability; all respondents had agreed to be tested</p> <p>Source of funding: National Institute for Allergy and Infectious Diseases; Centers for Disease Control and Prevention; Center for AIDS Research</p>

Study Details	Population and Setting	Results	Notes
<p>department (ED) patients' perceptions and preferences for opt-in, universal, rapid HIV testing programme</p> <p>Study design: Cross sectional</p>	<p>July 2006)</p> <p>Selected population: Randomly selected patients attending randomly selected shifts; 24% of selected patients agreed to be tested; 98.2% completed all survey questions</p> <p>Setting: High patient volume, urban, academic ED in New England, USA</p>	<p>government health insurance RR=1.45 (CI:1.00-2.08) and previously tested, RR=1.62 (CI:1.17–2.24)</p>	<p>at Lifespan/Tufts/Brown</p>
<p>Authors: Bowles KE, Clark HA, Tai E, Sullivan PS, Song B, Tsang J, Dietz CA, et al</p> <p>Year: 2008</p> <p>Citation: Implementing rapid HIV testing in outreach and community settings: results from an advancing: results from an advancing HIV prevention demonstration project conducted in seven US cities. <i>Public Health Reports</i> 123:Suppl-85:78-85</p> <p>Aim of study: to assess the feasibility of rapid HIV testing in outreach and community settings among groups disproportionately affected by HIV</p> <p>Study design: Cross sectional</p>	<p>Source population: Communities disproportionately affected by HIV</p> <p>Eligible population: People with self-reported HIV status negative or unknown; meeting age requirement for consent to HIV testing; able to provide informed consent (2004 – 2006)</p> <p>Selected population: NA</p> <p>Setting: Outreach and community settings identified by 8 CBOs in Boston; Chicago; Detroit; Kansas City, Missouri; Los Angeles; San Francisco; Washington DC, USA</p>	<p>Primary outcomes: 23,900 rapid HIV tests (267 new HIV diagnoses – 1.1%); acceptance of HIV testing among those approached: Detroit = 27.4%; Washington = 64.7%</p> <p>Secondary outcomes: Among 267 with new HIV diagnosis, 76% from racial / minority ethnic groups</p>	<p>This is the same study as CDC paper (2007)</p> <p>Limitations identified by author: People offered HIV testing not systematically selected; data on refusal not consistently collected</p> <p>Source of funding: Centers for Disease Control and Prevention, USA</p>
<p>Authors: Centers for Disease Control and Prevention (CDC)</p>	<p>Source population: Communities disproportionately affected by HIV</p>	<p>Primary outcomes: 23,900 rapid HIV tests – 39% non-Hispanic blacks, 31% Hispanics, 21% non-</p>	<p>This is the same study as Bowles et al (2008)</p>

Study Details

Year: 2007

Citation: Rapid HIV testing in outreach and other community settings - United States, 2004-2006. *MMWR - Morbidity & Mortality Weekly Report* 56, no. 47:1233-1237.

Aim of study: to assess the feasibility of rapid HIV testing in outreach and community settings among groups disproportionately affected by HIV

Study design: Cross sectional

Authors: Li J, Marks SM, Driver CR, Diaz FA, Castro III AF, de Regner AF, Gibson AE, et al

Year: 2007

Citation: Human immunodeficiency virus counseling, testing, and referral of close contacts to patients with pulmonary tuberculosis: feasibility and costs. *Journal of Public Health Management & Practice* 13, no. 3:252-262.

Aim of study: to increase HIV counselling, testing, referral (CTR) of TB patient close contacts

Study design: Cross sectional

Authors: Liddicoat RV, Losina E,

Population and Setting

Eligible population: People with self-reported HIV status negative or unknown; meeting age requirement for consent to HIV testing; able to provide informed consent (2004 – 2006)

Selected population: NA

Setting: Outreach and community settings identified by 8 CBOs in Boston; Chicago; Detroit; Kansas City, Missouri; Los Angeles; San Francisco; Washington DC, USA

Source population: Close contacts of TB patients

Eligible population: Close contacts aged 13 years and above of pulmonary TB patients verified in Manhattan between 1st December 2002 and 30th November 2003

Selected population: 614 close contacts from 205 index cases - 34 unable to locate, 11 not offered HIV information

Setting: New York City Department of Health and Mental Hygiene TB Bureau, Manhattan, USA

Source population: Patients

Results

Hispanic whites

Primary outcomes: Among 569 contacts, 61% did not test for HIV, 10% were previously tested (of whom 24 were HIV positive), 29% tested during study period (all tested negative); being newly tested for HIV was associated with age 18–24 years ($RR_{adj}=1.6$, CI:1.2-2.2), Hispanic ethnicity ($RR_{adj}=3.3$, CI:1.3- 8.8), or being newly TST-positive ($RR_{adj}=2.0$, CI:1.4-2.7)

Primary outcomes: 67% refused

Notes

Limitations identified by author: NR

Source of funding: Centers for Disease Control and Prevention, USA

Limitations identified by author: Small number of persons tested reduced power to detect new HIV cases; unable to use rapid HIV testing

Source of funding: Centers for Disease Control and Prevention; Tuberculosis Epidemiologic Studies Consortium

Limitations identified by author:

Study Details

Kang M, Freedberg KA, Walensky RP

Year: 2006

Citation: Refusing HIV testing in an urgent care setting: results from the "Think HIV" program. *AIDS Patient Care & STDs* 20, no. 2:84-92.

Aim of study: to identify factors associated with HIV test refusal in a statewide, routine, voluntary HIV testing programme

Study design: Cross sectional

Authors: Payne NS, Beckwith CG, Davis M, Flanigan T, Simmons EM, Crockett K, Ratcliff TM, Brown LK, Sly KF

Year: 2006

Citation: Acceptance of HIV Testing among African-American College Students at a Historically Black University in the South. *Journal of the National Medical Association* Vol.98, no. 12:1912-1916.

Population and Setting

attending urgent care centers in USA

Eligible population: Patients attending four hospital-associated urgent care centers in areas with high HIV prevalence in Massachusetts during health educator (HE) operation hours (January – December 2002)

Selected population: Number of patients who refused to speak to HE unknown; 88% (9,129/10,354) of those who spoke HE provided complete data and included in analysis

Setting: Four hospital-associated urgent care centers in Massachusetts, USA

Source population: African American college students

Eligible population: Non-infected African American students aged 18-24 at a southern HBCU

Selected population: Recruited from classes in liberal arts building; 203 students approached and 161 met inclusion criteria

Setting: Southern HBCU, USA

Results

testing. White, female, older, more educated were more likely to refuse. White/African American non-English speakers refused less (57%) than English speakers (71%) ($p=0.002$); Hispanic/Haitian/Other non-English speakers refused more (65%) than English speakers (44%) ($p<0.001$)

Primary outcomes: 50% (81/161) underwent rapid HIV testing (all tested negative)

Notes

Lack of information on number of patients who refused to speak to HE; findings may not be generalisable to areas with low HIV prevalence

Future research: Qualitative research to understand why H/H/O non-English speakers refuse

Source of funding: Harvard Medical School Faculty Development and Fellowship Program in General Internal Medicine; National Institute of Allergy and Infectious Diseases

Limitations identified by author: Small convenience sample may not generalise to all African American college students; extra course credit for participation may influence participation; limited resources may impact recruitment

Source of funding: National Institute of Drug Abuse-Centers for AIDS Research; National Institute of Child and Human Development

Study Details	Population and Setting	Results	Notes
<p>Aim of study: to investigate the acceptability of rapid HIV testing among African American college students on historically black college/university (HBCU) campus</p> <p>Study design: Cross sectional</p> <p>Authors: Ford CL, Konrad TR, Godette DC, Corbie-Smith G</p> <p>Year: 2008</p> <p>Citation: Acceptance of routine ELISA testing among black women STD patients: relationship to patient-provider racial concordance. <i>Sexually Transmitted Diseases</i> 35, no. 3:211-213.</p> <p>Aim of study: to determine whether racial concordance is associated with black women STD patients obtaining routinely offered HIV tests</p> <p>Study design: Cross sectional</p>	<p>Source population: Black women STD patients in USA</p> <p>Eligible population: Women, 18 years and above, self-reported black race, newly seeking STD diagnosis or screening at public STD clinic (April – June 2003)</p> <p>Selected population: Refusal rate not reported</p> <p>Setting: County public STD clinic in a southeastern US city</p>	<p>Primary outcomes: 61% (84/137) accepted HIV test: 80% seen by black providers, 55% seen by non-black providers ($\chi^2=6.92$, $p=0.01$; aOR=3.41, CI:1.28-9.08)</p> <p>Primary outcomes: 48.2% (884/1836) of patients unaware of HIV status offered HIV testing; more likely to be offered of aged 20-49, black ethnic group, smear positive pulmonary TB, good understanding of English; 72.9%</p>	<p>Limitations identified by author: Cross-sectional design precludes attribution of causality; no direct observance of clinical consultations to assess quality of interpersonal communication</p> <p>Future research: to clarify relationships between patient preferences, cross-cultural communication and distrust of clinicians; to explore gender interactions and salience among different subpopulations</p> <p>Source of funding: University of North Carolina; Center for Advancement of Health; WK Kellogg Foundation</p> <p>Limitations identified by author: recent guidance from CMO and BHIVA may have improved HIV testing in patients with TB; HIV tests may not have been recorded; lack of information on reasons for not offering testing and test refusal</p>
<p>Authors: Rodger AJ, Story A, Fox Z, Hayward A</p> <p>Year: 2010</p> <p>Citation: HIV prevalence and testing practices among tuberculosis cases in London: a missed opportunity for</p>	<p>Source population: Patients with TB in London</p> <p>Eligible population: Patients with TB known to TB services in London on 1st July 2003 (and at follow up on 1st July 2004)</p>	<p>Primary outcomes: 48.2% (884/1836) of patients unaware of HIV status offered HIV testing; more likely to be offered of aged 20-49, black ethnic group, smear positive pulmonary TB, good understanding of English; 72.9%</p>	<p>Limitations identified by author: recent guidance from CMO and BHIVA may have improved HIV testing in patients with TB; HIV tests may not have been recorded; lack of information on reasons for not offering testing and test refusal</p>

Study Details

HIV diagnosis? *Thorax* 65, no. 1:63-69.

Aim of study: to describe the prevalence and testing practices of HIV in TB centres in London

Study design: Cross sectional

Authors: Surah S, O'Shea S, Dunn H, Mitra R, Fitzgerald C, Ibrahim F, Sethi, G

Year: 2009

Citation: Utilization of HIV point-of-care testing clinics in general practice and genitourinary medicine services in south-east London. *International Journal of STD & AIDS*; 20(3):168-169.

Aim of study: to compare point-of-care testing (POCT) in GP and GUM clinics

Study design: Correlation

Population and Setting

Selected population: Data collected from 97% of eligible patients (1941/1995)

Setting: TB centres in Greater London, UK

Source: Patients attending GP and GUM clinics

Eligible: Patients attending GP and GUM practice in inner London (February 2005 – July 2007)

Setting: GUM and GP practice, inner London, UK

Results

accepted testing (603/827): no significant difference between ethnic groups on acceptance

Primary outcomes: GP services significantly more likely to attract heterosexuals (74.3% vs 58.3% $P < 0.001$); and those of black ethnicity (Black African 16.5% vs 8.7% $p < 0.001$; black Caribbean 5.1% vs 0.9% $p < 0.001$ and black other 5.4% vs 2.1% $p = 0.001$)

Notes

Future research: to address attitudes and practice of healthcare staff to universal testing and determine barriers; to identify barriers to accepting testing

Source of funding: NR

Limitations identified by author: NR

Source of funding: NR

11.2. Summary Table on Uptake of HIV Testing for Cross Sectional and Correlation Studies

Study	Sample	Sample ethnicity	Location	Setting	Uptake of HIV testing	Ethnic group differences
Prost et al (2009)	Patients registering in primary care	Mixed (19% black African and black Caribbean)	London, UK	Healthcare	45%	Black African and black Caribbean more likely to test (p=0.014)
Rodger et al (2010)	TB patients	Mixed (81% black African)	London, UK	Healthcare	73%	No significant difference in testing by ethnic group
Surah et al (2009)	GP and GUM clinic patients	Mixed	London, UK	Healthcare	-	
Merchant et al (2009)	Emergency department patients	Mixed	New England, USA	Healthcare	24%	
Liddicoat et al (2006)	Patients in urgent care centres	Mixed	Massachusetts, USA	Healthcare	33%	White/African American non-English speakers refused to test less than English speakers (p=0.002); Hispanic/Haitian/Other non-English speakers refused more than English speakers (p<0.001)
Li et al (2007)	TB patient contacts	Mixed	Manhattan, USA	Healthcare	29%	Hispanic more likely to test (RR _{adj} =3.3, CI:1.3- 8.8)
Ford et al (2008)	STD patients	African American	Southeastern USA	Healthcare	61%	80% tested when seen by black providers, 55% seen by non-black providers (p=0.01)
Bowles et al (2008) & CDC (2007)	Communities affected by HIV	Mixed	7 cities in USA	Community	Detroit: 27% Washington: 65%	
Payne et al (2006)	College students	African American	Southern USA	Higher education	50%	

12. Appendix F

12.1. Evidence Tables

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Amaro H, Raj A, Reed E, Cranston K.</p> <p>Year:2002</p> <p>Citation: Implementation and long-term outcomes of two HIV intervention programs for Latinas. <i>Health Promotion Practice</i>; 3(2):245-254</p> <p>Aim: Compare effectiveness of two HIV prevention interventions in increasing safer sex behaviours and a wait-list control.</p> <p>Design: N-RCT</p> <p>Quality Score: [-]</p> <p>External Validity: [-]</p>	<p>Source: Hispanic women in the US</p> <p>Eligible: Spanish speaking Latina aged 18-35, aiming to remain resident in Boston in the forthcoming year, who had not used condoms consistently with a steady male partner in past 3 months or engaged in injecting drug use or sex work</p> <p>Selected: Women recruited from housing projects, community service agencies and clinics. Inclusion criteria as above. Possibility of selection bias – women were invited to participate by programme facilitators. Eligible & accepted: HIV Intensive Prevention (HIV-IP) =55% Women’s Health Programme (WHP) = 90%</p> <p>Excluded: NR</p> <p>Setting: Community</p>	<p>Allocation: Participants allocated according to which facilitator enrolled them into the study. Wait-list controls enrolled by researchers.</p> <p>Intervention: Two Spanish based HIV prevention programmes delivered by trained facilitators in a community based setting. Both programmes delivered over 12 weeks (sessions: 1.5-2 hours each).</p> <p>HIV-IP: based on social cognitive theory. Includes participatory education strategies with > 16 hours HIV prevention & socio-cultural information.</p> <p>WHP: small group, largely didactic approach with 6-9 hours about HIV, remaining hours focused on general women’s health topics suggested by participants.</p> <p>Control/comparison: wait-list control</p> <p>Sample Total n= 170 Intervention HIV-IP n= 44 WHP=56 Control n=70</p>	<p>Primary outcomes: Self reports of HIV testing in the previous 3 months</p> <p>Follow-up: 15 months</p> <p>Analysis: No ITT analysis. Logistic regression models used details of analysis not reported.</p>	<p>Primary outcomes: No significant difference in self reported testing across groups: increase in HIV testing for HIV-IP (7.5%); decrease in testing for WHP (3.7%); decrease in testing for wait-list control (1.61%).</p>	<p>Limitations</p> <p>Author: Quasi-experimental nature of study design; mixing participants with differing prevention needs due to eligibility criteria; results not generalisable to source population if demographic and sexual risk profile differ from study sample.</p> <p>Reviewer: Small sample size/study design prevented complex analysis.</p> <p>Future research:</p> <p>Funding: NR</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Apanovitch AM, McCarthy D, Salovey P.</p> <p>Year: 2003</p> <p>Citation: Using message framing to motivate HIV testing among low-income, ethnic minority women. <i>Health Psychology</i>; 22(1):60-67</p> <p>Aim: Identify factors that influence the persuasiveness of materials promoting HIV testing among low-income women</p> <p>Design: BA</p> <p>Quality Score: [+]</p> <p>External Validity: [+]</p>	<p>centres, Boston, US</p> <p>Source: Low income and ethnic minority women in the US (Latin American and African American)</p> <p>Eligible: Sexually active heterosexual/bisexual women aged 18-50 from a low-income neighbourhood in a small North-eastern US city</p> <p>Selected: Recruited door-to-door from public housing estates and a community centre. Uptake rates not reported.</p> <p>Excluded: Age only exclusion criterion at recruitment. HIV positive women excluded at analysis.</p>	<p>Baseline comparisons: NR</p> <p>Study power: NR. Unlikely to be sufficiently powered with small sample size.</p> <p>Allocation: Participants randomly assigned to watch video tape. No details of randomisation.</p> <p>Intervention: Hypothesis: Women uncertain of outcome of an HIV test more likely to be persuaded to obtain HIV test by loss framed message than gain framed and visa versa. Researchers assigned women to watch one of 2 “gain framed” or “loss framed” 15 minute videotaped educational programmes. Perceived certainty of HIV test outcome assessed post exposure.</p> <p>Control/comparison: No control/comparison</p> <p>Sample size: n=480</p> <p>Baseline comparisons: No difference among the four video conditions.</p> <p>Study power: No power calculations reported. Unclear how many subjects allocated to each arm.</p>	<p>Primary outcomes: Self reported HIV Test</p> <p>Follow-up: Before and after, 3, 6 and 9 months follow up after exposure to videos. Data from 6 months reported.</p> <p>Analysis: χ^2, ANOVA, logistic regression. No ITT analysis</p>	<p>Primary outcomes: Gain framed advantage for women who viewed HIV testing as having certain outcome compared with loss framed: 38% vs 26% tested, χ^2 (1, N=281) =4.84, p<.05.</p> <p>Attrition: 55 (11%) lost to follow-up. No details on loss per arm.</p>	<p>Limitations</p> <p>Author: Self-reported HIV testing, no assessment of social desirability biases. Assessment of certainty after exposure. Lack of unframed control</p> <p>Future research: Identification of key mediators of framing effects.</p> <p>Funding: NR.</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Bindman AB, Osmond D, Hecht FM, Lehman JS, Vranizan K, Keane D & Reingold A</p> <p>Year: 1998</p> <p>Citation: Multistate evaluation of anonymous HIV testing and access to medical care. Multistate Evaluation of Surveillance of HIV (MESH) Study Group. <i>JAMA</i> 280, no. 16:1416-1420.</p> <p>Aim: To assess whether anonymous HIV testing is associated with earlier HIV testing and HIV-related medical care than confidential testing</p> <p>Design: Retrospective cohort study</p> <p>Quality Score: +</p> <p>External Validity: +</p>	<p>Source: People newly diagnosed with AIDS, in the USA</p> <p>Eligible: AIDS patients diagnosed within previous 12 months; alive at time of report; 18 years and over; in Arizona, Colorado, Mississippi, Missouri, New Mexico, North Carolina, Oregon, Texas (reported May 1995 - December 1996)</p> <p>Selected: All patients included in states where incidence was fewer than 500 cases; randomly sampled in remaining states. Eligible cases: living in state, speaking Spanish or English, healthy to consent / take part; tested positive in state where sampled; voluntarily sought testing. 68.3% of eligible cases interviewed</p> <p>Excluded: States not offering both</p>	<p>Allocation: NA</p> <p>Intervention: Comparison of those reporting anonymous vs confidential HIV testing</p> <p>Control/comparison: (as above)</p> <p>Sample size: Total n = 835; anonymous testers = 192; confidential testers = 643</p> <p>Baseline comparisons: Anonymous testers were younger, white (p=0.001), more educated, more MSM. Confidential testers were more likely to have HIV related symptoms</p> <p>Study power: NR</p>	<p>Primary outcomes: Number of days from self-reported positive HIV test to HIV-related medical care and AIDS diagnosis</p> <p>Follow-up: 18 months</p> <p>Analysis: χ^2, multivariate linear regression</p>	<p>Primary outcomes: Anonymously tested earlier in the course of HIV disease and were younger, white (p=0.001), more educated, MSM; in multivariate analysis: race / ethnicity not associated with time to medical care or AIDS diagnosis</p> <p>Attrition: NA</p>	<p>Author: Outcome measures dependent on self-report; observational study so not able to tease out contribution of factors</p> <p>Reviewer: Retrospective study so unhealthy and dead patients could not be interviewed; no adjustments made by place of testing</p> <p>Funding: CDC</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Cassell JA, Brook MG, Mercer CH, Murphy S, Johnson AM.</p> <p>Year: 2003</p> <p>Citation: Maintaining patient access to GUM clinics: is it compatible with appointments? <i>Sexually Transmitted Infections</i>; 79(1):11-15</p> <p>Aim: Determine whether policy change</p>	<p>anonymous and confidential testing (Mississippi); those initially testing HIV positive in a different state from the one which they were sampled; if the reason for testing was not voluntary; if participant provided false name at a confidential testing site.</p> <p>Setting: Arizona, Colorado, Missouri, New Mexico, North Carolina, Oregon, Texas, USA</p> <p>Source: Individuals that access GUM clinics in the United Kingdom.</p> <p>Eligible: GUM clinic patients in an outer London clinic. Population not representative of non-metropolitan areas</p> <p>Selected: All new patients in the GUM clinic.</p> <p>Excluded: Patients previously diagnosed with HIV at the clinic</p>	<p>Allocation: Non applicable. Natural experiment</p> <p>Intervention: Policy change in GUM clinic: Walk-in only (phase 1) to (phase 2) all sessions either mixed pre-booked slots (35%) or slots available on the day (65%). Nurse triage offered to patients in phase 2 who could not be offered an appointment on the day.</p> <p>Control/comparison: NA</p>	<p>Primary outcomes: HIV test taken</p> <p>Follow-up: Phase 1: One calendar month before policy change. Phase 2: Eight weeks beginning 10 weeks after the change.</p> <p>Analysis: χ^2. No ITT analysis</p>	<p>Primary outcomes: Higher uptake of HIV testing among new patients in phase 2 (37.3% vs. 31.0% $p=0.04$)</p> <p>Attrition: No information collected on those turned away from the clinic as walk-in patients.</p>	<p>Limitations</p> <p>Author: No accurate data on the number of patients turned away or number of patients triaged.</p> <p>Reviewer: Although >70% of participants non-white ethnicity, difficult to establish whether increase in HIV testing directly applied to BME communities. Study did not assess the impact of appointment systems on</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>in STI clinic affected access to clinic and clinical outcomes including HIV testing</p> <p>Design: BA</p> <p>Quality Score: [++]</p> <p>External Validity: [+]</p>	<p>Setting: London, UK</p>	<p>Sample sizes: Phase 1: n= 836, Phase 2: n=1514</p> <p>Baseline comparisons: NA</p> <p>Study power: NR.</p>			<p>the offer of an HIV test.</p> <p>Future research: More evidence needed about effects of running different types off appointment services on access to care.</p> <p>Funding: NR</p>
<p>Authors: Futterman DC, Peralta L, Rudy BJ, Wolfson S, Guttmacher S, Rogers AS.</p> <p>Year: 2001</p> <p>Citation: The ACCESS (Adolescents Connected to Care, Evaluation, and Special Services) Project: social marketing to promote HIV testing to adolescents, methods and first year results from a six city <i>Journal of Adolescent Health</i>; 29(3S):19-29.</p> <p>Aim: Describe methods and results of HIV testing project aimed at improving HIV testing</p>	<p>Source: Youth of colour in the US disproportionately affected by HIV</p> <p>Eligible: Youth attending participating HIV clinics</p> <p>Selected: Young people aged 13-24 years attending participating clinics to obtain an HIV test</p> <p>Excluded: NR</p> <p>Setting: New York City, Baltimore, Los Angeles, Miami, Philadelphia and Washington DC, USA.</p>	<p>Allocation: NA</p> <p>Intervention: <i>Get Tested! Week</i> in each city advertised through social marketing campaign using culturally appropriate messaging and imagery. Delivered through radio and mass transit/outdoor advertising; peer dissemination of ambient media (youth-friendly magazine, referral cards) and media outreach to African American and Latino community leaders.</p> <p>Sample size: Total n=3737</p> <p>Study power: NR</p>	<p>Primary outcomes: HIV tests taken</p> <p>Secondary outcomes: New HIV diagnoses</p> <p>Follow-up: 3 months prior, 1 month during, 3 months post</p> <p>Analysis: No statistical analysis reported.</p>	<p>Primary outcomes: Baseline mean = 86 During peak =462</p> <p>Secondary outcomes: Baseline n=13 During n=19 Post n=13</p> <p>Attrition details NA</p>	<p>Limitations</p> <p>Author: Campaign materials centrally developed; poor radio advertising; incomplete data collection.</p> <p>Reviewer: No statistical / sub group analysis. No discussion of alternative influences on testing.</p> <p>Future research: Link mass media interventions with specific outcomes through sentinel surveillance and cross sectional surveys.</p> <p>Funding: NIH and HRSA (US); Griffin Bacal Inc. developed campaign materials; Medisphere, Inc.</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>and care among at risk youth</p> <p>Design: BA</p> <p>Quality Score: [-]</p> <p>External Validity: [-]</p>	<p>Source: Urban adolescent in US high schools.</p> <p>Eligible: Adolescents attending health classes in three public inner-city high schools.</p> <p>Selected: Pupils enrolled in high school health classes</p> <p>Excluded: NR</p> <p>Setting: Inner city schools, US</p>	<p>Allocation: NR.</p> <p>Intervention: Intervention took place in health classes. 6 MOLs (Musical Opinion Leaders) were selected by class peers. MOLs wrote and performed "Life is too short" a 5 min hip-hop/RnB style song focused on HIV prevention motivations. MOLs performed song in 10 health classes & disseminated information packs. 1 month after initial class presentation another dissemination phase.</p> <p>Control/comparison: Pupils in control schools received normal health class lessons.</p> <p>Sample Total (sexually active): n=137 Intervention n=47 Control n= 90</p> <p>Baseline comparisons: NR</p> <p>Study power: NR. Sample size adequate.</p>	<p>Primary outcomes: Self report of HIV test</p> <p>Follow-up: 3 months</p> <p>Analysis: χ^2. No ITT analysis</p>	<p>Primary outcomes: New HIV test more likely in treatment group. $\chi^2 (1) = 6.39$, $p < .01$</p> <p>Attrition: 116/422 (27%) lost to follow up. MANOVA indicates no association between intervention and attrition.</p>	<p>and Sensei Health Communications, PR and strategic planning</p> <p>Limitations</p> <p>Author: Short follow up period. Intervention did not directly address HIV testing.</p> <p>Reviewer: Unclear whether bias was introduced bias at school selection stage. No discussion about proportion of source population attending high school regularly. No baseline analysis for sexually active respondents.</p> <p>Future research: Extend follow up time; RCT of intervention and include HIV testing in intervention with biological outcome.</p> <p>Funding: NR</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: McMahon T, Fairley CK, Donovan B, Wan L, Quin J</p> <p>Year: 2004</p> <p>Citation: Evaluation of an ethnic media campaign on patterns of HIV testing among people from culturally and linguistically diverse backgrounds in Australia. <i>Sexual Health</i>; 1(2):91-94.</p> <p>Aim: Evaluate 2 week pilot mass media campaign</p> <p>Design: BA</p> <p>Quality Score: [-]</p> <p>External Validity: [-]</p>	<p>Source: People from culturally and linguistically diverse (CALD) backgrounds in Australia.</p> <p>Eligible: Patients attending sexual health clinics located near areas with high density of people from CALD backgrounds</p> <p>Selected: Patients attending three clinics in Melbourne and Sidney</p> <p>Setting: Sexual health clinics in Sydney and Melbourne, Australia.</p>	<p>Allocation: NA</p> <p>Intervention: Mass media campaign promoting HIV testing in 14 different languages. Advertising in ethnic media print outlets and one radio station. 52 (156 insertions) sets of advertisements. Publicity for the campaign through press releases and phone promotion to media outlets.</p> <p>Control/comparison: NA</p> <p>Sample size: n=1067</p> <p>Baseline comparisons: NA</p> <p>Study power: 80% power to detect increase in HIV testing among target population 16%-23% assuming sample size 1000, significance level 0.05</p>	<p>Primary outcomes: Proportion of HIV tests taken by target population</p> <p>Follow-up: 15 working days.</p> <p>Analysis: NR</p>	<p>Primary outcomes: Non significant increase in proportion of tests performed on target population (16.3% vs 18.8% p=0.31)</p> <p>Attrition: NA</p>	<p>Limitations</p> <p>Author: Short follow up time, most of testing of target campaign may have occurred elsewhere and scale of the campaign small. Study powered to detect significant increase but larger sample from more diverse clinical sites might have detected significant effect.</p> <p>Reviewer: It is possible that positive findings are completely unrelated to intervention; no measurement of those who recalled seeing intervention and having HIV test.</p> <p>Future research: Expand scale of campaign and include measures to estimate campaign recall among testers.</p> <p>Funding: Commonwealth Department of Health</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Miller PJ & Torzillo PJ</p> <p>Year: 1998</p> <p>Citation: Private business: the uptake of confidential HIV testing in remote aboriginal communities on the Anangu Pitjantjatjara Lands. <i>Australian & New Zealand Journal of Public Health</i> 22, no. 6:700-703.</p> <p>Aim: to assess the impact of voluntary confidential HIV testing on uptake of testing</p> <p>Design: Before and after study</p> <p>Quality Score: -</p> <p>External Validity: -</p>	<p>Source: Remote Aboriginal communities in Australia</p> <p>Eligible: People aged 12 and over, living in the Anangu Pitjantjatjara Lands in NW Australia, attending six clinics for HIV testing (1992 – 1996)</p> <p>Selected: NA</p> <p>Excluded: under 14s</p> <p>Setting: Clinics in Anangu Pitjantjatjara Lands, NW Australia</p>	<p>Allocation: NA</p> <p>Intervention: Implementation of confidential testing in August 1994</p> <p>Control/comparison: Before and after implementation</p> <p>Sample size: total = 1189; pre-intervention = 83; post-intervention = 1106</p> <p>Baseline comparisons: NR</p> <p>Study power: NR</p>	<p>Primary outcomes: Uptake of HIV testing</p> <p>Follow-up: NA</p> <p>Analysis: No statistical analysis</p>	<p>Primary outcomes: HIV tests increased from 1.6/week in 1992 to 6.5/week in 1994. reaching 11.4/week in 1996</p> <p>Attrition: NA</p>	<p>and Aged Care (Australia)</p> <p>Author: Introduction of confidential testing only one component of a large STD and HIV prevention programme</p> <p>Reviewer: No comparison of pre- and post-intervention groups; no statistical analysis</p> <p>Funding: NR</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Authors: Olshefsky AM, Zive MM, Scolari R, Zuniga ML.</p> <p>Year: 2007</p> <p>Citation: Promoting HIV risk awareness and testing in Latinos living on the U.S.-Mexico border: the <i>Tu No Me Conoces</i> social marketing campaign. <i>AIDS Education and Prevention</i>; 19(5):422-435.</p> <p>Aim: Evaluate 8 week culturally specific social marketing campaign targeting Latinos living on California-Mexico border.</p> <p>Design: BA</p> <p>Quality Score: [-]</p> <p>External Validity: [-]</p>	<p>Source: Latino migrants living in California</p> <p>Eligible: Latino migrants living on the California-Mexico border listening to four radio stations</p> <p>Selected: Patients attending 4 participating clinic sites</p> <p>Setting: HIV testing clinics in San Ysidro, Imperial County, Vista and San Diego, US .</p>	<p>Allocation: NA</p> <p>Intervention: Mass media campaign featuring 1-min Spanish language radio ads aired 650 times on four radio stations in two cities. Campaign developed by marketing agency, messaging verified through focus groups. Target groups also reached through website and brochures.</p> <p>Control/comparison: Uptake of HIV testing in four participating clinics before, during and after campaign. Cross sectional media exposure survey of clinic testers.</p> <p>Sample sizes: Unclear</p> <p>Baseline comparisons: NR</p> <p>Study power: NR</p>	<p>Primary outcomes: Number of HIV testers</p> <p>Secondary outcomes: Testers recalled seeing campaign</p> <p>Follow-up: 3 months</p> <p>Analysis: NR</p>	<p>Primary outcomes: Increase in number of testers in campaign period Q2 and Q3 compared with Q4</p> <p>Secondary outcomes: 30% (127/429) of testers who completed survey recalled seeing or hearing an ad about HIV testing.</p> <p>Attrition: NR</p>	<p>Limitations</p> <p>Author: Measured increase may be due to unmeasured factors other than campaign activity. Small number of participating clinics. Recall bias.</p> <p>Reviewer: No statistical analysis.</p> <p>Future research: Cost effectiveness analysis.</p> <p>Funding: US Department of Health and Human Services, Health Resources and Services Administration.</p>
<p>Authors: Raj A, Amaro H, Cranston K, Martin B, Cabral H, Navarro A, Conron K.</p>	<p>Source: Hispanic women in the US</p> <p>Eligible: Spanish speaking Latina aged 18-35, aiming to remain</p>	<p>Allocation: Participants allocated according to which facilitator enrolled them into the study. Wait-list controls enrolled by researchers. Significant</p>	<p>Primary outcomes: Self report of HIV test in the past 3 months</p> <p>Follow-up: Post</p>	<p>Primary outcomes: Significant increase in HIV testing for WHP vs Control at post-test (OR=2.50;</p>	<p>Limitations</p> <p>Author: Intervention setting confounded with intervention type. Non-random assignment of</p>

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<p>Year: 2001</p> <p>Citation: Is a general women's health promotion program as effective as an HIV-intensive prevention program in reducing HIV risk among Hispanic women? <i>Public Health Reports</i>; 116(6):599-607.</p> <p>Aim: Compare effectiveness of two HIV prevention interventions and a wait-list control in increasing safer sex behaviours.</p> <p>Design: N-RCT</p> <p>Quality Score: -</p> <p>External Validity: -</p>	<p>resident in Boston in the forthcoming year, who had not used condoms consistently with a steady male partner in past 3 months or engaged in injecting drug use or sex work</p> <p>Selected: Women recruited from housing projects, community service agencies and clinics. Inclusion criteria as above. Possibility of selection bias – women were invited to participate by programme facilitators. Eligible & accepted: HIV Intensive Prevention (HIV-IP) =55% Women's Health Programme (WHP) = 90%</p> <p>Excluded: 8 participants dropped at pre-test for specified reasons</p> <p>Setting: Community centres, Boston, US.</p>	<p>confounding not likely.</p> <p>Intervention: Two Spanish based HIV prevention programmes delivered by trained facilitators in a community based setting. Both programmes delivered over 12 weeks (sessions: 1.5-2 hours each).</p> <p>HIV-IP: based on social cognitive theory. Includes participatory education strategies with > 16 hours HIV prevention & socio-cultural information.</p> <p>WHP: small group, largely didactic approach with 6-9 hours about HIV, remaining hours focused on general women's health topics suggested by participants.</p> <p>Control/comparison: Wait-list controls referred to bilingual social and health care providers, including HIV counsellors.</p> <p>Sample Total n= 162 Intervention HIV-IP n= 42 WHP=54 Control n=66 Baseline comparisons: NR</p> <p>Study power: NR. Unlikely to be sufficiently powered with small sample size.</p>	<p>test (12 weeks after pre-test) and 3 months</p> <p>Analysis: Crude and adjusted ORs; Logistic and linear regression</p>	<p>95% CI 1.02, 6.12), lost at three month follow-up; no significant difference between HIV-IP and WHP on HIV testing</p> <p>Attrition: NR</p>	<p>participants; variability in facilitator skill and experience; no inclusion of cost effectiveness.</p> <p>Future research: Replication of study using RCT; dose and facilitator effects.</p> <p>Funding: NR</p>

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<p>Authors: Rhodes SD, Hergenrather KC, Bloom FR, Leichliter JS, Montano J..</p> <p>Year: 2009</p> <p>Citation: Outcomes from a community-based, participatory lay health adviser HIV/STD prevention intervention for recently arrived immigrant Latino men in rural North Carolina. <i>AIDS Education and Prevention</i>; 21(Suppl:B):103-108</p> <p>Aim: Evaluate efficacy of pilot lay health adviser intervention to increase condom use and HIV testing among Latino men.</p> <p>Design: N-RCT</p> <p>Quality Score: -</p> <p>External Validity: -</p>	<p>Source: Latino men in North Carolina</p> <p>Eligible: Men from a rural soccer league in North Carolina</p> <p>Selected: Soccer teams selected to serve as intervention and control groups; random sample of men from each group participated in evaluation</p> <p>Excluded: NR</p> <p>Setting: North Carolina, US.</p>	<p>Allocation: Intervention teams were allocated according area. Control teams selected to be geographically and socially distinct</p> <p>Intervention: Fifteen lay health advisers from 15 soccer teams received 16 hours training (based on social cognitive theory) as health advisers who increase HIV knowledge and make referrals for HIV testing.</p> <p>Control/comparison: No description of input received by control group</p> <p>Sample Total n= 222 Intervention NR Control NR</p> <p>Baseline comparisons: No significant differences in sociodemographics. Adjusted for within team clustering.</p>	<p>Primary outcomes: Self report of HIV test</p> <p>Follow-up: 18 months</p> <p>Analysis: Adjusted OR</p>	<p>Primary outcomes: HIV testing increased over baseline for intervention (9.0% vs 64.4%) adjusted odds ratio - 2.5 [CI 1.5-4.3] p<0.001)</p> <p>Attrition: NR</p>	<p>Limitations</p> <p>Author: Pilot study to assess feasibility; use of self reported data, non random assignment; lack of bio-marker and lack of generalisability of findings.</p> <p>Reviewer: Unclear allocation, attrition. No details on controls. HIV testing increased in controls from baseline but no discussion of this result.</p> <p>Future research: Replication of study using RCT with controls receiving cancer prevention intervention. Dose effects should be measured and introduction of DVD component to reduce facilitator effects.</p> <p>Funding: CDC and Association for Prevention Teaching</p>

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<p>Authors: Stanton, M and Johnson, P</p> <p>Year: 2000</p> <p>Citation: Effect of training program on physicians' attitude towards knowledge and practice patterns related to assessment and screening of clients with HIV/AIDS. Online Journal of Rural Nursing & Health Care 1, no. 3: 31-41</p> <p>Aim: Examine effects of training programme for Hispanic primary care physicians on screening and testing patients at risk for HIV/AIDS</p> <p>Design: Before and after study</p> <p>Quality Score: [-]</p> <p>External Validity: [-]</p>	<p>Source: Hispanic primary care physicians in the US</p> <p>Eligible: Physicians who were members of a national Hispanic physicians medical society and those they referred into the study</p> <p>Selected: Self-selection of physicians practicing in predominantly urban areas with mostly Hispanic or Latino patients</p> <p>Excluded: NR</p> <p>Setting: Training in physicians' offices, across eastern and southeastern US</p>	<p>Allocation: NA – all volunteers assigned to intervention programme</p> <p>Intervention: Four-part modular one-to-one programme (of three-hour sessions) on screening, testing and referral, delivered by six trained Hispanic instructors following lesson plans with specific, standardized content; developed using survey of members of national Hispanic physicians medical society</p> <p>Control/comparison: NA</p> <p>Sample Total n= 114</p> <p>Baseline comparisons: NA</p> <p>Study power: No power calculation</p>	<p>Primary outcomes: Frequency of performing HIV testing</p> <p>Secondary outcomes: Number of patients tested</p> <p>Follow-up: Four to five weeks after completion of fourth module</p> <p>Analysis: t-tests</p>	<p>Primary outcomes: Self-reported frequency of performing HIV tests increased from mean of 0.62 (SD=0.07) to 0.81 (SD=0.05), p=0.10</p> <p>Secondary outcomes: Mean number of patients tested increased from 19 (SD=33) to 29 (SD=50), p=0.006</p> <p>Attrition: NR</p>	<p>Research.</p> <p>Limitations</p> <p>Author: Use of convenience, self-selected sample limits generalisability</p> <p>Reviewer: Use of not validated, self-reported measures; no control group</p> <p>Future research: Testing findings on larger, more representative sample and with other health care professionals; replication of study with rural physicians treating migrant or seasonal workers</p> <p>Funding: NR</p>
<p>Authors: Wurcel A, Zaman T, Zhen S,</p>	<p>Source: Patients in public health hospital in</p>	<p>Allocation: Patients randomised to 1:1. No details</p>	<p>Primary outcomes: HIV tests taken;</p>	<p>Primary outcomes: Significant difference</p>	<p>Limitations</p>

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<p>Stone D.</p> <p>Year: 2005</p> <p>Citation: Acceptance of HIV antibody testing among inpatients and outpatients at a public health hospital: a study of rapid versus standard testing. <i>AIDS Patient and Care and STDS</i>; 19(8):499-505</p> <p>Aim: To determine whether patients would be more or less likely to accept HIV testing if it were offered as a rapid test versus standard test</p> <p>Design: RCT</p> <p>Quality Score: [+]</p> <p>External Validity: [-]</p> <p>Authors: Van der Bij AK, Dukers NH, Coutinho RA &</p>	<p>US</p> <p>Eligible: Inpatients and those visiting outpatient clinics</p> <p>Selected: New inpatients (medical, surgical, tuberculosis, orthopaedic services) or outpatients.</p> <p>Excluded populations: Patients who were acutely intoxicated; psychotic; depressed or incompetent excluded from enrolment. Patients also exclude if they had been tested within one month of enrolment. Number of exclusions not reported. Potential bias: attending physician determining eligibility could exclude from study due to other criteria.</p> <p>Setting: Public hospital, Boston, US</p> <p>Source: STI clinic attendees in the Netherlands</p>	<p>of randomisation process</p> <p>Intervention: Patient offered rapid HIV test, if agreed received 10 -30 minute pre-test discussion. Rapid testing results delivered after 20-minute waiting period.</p> <p>Control/comparison: Patient offered Standard HIV test, if agreed received 10 -30 minute pre-test discussion. Results delivered in follow-up appointment to be booked by the patient two weeks post-test. No results provided over the phone.</p> <p>Sample Total n= 203 Intervention: 101 Control: 102</p> <p>Baseline comparisons: No significant difference.</p> <p>Study power: Not powered for statistical significance.</p> <p>Allocation: NA</p> <p>Intervention: Implementation of routine offers of HIV testing</p>	<p>acceptance rates</p> <p>Follow-up: Data analysed for period of 9 months</p> <p>Analysis: Fisher's exact test.</p> <p>Primary outcomes: Uptake of HIV testing</p>	<p>between acceptance rates of standard testing among different ethnic groups ($p=0.04$). Hispanic groups lowest acceptance of standard testing; non-Hispanic black highest rate of acceptance. No ethnic differences in acceptance of rapid testing ($p=0.16$).</p> <p>Attrition: NR.</p> <p>Primary outcomes: Increase in HIV testing rates pre- vs. post-intervention</p>	<p>Author: Study not powered to resolve acceptability of rapid vs standard testing; patients at greatest risk may not have participated</p> <p>Reviewer: Did not describe method of randomisation.</p> <p>Future research: Blinded serosurvey.</p> <p>Funding: NR</p> <p>Limitations</p> <p>Author: Small numbers of HIV positive people</p>

Study Details	Population and Setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Notes
<p>Fennema HS Year: 2008 Citation: Low HIV-testing rates and awareness of HIV infection among high-risk heterosexual STI clinic attendees in The Netherlands. <i>European Journal of Public Health</i> 18, no. 4:376-379. Aim: To evaluate whether routinely offering HIV testing to STI clinic patients increased the uptake of HIV testing and awareness of HIV status among heterosexuals Design: BA Quality Score: + External Validity: +</p>	<p>Eligible: (i) all heterosexuals attending STI outpatient clinic in Amsterdam for first time or first episode of STI; (ii) those visiting for new STI episode eligible to complete half-yearly survey (1994 – 2004) Selected: During data collection periods: 1,000 consecutive patients interviewed Excluded: NR Setting: Public health service STI clinic, Amsterdam, Netherlands</p>	<p>to STI clinic patients in 1999 Control/comparison: Before and after implementation Sample size: Total number of consultations = 144,466; survey participants = 17,093 Baseline comparisons: Study power: NR</p>	<p>Secondary outcomes: Awareness of HIV positive status Follow-up: 11 years (1994-2004) Analysis: Univariate and multivariate logistic regression</p>	<p>(OR: 5.7, CI 5.6-5.9); increase more pronounced among non-Dutch ethnicity. Surinamese/Dutch Antillean (OR: 7.7, CI 6.8-8.6) . / Turkish (OR: 9.0, CI 6.9-11.8) / North-African(OR: 6.7, 5.3-8.5) / Sub-Saharan African (OR: 8.0 CI: 6.5–9.8) / Eastern-European (OR: 4.8 4.0-6.0) / South-American (OR: 9.6, CI 8.0–11.8) / Other Ethnicity (OR 6.0, 5.4-6.5) Secondary outcomes: 19% of HIV positive people aware of infection – no change over time (p=0.6) Attrition: NA</p>	<p>in surveys Reviewer: Findings based on patients in a single clinic; no multivariate analysis to examine change in HIV testing over time Funding: NR</p>
<p>Authors: Zetola NM, Grijalva CG, Gertler S, Hare CB, Kaplan B, Dowling T et al.</p>	<p>Source: Patients attending San Francisco general hospital in the US Eligible: All Patients</p>	<p>Allocation: NA. Intervention: May 16 2006 policy change eliminating the need for physicians to submit signed patient informed consent</p>	<p>Primary outcomes: HIV tests taken; acceptance rates Follow-up: 53 months (40 before;</p>	<p>Primary outcomes: Mean HIV tests per month per 1000 patient visits over the expected number of</p>	<p>Limitations Author: Observational nature of study; limits in data collection; results could be influenced by</p>

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<p>Year: 2008</p> <p>Citation: Simplifying consent for HIV testing is associated with an increase in HIV testing and case detection in highest risk groups, San Francisco January 2003-June 2007. PLoS ONE [Electronic Resource]; 3(7):e2591</p> <p>Aim: To describe the change in HIV testing rates after introduction of policy to eliminate the requirement of separate written consent for HIV testing.</p> <p>Design: ITS</p> <p>Quality Score: ++</p> <p>External Validity: +</p>	<p>attending health care settings where HIV screening is routinely performed: ED; urgent care clinic, inpatient services, primary care clinics; specialty clinics and affiliated community clinics.</p> <p>Selected: All Patients attending health care settings where HIV screening is routinely performed: ED; urgent care clinic, inpatient services, primary care clinics; specialty clinics and affiliated community clinics.</p> <p>Excluded populations: None</p> <p>Setting: Large University-based hospital, San Francisco, US.</p>	<p>document alongside HIV test laboratory requisition form. Prior to policy change laboratory rejected samples with incomplete documentation.</p> <p>Control/comparison: Tests undertaken before change in policy and monthly HIV testing rates compared with similar San Francisco hospital where policy change did not occur.</p> <p>Sample Total (tests) n= 20,710 Intervention: 3791 Control: 16919 Baseline comparisons: NA</p> <p>Study power: No power calculations. Large sample sufficient.</p>	<p>13 after)</p> <p>Analysis: Interrupted Times Series Analyses; segmented regression analyses; auto regressive integrated moving average (ARIMA) and auto distributive lag (ADL) models.</p>	<p>tests 13 months after the change in policy (95% confidence interval):</p> <p>Asian - 2.80 (1.37–4.23) p<0.001;</p> <p>Black - 5.58 (2.11–9.04) p= 0.002;</p> <p>Hispanic -1.56 (-0.49–3.61) p=0.132;</p> <p>White - 5.58 (2.95–8.21) p<0.001;</p> <p>English-speaking - 5.04 (2.40–7.69) p=<0.001;</p> <p>Spanish-speaking - 0.95 (-3.31–1.40) p=0.419;</p> <p>Other primary language - 2.69 (1.16–4.22) p= 0.001</p> <p>Attrition: NR.</p>	<p>publicity surrounding publication of previous study and new availability of rapid tests; inability to calculate HIV testing rates in control hospital</p> <p>Reviewer: None</p> <p>Future research: Confirm findings with further studies on other populations using different designs.</p> <p>Funding: NIH, California HIV Research Program Grant, San Francisco Dept of Health. No competing interest.</p>