

Annex 1: PICO^a questions: Prevention and treatment of HIV and other sexually transmitted infections among men having sex with men and transgender people

Question 1: Should consistent condom use vs. no condom use be used in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: consistent condom use

Control: no condom use

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Question 2A: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Population: MSM and transgender populations

Intervention: HIV testing and counselling

Control: provision of standard health information

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Question 2B: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Population: MSM and transgender populations

Intervention: community level programs for HIV testing, linking to care, and treatment

Control: no community level programs for HIV testing, linking to care, and treatment

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

^a PICO is a standard format for guideline questions: P=population; I=intervention; C=control; O=outcomes

Question 3A: Should periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* infection using NAAT vs. no such screening be offered to MSM and transgender people)?

Population: MSM and transgender populations

Intervention: periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* using NAAT

Control: no periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* using NAAT

Outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Question 3B: Should periodic screening for asymptomatic urethral and/or ano-rectal *Chlamydia trachomatis* infection using NAAT vs. no such screening be offered to MSM and transgender people)?

Population: MSM and transgender populations

Intervention: periodic screening for asymptomatic urethral and/or ano-rectal *Chlamydia trachomatis* using NAAT

Control: no periodic screening for asymptomatic urethral and/or ano-rectal *Chlamydia trachomatis* using NAAT

Outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Question 3C: Should periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* infection using culture vs. no such screening be offered to MSM and transgender people)?

Population: MSM and transgender populations

Intervention: periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* using culture

Control: no periodic screening for asymptomatic urethral and/or ano-rectal *Neisseria gonorrhoea* using culture

Outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination

- Anxiety, unnecessary testing, interventions

Question 3D: Should periodic screening for asymptomatic urethral and/or ano-rectal Chlamydia trachomatis infection using culture vs. no such screening be offered to MSM and transgender people)?

Population: MSM and transgender populations

Intervention: periodic screening for asymptomatic urethral and/or ano-rectal Chlamydia trachomatis using culture

Control: no periodic screening for asymptomatic urethral and/or ano-rectal Chlamydia trachomatis using culture

Outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Question 4: Should periodic serologic screening for syphilis infection vs. no such screening be offered to MSM and transgender people?

Population: MSM and transgender populations

Intervention: serologic screening for syphilis

Control: no serologic screening for syphilis

Outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Question 5: Should Human Papilloma Virus vaccination vs. no such vaccination be offered to young MSM and transgender people?

Population: young MSM and transgender populations

Intervention: HPV vaccination

Control: no HPV vaccination

Outcomes of interest:

- HPV associated morbidity
- HPV associated mortality
- Quality of life

Question 6: Should individual level behavioural change interventions vs. no such interventions be used for HIV/STI prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: individual level behavioural change interventions

Control: no individual level behavioural change interventions

Outcomes of interest:

- HIV associated morbidity (surrogate: reported behavioural change)
- HIV associated mortality (surrogate: reported behavioural change)
- STI associated morbidity (surrogate: reported behavioural change)
- STI associated mortality (surrogate: reported behavioural change)
- Quality of life (not measured)

Question 7: Should group level behavioural change interventions vs. no such interventions be used for HIV/STI prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: group level behavioural change interventions

Control: no group level behavioural change interventions

Outcomes of interest:

- HIV associated morbidity (surrogate: reported behavioural change)
- HIV associated mortality (surrogate: reported behavioural change)
- STI associated morbidity (surrogate: reported behavioural change)
- STI associated mortality (surrogate: reported behavioural change)
- Quality of life (not measured)

Question 8: Should community level behavioural change interventions vs. no interventions be used for HIV/STI prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: community level behavioural change interventions

Control: no community level behavioural change interventions

Outcomes of interest:

- HIV associated morbidity (surrogate: reported behavioural change)
- HIV associated mortality (surrogate: reported behavioural change)
- STI associated morbidity (surrogate: reported behavioural change)
- STI associated mortality (surrogate: reported behavioural change)
- Quality of life (not measured)

Question9A: Should serosorting vs. consistent condom use be used in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: serosorting

Control: consistent condom use

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Question9B: Should serosorting vs. no condom use be used in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: serosorting

Control: no condom use

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Question 10: Should male circumcision vs. no male circumcision be used for HIV prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: male circumcision

Control: no male circumcision

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- Quality of life

Question 11: Should Internet-based targeted interventions vs. no Internet-based targeted interventions be used for HIV/STI prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: Internet-based targeted interventions

Control: no Internet-based targeted interventions

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Question 12: Should targeted outreach interventions at sex venues effective in decreasing sexual risk behaviour and increasing HIV testing and uptake of HIV services among MSM?

Population: MSM and transgender populations

Intervention: targeted outreach interventions

Control: no targeted outreach interventions

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Question 13: Should marketing campaigns vs. no marketing campaigns be used for HIV/STI prevention in MSM and transgender populations?

Population: MSM and transgender populations

Intervention: marketing campaigns

Control: no marketing campaigns

Outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

Recommendations based on current WHO guidelines

There is a need for a review of the evidence supporting these recommendations in terms of directness to this population. A potential implication: the evidence supporting a strong recommendation in one of these WHO guidelines targeting the general population might be indirect to our MSM population which could lead to downgrading the strength of the recommendation for MSM.

Draft Recommendation 14: Symptomatic STI:

The management of sexually transmitted infections and syndromes in men who have sex with men and transgender people should be in line with WHO (2010) draft guidelines, on the management of sexually transmitted infections. A strong recommendation for ano-rectal examination to detect ulcerative ano-rectal STI will be included.

Draft Recommendation 15 Hepatitis vaccination

Recommendations regarding hepatitis B (HBV) vaccination should be in line with the WHO (2009). *Position Paper on Hepatitis B vaccines*^b, which implies that groups, including unvaccinated men who have sex with men and transgender people, that are at higher risk of acquiring HBV infection, should be included as targets of catch-up HBV immunization strategies in settings in which infant immunization has not reached full coverage.

Note: The SAGE working group is currently reviewing the recommendations on hepatitis A and will include one specific question for MSM and transgender people. The review will be concluded in May 2011.

Draft Recommendation 13: Antiretroviral therapy (ART)

Antiretroviral treatment recommendations for MSM and transgendered people (when to start, which drug regimens to use, when to switch drug regimen, and what drug regimens to switch to) are in line with WHO (2009) *Rapid advice: antiretroviral therapy for HIV infection in adults and adolescents*^c.

Note: The document did not scope the evidence around the effect of ART on prevention of HIV transmission at population and individual level. Additional scoping will start independently from this guidance and can be added later on.

Draft Recommendation 16: Other prevention and care interventions for HIV Positive MSM and Transgender People

The interventions outlined in WHO (2008) *Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings*^d should be offered to HIV-positive MSM and transgender people.

^b WHO. Hepatitis B vaccines: position paper. Weekly epidemiological record. 2 October 2009, No. 40, 2009, 84, 405–420. <http://www.who.int/wer/2009/wer8440.pdf>.

^c WHO. Antiretroviral Rapid advice: antiretroviral therapy for HIV infection in adults and adolescents: Recommendations for a public health approach. 2010 revision. (2010). Geneva, Switzerland. Available at http://whqlibdoc.who.int/publications/2010/9789241599764_eng.pdf

^d WHO. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings (2008). Available at <http://www.who.int/hiv/pub/plhiv/interventions/en/index.html>

Note: The group will have to explain the process of developing the 2008 document and the rationale for not using GRADE.

Draft Recommendation 17: Use of methamphetamines/amphetamines and other psychostimulants

The management of men who have sex with men and transgender people using psychostimulants should be in line with WHO (2010) Mental Health Gap Action Programme (mhGAP) guidelines on interventions for mental, neurological and substance use disorders, including brief interventions (including in non-specialist settings) based on the principles of providing feedback and advise for substance use reduction or termination, and assisting change with motivational interviewing techniques, and, in the event they do not respond to such interventions, provision of (or referral for) repeated or more extended interventions based on the same principles or other techniques such as CBT or contingency management. Consideration should also be given to supporting carers (i.e. family members, friends and significant others) and referral to mutual/self help groups.

Note: There is evidence of correlational but no direct causal relationship between HIV and use of psychostimulants. The literature is based on data from developed countries and recommendations will be downgraded to conditional or weak. Fact sheets will be developed for use of recreational drugs and behavioural interventions targeting health care workers.

Draft Recommendation 18: Harm reduction for MSM and transgender who inject drugs

The management of men who have sex with men and transgender people who share needles to inject substances should be in line with WHO (2004) *Effectiveness of sterile needle and syringe programming in reducing HIV/AIDS among injecting drug users* and WHO, UNODC, UNAIDS (2009). *Technical Guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users, including access to needle syringe programmes.*^{e, f}

Note: No additional specific guidance required.

Draft Recommendation 19: Safe injection practices for transgender people injecting hormones, silicon and other substances

The same rules as for safe injections of other medicines apply to transgender people who inject hormones and silicones. This recommendation includes use of clean injecting equipment for injecting medicines including hormones and silicones.^{g, h}

^e WHO. Effectiveness of sterile needle and syringe programming in reducing HIV/AIDS among IDUs (2004). Geneva, Switzerland: WHO. Available at <http://www.who.int/hiv/pub/idu/e4a-needle/en/index.html>

^f WHO. Guide to starting and managing needle and syringe programmes (2007). Geneva, Switzerland: WHO. Available at <http://www.who.int/hiv/pub/idu/needleprogram/en/index.html>

^g WHO. Guiding Principles To Ensure Injection Device Security. Geneva, Switzerland: WHO. Available at http://www.who.int/injection_safety/WHOGuidPrinciplesInjEquipFinal.pdf

^h WHO. Best practices for injections and related procedures toolkit (2010). Geneva, Switzerland: WHO. Available at http://whqlibdoc.who.int/publications/2010/9789241599252_eng.pdf

Note: WHO. Best practices for injections and related procedures toolkit (2010) will be used. The recommendations apply for MSM and transgender people. The safe injection practices guidance focuses on prevention of transmission of blood borne agents including HIV.

Proposed good practice recommendations

We recommend making health services inclusive of men who have sex with men and transgender people based on the principles of medical ethics. This could be achieved through the implementation of strategies designed to sensitize and educate providers and all other staff members to be accepting, respectful of diversity, sympathetic, and supportive of these individuals.ⁱ

We recommend that legislators and other government authorities establish the legal frameworks derived from international human rights agreements they have signed up to in order to abolish any discrimination and violence against men who have sex with men and transgender people.^j

ⁱ These critical strategies are based on comprehensive training on human sexuality, familiarity and interaction with members of sexually diverse communities, and an understanding of the emotional, health, and social cost of inaction against homophobia and transphobia

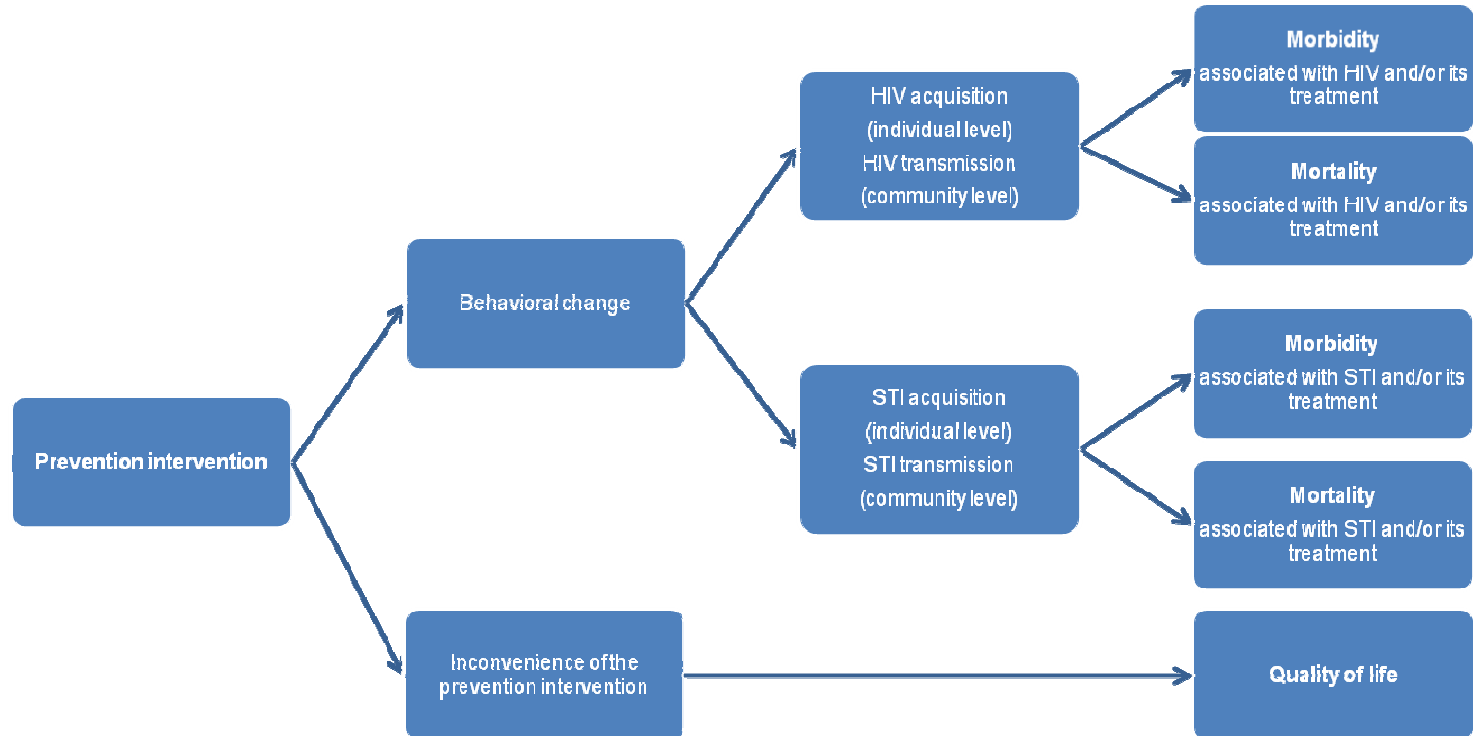
^j Safe and inclusive health settings and the underlying principles of non-discrimination are vital for the community's health and well-being. Hospital administrators and public health officials can reach out to policymakers to ensure they understand the realities of discrimination against men who have sex with men and transgender people and the resulting barriers for public health and AIDS responses

Annex 2: Outcome framework

1) Prevention interventions, outcomes of interest:

- HIV associated morbidity
- HIV associated mortality
- STI associated morbidity
- STI associated mortality
- Quality of life

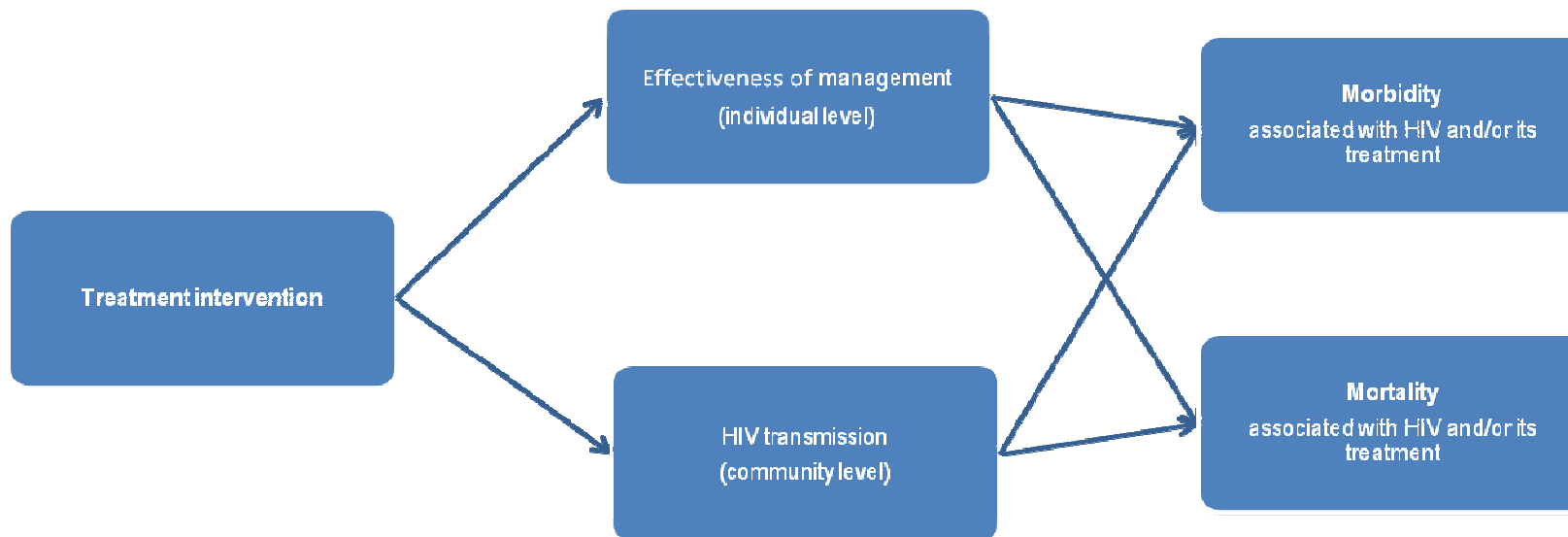
'Behavioural change' warrants rating down the quality of evidence for indirectness; 'transmission' does not



2) **Treatment interventions, outcomes of interest:**

- HIV associated morbidity
- HIV associated mortality
- Adverse effects of treatment

'Timeliness of management' and 'transmission' do not warrant rating down the quality of evidence for indirectness;



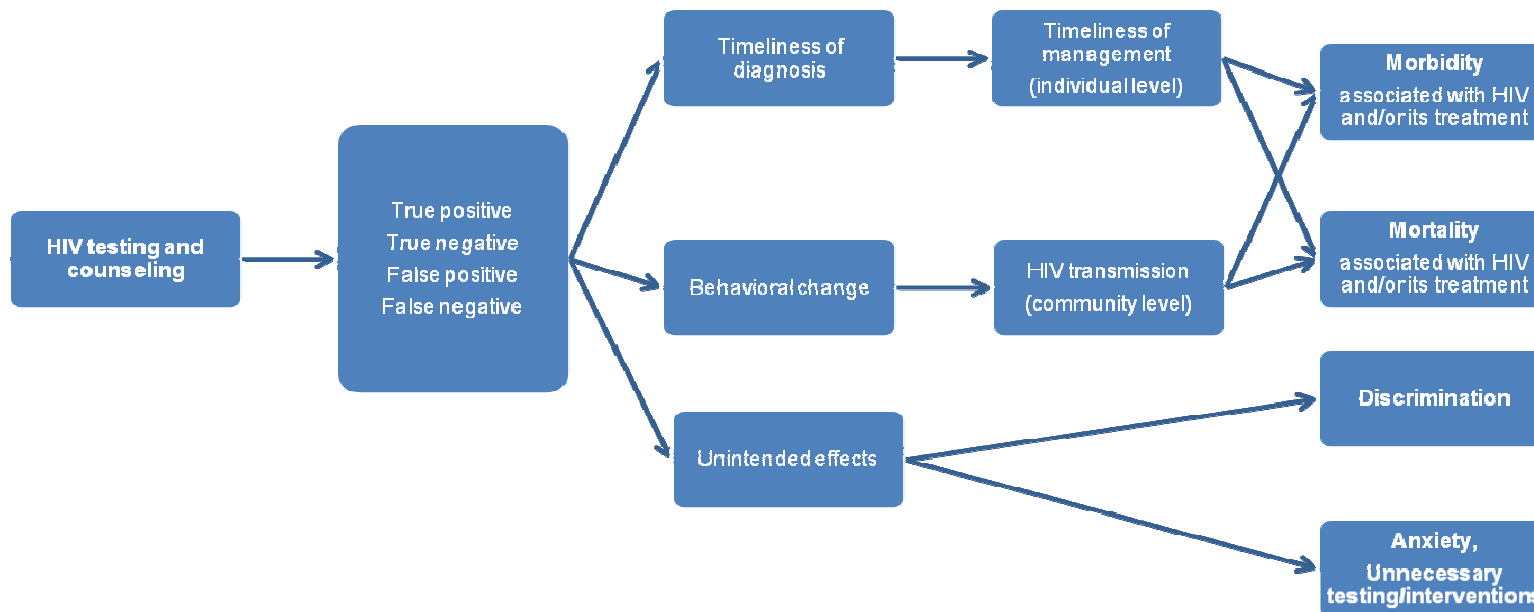
HIV testing and counselling, outcomes of interest::

- HIV associated morbidity
- HIV associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Measures of diagnostic accuracy warrant rating down the quality of evidence for indirectness

'Behavioural change' warrants rating down the quality of evidence for indirectness; 'Timeliness of management' and 'transmission' do not

Whether 'timeliness of diagnosis' warrants rating down the quality of evidence for indirectness might depend on the setting (and how strongly we believe a timely diagnosis would lead to timely management)



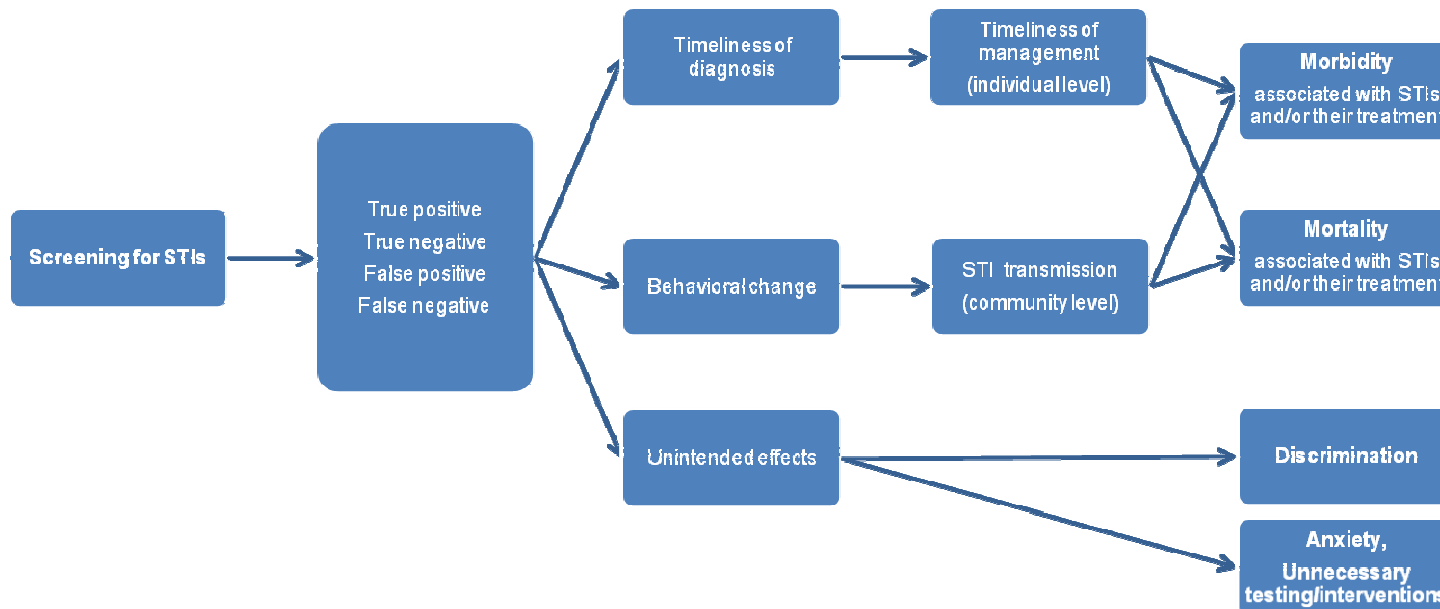
Screening interventions, outcomes of interest:

- STI associated morbidity
- STI associated mortality
- Discrimination
- Anxiety, unnecessary testing, interventions

Measures of diagnostic accuracy warrant rating down the quality of evidence for indirectness

'Behavioural change' warrants rating down the quality of evidence for indirectness; 'Timeliness of management' and 'transmission' do not

Whether 'timeliness of diagnosis' warrants rating down the quality of evidence for indirectness might depend on the setting (and how strongly we believe a timely diagnosis would lead to timely management)



Annex 3: Search strategies

General Procedures (Applicable to all PICO questions)

- ▶ The researchers searched the following electronic databases the date ranges used varied by question:
 - PubMed, PsycINFO, Sociological Abstracts, the Cochrane Central Database of Systematic Reviews, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and EMBASE
 - For the serosorting question, hand searching in the following journals was also conducted for years 1990-2009: AIDS, JAIDS, AIDS and Behaviour, AIDS Education and Prevention, and AIDS Care.
 - For the sex venue, internet-based, and social marketing interventions the following databases were also used: LILACS (Latin America and Brasil), Web of Science / Web of Social Science, China National Knowledge Infrastructure (CNKI), CQ VIP (China)
- ▶ Medical subject headings (MeSH) were used in addition to key words to maximize sensitivity and specificity of searches.
- ▶ MeSH terms and keywords were PICO question-specific (see below for terms used).
- ▶ Secondary reference searching was also conducted on all articles included in the review as well as in past systematic reviews and meta-analyses.
- ▶ Conferences searched included:
 - International AIDS Conference
 - Conference on HIV Pathogenesis, Treatment, and Prevention
 - Conference on Retroviruses and Opportunistic Infections
 - For the sex venue, internet-based, and social marketing interventions the following databases were also used: British HIV/AIDS Association, 2001-2008, Conference on Retroviruses and Opportunistic Infections (CROI), 1994-2008, European AIDS Society Conference, 2001 and 2003, International AIDS Society, International AIDS Conference (IAC), 1994-2004, International AIDS Society, Conference on HIV Pathogenesis, Treatment and Prevention (IAS), 2001-2005, US National HIV Prevention Conference, 1999, 2003, and 2005 as well as CROI and International AIDS Society web sites for abstracts presented at conferences subsequent to those listed above (CROI, 2009-2010; IAC, 2006-2010; IAS, 2007-2009).
- ▶ Articles and citations were downloaded, organized, and reviewed.

Inclusion criteria

To be included in the systematic review and GRADEing processes, an article meet the following criteria:

- 1) Published in a peer-reviewed journal, or presented as an abstract at a scientific conference only if additional information could be gleaned from the author.
- 2) Include information that is pertinent to at least 1 PICO question of interest.

Screening abstracts

Two independent reviewers screened the titles and abstracts of citations identified through the search strategy for potential eligibility. Full text articles were obtained for all selected abstracts; each article was reviewed by two independent reviewers to determine eligibility given the above inclusion criteria. Differences between the two reviewers were discussed and resolved through consensus.

Data extraction and management

Data were extracted by two reviewers using standardized data extraction spreadsheets. Differences in data extraction will be resolved through consensus. The following information was gathered from each included study:

- Study identification; author(s); type of citation; year of publication
- Study description: Location, setting & target group; years (period of study); description of the intervention; comparison groups; study design; sample size; age range, gender; random or non-random allocation of participants; length of follow-up (all if applicable)
- Outcomes and results: Outcome measures; effect sizes; confidence intervals; significance levels
- Other information: limitations; references for follow-up; secondary effects/adverse effects

Search terms by PICO question

PICO Question 1: Does the use of condoms and water-based and/or silicone-based lubricants during anal intercourse reduce the risk of infection with HIV and other STIs among MSM and transgender people?

Search criteria: (Homosexuality or homosexual OR bisexuality or bisexual OR gay OR transgender OR transsexual OR bisexual OR "men who have sex with men" OR MSM) AND (condom or condoms or lubricant) AND (cohort)

PICO Question 2a: Does provider-initiated HIV testing and counselling reduce the risk of infection with HIV among MSM and transgender people?

Search criteria: (Homosexuality OR homosexual OR bisexuality OR bisexual OR gay OR transgender OR transsexual OR "men who have sex with men" OR MSM) AND (HIV OR AIDS) AND (testing OR counselling OR "testing and counselling")

PICO Question 2b: Do programs linking provider-initiated HIV testing and counselling, together with access to care and treatment of those found to be positive, improve HIV-related immunologic and morbidity outcomes among MSM and transgender people?

Search criteria: (Homosexuality OR homosexual OR bisexuality OR bisexual OR gay OR transgender OR transsexual OR "men who have sex with men" OR MSM) AND (HIV OR AIDS) AND (testing OR counselling OR "testing and counselling")

PICO Question 3a: Does provider-initiated screening for Neisseria gonorrhoea and Chlamydia trachomatis, using nucleic acid amplification tests on urine samples, increase case detection among MSM and transgender people acknowledging insertive anal or oral intercourse? (for N. gonorrhoeae a search on culture use was included as well)

PICO Question 3b: Does provider-initiated screening for Neisseria gonorrhoea and Chlamydia trachomatis, using Nucleic Acid Amplification Tests of anal swabs, increase case detection among MSM and transgender people acknowledging receptive anal intercourse? (for N. gonorrhoeae a search on culture use was included as well)

Search criteria: (Homosexuality OR homosexual OR bisexuality OR bisexual OR gay OR transgender OR transsexual OR "men who have sex with men" OR MSM) AND (Nucleic Acid Amplification Techniques OR culture) AND (Gonorrhoea OR (Neisseria gonorrhoea) OR Chlamydia Infections OR Chlamydia)

PICO Question 4: Does provider-initiated serologic screening for syphilis increase case detection among MSM and transgender people?

Search criteria: (Homosexuality OR homosexual OR bisexuality OR bisexual OR gay OR transgender OR transsexual OR "men who have sex with men" OR MSM) AND (Treponema OR syphilis) AND (Mass screening)

PICO Question 5: Should the Human Papilloma Virus vaccine be routinely administered to young males?

Search criteria: HPV AND vaccine AND homosexuality; HPV AND vaccine AND homosexual; HPV AND vaccine AND bisexuality; HPV AND vaccine AND gay; HPV AND vaccine AND transgender; HPV AND vaccine AND transsexual; HPV AND vaccine AND bisexual; HPV AND vaccine AND men who have sex with men; HPV AND vaccine AND MSM

PICO Question 6: Do individual-level behavioural interventions based on sexual health and risk reduction counselling for HIV and STIs prevention reduce infection with HIV and other STIs among MSM and transgender people?

PICO Question 7: Do small group-level behavioural interventions for HIV and STIs prevention, based on group counselling and educational workshops, reduce infection with HIV and other STIs among MSM and transgender people?

PICO Question 8: Do community level behavioural interventions for HIV and STIs prevention, based on the training of community leaders and community-building empowerment activities, reduce infection with HIV and other STIs among MSM and transgender people?

Search criteria (Qns 6-8): (Homosexuality or homosexual OR bisexuality OR gay OR transgender OR transsexual OR bisexual OR "men who have sex with men" OR MSM) AND (HIV or AIDS or STI or STD or sexually transmitted disease or sexually transmitted infection) AND (random allocation or intervention studies or program evaluation or random or randomize or randomized or randomly).

PICO Question 9: Are seroadaptive behaviours, including serosorting and seropositioning, effective strategies to reduce the risk of infection with HIV and other STIs among MSM and transgender people?

Search criteria: The following terms were entered sequentially into all computer databases: Serosort*, Seroposition*, Seroadapt*, Sero-sort*, Sero-position*, Sero-adapt*, HIV and “partner selection”, AIDS and “partner selection”, HIV and “partner choice”, AIDS and “partner choice”, “strategic positioning”, “sexual harm reduction”, Seroguessing

PICO Question 10: Is male circumcision associated with lower risk of infection with HIV and other STIs during unprotected anal intercourse among MSM and transgender people?

Search criteria:

homosexuality, male OR bisexual OR gay OR transgender OR MSM OR homosexual* OR male homosexual OR transsexualism AND male circumcision OR male circumcisions OR circumcis* OR uncircumcis* AND HIV Infections[MeSH] OR HIV[MeSH] OR hiv[tw] OR hiv-1*[tw] OR hiv-2*[tw] OR hiv1[tw] OR hiv2[tw] OR hiv infect*[tw] OR human immunodeficiency virus[tw] OR human immunodeficiency virus[tw] OR human immuno-deficiency virus[tw] OR human immune-deficiency virus[tw] OR ((human immun*) AND (deficiency virus[tw])) OR acquired immunodeficiency syndrome[tw] OR acquired immunodeficiency syndrome[tw] OR acquired immuno-deficiency syndrome[tw] OR acquired immune-deficiency syndrome[tw] OR ((acquired immun*) AND (deficiency syndrome[tw])) OR "sexually transmitted diseases, viral"[MESH:NoExp]

PICO Question 11: Is internet-based targeted information effective to decrease risky sexual behaviours and increase uptake of HIV testing among MSM and transgender populations?

Search criteria:

(randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials [mh] OR ("clinical trial" [tw]) OR ((singl* [tw] OR doubl* [tw] OR trebl* [tw] OR tripl* [tw]) AND (mask* [tw] OR blind* [tw])) OR (placebos [mh] OR placebo* [tw] OR random* [tw] OR research design [mh:noexp] OR comparative study [mh] OR evaluation studies [mh] OR follow-up studies [mh] OR prospective studies [mh] OR control* [tw] OR prospectiv* [tw] OR volunteer* [tw]) NOT (animals [mh] NOT human [mh])) AND (HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immuno-deficiency syndrome[title/abstract] OR acquired immune-deficiency syndrome[title/abstract] OR ((acquired immun*) AND (deficiency syndrome[title/abstract])) HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immuno-deficiency syndrome[title/abstract] OR acquired immune-deficiency syndrome[title/abstract] OR ((acquired immun*) AND (deficiency syndrome[title/abstract])) OR Sexually Transmitted Diseases[Mesh]

OR sexually transmitted[title/abstract] OR Syphilis[Mesh] OR syphilis[title/abstract]) AND (Homosexuality, Male[Mesh] OR Bisexuality[Mesh] OR Transsexualism[Mesh] OR homosexual*[title/abstract] OR gay[title/abstract] OR homosexual*[title/abstract] OR MSM[tw] OR "men who have sex with men"[title/abstract] OR "same-sex"[title/abstract] OR queer[title/abstract] OR bisexual[title/abstract] OR transgender[title/abstract] OR transsexual[title/abstract] OR transexual[title/abstract]) AND ((tailor*[title/abstract] OR targeted[title/abstract] OR targetted[title/abstract] OR individualised[title/abstract] OR individualized[title/abstract] OR interactive*[title/abstract] OR inter-active*[title/abstract]) AND (hyperlink*[title/abstract] OR hypermedia[title/abstract] OR Internet[title/abstract] OR on-line[title/abstract] OR online[title/abstract] OR web[title/abstract] OR web-based[title/abstract] OR website[title/abstract] OR WWW[title/abstract] OR WWW-based[title/abstract] OR net-based[title/abstract] OR Internet[Mesh]))

PICO Question 12: Are sex venue-based outreach strategies effective to decrease risky sexual behaviour and increase uptake of HIV testing among MSM and transgender people?

Search criteria:

(randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials [mh] OR ("clinical trial" [tw]) OR ((singl* [tw] OR doubl* [tw] OR trebl* [tw] OR tripl* [tw]) AND (mask* [tw] OR blind* [tw])) OR (placebos [mh] OR placebo* [tw] OR random* [tw] OR research design [mh:noexp] OR comparative study [mh] OR evaluation studies [mh] OR follow-up studies [mh] OR prospective studies [mh] OR control* [tw] OR prospectiv* [tw] OR volunteer* [tw]) OR non-randomi*[tw] OR before after study[tw] OR time series[tw] OR case control[tw] OR prospective cohort[tw] OR retrospective cohort[tw] OR cross-section*[tw] OR prospective[tw] OR retrospective[tw] OR research design [mh:noexp] OR comparative study[mh] OR evaluation studies[mh] OR follow-up studies[mh] OR prospective studies[mh] OR control*[tw] OR prospectiv*[tw] OR volunteer*[tw] OR longitud*[tw] OR descripti*[title/abstract] OR study[title/abstract] OR evaluat*[title/abstract] OR pre-post[tw] OR (pre-test[tw] AND post-test[tw]) NOT (animals [mh] NOT human [mh])) AND (HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR ((acquired immun*) AND (deficiency syndrome[title/abstract])) HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immuno-deficiency syndrome[title/abstract] OR ((acquired

immun*) AND (deficiency syndrome[title/abstract])) OR Sexually Transmitted Diseases[Mesh] OR sexually transmitted[title/abstract] OR Syphilis[Mesh] OR syphilis[title/abstract]) AND (Homosexuality, Male[Mesh] OR Bisexuality[Mesh] OR Transsexualism[Mesh] OR homosexual*[title/abstract] OR gay[title/abstract] OR homosexual*[title/abstract] OR MSM[tw] OR "men who have sex with men"[title/abstract] OR "same-sex"[title/abstract] OR queer[title/abstract] OR bisexual[title/abstract] OR transgender[title/abstract] OR transsexual[title/abstract] OR transexual[title/abstract] AND (Bathhouse*[title/abstract] OR bath house*[title/abstract] OR bathhouse*[title/abstract] OR sex club*[title/abstract] OR sauna*[title/abstract] OR public sex environment*[title/abstract] OR PSE[title/abstract] OR PSEs[title/abstract] OR commercial sex environment*[title/abstract] OR CSE[title/abstract] OR CSEs[title/abstract] OR sex facilitating business*[title/abstract] OR SFB[title/abstract] OR SFBs[title/abstract] OR sex venue*[title/abstract] OR sex on premises[title/abstract])

PICO Question 13: Are social marketing strategies effective to increase uptake of HIV/STI testing and HIV services among MSM and transgender people?

Search criteria:

(randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials [mh] OR ("clinical trial" [tw]) OR ((singl* [tw] OR doubl* [tw] OR trebl* [tw] OR tripl* [tw]) AND (mask* [tw] OR blind* [tw])) OR (placebos [mh] OR placebo* [tw] OR random* [tw] OR research design [mh:noexp] OR comparative study [mh] OR evaluation studies [mh] OR follow-up studies [mh] OR prospective studies [mh] OR control* [tw] OR prospectiv* [tw] OR volunteer* [tw]) OR non-randomi*[tw] OR before after study[tw] OR time series[tw] OR case control[tw] OR prospective cohort[tw] OR retrospective cohort[tw] OR cross-section*[tw] OR prospective[tw] OR retrospective[tw] OR research design [mh:noexp] OR comparative study[mh] OR evaluation studies[mh] OR follow-up studies[mh] OR prospective studies[mh] OR control*[tw] OR prospectiv*[tw] OR volunteer*[tw] OR longitud*[tw] OR descripti*[title/abstract] OR study[title/abstract] OR evaluat*[title/abstract] OR pre-post[tw] OR (pre-test[tw] AND post-test[tw]) NOT (animals [mh] NOT human [mh])) AND (HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immuno-deficiency syndrome[title/abstract] OR acquired immune-deficiency syndrome[title/abstract] OR ((acquired immun*) AND (deficiency syndrome[title/abstract])) HIV Infections[MeSH] OR HIV[MeSH] OR hiv[title/abstract] OR hiv-1*[title/abstract] OR hiv-2*[title/abstract] OR hiv1[title/abstract] OR hiv2[title/abstract] OR hiv infect*[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immunodeficiency virus[title/abstract] OR human immuno-deficiency virus[title/abstract] OR human immune-deficiency virus[title/abstract] OR ((human immun*) AND (deficiency virus[title/abstract])) OR acquired immunodeficiency syndrome[title/abstract] OR acquired immunodeficiency syndrome[title/abstract] OR acquired immuno-deficiency syndrome[title/abstract] OR acquired immune-deficiency syndrome[title/abstract] OR ((acquired immun*) AND (deficiency syndrome[title/abstract])) OR Sexually Transmitted Diseases[Mesh] OR sexually transmitted[title/abstract] OR Syphilis[Mesh] OR syphilis[title/abstract]) AND

(Homosexuality, Male[Mesh] OR Bisexuality[Mesh] OR Transsexualism[Mesh] OR homosexual*[title/abstract] OR gay[title/abstract] OR homosexual*[title/abstract] OR MSM[tw] OR "men who have sex with men"[title/abstract] OR "same-sex"[title/abstract] OR queer[title/abstract] OR bisexual[title/abstract] OR transgender[title/abstract] OR transsexual[title/abstract] OR transexual[title/abstract]) AND (Social Marketing[Mesh] OR social marketing[title/abstract] OR mass media[title/abstract] OR (marketing[title/abstract] AND campaign[title/abstract]) OR 4Ps[title/abstract] OR 4P[title/abstract] OR marketing mix[title/abstract] OR audience research[title/abstract] OR segmentation[title/abstract] OR mass communication[title/abstract] OR (multimedia[title/abstract] AND marketing[title/abstract]) OR promotional[title/abstract])

Annex 4: GRADE notation

Grade Methodology Notation	Interpretation	Language used in the Guidelines
Strong recommendation for	The panel concluded that the availability and quality of relevant scientific evidence, together with data on cost and feasibility issues, and community preferences and values, were enough to categorically support the intervention under review.	An intervention is recommended (or We recommend....).
Strong recommendation against	The panel concluded that the availability and quality of relevant scientific evidence, together with data on cost and feasibility issues, and community preferences and values, were enough to categorically recommend against the intervention under review.	An intervention is not recommended (We recommend against.....).
Conditional recommendation for	The panel concluded that the availability and quality of relevant scientific evidence, together with data on cost and feasibility issues, and community preferences and values, were not enough to categorically support the intervention under review. However, benefits may outweigh costs/risks, and this intervention should be considered in light of locally relevant needs, resources and priorities.	An intervention is suggested (or We suggest.....).
Conditional recommendation against	The panel concluded that the availability and quality of relevant scientific evidence, together with data on cost and feasibility issues, and community preferences and values, were not enough to categorically recommend against the intervention under review. However, costs/risks may outweigh benefits, and the decision on whether or not to implement it should be made in light of locally relevant needs, resources and priorities, particularly if better interventions are not available.	An intervention is not suggested (or We suggest against.....).

Annex 5: GRADE tables

PICO 1: Should consistent condom use vs. no condom use be used in MSM and transgender populations?

Author(s): Kelika Konda, Elie Akl, Carlos Caceres

Date: 2010-11-02

Question: Should Consistent condom use vs. No condom use be used in MSM and transgender populations?

Settings: Community Settings

Bibliography: **Included articles:** Detels R, English P, Visscher BR, Jacobson L, Kingsley LA, Chmiel JS, et al. Seroconversion, sexual activity, and condom use among 2915 HIV seronegative men followed for up to 2 years. *J Acquir Immune Defic Syndr* 1989;2(1):77-83. DiFranceisco W, Ostrow DG, Chmiel JS. Sexual adventurousness, high-risk behavior, and human immunodeficiency virus-1 seroconversion among the Chicago MACS-CCS cohort, 1984 to 1992. A case-control study. *Sex Transm Dis* 1996;23(6):453-60. Golden MR, Stekler J, Hughes JP, Wood RW. HIV serotyping in men who have sex with men: is it safe? *J Acquir Immune Defic Syndr*. Oct 1 2008;49(2):212-218. Jin F, Crawford J, Prestage GP, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. *Aids*. Jan 14 2009;23(2):243-252. Marks G, Millett GA, Bingham T, Lauby J, Murrill CS, Stueve A. Prevalence and Protective Value of Serotyping and Strategic Positioning Among Black and Latino Men Who Have Sex With Men. *Sex Transm Dis*. Jan 14 2010. **Excluded articles:** Ginzburg HM, Fleming PL, Miller KD. Selected public health observations derived from Multicenter AIDS Cohort Study. *J Acquir Immune Defic Syndr* 1988;1(1):2-7. (no relevant data) Kingsley LA, Detels R, Kaslow R, Polk BF, Rinaldo CR, Jr., Chmiel J, et al. Risk factors for seroconversion to human immunodeficiency virus among male homosexuals. Results from the Multicenter AIDS Cohort Study. *Lancet* 1987;1(8529):345-9. (No relevant data) Ostrow DG, DiFranceisco WJ, Chmiel JS, Wagstaff DA, Wesch J. A case-control study of human immunodeficiency virus type 1 seroconversion and risk-related behaviors in the Chicago MACS/CCS Cohort, 1984-1992. *Multicenter AIDS Cohort Study. Coping and Change Study*. *Am J Epidemiol* 1995;142(8):875-83. (No relevant data) Pinkerton, S.D. and P.R. Abramson. 1997. "Effectiveness of condoms in preventing HIV transmission." *Social Science & Medicine* 44(9): 1,303-1,312. (Data on heterosexuals only) Samuel MC, Hessel N, Shiboski S, Engel RR, Speed TP, Winkelstein W, Jr. Factors associated with human immunodeficiency virus seroconversion in homosexual men in three San Francisco cohort studies, 1984-1989. *J Acquir Immune Defic Syndr* 1993;6(3):303-12. (No relevant data) Sethi G, Holden BM, Gaffney J, Greene L, Ghani AC, Ward H. HIV, sexually transmitted infections, and risk behaviours in male sex workers in London over a 10 year period. *Sex Transm Infect* 2006;82(5):359-63. (Prevalence data only) Strathdee SA, Martindale SL, Cornelisse PG, Miller ML, Craib KJ, Schechter MT, et al. HIV infection and risk behaviours among young gay and bisexual men in Vancouver. *Cmaj* 2000;162(1):21-5. (No relevant data) Valle SL. Sexually transmitted diseases and the use of condoms in a cohort of homosexual men followed since 1983 in Finland. *Scand J Infect Dis* 1988;20(2):153-61. (No relevant data) Vittinghoff E, Douglas J, Judson F, McKirnan D, MacQueen K, Buchbinder SP. Per-contact risk of human immunodeficiency virus transmission between male sexual partners. *Am J Epidemiol* 1999;150(3):306-11. (No relevant data) Van der Bij AK, Kolader ME, de Vries HJ, Prins M, Coutinho RA, Dukers NH. Condom use rather than serotyping explains differences in HIV incidence among men who have sex with men. *J Acquir Immune Defic Syndr* 2007;45(5):574-80. (No relevant data) van de Ven P, Campbell D, Kippax S, Knox S, Prestage G, Crawford J, et al. Gay men who engage repeatedly in unprotected anal intercourse with casual partners: the Sydney Men and Sexual Health Study. *Int J STD AIDS* 1998;9(6):336-40. (HIV may be prevalent) Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev*. 2002;(1):CD003255. Review. (Data on heterosexual transmission only)

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							Consistent condom use	No condom use	Relative (95% CI)	Absolute		
HIV transmission (follow-up 1 years)												
5 ¹	observational study	no serious limitations ²	no serious inconsistency ³	no serious indirectness ⁴	no serious imprecision	strong association ^{5,6}	23/2168 (1.1%)	100/1726 (5.8%)	RR 0.36 (0.2 to 0.67) ⁷	37 fewer per 1000 (from 19 fewer to 46 fewer)	MODERATE	CRITICAL
								1.7%		10 fewer per 1,000		

								9.0%		57 fewer per 1,000		
STD transmission (follow-up 1 years; Culture or APTIMA Combo 2 (gonorrhea and chlamydia)⁸)												
1 ⁹	observational study	no serious limitations	no serious inconsistency	no serious indirectness ⁴	no serious imprecision	none	601/3859 (15.6%)	831/3088 (26.9%)	RR 0.58 (0.54 to 0.62)	113 fewer per 1000 (from 102 fewer to 124 fewer)	LOW	IMPORTANT
								5.7%		23 fewer per 1,000		
								10.4%		43 fewer per 1,000		
Quality of Life - not measured												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT

¹ The 5 included studies were comprised of 8,827 participants.

² There is no appropriate handling of confounding, but the adjusting for the confounding factors would likely increase the effect of the intervention. In Detels 1989 the authors state: "The proportion of men reporting more than eight partners declined from 69% at visit 2 to 22% at visit 5 among men using condoms with no partners, whereas those proportions remained the same in the groups using condoms with some or all of their partners." In Difranceisco 1996, the atuhors comment about the possibility of an interaction between safer (low risk) receptive anal and one or more other behavioral factors (for example, multiple partners, drug use) that could possibly promote improper use of condoms, condom breakage, or both.

³ I² is equal to 0%, we are not rating down for inconsistency. If we exclude the three studies that include inconsistent condom use the pooled RR becomes 0.32 [0.15, 0.67] and the I² is 0%.

⁴ We did not rate down for indirectness of outcome because we assumed that reduced HIV and STI transmission (the outcome for which data is available) would translate into reduced HIV and STI related morbidity and mortality (the outcomes of interest).

⁵ The effect size of 0.36 (and its upper confidence interval of 0.67) indicate a large effect size.

⁶ There is an apparent dose response effect if condoms are used more consistently and with more partners, especially if the HIV status of the partners are known. The effectiveness of condoms increases from not having anal sex, to having only condom protected anal sex, to having unprotected anal sex only with HIV negative partners, to having unprotected anal sex with HIV positive partners (Jin, 2009; Marks 2010).

⁷ If we exclude the three studies that include inconsistent condom use (Golden 2008, Jin 2009, Marks 2010), the pooled RR becomes 0.32 [0.15, 0.67].

⁸ STD was defined as bacterial STDs (GC and CT) or early syphilis.

⁹ This study is Golden 2008, which included 6947 MSM from 11,483 clinic visits.

PICO 2a: Should testing and counseling vs the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Author(s): Eddy Segura, Carlos Cáceres & Elie Akl

Date: November 10th, 2010

Question: VCT vs standard health information for HIV prevention among MSM and transgender populations ¹

Settings: low and middle income countries²

Bibliography: Included articles: The Voluntary HIV-1 Counseling and Testing Efficacy Study Group. Efficacy of voluntary HIV-1 counseling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: a randomized trial. Lancet 2000; 356: 103–12. Excluded articles: We did not include two observational studies assessing the same outcome given they provide a lower quality of evidence (i.e. observational studies): Matovu JK, Gray RH, Makumbi F, Wawer MJ, Serwadda D, Kigozi G, Sewankambo NK, Nalugoda F. Voluntary HIV counseling and testing acceptance, sexual risk behavior and HIV incidence in Rakai, Uganda. AIDS. 2005 Mar 25;19(5):503-11; Arthur G, Nduba V, Forsythe S, Mutemi R, Odhiambo J, Gilks C. Behaviour change in clients of health centre-based voluntary HIV counselling and testing services in Kenya. Sex Transm Infect. 2007 Dec;83(7):541-6.

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							VCT	standard health information	Relative (95% CI)	Absolute		
Reported unprotected intercourse with non-primary partner												
1	randomized trials	serious ³	no serious inconsistency	serious ⁴	no serious imprecision	none	123/768 (16%)	156/766 (20.4%)	RR 0.79 (0.63 to 0.97)	43 fewer per 1000 (from 6 fewer to 75 fewer)	LOW	CRITICAL
Timeliness of management - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		CRITICAL
Anxiety, unnecessary tests-interventions - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT
Discrimination - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT

¹ We have identified only one randomized trial comparing the effect of voluntary counseling and testing (VCT) to that of the provision of standard health information on the reported unprotected intercourse, a surrogate outcome (The VCT Efficacy Group, 2000). VCT was based on the US Centers for Disease Control and Prevention's client-centered HIV-1 counseling model. This model includes personalized risk assessment, development of a personalized risk reduction plan for each client, and is ideal for promoting cultural specificity.

² The study was carried out at three sites: Nairobi, Kenya; Dares Salaam, Tanzania ; and Port of Spain, Trinidad

³ Allocation was concealed. Analysis was by intention to treat. Study did not stop early for benefit. However, follow-up was 81.4% at 7 months.

⁴ Serious indirectness since the outcome reported is unprotected intercourse as an intermediate outcome for HIV transmission. In addition, the study population was composed by heterosexual men

⁵ We did not identify any study reporting on the timeliness of management or on the unintended effects of VCT (i.e., anxiety, unnecessary testing, and interventions).

PICO 2b: Should community level programs for HIV testing, linking to care, and treatment vs no such programs be used for HIV prevention among MSM and transgender populations?

Author(s): Eddy Segura, Carlos Caceres and Elie Akl

Date: November 10th, 2010

Question: Should community level programs for HIV testing, linking to care, and treatment vs no such programs be used for HIV prevention among MSM and transgender populations?¹

Settings: community-level

Bibliography: Included articles: Centers for Disease Control and Prevention (CDC). Expanded HIV testing and trends in diagnoses of HIV infection - District of Columbia, 2004-2008. MMWR Morb Mortal Wkly Rep. 2010 Jun 25;59(24):737-41. Excluded articles (and reasons): Das-Douglas M et al. Decreases in community viral load are associated with a reduction in new HIV diagnoses in San Francisco. Seventeenth Conference on Retroviruses and Opportunistic Infections, San Francisco, abstract 33. 2010. (Ecological study); Castel A et al. Monitoring the impact of expanded HIV testing in the District of Columbia using population-based HIV/AIDS surveillance data. Seventeenth Conference on Retroviruses and Opportunistic Infections, San Francisco, abstract 34, 2010. (Ecological study); Montaner J et al. Association of expanded HAART coverage with a decrease in new HIV diagnoses, particularly among injection drug users in British Columbia, Canada. 17th Conference on Retroviruses and Opportunistic Infections, San Francisco, abstract 88LB, 2010. (Ecological study); Rudy BJ, Murphy DA, Harris R, Muenz L, Ellen J. "Patient-Related Risks for Non-Adherence to Antiretroviral Therapy among HIV-Infected Youth in the United States: A Study of Prevalence and Interactions." AIDS Patient Care and STDs, March 2009, 23 (3):185-194. (Outcome is adherence to ARV, all study participants were already HIV tested before the study); Craw JA, Gardner LI, Marks G, Rapp RC, Bosshart J, Duffus WA, Rossman A, Coughlin SL, Gruber D, Safford LA, Overton J, Schmitt K. "Brief strengths-based case management promotes entry into HIV medical care: results of the antiretroviral treatment access study-II." J Acquir Immune Defic Syndr. 2008 Apr 15;47(5):597-606. (Weak definition of access/linked to care: a visit within the next 6 months of the intervention); Reed JB, Hanson D, McNaghten AD, Bertolli J, Teshale E, Gardner L, Sullivan P; "HIV testing factors associated with delayed entry into HIV medical care among HIV-infected persons from eighteen states, United States, 2000-2004." AIDS Patient Care STDs. 2009 Sep;23(9):765-73. (Only identifies risk factors for delay to entry into HIV care and none of them were related to time of testing but to characteristics of the user)

Quality assessment							Summary of findings				Importance	
							No of patients		Effect			Quality
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	tlc-plus	control	Relative (95% CI)	Absolute		
Immunologic conditions at entry to the health care system (Better indicated by higher values of CD4 or mean CD4 at population level)												
1	observational studies	very serious	no serious inconsistency	no serious indirectness	no serious imprecision	none	0	0	-	not pooled	VERY LOW	CRITICAL
Timeliness of management (Better indicated by lower values of proportion of "late testers" or people with AIDS whose HIV diagnosis occurred within the last 12 months of their AIDS diagnosis)												
1	observational studies	very serious	no serious inconsistency	no serious indirectness	no serious imprecision	none	0	0	-	not pooled	VERY LOW	CRITICAL
Anxiety, unnecessary tests-interventions - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT
Discrimination - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT

¹ The intervention studied is "TLC-plus" which stands for "testing, linkage to care plus treatment" and encompasses active promotion of routine HIV testing, improved referral for positives and initiation of treatment according to current guidelines. CDC, MMWR 2010. Methods: Secondary analysis of monitoring and evaluation data (surveillance). Aggregate

indicators for years 2004, 2006 and 2008 (partially) were included, reported and analyzed. Participants: District of Columbia residents, United States. Interventions: CDC's 2006 recommendations for routine, voluntary HIV screening in health-care settings. No comparator. Outcomes: Rate of newly diagnosed acquired immunodeficiency syndrome (AIDS) cases: Decreased consistently, from 164 cases per 100,000 in 2004 to 137 in 2007 and 107 in 2008. Proportion of the population that had been tested for HIV within the past 12 months: Increased from 15% to 19%. Overall proportion of persons newly diagnosed with HIV who had a CD4 count within 3 months of diagnosis increased, from 62% in 2004 to 64% in 2008. There is a TLC-Plus trial in preparation (HPTN 065: TLC-Plus: A Study to Evaluate the Feasibility of an Enhanced Test, Link to Care, Plus Treat Approach for HIV Prevention in the United States).

PICO 3a: Should periodic screening (using NAAT in urine samples) for asymptomatic urethral Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using NAAT in urine samples) for asymptomatic urethral Neisseria gonorrhoea infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Martin et al, 2000; and Moncada et al, 2009

Quality assessment							Summary of findings			Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of studies (patients)	Effect per 1000 (Assumed outcome with 5% (real-life), 10% and 20% (hypothetical) prevalence scenarios) ¹	Quality	
True positives (Patients correctly classified as having urethral Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	2 (1159)	Prev 5%: 40 Prev 10%: 79 Prev 20%: 158	LOW	CRITICAL
True negatives (Patients correctly classified as not having urethral Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	2 (1159)	Prev 5%: 940 Prev 10%: 891 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having urethral Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	2 (1159)	Prev 5%: 10 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having urethral Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	2 (1159)	Prev 5%: 10 Prev 10%: 21 Prev 20%: 42	LOW	CRITICAL

Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)		-	IMPORTANT

¹Prevalence of infection by Neisseria gonorrhoea in asymptomatic MSM estimated to be 0.5% in Peru (CPOS Study, ongoing) and 3% in the US (Moncada et al, 2009). Prevalence of 10% and 20% are hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Martin et al, 2000. Sensitivity = 42.3% & Specificity = 99.9% (Men). Moncada et al, 2009. Sensitivity = 71%-86% (average=79%) & Specificity =99% (MSM). For the purposes of TP, TN, FP and FN rates estimation, Sensitivity and Specificity from Moncada’s study are considered.

³ Study population composed by asymptomatic men without specification of sexual orientation in Martin’s study. MSM in Moncada’s study. Moreover, outcome data used in all studies is related to test accuracy data instead of clinical outcomes.

PICO Question 3b: Should periodic screening (using NAAT in rectal swabs samples) for asymptomatic rectal Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using NAAT in rectal swabs samples) for asymptomatic rectal Neisseria gonorrhoea infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Schachter et al, 2008; and Moncada et al, 2009

Quality assessment							Summary of findings			Importance
							No of studies (patients)	Effect per 1000 (Assumed outcome with 10% (real-like), 5% and 20% (hypothetical) prevalence scenarios) ¹	Quality	
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations				
True positives (Patients correctly classified as rectal Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	2 (876)	Prev 5%: 44 Prev 10%: 87 Prev 20%: 174	LOW	CRITICAL
True negatives (Patients correctly classified as not having rectal Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	2 (876)	Prev 5%: 940 Prev 10%: 891 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having rectal Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	2 (876)	Prev 5%: 10 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having rectal Neisseria gonorrhoea infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	2 (876)	Prev 5%: 6 Prev 10%: 13 Prev 20%: 26	LOW	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)		-	IMPORTANT

¹Prevalence of rectal infection by Neisseria gonorrhoea in asymptomatic MSM estimated to be 10% in Peru (CPOS Study, ongoing) and 8% in the US (Moncada et al, 2009).

Prevalence of 5% and 20% are hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Moncada et al, 2009 [Sensitivity = 67%-78 (average= 73%) & Specificity =99%, MSM]. Schachter et al, 2008 [Sensitivity = 80%-93% (average=87%) and Specificity = 99%, MSM].

For the purposes of TP, TN, FP and FN rates estimation, the results from Schachter's study are considered because it yields the highest sensitivity.

³ Serious indirectness since outcome data used in all studies is related to test accuracy data instead of clinical outcomes.

PICO 3c: Should periodic screening (using NAAT in urine sample) for asymptomatic urethral Chlamydia trachomatis infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using NAAT in urine sample) for asymptomatic urethral Chlamydia trachomatis infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Van der Pol et al, 2000; and Moncada et al, 2009

Quality assessment							Summary of findings			Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of studies (patients)	Effect per 1000 (Assumed outcome with 1%, 5% (real-life), 10% and 20% (hypothetical) prevalence scenarios) ¹	Quality	
True positives (Patients correctly classified as having urethral Chlamydia trachomatis infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	2 (1161)	Prev 1%: 10 Prev 5%: 50 Prev 10%: 99 Prev 20%: 198	LOW	CRITICAL
True negatives (Patients correctly classified as not having urethral Chlamydia trachomatis infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	2 (1161)	Prev 1%: 980 Prev 5%: 940 Prev 10%: 891 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having urethral Chlamydia trachomatis infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	2 (1161)	Prev 1%: 10 Prev 5%: 10 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having urethral Chlamydia trachomatis infection)										
2	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	2 (1161)	Prev 1%: 0 Prev 5%: 0 Prev 10%: 1 Prev 20%: 2	LOW	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)		_	IMPORTANT

¹Prevalence of infection by Chlamydia trachomatis in asymptomatic MSM estimated to be 1.1% in Peru (CPOS Study, ongoing) and 4% in the US (Moncada et al, 2009). Prevalences of 10% and 20% are hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Moncada et al, 2009: Sensitivity = 93.8% and Specificity = 99.7% (MSM population). Van der Pol et al, 2000: 90.3% sensitivity and 98.4% specificity (Men). In both cases, urine samples were used. For the purposes of TP, TN, FP and FN rates estimation, average values of Sensitivity (99%) and Specificity (99%) across these two studies were used.

³ Study population composed by asymptomatic men without specification of sexual orientation in Van der Pol's study. Moreover, outcome data used in all studies is related to test accuracy data instead of clinical outcomes.

PICO 3d: Should periodic screening (using NAAT in rectal swabs samples) for asymptomatic rectal Chlamydia trachomatis infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using NAAT in rectal swabs samples) for asymptomatic rectal Chlamydia trachomatis infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Schachter et al, 2008; Ota et al, 2009; and Moncada et al, 2009

Quality assessment							Summary of findings			Importance
							No of studies (patients)	Effect per 1000 (Assumed outcome with 10%, 20% (real-life) and 5% (hypothetical) prevalence scenarios) ¹	Quality	
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations				
True positives (Patients correctly classified as having rectal Chlamydia trachomatis infection)										
3	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	3 (1124)	Prev 5%: 49 Prev 10%: 97 Prev 20%: 194	LOW	CRITICAL
True negatives (Patients correctly classified as not having rectal Chlamydia trachomatis infection)										
3	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	3 (1124)	Prev 5%: 940 Prev 10%: 892 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having rectal Chlamydia trachomatis infection)										
3	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	3 (1124)	Prev 5%: 10 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having rectal Chlamydia trachomatis infection)										
3	observational studies ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	3 (1124)	Prev 5%: 1 Prev 10%: 3 Prev. 20%: 6	LOW	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)		-	IMPORTANT

¹Prevalence of infection by Chlamydia trachomatis in asymptomatic MSM estimated to be 19% in Peru (CPOS Study, ongoing) and 8% in the US (Moncada et al, 2009). Prevalence of 5% is a hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Moncada et al, 2009 [Sensitivity = 44%-71% (average=58%) and Specificity = 99%, MSM]. Schachter et al, 2008 [Sensitivity = 50%-94% (average=72%) and Specificity = 99%, MSM]. Ota et al 2009 [Sensitivity 95-100% (average=97%); specificity 99%, Men]. For the purposes of TP, TN, FP and FN rates estimation, values from Ota's study are considered (Sensitivity 97% and Specificity 99%)

³ Study population composed by asymptomatic men without specification of sexual orientation in Ota's study. Moreover, outcome data used in all studies is related to test accuracy data instead of clinical outcomes

PICO 3e: Should periodic screening (using culture) for asymptomatic urethral Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using culture) for asymptomatic urethral Neisseria gonorrhoea infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Martin et al, 2000

Quality assessment							Summary of findings			Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of studies (patients)	Effect per 1000 (Assumed outcome with 5% (real-life), 10% and 20% (hypothetical) prevalence scenarios) ¹	Quality	
										True positives (Patients correctly classified as having urethral Neisseria gonorrhoea infection)
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	1 (714)	Prev 5%: 23 Prev 10%: 46 Prev 20%: 92	LOW	CRITICAL
True negatives (Patients correctly classified as not having urethral Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	1 (714)	Prev 5%: 941 Prev 10%: 891 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having urethral Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	1 (714)	Prev 5%: 10 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having urethral Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	1 (714)	Prev 5%: 27 Prev 10%: 54 Prev 20%: 108	LOW	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)	-	-	IMPORTANT

¹ Prevalence of infection by Neisseria gonorrhoea in asymptomatic MSM estimated to be 0.5% in Peru (CPOS Study, ongoing) and 3% in the US (Moncada et al, 2009). Prevalence of 5% and 10% are hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Martin et al, 2000. Sensitivity = 46% & Specificity = 100% (Men)

³ Study population composed by asymptomatic men without specification of sexual orientation in Martin's study. Moreover, outcome data used is related to test accuracy data instead of clinical outcomes.

PICO 3f: Should periodic screening (using culture) for asymptomatic rectal Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Periodic screening (using culture) for asymptomatic rectal Neisseria gonorrhoea infection detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Schachter et al, 2008.

Quality assessment							Summary of findings			Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of studies (patients)	Effect per 1000 (Assumed outcome with 10% (real-life), 5% and 20% (hypothetical) scenarios) ¹	Quality	
True positives (Patients correctly classified as having rectal Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from treatment and fewer complications.	1 (205)	Prev 5%: 16 Prev 10%: 32 Prev 20%: 64	LOW	CRITICAL
True negatives (Patients correctly classified as not having rectal Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	benefit from reassurance and fewer complications.	1 (205)	Prev 5%: 940 Prev 10%: 891 Prev 20%: 792	LOW	CRITICAL
False positives (Patients incorrectly classified as having rectal Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	harm from unnecessary treatment.	1 (205)	Prev 5%: 9 Prev 10%: 9 Prev 20%: 8	LOW	CRITICAL
False negatives (Patients incorrectly classified as not having rectal Neisseria gonorrhoea infection)										
1	observational study ²	no serious limitations	no serious inconsistency	serious indirectness ³	no serious imprecision	detriment from delayed diagnosis.	1 (205)	Prev 5%: 34 Prev 10%: 68 Prev 20%: 032	LOW	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)	-	-	IMPORTANT

¹ Prevalence of infection by Neisseria gonorrhoea in asymptomatic MSM estimated to be 10% in Peru (CPOS Study, ongoing) and 8% in the US (Moncada et al, 2009). Prevalence of 5% and 20% are hypothetical scenarios used to compute alternative values of TP, TN, FP and FN rates.

² Schachter et al, 2008. Sensitivity = 32% & Specificity = 100% (MSM)

³ Outcome data used is related to test accuracy data instead of clinical outcomes.

PICO 4: Does provider-initiated serologic screening for syphilis increase case detection among MSM and transgender people?

Authors: Eddy Segura, Carlos Cáceres, Jeffrey Klausner & Elie Akl.

Date: November 10th, 2010

Question: Provider-initiated serologic screening for syphilis increase case detection versus no such screening among MSM and transgender populations

Settings: High income countries

Bibliography: Larsen et al, 1995.

Quality assessment							Summary of findings			Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of studies (patients)	Effect per 1000 (Assumed outcome with 5% (real-life), 10% and 20% (hypothetical) scenarios) ¹	Quality	
True positives (Patients correctly classified as having syphilis)										
CDC studies ²	observational studies ²	not serious limitations	not serious inconsistency	serious indirectness ³	not serious imprecision	benefit from treatment and fewer complications.	CDC studies (not reported)	Prev 5%: 49 Prev 10%: 98 Prev 20%: 196	MODERATE	CRITICAL
True negatives (Patients correctly classified as not having syphilis)										
CDC studies ²	observational studies ²	not serious limitations	not serious inconsistency	serious indirectness ³	not serious imprecision	benefit from reassurance and fewer complications.	CDC studies (not reported)	Prev 5%: 931 Prev 10%: 882 Prev 20%: 784	MODERATE	CRITICAL
False positives (Patients incorrectly classified as having syphilis)										
CDC studies ²	observational studies ²	not serious limitations	not serious inconsistency	serious indirectness ³	not serious imprecision	harm from unnecessary treatment.	CDC studies (not reported)	Prev 5%: 19 Prev 10%: 18 Prev 20%: 16	MODERATE	CRITICAL
False negatives (Patients incorrectly classified as not having syphilis)										
CDC studies ²	observational studies ²	not serious limitations	not serious inconsistency	serious indirectness ³	not serious imprecision	detriment from delayed diagnosis.	CDC studies (not reported)	Prev 5%: 1 Prev 10%: 2 Prev 20%: 4	MODERATE	CRITICAL
Complications – not reported										
0	-	-	-	-	-	none	0/0 (0%)			IMPORTANT

¹ Prevalence of syphilis infection in asymptomatic MSM estimated to be 9% in China (Gao et al, 2009) and 11% in Peru (Snowden et al, 2010). Prevalence of 5% and 20% are hypothetical scenarios proposed to compute alternative values of TP, TN, FP and FN rates.

² As referred in Larsen SA et al (1995) from studies conducted by CDC without specification of the type of population. Sensitivity = 86% (primary) and 98% (secondary and latent) and Specificity = 98%. TP, TN, FP and FN rates computed using Sensitivity=98% since the test is aimed to detect asymptomatic syphilis infection

³ Study population composition not specified. Moreover, outcome data used is related to test accuracy data instead of clinical outcomes.

PICO 6: Should individual level behavioral change interventions vs. no such interventions be used for HIV/STI prevention in MSM and transgender populations?

Author(s): Kelika Konda, Elie Akl, Carlos Caceres

Date: 2010-11-02

Question: Should Individual level behavioral change intervention for HIV/STI prevention vs no such interventions be used in MSM and transgender populations?¹

Settings: Outpatient clinic

Bibliography: Included Studies: Dilley JW, Woods WJ, Sabatino J, et al. Changing sexual behavior among gay male repeat testers. J Acquir Immune Defic Syndr 2002; 30:177–186. Gold RS, Rosenthal DA. Examining self-justifications for unsafe sex as a technique of AIDS education: the importance of personal relevance. Intl J STD AIDS 1998;9:208–213. Koblin B. and EXPLORE Study Team. Effects of a behavioural intervention to reduce acquisition of HIV infection among men who have sex with men: the EXPLORE randomised controlled study. Lancet 2004; 364:41–50. Picciano JF, Roffman RA, Kalichman SC, Walker DD. Lowering obstacles to HIV prevention services: Effects of a brief telephone based intervention using motivational enhancement therapy. Ann Behav Med 2007;34(2):177–187. Johnson WD, Diaz RM, Flanders WD, Goodman M, Hill AN, Holtgrave D, Malow R, McClellan WM. Behavioral interventions to reduce risk for sexual transmission of HIV among men who have sex with men. Cochrane Database Syst Rev. 2008 Jul 16;(3):CD001230. Herbst JH, Beeker C, Mathew A, McNally T, Passin WF, Kay LS, et al. The effectiveness of individual-, group-, and community-level HIV behavioral risk-reduction interventions for adult men who have sex with men: a systematic review. Am J Prev Med 2007;32(4 Suppl):S38-67. Excluded Studies: Lau JT, Lau M, Cheung A, Tsui HY. A randomized controlled study to evaluate the efficacy of an Internet-based intervention in reducing HIV risk behaviors among men who have sex with men in Hong Kong. AIDS Care. 2008 Aug;20(7):820-8. (No information available to calculate a measure of association) Morgenstern J, Bux DA Jr, Parsons J, Hagman BT, Wainberg M, Irwin T. Randomized trial to reduce club drug use and HIV risk behaviors among men who have sex with men. J Consult Clin Psychol. 2009 Aug;77(4):645-56. (No information available to calculate a measure of association, just state that the outcome was not significantly different between the intervention and comparison) Picciano JF, Roffman RA, Kalichman SC, et al. A telephone based brief intervention using motivational enhancement to facilitate HIV risk reduction among MSM: a pilot study. AIDS and Behavior 2001; 5(3):251–262. (No information available to calculate a measure of association) Rosser BRS. Evaluation of the efficacy of AIDS education interventions for homosexually active men. Health Education Research 1990; 5(3):299–308. (No information available to calculate a measure of association)

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							Individual level behavioral change intervention for HIV/STI prevention	no such interventions	Relative (95% CI)	Absolute		
Any unsafe sexual behavior (surrogate for HIV and STI infection) (follow-up 2-12 months; Self-report of unprotected anal sex)												
4 ^{2,3}	randomised trials	no serious limitations ⁴	no serious inconsistency ⁵	serious ^{6,7}	no serious imprecision	none	0/0 (0%)	9% ⁸	RR 0.82 (0.64 to 1.05) ^{9,10}	16 fewer per 1000 (from 32 fewer to 4 more)	MODERATE	CRITICAL
								76% ⁸		137 fewer per 1000 (from 274 fewer to 38 more)		
Quality of Life - not measured												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

HIV infection (follow-up 48 months; Elisa with WB confirmation)												
1	randomised trials	no serious limitations	no serious inconsistency	no serious indirectness ¹¹	serious ¹²	none		144/2151 (6.7%) ¹³		12 fewer per 1000 (from 24 fewer to 3 more)	MODERATE	CRITICAL
						115/2144 (5.4%)	1.7% ¹⁴	RR 0.82 (0.64 to 1.05)	3 fewer per 1000 (from 6 fewer to 1 more)			
							9.0% ¹⁴		16 fewer per 1000 (from 32 fewer to 4 more)			

¹ These interventions are based on cognitive behavioral counseling.

² Two of the included studies (Dilley and Gold) tested multiple interventions (in one case 2 interventions and in the other 3 interventions) against a standard of care comparison condition. Two of the interventions, one from each study, were excluded from this analysis as the intervention was not similar to the others under study. The study with two remaining interventions tested were combined for this meta-analysis (Dilley).

³ This 4 studies included 4935 individuals, 2495 in the intervention arms and 2440 in the control arms.

⁴ The dominant study (Koblin 2004) had low risk of bias: allocation was concealed, ITT analysis, about 10-15% loss to follow-up, was not stopped early for benefit, and the outcome was measured via ACASI.

⁵ The I² value is 0%.

⁶ There is indirectness of outcome: we are not confident that a reduction in self reported unsafe sexual behavioral would translate into a decrease in HIV/STI transmission, and even less confident it would translate into a reduction in the outcome of interest, i.e., HIV/STI related morbidity and mortality.

⁷ Additionally all of the included studies were conducted in the developed world and translation to low and middle income countries may be a challenge.

⁸ The control rates for the low and high risk groups are derived from Adam 2009 (Adam PC, de Wit JB, Toskin I, Mathers BM, Nashkoev M, Zablotska I, Lyerla R, Rugg D. Estimating levels of HIV testing, HIV prevention coverage, HIV knowledge, and condom use among men who have sex with men (MSM) in low-income and middle-income countries. *J Acquir Immune Defic Syndr.* 2009 Dec;52 Suppl 2:S143-51). The control rate for the intermediate risk group is derived from Chemnasiri 2010 (Chemnasiri T, Netwong T, Visarutratana S, Varangrat A, Li A, Phanuphak P, Jommaroeng R, Akarasewi P, van Griensven F. Inconsistent condom use among young men who have sex with men, male sex workers, and transgenders in Thailand. *AIDS Educ Prev.* 2010 Apr;22(2):100-9).

⁹ Given that the meta-analysis was dominated by one study (Koblin 2004 provided 85% of the weight), we used a fixed effect model. A sensitivity analysis excluding this study resulted in a consistent effect estimate 0.88 [0.47, 1.66].

¹⁰ In the dominant study (Koblin) the intervention effect was not sustained after 42 months when the control group reached the same level of UAI as the intervention group.

¹¹ This study was conducted in the United States (Koblin 2004).

¹² There is imprecision in this outcome due to the low number of events.

¹³ These %'s use the overall intervention and control totals as the denominator, but the number of people at risk over the course of the study is different.

¹⁴ Based on risk derived from observational studies, For HIV incidence the low value was taken from a study in San Francisco (Scheer S, Kellogg T, Klausner JD, Schwarcz S, Colfax G, Bernstein K, Louie B, Dilley JW, Hecht J, Truong HM, Katz MH, McFarland W. HIV is hyperendemic among men who have sex with men in San Francisco: 10-year trends in HIV incidence, HIV prevalence, sexually transmitted infections and sexual risk behaviour. *Sex Transm Infect.* 2008 Nov;84(6):493-8.), the middle value from Thailand van Griensven F, Varangrat A, Wimonasate W, Tanpradech S, Kladsawad K, Chemnasiri T, Suksripanich O, Phanuphak P, Mock P, Kanggarnruea K, McNicholl J, Plipat T. Trends in HIV Prevalence, Estimated HIV Incidence, and Risk Behavior Among Men Who Have Sex With Men in Bangkok, Thailand, 2003-2007. *J Acquir Immune Defic Syndr.* 2009 Nov 5.) and the high value from Brazil (de Castro CA, Grinsztejn B, Veloso VG, Bastos FI, Pilotto JH, Morgado MG. Prevalence, estimated HIV-1 incidence and viral diversity among people seeking voluntary counseling and testing services in Rio de Janeiro, Brazil. *BMC Infect Dis.* 2010 Jul 28;10:224.)

PICO 8: Should community level behavioral change interventions vs. no interventions be used for HIV/STI prevention in MSM and transgender populations?

Author(s): Kelika Konda, Elie Akl, Carlos Caceres

Date: 2010-11-02

Question: Should Community level Behavioral Change Interventions for HIV Prevention vs No such interventions be used in MSM and transgender populations?¹

Settings: MSM and transgender community outreach (bars, gyms, community centers, etc.)²

Bibliography: **Included Studies:** Amirkhanian YA, Kelly JA, Kabakchieva E, et al. A randomized social network HIV prevention trial with young men who have sex with men in Russia and Bulgaria. *AIDS* 2005;19:1897-1905. Flowers P, Frankis J, Hart G. Evidence and the evaluation of a community-level intervention: research the Gay Men's Task Force. Wat-son J, Platt S, eds. *ResearchingHealth Promotion*. London: Routledge, 2000:102–124. Kegeles SM, Hays RB, Coates TJ. The Mpowerment project: a community-level HIV prevention intervention for young gay men. *Am J Public Health* 1996;86:1129-1136. Kelly JA, St. Lawrence JS, Diaz YE, et al. HIV risk behavior reduction following intervention with key opinion leaders of population: an experimental analysis. *Am J Public Health* 1991;81:168–171. Kelly JA, Murphy DA, Sikkema KJ, et al. Randomised, controlled, community-level HIV-prevention intervention for sexual-risk behavior among homosexual men in US cities. *Lancet* 1997;350: 1500–05. **Reviews consulted:** Johnson WD, Diaz RM, Flanders WD, Goodman M, Hill AN, Holtgrave D, Malow R, McClellan WM. Behavioral interventions to reduce risk for sexual transmission of HIV among men who have sex with men. *Cochrane Database Syst Rev*. 2008 Jul 16;(3):CD001230. Herbst JH, Beeker C, Mathew A, McNally T, Passin WF, Kay LS, et al. The effectiveness of individual-, group-, and community-level HIV behavioral risk-reduction interventions for adult men who have sex with men: a systematic review. *Am J Prev Med* 2007;32(4 Suppl):S38-67. **Excluded Studies:** Jones KT, Gray P, Whiteside YO, Wang T, Bost D, Dunbar E, Foust E, Johnson WD. Evaluation of an HIV prevention intervention adapted for Black men who have sex with men. *Am J Public Health*. 2008 Jun;98(6):1043-50. Epub 2008 Apr 29. (Not an RCT, pre-post comparison only) Miller RL, Klotz D, Eckholdt HM. HIV prevention with male prostitutes and patrons of hustler bars: replication of an HIV preventive intervention. *American Journal of Community Psychology* 1998;26 (1):97–131. (Not an RCT, pre-post comparison only). Elford J, Bolding G, Sherr L. Peer education has no significant impact on HIV risk behaviours among gay men in London. *AIDS* 2001;15 (4):531–537. (No measure of effect).

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							Community level Behavioral Change Interventions for HIV Prevention	No such interventions	Relative (95% CI)	Absolute		
Any unsafe sexual behavior (Surrogate for HIV infection) (follow-up 0-24 months; Self-report of Unprotected Anal Sex)												
5 ³	randomised trials	serious ⁴	no serious inconsistency ⁵	serious ^{6,7}	no serious imprecision	none ⁸	0/0 (0%) ⁹	9% ¹⁰	RR 0.75 (0.51 to 1.09)	23 fewer per 1000 (from 44 fewer to 8 more)	LOW	CRITICAL
								76% ¹⁰		190 fewer per 1000 (from 372 fewer to 68 more)		
HIV/STI Infection - not measured												
0	-	-	-	-	-	none	-	-	-	-		
Quality of Life - not measured												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

¹ These interventions are all based on the theory of diffusion of innovations using popular opinion leaders to influence their peers' behavior. One intervention, Kegeles, include additional elements, such as community mobilization.

² Studies were conducted in the United States (n=3), in the United Kingdom (n=1), and in Russia and Bulgaria (n=1; Amirkhanian).

³ One published study did not include information on the measure of association, but concluded that there was no intervention effect (Elford 2001).

⁴ The major design limitation is the losses to follow-up, which was 36% in the only study that used a cohort. All other studies used time series designs.

⁵ I² is 0% not warranting rating down for inconsistency.

⁶ There is indirectness of outcome: we are not confident that a reduction in self reported unsafe sexual behavioral would translate into a decrease in HIV/STI transmission, and even less confident it would translate into a reduction in the outcome of interest, i.e., HIV/STI related morbidity and mortality.

⁷ There is a potential indirectness related to the adaptation of the intervention to low and middle income country settings.

⁸ One study (Flowers) found dose response with an additional reduction in UAI shown among those receiving the intervention if they had multiple contacts with peer educators vs. those who did not have contact with a peer educator 0.44 (0.23-0.88).

⁹ The total n for the included studies is 3953, 2165 in the intervention arms, 1788 in the comparison arms.

¹⁰ The control rates for the low and high risk groups are derived from Adam 2009 (Adam PC, de Wit JB, Toskin I, Mathers BM, Nashkoev M, Zablotska I, Lye R, Rugg D. Estimating levels of HIV testing, HIV prevention coverage, HIV knowledge, and condom use among men who have sex with men (MSM) in low-income and middle-income countries. *J Acquir Immune Defic Syndr.* 2009 Dec;52 Suppl 2:S143-51). The control rate for the intermediate risk group is derived from Chemnasiri 2010 (Chemnasiri T, Netwong T, Visarutratana S, Varangrat A, Li A, Phanuphak P, Jommaroeng R, Akarasewi P, van Griensven F. Inconsistent condom use among young men who have sex with men, male sex workers, and transgenders in Thailand. *AIDS Educ Prev.* 2010 Apr;22(2):100-9).

PICO 9A: Should serosorting vs. consistent condom use be used in MSM and transgender populations?

Author(s): Caitlin Kennedy

Date: 2010-06-08

Question: Should serosorting vs consistent condom use be used in MSM and transgender populations?¹

Settings:

Bibliography: 1. Golden MR, Stekler J, Hughes JP, Wood RW. HIV serosorting in men who have sex with men: is it safe? J Acquir Immune Defic Syndr. Oct 1 2008;49(2):212-218. 2. Jin F, Crawford J, Prestage GP, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. Aids. Jan 14 2009;23(2):243-252. 3. Marks G, Millett GA, Bingham T, Lauby J, Murrill CS, Stueve A. Prevalence and Protective Value of Serosorting and Strategic Positioning Among Black and Latino Men Who Have Sex With Men. Sex Transm Dis. Jan 14 2010;37(5):325-327.

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							serosorting	consistent condom use	Relative (95% CI)	Absolute		
HIV infection (follow-up mean 1 years)												
3	observational studies	serious ²	no serious inconsistency ³	serious ^{4,5}	no serious imprecision	none	64/3710 (1.7%)	40/3514 (1.1%)	RR 1.79 (1.2 to 2.65) ⁶	9 more per 1000 (from 2 more to 19 more)	VERY LOW	CRITICAL
STI infection (Bacterial STD: urethral or rectal gonorrhea or chlamydial infection or early syphilis)												
1	observational studies	serious ²	no serious inconsistency	serious ^{4,5}	no serious imprecision	none	738/3201 (23.1%) ⁷	601/3859 (15.6%) ⁷	RR 1.61 (1.43 to 1.81) ⁸	95 more per 1000 (from 67 more to 126 more)	VERY LOW	IMPORTANT
Quality of life - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT

¹ In all three studies, serosorting was defined as unprotected anal intercourse with HIV-negative partners only

² Rated down for the possibility of significant confounding by number and types of sex partners.

³ Heterogeneity of results is not significant: I-squared=0.000, Q-statistic=0.368, p=0.832

⁴ Not rated down for indirectness of outcome because we assumed that reduced HIV and STI transmission (the outcomes for which data are available) would translate into reduced HIV and STI related morbidity and mortality (the outcomes of interest).

⁵ Rated down for indirectness because all studies were conducted in high-income settings where HIV testing is widely available compared to low- and middle-income settings, and serosorting relies on frequency and availability of high-quality HIV testing.

⁶ RR converted from OR of 1.804 (95% CI 1.205, 2.702)

⁷ Denominator was clinic visits, not participants, so some participants contributed more than one visit to the analysis; the effect of this on the RR is unknown.

⁸ RR converted from OR of 1.624 (95% CI 1.441, 1.831)

PICO 9B: Should serosorting vs. no condom use be used in MSM and transgender populations?

Author(s): Caitlin Kennedy

Date: 2010-08-26

Question: Should serosorting vs no condom use be used in MSM and transgender populations?¹

Settings:

Bibliography: 1. Golden MR, Stekler J, Hughes JP, Wood RW. HIV serosorting in men who have sex with men: is it safe? J Acquir Immune Defic Syndr. Oct 1 2008;49(2):212-218. 2. Jin F, Crawford J, Prestage GP, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. Aids. Jan 14 2009;23(2):243-252. 3. Marks G, Millett GA, Bingham T, Lauby J, Murrill CS, Stueve A. Prevalence and Protective Value of Serosorting and Strategic Positioning Among Black and Latino Men Who Have Sex With Men. Sex Transm Dis. Jan 14 2010;37(5):325-327.

Quality assessment							Summary of findings				Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	No of patients		Effect			
							serosorting	no condom use	Relative (95% CI)	Absolute		
HIV infection (follow-up mean 1 years)												
3	observational studies	serious ²	no serious inconsistency ³	serious ^{4,5}	no serious imprecision	none ⁶	64/3710 (1.7%)	98/2712 (3.6%)	RR 0.47 (0.26 to 0.84) ⁷	19 fewer per 1000 (from 6 fewer to 27 fewer)	VERY LOW	CRITICAL
STI infection (Bacterial STD: urethral or rectal gonorrhea or chlamydial infection or early syphilis)												
1	observational studies	serious ²	no serious inconsistency	serious ^{4,5}	no serious imprecision	none	738/3201 (23.1%) ⁸	831/3088 (26.9%) ⁸	RR 0.86 (0.78 to 0.93) ⁹	38 fewer per 1000 (from 19 fewer to 59 fewer)	VERY LOW	IMPORTANT
Quality of Life - not reported												
0	-	-	-	-	-	none	0/0 (0%)	0/0 (0%)	-	-		IMPORTANT

¹ In all three studies, serosorting was defined as unprotected anal intercourse with HIV-negative partners only

² Rated down for the possibility of significant confounding by number and types of sex partners.

³ Heterogeneity of results is borderline significant: I-squared=66.233, Q-statistic=5.923, p=0.052.

⁴ Not rated down for indirectness of outcome because we assumed that reduced HIV and STI transmission (the outcomes for which data are available) would translate into reduced HIV and STI related morbidity and mortality (the outcomes of interest).

⁵ Rated down for indirectness because all studies were conducted in high-income settings where HIV testing is widely available compared to low- and middle-income settings, and serosorting relies on frequency and availability of high-quality HIV testing.

⁶ RR<0.5 based on consistent evidence from 3 studies; however, the upper limit of the CI is significantly larger than 0.5 and there may be uncontrolled confounders, so this is not upgraded to a large effect

⁷ RR converted from OR of 0.457 (95% CI 0.251, 0.832)

⁸ Denominator was clinic visits, not participants, so some participants contributed more than one visit to the analysis; the effect of this on the RR is unknown.

⁹ RR converted from OR of 0.814 (95% CI 0.726, 0.912)

PICO 10: Should male circumcision be used for prevention of HIV and other STIs among MSM and transgender people?

Author(s): Charles Shey Wiysonge & Muki S Shey (University of Cape Town, South Africa)

Date: 2011-03-17

Question: Should Male circumcision vs No male circumcision be used in Men who have sex with men and transgender persons?

Settings: High-income countries (16 studies), low and middle-income countries (5)

Bibliography: Wiysonge CS, Kongnyuy EJ, Navti OB, Muula AS. Male circumcision for prevention of homosexual acquisition of HIV in men. Cochrane Database of Systematic Reviews 2011 (in press).

Quality assessment							Summary of findings				Importance	
							No of patients		Effect			Quality
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	Male circumcision	No male circumcision	Relative (95% CI)	Absolute		
HIV infection (all studies together, regardless of sexual role) (Lab test or self report)												
20	observational studies	no serious limitations	no serious inconsistency	no serious indirectness	no serious imprecision	none	11753/36202 (32.5%)	7706/28713 (26.8%)	OR 0.86 (0.70 to 1.06) ¹	29 fewer per 1000 (from 64 fewer to 12 more)	⊕⊕⊕ LOW	CRITICAL
HIV infection (mainly receptive anal sex)												
3	observational studies	no serious limitations	no serious inconsistency	no serious indirectness	no serious imprecision	reporting bias ²	141/522 (27%)	104/354 (29.4%)	OR 1.20 (0.63 to 2.29) ³	39 more per 1000 (from 86 fewer to 194 more)	⊕⊕⊕ VERY LOW	CRITICAL
HIV infection (mainly insertive anal sex)												
7	observational studies	no serious limitations	no serious inconsistency	no serious indirectness	no serious imprecision	none	158/1394 (11.3%)	89/704 (12.6%)	OR 0.27 (0.17 to 0.44) ⁴	89 fewer per 1000 (from 67 fewer to 102 fewer)	⊕⊕⊕ LOW	CRITICAL
Syphilis												
6	observational studies	no serious limitations	no serious inconsistency ⁵	no serious indirectness	serious ⁶	none	300/23719 (1.3%)	96/7455 (1.3%)	OR 0.96 (0.82 to	1 fewer per 1000 (from 2 fewer to 2	⊕⊕⊕ VERY	IMPORTANT

									1.13)	more)	LOW	
Herpes simplex virus - 1												
2	observational studies	no serious limitations	no serious inconsistency ⁵	no serious indirectness	serious ⁶	reporting bias ²	748/1812 (41.3%)	385/928 (41.5%)	OR 0.90 (0.53 to 1.52)	25 fewer per 1000 (from 142 fewer to 104 more)	⊕○○○ VERY LOW	IMPORTANT
Herpes simplex virus - 2												
4	observational studies	no serious limitations	no serious inconsistency ⁵	no serious indirectness	serious ⁶	none	907/6698 (13.5%)	638/3587 (17.8%)	OR 0.86 (0.62 to 1.21)	21 fewer per 1000 (from 60 fewer to 30 more)	⊕○○○ VERY LOW	IMPORTANT
Quality of life												
0 ⁷	no evidence available					none	0/0 (0%)	0/0 (0%)	Not estimable	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL

¹ Two studies (Reissen 2007 and Tabot 2002) reported the adjusted OR for the association between MC and HIV; with no corresponding count data. The 2 studies had a total of 869 participants with complete data on MC and HIV status. The total number of participants is therefore 65,784; and not 64,915.

² Only 3 of the 20 studies reported (separate) data for MSM who play predominantly or only the receptive role in anal sex (possibility of publication bias); rated down by 1.

³ The Sanchez 2007 study (with 906 participants who self-identified as mainly receptive) reported the adjusted OR for the association between MC and HIV; with no corresponding count data. The total number of participants is therefore 1,782; and not 876.

⁴ The Sanchez 2007 study (with 1931 participants who self-identified as mainly insertive) reported the adjusted OR for the association between MC and HIV; with no corresponding count data. The total number of participants is therefore 4,029; and not 2,098.

⁵ Low heterogeneity: I-square = 0%.

⁶ The 95% confidence intervals include both values suggesting benefit and values suggesting harm.

⁷ Not reported

PICO 11a: Are Internet-based targeted information effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Author(s): Tara Horvath, Hana Azman

Date: 2010-08-27

Question: Should HIV-testing motivational online video vs standard public health text be used for increasing HIV testing in men who have sex with men (MSM)?

Settings: Lima, Peru

Bibliography: Blas MM, Alva IE, Carcamo CP, Cabello R, Goodreau SM, Kimball AM, et al. Effect of an online video-based intervention to increase HIV testing in men who have sex with men in Peru. PLoS one 2010;5(5):e10448. [PubMed: 20454667].

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	HIV-testing motivational online video	Standard public health text	Relative (95% CI)	Absolute		
HIV infection (measured as HIV/STI testing), gay-identified MSM (follow-up 3 months)												
1	randomised trials	no serious limitations ¹	no serious inconsistency	serious ²	very serious ³	none	8/142 (5.6%) ⁴	10/130 (7.7%) ⁴	HR 1.07 (0.4 to 2.85)	5 more per 1000 (from 45 fewer to 127 more)	VERY LOW	CRITICAL
HIV infection (measured as HIV/STI testing), non-gay-identified MSM (follow-up 3 months)												
1	randomised trials	no serious limitations	no serious inconsistency	serious ²	very serious ⁵	none	11/97 (11.3%)	0/90 (0%)	-	-	VERY LOW	CRITICAL
STI infection - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT
Quality of life - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

¹ Risk of bias assessed as low with Cochrane bias assessment tool.

² HIV testing is intermediate to the outcomes of interest.

³ The confidence interval includes the null hypothesis. Also very few events.

⁴ Denominators and numerators were estimated from the text. These numbers were not used in calculating the relative effect.

⁵ Relative effect not calculated due to zero events.

PICO 11b: Are Internet-based targeted information effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Author(s): Tara Horvath, Hana Azman

Date: 2010-08-27

Question: Should pro-sexual health interactive modules vs no intervention be used for reducing risky sexual behaviour in men who have sex with men (MSM)?

Settings: USA

Bibliography: Rosser BR, Oakes JM, Konstan J, Hooper S, Horvath KJ, Danilenko GP, et al. Reducing HIV risk behavior of men who have sex with men through persuasive computing: results of the Men's INternet Study-II. AIDS (London, England) 2010;24(13):2099-107. [PubMed: 20601853].

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	Pro-sexual health interactive modules	No intervention	Relative (95% CI)	Absolute		
HIV infection (measured as unprotected sexual intercourse with fewer partners) (follow-up 3 months)												
1	randomised trials	serious ¹	no serious inconsistency	serious ²	serious ³	none	165/267 (61.8%)	173/292 (59.2%)	RR 1.04 (0.91 to 1.19)	24 fewer per 1000 (from 53 more to 113 more)	VERY LOW	CRITICAL
HIV infection (measured as unprotected sexual intercourse with fewer partners) (follow-up 12 months)												
1	randomised trials	serious ¹	no serious inconsistency	serious ²	no serious imprecision	none	173/273 (63.4%)	199/277 (71.8%)	RR 0.88 (0.79 to 0.99)	86 fewer per 1000 (from 7 fewer to 151 fewer)	LOW	CRITICAL
STI infection - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT
Quality of life - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

¹ Given the study design, it is not possible to identify the specific program components that led to behavior change in this study.

² Self-reported.

³ The confidence interval includes the null hypothesis.

PICO 12: Are sex venue-based outreach interventions effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Author(s): Diane Binson, William J. Woods [NOTE: Dr Binson and Dr Woods were investigators on this study.]

Date: 2010-08-24

Question: Should sex venue-based voluntary counselling and testing (VCT) be used for decreasing risky sexual behaviour in MSM?

Settings: United States

Bibliography: Huebner DM, Binson D, Woods WJ, Dilworth SE, Grinstead O. Bathhouse-based voluntary counseling and testing is feasible and shows preliminary evidence of effectiveness. JAIDS. 2006, 43:2,239-46.

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	Sex venue-based voluntary counselling and testing (VCT)	Control	Relative (95% CI)	Absolute		
HIV infection (measured as unprotected sexual intercourse) (follow-up 3 months)												
1	observational studies	no serious limitations	no serious inconsistency	serious ¹	no serious imprecision ²	none	28/108 (25.9%) ³	51/133 (38.3%) ³	RR 0.6 (0.4 to 0.9)	153 fewer per 1000 (from 38 fewer to 230 fewer)	VERY LOW	CRITICAL
STI infection - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT
Quality of life - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

¹ Self-reported.

² Though small number of events, not downgraded because CI width was less than 0.5

³ Counts for numerator and denominator are estimated from text. They are not used in estimating the relative effect.

PICO 13: Are social marketing campaigns effective in increasing uptake of HIV/STI testing and HIV services for MSM and transgender people?

Author(s): Chongyi Wei, Amy Herrick

Date: 2010-08-25

Question: Should social marketing campaigns vs no social marketing campaigns be used in increasing uptake of HIV/STI testing in MSM?

Settings: Australia, UK, USA

Bibliography: Darrow WW, Biersteker S. Short-term impact evaluation of a social marketing campaign to prevent syphilis among men who have sex with men. Am J Public Health. 2008;98:337-343. | Guy R, Goller J, Thorpe R, Grierson J, Batrouney C, Kennedy M, Lewis J, Fairley C, Ginige S, Zabolotska I, Hellard M. No Increase in HIV or sexually transmissible infection testing following a social marketing campaign among men who have sex with men. J Epidemiol Community Health. 2009;63:391-396. | McOwan A, Gilleece Y, Chislett L, Mandalia S. Can targeted HIV testing campaigns alter healthseeking behavior? AIDS Care. 2002;14:385-390.

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	Social marketing campaigns	No social marketing campaigns	Relative (95% CI)	Absolute		
HIV infection (measured as HIV testing) (follow-up 24 months)												
2	observational studies	serious ¹	serious ²	serious ³	no serious imprecision	none	1339/2692 (49.7%) ⁴	1126/2760 (40.8%) ⁴	OR 1.58 (1.4 to 1.77)	113 more per 1000 (from 83 more to 142 more)	VERY LOW	CRITICAL
STI infection (measured as STI testing) (follow-up mean 6 months; assessed with: survey)												
1	observational studies	serious ¹	no serious inconsistency	serious ⁵	serious ⁶	none	138/398 (34.7%)	107/296 (36.1%)	OR 0.94 (0.68 to 1.28)	14 fewer per 1000 (from 84 fewer to 59 more)	VERY LOW	IMPORTANT
Quality of life - not reported												
0	-	-	-	-	-	none	-	-	-	-		IMPORTANT

¹ Serial cross-sectional pre-post study, no control

² McOwan 2002 showed a strong effect; Guy 2009 did not.

³ HIV testing is intermediate to the outcomes of interest.

⁴ Denominators from McOwan 2002 were standardised (not from text) in order to calculate relative effect.

⁵ Syphilis testing is intermediate to the outcomes of interest.

⁶ CI crosses 1.0

Annex 6: Risk–benefit tables

PICO 1: Should consistent condom use vs. no condom use be used in MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Rated down for design as all included studies were observational. Rated up for high effect size (HIV incidence outcome only).	Moderate (HIV outcome) Low (STD outcome)
Balance of Benefits vs. Harms	<p>Consistent condom use reduced HIV transmission by 64%: if 1000 individuals practice this behaviour over 1 year: In low transmission settings (1.7% HIV incidence/yr) instead of 17 there will be 6 new infections.</p> <p>In high transmission (9% HIV incidence/yr) instead of 90 there will be 32 new infections.</p> <p>Consistent condom use reduced STD transmission by 42%, if 1000 individuals practice this behaviour over 1 year: In low transmission settings (5.7% STD incidence/yr) instead of 57 there will be 33 new infections.</p> <p>In high transmission (10.4% STD incidence/yr) instead of 104 there will be 60 new infections.</p> <p>Quality of life considerations (Inconvenience / Decreased desire) not studied.</p>	Benefits clearly outweigh harms
Values and preferences	<i>Per the Values and Acceptability preliminary report:</i> MSM believe condoms are useful for prevention and many advocate their distribution.	No major variability in values. Individual values might vary; panel placed a higher value on reduction of HIV/STI incidence relative to inconvenience/dislike.
Resource use		Not a major issue
Feasibility	Programmatic evidence from low and middle income settings of feasibility.	Not a major issue

PICO 2a: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Only 1 trial included. Downgraded because of indirectness of outcome and population (“men” instead of MSM) and significant loss to follow up (about 20% in 14 months)	Low

Balance of Benefits vs. Harms	High sensitivity and specificity of tests, so little risk of misdiagnosis 21% reduction in risk behaviour among those HIV+ men undergoing HTC as compared to those not undergoing HTC. Importance will increase given relevance of earlier diagnosis and access to care, as well as preventive effects of treatment Harms: Psychological distress can be managed	Benefits outweigh harms
Values and preferences	People value the importance of testing, but feel adequate conditions for service provision have to be included (i.e. inclusive services, non-discriminatory)	Predominantly in favour
Resource use	Limited – standard intervention in most places	Not a significant issue
Feasibility	Already offered to the general population in most settings	Not a significant issue

PICO 2b: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Only 1 observational study included. One trial in preparation. No elements to upgrade the level of evidence.	Very low
Balance of Benefits vs. Harms	High sensitivity and specificity, so little risk of misdiagnosis Potential to increase motivation of people to get tested and to access treatment and care earlier. Risk if access to care and treatment is not provided adequately and in a sustained fashion Potential for stigma At the community level, increasing signs of programmatic success in HIV morbidity.	Benefits outweigh risks
Values and preferences	People value testing and counselling, and also increasingly value earlier access to care and treatment, but express concern for stigma and discrimination as well as mistreatment and limited capacity of health care personnel to deal with MSM and transgender issues	Possibly in favour if concerns are addressed
Resource use	Implies scaling up testing as linked to care in a sustainable way	Moderate
Feasibility	Feasible in most settings if additional costs are met	No critical limitations

PICO 3a: Should periodic screening (using NAAT) for asymptomatic urethral Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal intercourse)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only test accuracy studies (2 studies, 1159 participants). Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Low quality
Balance of Benefits vs. Harms	No clear natural history of asymptomatic urethritis: some will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Potential risk for HIV acquisition/transmission; asymptomatic infection can be transmitted Benefit: early diagnosis; treatment, benefit for individual and	Benefits outweigh harms, particularly as prevalence increases

	partners; added value in HIV+ MSM Harm: In a population of 1000, with 5% prevalence, 1% will be misdiagnosed as infected (and therefore potentially at risk for stigma and unneeded treatment) and 1% will be misdiagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity, but simpler than culture; assay cost Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Implies setting up the technology (trend in that direction globally) and including as regular part of budget	Potentially important issue

PICO 3b: Should periodic screening (using NAAT) for asymptomatic rectal Neisseria gonorrhoea infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only test accuracy studies (2 studies, 876 participants). Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Low quality
Balance of Benefits vs. Harms	Natural history of asymptomatic rectal infection: some will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Complications may be severe. Potential risk for HIV acquisition/ transmission; asymptomatic infection can be transmitted Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: In a population of 1000, with 5% prevalence , 1% will be misdiagnosed as infected (and therefore potentially at risk for stigma and unneeded treatment) and 0.5% will be misdiagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Benefits outweigh harms, particularly as prevalence increases
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity, but simpler than culture; assay cost Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Implies setting up the technology (trend in that direction globally) and including as regular part of budget	Potentially important issue

PICO 3c: Should periodic screening (using NAAT) for asymptomatic urethral Chlamydia trachomatis infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal sex)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only test accuracy studies (2 studies, 1161 participants).	Low quality

	Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	
Balance of Benefits vs. Harms	Natural history of asymptomatic Ct infection: most will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Potential risk for HIV acquisition/ transmission; asymptomatic infection can be transmitted. Chronic infection associated with infertility in both males and females. Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: In a population of 1000, with 5% prevalence, 1% will be misdiagnosed as infected (and therefore potentially at risk for stigma and unneeded treatment) and 0.1% will be misdiagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Benefits outweigh harms, particularly as prevalence increases
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity, but simpler than culture; assay cost Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Implies setting up the technology (trend in that direction globally) and including as regular part of budget	Potentially important issue

PICO 3d: Should periodic screening (using NAAT) for asymptomatic rectal Chlamydia trachomatis infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only test accuracy studies (3 studies, 1124 participants). Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Low quality
Balance of Benefits vs. Harms	Natural history of asymptomatic Ct infection: most will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Potential risk for HIV acquisition/ transmission; asymptomatic infection can be transmitted. Chronic infection associated with abscesses, fistulae, strictures Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: In a population of 1000, with 10% prevalence, 0.9% will be misdiagnosed as infected (and therefore potentially at risk for stigma and unneeded treatment) and 0.3% will be misdiagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Benefits outweigh harms, particularly as prevalence increases
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity, but simpler than culture; assay cost Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Implies setting up the technology (trend in that direction globally) and including as regular part of budget	Potentially important issue

PICO 3e: Should periodic screening (using culture) for asymptomatic urethral *Neisseria gonorrhoea* infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected insertive anal sex)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only 1 test accuracy study (714 participants). Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Low quality
Balance of Benefits vs. Harms	No clear natural history of asymptomatic urethritis: some will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Potential risk for HIV acquisition/transmission; asymptomatic infection can be transmitted Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: 54% of infected people would be falsely diagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Unclear whether or not benefits outweigh harms
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity; special handling of samples; culture costs Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Most countries have microbiological capacity to perform cultures	Potentially important issue

PICO 3f: Should periodic screening (using culture) for asymptomatic rectal *Neisseria gonorrhoea* infection be offered or recommended to MSM and transgender people at highest risk (acknowledging unprotected receptive anal sex)?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials found. Only 1 test accuracy study (205 participants). Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Low quality
Balance of Benefits vs. Harms	Natural history of asymptomatic rectal infection: some will remain asymptomatic; some will develop clinical disease; and some will spontaneously clear. Complications may be severe. Potential risk for HIV acquisition/ transmission; asymptomatic infection can be transmitted Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: 68% of infected people would be falsely diagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Unclear whether or not benefits outweigh harms
Values and preferences	People want comprehensive services; non-invasive procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Requires laboratory capacity; special handling of samples; culture costs Treatment costs lower if detected in asymptomatic stage	Potentially important issue
Feasibility	Most countries have microbiological capacity to perform cultures	Potentially important issue

PICO 4: Should periodic serologic screening for syphilis infection vs. no such screening be offered to MSM and transgender persons?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No trials; only test accuracy studies. Rated down for indirectness (not measuring clinical or public health outcomes, just test performance) and imprecision.	Moderate quality
Balance of Benefits vs. Harms	Natural history of asymptomatic syphilis infection: 25% of those untreated will undergo serious complications, and other will spontaneously clear or get treated inadvertently. Complications may be severe. Potential risk for HIV acquisition/ transmission; asymptomatic infection can be transmitted Benefit: early diagnosis; treatment, benefit for individual and partners; added value in HIV+ MSM Harm: In a population of 1000, with 5% prevalence, 2% will be misdiagnosed as infected (and therefore potentially at risk for stigma and unneeded treatment) and 0.1% will be misdiagnosed as uninfected (and therefore false reassurance of being free of disease and delayed management)	Benefits clearly outweigh harms
Values and preferences	People want comprehensive services, including STI screening procedure which may be part of a comprehensive package (No specific mention of this test in community survey)	Potentially in favour
Resource use	Minimal lab requirements and cost Minimal training required	Potentially important issue
Feasibility	Test has been in place for decades	Potentially important issue

PICO 6: Should individual level behavioral change interventions vs. no such interventions be used for HIV/STI prevention in MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	There is moderate quality evidence for a reduction in sexual risk behaviour and incident HIV infection with individual behaviour change interventions among MSM and transgender population. These data were rated down for indirectness of the behavioural outcome due to self-report and questions about behaviour change translating into a decrease in HIV/STI transmission, and a reduction in the outcome of interest, i.e., HIV/STI related morbidity and mortality. The data were also rated down as none of the studies were conducted in low and middle income countries and translation may be a challenge. The HIV infection data were rated down for imprecision due to the small number of events.	Moderate evidence for behavioural change and a reduction in HIV incidence.

Balance of Benefits vs. Harms	<p>Behavioural change due to the individual level interventions resulted in an 18% reduction in risk behaviour, if 1000 people were to receive this intervention over 1 year:</p> <p>In low condom use settings (76% do not use condoms), of the 760 individuals not using condoms, 137 will start consistently using condoms.</p> <p>In high condom use settings (9% do not use condoms), of the 90 individuals not using condoms, 16 will start consistently using condoms.</p> <p>HIV infection due to the individual level interventions resulted in a non-significant 18% reduction in HIV incidence, if 1000 people were to receive this intervention over 1 year:</p> <p>In low transmission settings (1.7% HIV incidence/yr) instead of 17 there will be 14 new infections.</p> <p>In high transmission (9% HIV incidence/yr) instead of 90 there will be 74 new infections.</p> <p>Quality of life was not measured (Inconvenience, Unnecessary intervention, Anxiety, Discrimination)</p>	Benefits clearly outweigh harms.
Values and preferences	Per the Values and Acceptability preliminary report: MSM stated that an enabling environment would be necessary to implement successful behavioural interventions.	Values are not a major issue.
Resource use	Behavioural interventions primarily require human resources for implementation.	May be a difficulty in some settings.
Feasibility	Behavioural interventions require human resources, adaptation to the local context and an enabling environment in order to be effective.	Not a major issue

PICO 8: Should community level behavioral change interventions vs. no interventions be used for HIV/STI prevention in MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	<p>There is low quality evidence for a reduction in sexual risk behaviour due to community behaviour change interventions among MSM and transgender populations.</p> <p>These data were rated down for indirectness of the behavioural outcome due to self-report and questions about behaviour change translating into a decrease in HIV/STI transmission, and a reduction in the outcome of interest, i.e., HIV/STI related morbidity and mortality and limitations in design, high losses to follow-up (42% in the study with a cohort).</p> <p>Also, rated down as only one study was in a low and middle income setting.</p>	Low evidence for behavioural change.

Balance of Benefits vs. Harms	<p>Behavioural change due to the community level interventions resulted in an 25% reduction in risk behaviour, if 1000 people were to receive this intervention over 1 year:</p> <p>In low condom use settings (76% do not use condoms), of the 760 individuals not using condoms, 190 will start consistently using condoms.</p> <p>In high condom use settings (9% do not use condoms), of the 90 individuals not using condoms, 23 will start consistently using condoms.</p> <p>HIV/STI incidence was not measured.</p> <p>Quality of life was not measured (Inconvenience, Unnecessary intervention, Anxiety, Discrimination)</p>	Benefits outweigh harms.
Values and preferences	<i>Per the Values and Acceptability preliminary report:</i> MSM stated that an enabling environment would be necessary to implement successful behavioural interventions.	Values are not a major issue.
Resource use	Behavioural interventions primarily require human resources for implementation.	May be a difficulty in some settings.
Feasibility	Behavioural interventions require human resources, adaptation to the local context and an enabling environment in order to be effective.	Not a major issue

PICO 9A: Should serosorting vs. consistent condom use be used in MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Rated down for design as all included studies were observational, because significant confounding is likely, and because evidence is from high-income settings where HIV testing is widely available.	Very low
Balance of Benefits vs. Harms	<p>Serosorting increased HIV transmission by 79% (RR 1.79)</p> <p>If 1000 individuals practice serosorting over 1 year:</p> <p>In low HIV transmission settings (1.7% HIV incidence/yr), instead of 17 there will be 30 new HIV infections</p> <p>In high HIV transmission settings (9% HIV incidence/yr), instead of 90 there will be 161 new HIV infections</p> <p>Serosorting increased STD transmission by 61% (RR 1.61)</p> <p>If 1000 individuals practice serosorting over 1 year:</p> <p>In low STD transmission settings (5.7% STD incidence/yr), instead of 57 there will be 92 new STD infections</p> <p>In high STD transmission settings (10.4% STD incidence/yr), instead of 104 there will be 167 new STD infections</p> <p>Quality of life considerations (Inconvenience / Decreased desire) not studied</p>	Harms significantly outweigh benefits
Values and Preferences	<i>Per the Values and Acceptability preliminary report:</i> "MSM believe condoms are useful for prevention and many advocate their distribution." "Serosorting was not recognized as a prevention strategy by any participants. For some the construct of serosorting did not exist. For others, it led to conversations about the conditions under which MSM and transgender people do or do not disclose. Safety, stigma and discrimination concerns contributed to non-disclosure of HIV status for many." However, serosorting reported as a harm reduction strategy in other settings. Individual values around	Individual values may vary; panel placed a higher value on preventing HIV infection

	serosorting may vary.	
Resource Use	Condom use requires availability of condoms. Serosorting requires availability of high-quality HIV testing.	Should be considered
Feasibility	Programmatic evidence from low and middle income settings of feasibility for condom use; serosorting assumed to be feasible if high-quality HIV testing is available and accessible.	Not a major issue

PICO 9B: Should serosorting vs. no condom use be used in MSM and transgender populations?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Rated down for design as all included studies were observational, because significant confounding is likely, and because evidence is from high-income settings where HIV testing is widely available.	Very low
Balance of Benefits vs. Harms	<p>Serosorting reduced HIV transmission by 53% (RR 0.47)</p> <p>If 1000 individuals practice serosorting over 1 year:</p> <ul style="list-style-type: none"> In low HIV transmission settings (1.7% HIV incidence/yr), instead of 17 there will be 8 new HIV infections In high HIV transmission settings (9% HIV incidence/yr), instead of 90 there will be 42 new HIV infections <p>Serosorting reduced STD transmission by 14% (RR 0.86)</p> <p>If 1000 individuals practice serosorting over 1 year:</p> <ul style="list-style-type: none"> In low STD transmission settings (5.7% STD incidence/yr) instead of 57 there will be 49 new STD infections In high STD transmission settings (10.4% STD incidence/yr) instead of 104 there will be 89 new STD infections <p>Quality of life considerations (Inconvenience / Decreased desire) not studied</p>	Benefits outweigh harms
Values and Preferences	<i>Per the Values and Acceptability preliminary report:</i> "Serosorting was not recognized as a prevention strategy by any participants. For some the construct of serosorting did not exist. For others, it led to conversations about the conditions under which MSM and transgender people do or do not disclose. Safety, stigma and discrimination concerns contributed to non-disclosure of HIV status for many." However, serosorting reported as a harm reduction strategy in other settings. Individual values around serosorting may vary.	Individual values may vary; panel placed a higher value on preventing HIV infection
Resource Use	Serosorting requires availability of high-quality HIV testing.	Should be considered
Feasibility	Serosorting assumed to be feasible if high-quality HIV testing is available and accessible.	Not a major issue

PICO 10: Should male circumcision be used for prevention of HIV and other STIs among MSM and transgender people?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	No RCTs in MSM to study effect of adult male circumcision. Existing observational evidence is downgraded for design, heterogeneity, and imprecision.	Very low

Balance of Benefits vs. Harms	Current evidence suggests a potential benefit of adult male circumcision in terms of both HIV (OR 0.86, 95%CI 0.70-1.06 for all MSM irrespective of sexual role; OR 0.27, 95%CI 0.17-0.44 for MSM who practice insertive anal sex) and a non-significant positive effect on other STIs (OR range 0.86-0.96). Harms have not been studied but potentially include surgical complications, pain, and stigma (if circumcision offered only to MSM).	Benefits potentially outweigh harms
Values and Preferences	<i>Per the Values and Acceptability preliminary report:</i> "With regard to adult male circumcision as an HIV prevention strategy, participants raised questions about relevance of circumcision in different cultural settings and adequacy to protect from HIV infection, and relevance to transgender people. Some felt the focus should be on education regarding sexual health rather than circumcision."	Values and preferences generally against male circumcision
Resource Use	Significant resources needed for male circumcision in settings where it is not a standard intervention.	Significant concern
Feasibility	Significant concerns with feasibility of implementing a surgical intervention, especially within an already stigmatized population.	Significant concern

PICO 11: Are Internet-based targeted information effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Rated down for study limitations (Rosser 2010: specific efficacious components of intervention could not be identified); rated down for imprecision; rated down for indirectness.	Very low to low quality evidence. Any estimate of effect is very uncertain.
Balance of benefits vs. harms	<p>There is very low quality evidence to suggest that 82 of every 1000 gay-identified MSM who saw the targeted online video intervention would have attended the clinic to be tested for HIV/STIs, vs. 77 of every 1000 gay-identified MSM who saw the standard public health text.</p> <p>11 of the 97 non-gay-identified MSM who saw the targeted online video intervention actually attended the clinic to be tested for HIV/STIs, vs. 0 (zero) of the 90 non-gay-identified MSM who saw the standard public health text.</p> <p>There is very low quality evidence to suggest that 616 of every 1000 MSM who were given the pro-sexual health interactive modules would have reported unprotected anal intercourse with fewer partners at 3 month follow-up, vs. 592 of every 1000 who did not receive the intervention.</p> <p>However, there is low quality evidence to suggest that 632 of every 1000 MSM who were given the pro-sexual health interactive modules would have reported unprotected anal intercourse with fewer partners at 12 month follow up, vs. 718 of every 1000 who did not receive the intervention.</p>	Benefits may outweigh harms, but rigorous, larger RCTs are needed.
Values and preferences	In one study (Blas 2010), the majority of both gay-identified (n=93, 66.9%, p=0.002) and non-gay-identified (n=55, 60.0%, p=0.58) MSM who were given the targeted video intervention evaluated it as "very good."	Benefits may outweigh harms.
Resource use	Low cost, scalable.	Not a major issue.
Feasibility	Fair to excellent internet connectivity would be necessary. Internet connectivity increasing rapidly in many LMIC, but there are still large gaps.	Could be a major issue.

PICO 12: Are sex venue-based outreach interventions effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Observational study, rated down for indirectness.	Very low quality evidence. Any estimate of effect is very uncertain.
Balance of benefits vs. harms	There is very low quality evidence to suggest that 230 of 1000 MSM given VCT in a sex venue would report unprotected anal intercourse at 3 month follow up. There is very low quality evidence to suggest that 383 of 1000 MSM not given VCT in a sex venue would report unprotected anal intercourse at 3 month follow up.	Benefits may outweigh harms, but much more research is needed.
Values and preferences	Values: MSM stated that an enabling environment is necessary for implementing behavioural interventions.	Benefits may outweigh harms.
Resource use and feasibility	Behavioural interventions require human resources.	Not a major issue.

PICO 13: Are social marketing campaigns effective in increasing uptake of HIV/STI testing and HIV services for MSM and transgender people?

Factor	Explanation / Evidence	Judgment
Quality of Evidence	Rated down for design; rated down for indirectness; rated down for imprecision.	Very low to low quality evidence. Any estimate of effect is very uncertain.
Balance of benefits vs. harms	There is very low quality evidence from two studies that rates of HIV testing increased after multi-media social marketing campaigns. Of MSM exposed to the campaigns, 521 of every 1000 would have been tested for HIV, compared with 408 per 1000 before the campaigns. There is very low quality evidence from one study that rates of syphilis testing did not increase in MSM after the multi-media social marketing campaign. Of MSM exposed to the campaign, 347 of every 1000 would have been tested for syphilis, compared with 361 per 1000 before the campaign. Social marketing campaigns have been effective in reaching general and other non-MSM target populations.	Benefits may outweigh harms.
Values and preferences		
Resource use and feasibility	Many CDCs and CBOs are already doing outreach activities, including distribution of information and condoms. Most of them, however, especially in LMIC, are not based on social marketing models. Using social marketing models could make them more effective. No significant costs associated with multi-media based social marketing interventions. Social marketing principles are not dependent on resources/size of a program or organization. There are some social marketing interventions, however, that require significant changes, e.g. mobile testing clinics, which may have higher costs, but are highly effective in reaching the target populations.	Low cost; scalable; potential for high impact.

Annex 7: Evidence summaries

PICO 1: Should consistent condom use vs. no condom use be used in MSM and transgender populations?

Author, year	Population	Findings
Detels 1989	HIV-negative MSM in 4 US cities (n=2915)	HIV incidence (24 months of follow-up) Consistent condom use for anal intercourse vs. No condom use IRR = 0.30 [0.13, 0.65]
Difranceisco 1996	HIV-negative MSM in 4 US cities (n=245)	HIV incidence (10 follow-up years, nested case control design) Consistent condom use for anal intercourse vs. No condom use RR = 0.70 [0.34, 1.47]
Golden 2008	HIV-negative MSM in Seattle, USA (n=3213 for HIV and n=6947 for STI)	HIV incidence (among men who tested HIV-negative, past year) Consistent condom use for anal intercourse vs. Lack of condom use (non-concordant UAI) RR = 0.43 [0.27, 0.69] STI incidence (Bacterial STD: urethral or rectal gonorrhoea or Chlamydia infection or early syphilis) Consistent condom use for anal intercourse vs. Lack of condom use (non-concordant UAI) RR=0.58 [0.54, 0.62]
Jin 2009	HIV-negative MSM in Sydney, Australia (n=1427)	HIV incidence (median follow-up 3.9 years) Consistent condom use (only protected anal intercourse) vs. Lack of condom use: (UAI with someone of unknown HIV status) and (UAI with any HIV-positive) IRR = 0.12 [0.04, 0.36]
Marks 2010	HIV-negative black and Latino MSM in New York, Philadelphia, and LA, USA (n=498)	HIV incidence (testing positive during study among those reporting a previous HIV negative test) Consistent condom use (only protected anal intercourse) vs. Lack of condom use (UAI not limited to HIV-negative partners) RR = 0.23 [0.11, 0.50]

PICO 2a: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

PICO 2b: Should testing and counselling vs. the provision of standard health information be used for HIV prevention among MSM and transgender populations?

Author, year	Population	Findings
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Voluntary HIV-1 Counselling and Testing Efficacy Study Group, The Lancet 2000	3120 individuals and 586 couples were enrolled in three settings (Kenya, Tanzania & Trinidad). For this PICO, focus on 1534 men	Reduced unprotected intercourse among individuals: The proportion of individuals reporting unprotected intercourse with non-primary partners declined significantly more for those receiving VCT than those receiving health information (men, 35% reduction with VCT vs. 13% reduction with health information; women, 39% reduction with VCT vs. 17% reduction with health information), and these results were maintained at the second follow-up. Individual HIV-1 infected men were more likely than uninfected men to reduce unprotected intercourse with primary and non-primary partners.
Voluntary HIV-1 Counselling and Testing Efficacy Study Group, The Lancet 2000	3120 individuals and 586 couples were enrolled in three settings (Kenya, Tanzania & Trinidad). For this PICO, focus on 1534 men	Reduced unprotected intercourse among individuals: The proportion of individuals reporting unprotected intercourse with non-primary partners declined significantly more for those receiving VCT than those receiving health information (men, 35% reduction with VCT vs. 13% reduction with health information; women, 39% reduction with VCT vs. 17% reduction with health information), and these results were maintained at the second follow-up. Individual HIV-1 infected men were more likely than uninfected men to reduce unprotected intercourse with primary and non-primary partners.

PICO 3a-f: Should periodic screening for asymptomatic urethral and/or anorectal *Neisseria gonorrhoea* and *Chlamydia trachomatis* infection be offered or recommended to MSM and transgender persons at highest risk (acknowledging unprotected insertive and/or receptive anal sex, respectively)?

Author, year	Population	Findings
Moncada et al, 2009	Asymptomatic MSM (n=438)	For urethral NG: Sensitivity = 43%-100% (average=72%) & Specificity =99% For rectal NG: Sensitivity = 67%-78 (average= 73%) & Specificity =99% For urethral CT: Sensitivity = 54%-85% (average=70%) and Specificity = 97%. For rectal CT: Sensitivity = 44%-71% (average=58%) and Specificity = 99%.

Mimiaga et al, 2008	Asymptomatic MSM (n=114)	Urethral NG infection prevalence =1.0%; Rectal NG infection=0.0% Urethral CT infection prevalence = 2.6%; Rectal CT infection=1.7%
Schachter al, 2008	Asymptomatic MSM (n=438)	Rectal CT infection prevalence = 7.8% Rectal NG infection prevalence = 7.7% For NAAT: Rectal GC Sensitivity = 80%-93% (average=87%) and Specificity = 99% Rectal CT Sensitivity = 50%-94% (average=72%) and Specificity = 99% For culture: Sensitivity = 32% & Specificity = 100%
Martin et al, 1995	Asymptomatic men (n=690)	For NAAT: For urethral NG: Sensitivity = 60% & Specificity = 99%. For culture: Sensitivity = 46% & Specificity = 100%

PICO 4: Should periodic serologic screening for syphilis infection vs. no such screening be offered to MSM and transgender persons?

Author, year	Population	Findings
Larsen et al, 1995	Not specified	Sensitivity = 86% (primary cases) and 98% (secondary cases) Specificity = 98%.
Gao et al, 2009	Asymptomatic MSM (China)	Syphilis prevalence: 9%
Snowden et al, 2010	Asymptomatic MSM (Peru)	Syphilis prevalence: 11%

PICO 6: Should individual level behavioral change interventions vs. no such interventions be used for HIV/STI prevention in MSM and transgender populations?

Author, year	Population	Findings
Dilley, 2002	Self-described "high risk" MSM (n=186)	The intervention groups reduced unprotected anal intercourse (UAI), 0.50 [0.25, 1.01].
Gold, 1998	MSM reporting 1+ episode of unprotected sex, last 6 months (n=63)	The intervention did not yield a decrease in UAI, 1.06 [0.39, 2.86].

Koblin, 2004	HIV negative MSM (n=4295)	The intervention yielded a significant decrease in reported UAI, 0.82 [0.72, 0.93]. The intervention yielded a non-significant decrease in HIV infection, 0.82 [0.64, 1.05]
Picciano, 2007	MSM reporting 1+ episode of unprotected sex, last 90 days (n=391)	The intervention was did not yield a decrease in UAI, 1.01 [0.69, 1.48].

PICO 8: Should community level behavioral change interventions vs. no interventions be used for HIV/STI prevention in MSM and transgender populations?

Author, year	Population	Findings
Amirkhanian 2005	Men and women, mostly MSM (n=276)	UAI decreased in the intervention group, but this decrease was not significant, 0.65 [0.39, 1.08].
Flowers 2002	Men attending gay bars (n=2498)	UAI decreased in the intervention group, but this decrease was not significant, 0.92 [0.68, 1.24].
Kegeles, 1996	Young gay men (n=188)	UAI decreased in the intervention group, but this decrease was not significant, 0.59 [0.33, 1.07].
Kelly 1991	Men attending gay bars (n=659)	UAI decreased in the intervention group, but this decrease was not significant, 0.72 [0.50, 1.03].
Kelly 1997	Men attending gay bars (n=442)	UAI decreased in the intervention group, 0.48 [0.25, 0.91].

PICO 9: Is serosorting, compared to consistent condom use and to lack of condom use, an effective strategy to reduce the acquisition of HIV and other STIs among HIV-negative men who have sex with men and transgender persons?

Author, year	Population	Findings
Golden, 2008	HIV-negative MSM in Seattle, USA	<p>HIV incidence (among men who tested HIV-negative in past year)</p> <p>Condom use (only protected anal intercourse): 28/1827 clinic visits (1.5%)</p> <p>Serosorting (UAI with HIV-negative only): 40/1526 clinic visits (2.6%)</p> <p>No condom use (non-concordant UAI): 49/1386 clinic visits (3.5%)</p> <p>STI incidence (Bacterial STD: urethral or rectal gonorrhoea or Chlamydia or early syphilis)</p> <p>Condom use: 601/3859 clinic visits (16%)</p> <p>Serosorting: 738/3201 clinic visits (23%)</p> <p>No condom use: 831/3088 clinic visits (27%)</p>

Jin, 2009	HIV-negative MSM in Sydney, Australia	<p>HIV incidence (median follow-up 3.9 years)</p> <p>Condom use (only protected anal intercourse); Serosorting (UAI with HIV-negative only); No condom use (UAI with unknown or HIV-positive)</p> <p>Serosorting vs. condom use: Hazard Ratio 2.56; 95% CI (0.84–7.78)</p> <p>Serosorting vs. no condom use: Hazard Ratio 0.31; 95% CI (0.16–0.59)</p>
Marks, 2010	HIV-negative black and Latino MSM in New York, L.A., and Philadelphia, USA	<p>HIV incidence (testing positive during study among those reporting a previous HIV-negative test, most within past year)</p> <p>Condom use (only protected anal intercourse); Serosorting (UAI with HIV-negative only); No condom use (UAI not limited to HIV-negative partners)</p> <p>Serosorting vs. condom use: Unadjusted OR 1.68; 95% CI (0.65–4.32)</p> <p>No condom use vs. serosorting: Unadjusted OR 2.81; 95% CI (1.30–6.05); Adjusted* OR 2.54; 95% CI (1.14–5.68) *Adjusted for number of UAI partners of any serostatus, age, education, and employment status</p>

PICO 11: Are Internet-based targeted information effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Author, year	Population	Findings
Blas 2010	MSM; resident of Lima, Peru; HIV-negative; not tested in past year.	<p>Targeted motivational online video, vs. standard public health online text</p> <p>HIV/STI testing (gay-identified MSM), 3 month follow up: HR 1.07 (0.4-2.85)</p> <p>HIV/STI testing (non-gay-identified MSM), 3 month follow up: Relative effect not estimable; 11/97 of intervention group (vs. 0/90 control) attended clinic for HIV/STI testing.</p>
Rosser 2010	MSM in USA	<p>Pro-sexual health interactive modules, vs. no intervention</p> <p>Had unprotected anal intercourse with fewer partners at 3 month follow up: RR 1.04 (0.91-1.19)</p> <p>Had unprotected anal intercourse with fewer partners at 12 month follow up: RR 0.88 (0.79-0.99)</p>

PICO 12: Are sex venue-based outreach interventions effective in decreasing risky sexual behaviour and increasing uptake of HIV testing among MSM and transgender people?

Author, year	Population	Findings
Huebner 2006	Men who presented for standard VCT in a USA bathhouse	<p>Voluntary counselling and testing (VCT)</p> <p>Unprotected anal intercourse, 3 month follow up RR 0.6 (0.4-0.9)</p>

PICO 13: Are social marketing campaigns effective in increasing uptake of HIV/STI testing and HIV services for MSM and transgender people?

Author, year	Population	Findings
Darrow 2008	MSM; Florida, USA	Multi-media campaign to reduce syphilis infection in South Florida. Campaign failed to increase STI testing Outcomes: STI testing Tested for syphilis: OR 0.94 (0.68, 1.28)
Guy 2009	MSM; Victoria, Australia	'Check-It-Out' multi-media campaign to increase HIV/STI testing and promote sexual health. Campaign failed to increase HIV/STI testing. HIV: average monthly number of tests: pre: 877 HIV: average monthly number of tests: post: 819 (p=0.26) Syphilis: average monthly number of tests: pre: 919 Syphilis: average monthly number of tests: post: 872 (p=0.57)
McOwan 2002	MSM; UK	'Gimme 5 Minutes' peer-image based multi-media campaign to increase HIV testing in London, UK. Pre-post study, also with comparison to control. Campaign significantly increased HIV testing MSM testing for HIV, campaign clinic: pre: 65 MSM testing for HIV, campaign clinic: post: 292 (p<0.001) MSM testing for HIV, 2 other London clinics (combined): pre: 239 MSM testing for HIV, 2 other London clinics (combined): post: 236 (p=0.982)

Annex 8. Implementation plan

Operational plan to disseminate, support and monitor implementation of

Prevention and Treatment of HIV and other Sexually-Transmitted Infections among Men who have Sex with Men and Transgender People in Low- and Middle-Income Countries

Objectives

To integrate activities based on MSM guideline's recommendations in National HIV/AIDS plans and in proposals to the GFATM (e.g. National Strategy Application (NSA) and to foster implementation through technical assistance to countries

Strategic components

1. Advocacy,
2. Regional Promotion and Planning
3. Technical Assistance
4. Strategic Information and Research

Activities

1. Advocacy

○ *Objective:*

- To raise attention among all WHO levels, key international, regional and national partners (e.g. civil society, foundations, donors), governments and national programmes about to new MSM guidelines and the need to take the recommendations into account.

○ *Content of advocacy:*

- Process: evidence based and conducted with partners
- Overview of MSM and HIV, guidelines objectives and content
- Emphasis in Good Practice Recommendations; 1) Human Rights and inclusive environments; 2) Non-discrimination in health care settings and medical ethics
- Reference/linking to regional previous work, UNAIDS business case on MSM, Transgender people and SW and GFATM
- Brief description of implementation

○ *Activities and products:*

- Launching event¹¹
- Guidelines and Executive summary (6 UN languages)

¹¹ Detailed in a separate document

- Briefing to RO, UNAIDS and cosponsors (teleconference)
- Joint WHO/UNAIDS briefings through webinars
- Q&A document
- Press release
- Leaflet summarizing the guidelines
- Full slide set in all UN languages
- Posting in the WEB
- Press conference
- Abstracts, satellite sessions, exhibit in scientific conferences
- Social networking: use of slides and short videos for Youtube, messages for twitter and face book.

2. Regional Promotion and Planning

- *Objectives:*
 - To brief countries about the MSM guidelines
 - To link Global recommendations with Regional guidelines and tools
 - To assess countries situations, plans, barriers and opportunities for implementation of key MSM activities
 - To establish targets
 - To draft priorities key activities to be included in National plans and proposals to GFATM
- *Activities and products:*
 - Mailing list as per guidelines dissemination
 - Blue print on MARPS
 - Regional workshops
 - Draft proposals, including M&E, covering key MSM activities to be Included on National plans and GFATM proposals
 - National targets

3. Technical Assistance

- *Objectives:*
 - To brief WHO staff and consultants
 - To built a functional network for TA
 - To link with existing TA networks
 - To provide TA to countries
- *Activities and products:*
 - Briefing of Regional WHO staff and consultants (pre- workshops activity)
 - Focus on regions providing TA to include MSM interventions in NSA and Global Fund proposals.

- Mentoring network
- Tool to do country assessment
- TA to countries

4. Monitoring, Evaluation and Research

○ Objectives

- To support CO in assessing situation, measuring progress and establishing targets (linking with target setting and universal access report)
- To conduct operational research generating evidence on the best mix of activities to ensure the guidelines implementation

○ Activities and products:

- TA on M&E to countries to improve quality
- Development of service delivery models
- Field testing and implementation research
- Research protocol, research conducted, paper

Roles and responsibilities

	CO	RO	HQ
Advocacy,	+++	+++	+++
Regional Promotion and Planning	++	+++	+++
Technical Assistance	+++	+++	+
Strategic Information and Research	+++	++	+

Time frame

Advocacy: April - May 2011

Regional Promotion and Planning: June - December 2011

Technical Assistance: September 2011 - December 2012

Strategic Information and Research June 2011: December 2012