



HIV Prevention for Men who have Sex with Men



Question

What are the most effective HIV prevention interventions for men who have sex with men in high-income countries?

Key Take-Home Messages

- There are very few studies of prevention interventions for MSM that use reliable evaluation outcome measures
- Self-reports have shown that individual-, group- and community-level interventions are effective at reducing HIV risk behaviours among MSM
- The long-term effectiveness and sustainability of outcomes of behavioural interventions for MSM have not been examined
- Behavioural interventions for MSM should include rigorous evaluation with biological/clinical outcomes

The Issue and Why It's Important

Despite the fact that we are almost thirty years into the HIV/AIDS epidemic, very few studies that examine the effectiveness of prevention interventions for MSM have employed rigorous evaluation that can reliably determine how effective various interventions are at reducing HIV risk behaviours. Self-reported risk behaviour reduction among MSM suggests that behavioural interventions at individual-, group-, and community-levels are effective; however, such interventions need to be more rigorously evaluated and their effects studied over time.

EVIDENCE INTO ACTION

The OHTN Rapid Response Service offers HIV/AIDS programs and services in Ontario quick access to research evidence to help inform decision making, service delivery and advocacy. In response to a question from the field, the Rapid Response Team reviews the scientific and grey literature, consults with experts, and prepares a brief fact sheet summarizing the current evidence and its implications for policy and practice.

Suggested Citation:

OHTN Rapid Response Service. *Rapid Review: HIV Prevention for Men who have Sex with Men*. Ontario HIV Treatment Network, Toronto, ON, June, 2010

Program Leads / Editors:

Michael G. Wilson, PhD
Jean Bacon
Sean B. Rourke, PhD

Contact:

rapidresponse@ohntn.on.ca

References

1. Berg R. The effectiveness of behavioural and psychosocial HIV/STI prevention interventions for MSM in Europe: A systematic review. *European Communicable Disease Bulletin* 2009;14(48):1-9.
2. 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. *American Journal of Preventive Medicine* 2007;32(4 Supplement):S38-S67.
3. Chesney MA, Koblin BA, Barresi PJ, Husnik MJ, Celum CL, Colfax G et al. An individually tailored intervention for HIV prevention: baseline data from the EXPLORE Study. *American journal of public health* 2003;93:933-8.
4. Dilley JW, Woods WJ, Sabatino J, Lihatsch T, Adler B, Casey S et al. Changing sexual behavior among gay male repeat testers for HIV: A randomized, controlled trial of a single-session intervention. *Journal of Acquired Immune Deficiency Syndromes* 2002;30(2):177-86.
5. Dilley JW, Woods WJ, Loeb L, Nelson K, Sheon N, Mullan J et al. Brief cognitive counseling with HIV testing to reduce sexual risk among men who have sex with men: Results from a randomized controlled trial using paraprofessional counselors. *Journal of Acquired Immune Deficiency Syndromes* 2007;44(5):569-77.
6. Serovich JM, Reed S, Grafsky EL, Andrist D. An intervention to assist men who have sex with men disclose their serostatus to casual sex partners: Results from a pilot study. *AIDS Education and Prevention* 2009;21(3):207-19.
7. Amirkhanyan YA, Kelly JA, Kabakchieva E, Kirsanova AV, Vassileva S, Takacs J et al. A randomized social network HIV prevention trial with young men who have sex with men in Russia and Bulgaria. *AIDS* 2005;19(16):1897-905.
8. Colosio R, Fernandes MI, Bergamaschi DP, Scarcelli IR, Lopes IC, Hearst N. HIV prevention using the operative group approach among men who have sex with men in Sao Paulo, Brazil. *Cadernos de Saude Publica* 2007;23(4):949-59.

What We Found

Available systematic reviews show inconclusive results on the effectiveness of various prevention interventions among MSM, despite the fact that the HIV epidemic has persisted for over two and a half decades (1). Most results point to short term reductions in risk behaviour; however, the long-term sustainability of risk reduction has not been well documented (1). There is a need for outcome evaluations to measure the effectiveness of prevention interventions among MSM over time. Evidence of effectiveness of interventions based on biological outcomes is not prevalent in available research. As such, most of the recommendations are based on self-reporting of sexual risk behaviour and condom use as outcome measures (2).

A 2007 review looked at the effectiveness of individual-, group-, and community-level behavioural interventions for MSM and found that all levels of person-to-person interventions are effective at reducing unprotected anal intercourse. Group-level interventions are also effective at increasing condom use. Furthermore, group- and community-level behavioural interventions were found to be cost-effective and cost-saving. This information was not available for individual-level interventions. The review found that individual-level interventions, while more tailored to the needs of the individual, may not be ideal for maximizing impact at the population level. Rather, they should be employed to target difficult to reach populations. Group-level interventions should include multiple intervention sessions, delivery by other MSM and a skill-building component (2).

Individual Interventions

Interventions that are tailored to the individual, such as the EXPLORE Study in the US focus on a participant's specific cognition and behaviours. These interventions have been found to be effective in reducing sexual risk behaviours (3). Even a single session of counseling that focuses on cognition and behaviour, including the thoughts, attitudes and beliefs behind risk behaviours, has been found to be effective at the individual-level in terms of reducing risk behaviours (4;5). A recent multi-session intervention aimed at improving HIV disclosure with casual sexual partners was effective when there was facilitated administration of the intervention by another person, as opposed to computer-facilitated administration, stressing the importance of being able to discuss behaviours, thoughts and concerns throughout the intervention (6).

Group Interventions

Social networks provide an important opportunity to employ group prevention interventions. There is evidence to support the effectiveness of targeting influence leaders or popular members of a particular social network of MSM for counseling and education (7). Other group interventions have focused on a safer sex operative group approach, which has been shown to decrease sexual risk behaviours and increase prevention knowledge (8). Employing a sexual health approach through a short, comprehensive group seminar was also effective at reducing unprotected anal intercourse among MSM, showing that one-time education strategies may be effective as a risk reduction strategy at the group level (9). Group interventions that are led by peers have been shown to be effective, particularly when the intervention is aimed at reducing risk behaviours among HIV positive MSM (10). Some group interventions have focused on specific MSM sub-populations, including targeting interventions to

specific ethnic/racial communities. The Many Men, Many Voices project is a small-group intervention that specifically targets Black MSM. This targeted intervention reduced unprotected anal intercourse, increased condom use, reduced number of partners and increased testing among Black MSM, thereby stressing the effectiveness of interventions that are adapted to specific communities and settings (11).

Internet-Based Interventions

Internet-based interventions have yielded promising results at increasing HIV knowledge and decreasing risk behaviours; however, not all internet interventions are successful and some studies caution that an evidence-based approach to internet prevention strategies is necessary (12). Some studies have found internet-based interventions particularly effective at reaching rural or other hard-to-reach populations of MSM. At follow-up, rural MSM exhibited increased knowledge and reduced risk behaviours after internet interventions that employed an Information-Motivation-Behavioural skills model (13). Other technologies, including cell-phone based interventions have not been rigorously studied for their effectiveness, although they may be useful for targeting specific populations of MSM (14).

Community-Level / Structural Interventions

Rosser et al (2008) reviewed state-level characteristics in the US that impacted the successful implementation of HIV prevention interventions for MSM (15). The results of their review showed that there are key demographic, social and economic factors that influence a state's success. Specifically, diversity of available MSM interventions, less religious adherents, and the presence of a supported gay community are important to ensure success of intervention programs. Focusing on structural changes to these areas may improve effectiveness of interventions that target MSM (15).

Cost-Effectiveness (from previous Rapid Response)

Behavioural interventions that specifically target gay men have been determined to be cost-effective for preventing HIV. For example, a multi-session educational workshop in the US that focused on education, self-management, sexual assertion, and social support networks cost \$24,000 and when compared to the estimated medical costs of HIV (\$42,000), was found to be cost-saving (16). The initiative was shown to save 5.5 discounted quality adjusted life years (16).

The Mpowerment Project is an HIV prevention intervention that targets young gay men and has been found to be cost-effective. The program has been estimated to prevent 5.0 to 6.2 HIV infections over 5 years, at a societal cost of \$14,600-\$18,300 (over 5 years) per case averted (17). Moreover, the cost of preventing a case of HIV with this program was determined to be far less than the cost of managing HIV over the course of a person's lifetime (17).

Skills training for men who have sex with men has also been found to be both an effective and cost-effective strategy for preventing HIV transmission as the cost of the intervention is less than the projected medical costs for someone living with HIV/AIDS (18). This kind of intervention is cost-saving since the cost per quality adjusted life year was found to be negative (18).

Peer leaders among men who have sex with men are also a cost-effective prevention strategy. This community-level intervention used social networking

9. Rosser BR, Bocking WO, Rugg DL, Robinson BB, Ross MW, Bauer GR et al. A randomized controlled intervention trial of a sexual health approach to long-term HIV risk reduction for men who have sex with men: Effects of the intervention on unsafe sexual behavior. *AIDS Education and Prevention* 2002;14(3 Suppl A):59-71.
10. Wolitski RJ, Gómez CA, Parsons JT. Effects of a peer-led behavioral intervention to reduce HIV transmission and promote serostatus disclosure among HIV-seropositive gay and bisexual men. *AIDS* 2005;19(Suppl 1):S99-109.
11. Wilton L, Herbst JH, Coury DP, Painter TM, English G, Alvarez ME et al. Efficacy of an HIV/STI prevention intervention for black men who have sex with men: findings from the Many Men, Many Voices (3MV) project. *AIDS and Behavior* 2009;13(3):532-44.
12. 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;20(7):820-8.
13. Bowen AM, Williams ML, Daniel CM, Clayton S. Internet based HIV prevention research targeting rural MSM: Feasibility, acceptability, and preliminary efficacy. *Journal of behavioral medicine* 2008;31(6):463-77.
14. Ybarra ML, Bull SS. Current trends in Internet- and cell phone-based HIV prevention and intervention programs. *Current HIV/AIDS Reports* 2007 December;4(4):201-7.
15. Rosser BR, Horvath KJ. Predictors of success in implementing HIV prevention in rural America: A state-level structural factor analysis of HIV prevention targeting men who have sex with men. *AIDS and behavior* 2008;12(2):159-68.
16. Holtgrave DR, Kelly JA. Cost-effectiveness of an HIV/AIDS prevention intervention for gay men. *AIDS and Behavior* 1997;1:173-80.
17. Kahn JG, Kegeles SM, Hays R, Beltzer N. Cost-effectiveness of the Mpowerment Project, a community-level intervention for young gay men. *Journal of acquired immune deficiency syndromes* 2001;27:482-91.
18. Pinkerton SD, Holtgrave DR, Valdiserri RO. Cost-effectiveness of HIV-prevention skills training for men who have sex with men. *AIDS* 1997;11:347-57.

19. Pinkerton SD, Holtgrave DR, Di-Franceisco WJ, Stevenson LY, Kelly JA. Cost-effectiveness of a community-level HIV risk reduction intervention. *American Journal of Public Health* 1998;88:1239-42.
20. Anderson J. Is it worth it? Using evidence on cost-effectiveness to inform priorities for HIV prevention and care. *Building the Case for Effective Interventions*, 11th Annual Ontario HIV Treatment Network Research Conference: Research at the Front Lines: Finding New Solutions in HIV Prevention, Treatment and Care; 2009.

and cost \$65,000 per HIV infection that was averted (19).

At a recent conference in Toronto, Ontario, Jonathan Anderson discussed the following cost-effectiveness findings for various HIV prevention strategies for MSM in Australia: 1) expenditures on needle syringe programs should be increased rather than decreased because increased spending actually saves more money, 2) early treatment initiation was more cost-effective than other later initiation strategies when prevention benefits were taken into account, 3) intermittent pre-exposure prophylaxis was more likely to be cost-effective than continuous post-exposure prophylaxis regimens, 4) circumcision among MSM is a cost-effective strategy, but involves large up-front costs that may make it an unrealistic strategy to employ, 5) non-occupational prophylaxis was determined to be not cost-effective (20).

Concerns About the Evidence

A recent review from Europe found some encouraging results for short term effects of behavioural interventions for MSM, but calls for multiple follow-up sessions and long term evaluations to be conducted to measure sustainability of effectiveness over time. The longest follow-up point found in any of the studies was at 18 months from baseline. The review also noted that rigorous evaluation should include biological/clinical outcomes instead of relying on self-reporting to examine cognitive and behavioural changes. Most of the studies that were analyzed in the systematic review did not meet these requirements and so effectiveness of interventions was inconclusive (1).

Ultimately, effective interventions need to be adapted to specific populations and further research that evaluates the outcomes of interventions that are tailored to specific groups of MSM, such as ethnic/racial groups or MSM who use substances, are needed (2).

The results of the various reviews stress the importance of employing evidence-based practices when selecting a prevention intervention for MSM in a given setting. Furthermore, interventions that target all levels (individuals, groups and communities) are important (1).

Factors that May Affect Local Applicability

Most of the reviewed interventions were from the US and Europe and therefore may not be generalizable to the Canadian context. In particular, cost-effectiveness analyses may not be congruent with Canadian health care costs.

What We Did

To identify any systematic reviews we hand searched the Cochrane HIV/AIDS review group and Health-Evidence.ca under the 'Acquire Immunodeficiency Disorder' and 'HIV' categories. In addition, we searched the Cochrane Library, DARE, Medline (using the optimized search hedge for reviews) and Embase (incorporated the subject heading for 'systematic review') using the following combination of search terms: (HIV prevention) AND ("men who have sex with men" or gay or MSM).