



National Collaborating Centre
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evidence review

Integrating HIV Prevention with Care: Behavioural Interventions in the Clinical Setting

HIV incidence in Canada has not declined since the late 1990's and in 2005, 2483 new infections were diagnosed (1), increasing the number of people living with HIV/AIDS by 16% from 2002 (to 58,000) (2). The number of people living with HIV/AIDS (PHA) is expected to increase every year as infection rates remain stable and highly active antiretroviral therapy (HAART) reduces HIV mortality. A recent study from British Columbia, Canada, estimates that life expectancy at the age of 20 has increased from 9.1 years (in the pre-HAART era) to 23.6 years primarily due to improved survival with HAART (3).

The focus of this paper is to outline the evidence for brief behavioural interventions that health care providers can implement in a clinical setting to facilitate changes in knowledge, attitudes and behaviours associated with increased risk of HIV transmission.

What is 'Prevention with Positives'?

In the past two decades, prevention has focused mostly on the uninfected individual's 'responsibility' and 'choice' to protect themselves (4). Messages targeting PHA encouraging their participation in actively preventing further transmission were unusual. Prevention interventions with HIV-positive people ('positives') integrated into clinical care settings are now a priority in the U.S. (5). In 2005,

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the *Prevention with Positives Initiative* was launched, evaluating 15 behavioural interventions for PHA in clinical settings across the U.S. and among different populations (6). Canada's action plan for HIV/AIDS called *Leading together: Canada takes action on HIV/AIDS (2005–2010)*, prioritizes prevention with PHA, but does not identify strategies specific to the clinical setting.

Why are Behavioural Interventions for PHA Needed?

The majority of new infections—about 55%—are transmitted from individuals unaware of their HIV status. Evidence shows that most individuals reduce risky behaviours after an HIV diagnosis (7,8), although a significant minority continue to participate in activities that could transmit the virus (5,9). In the U.S. about 15,000 of the 40,000 people newly diagnosed with HIV/AIDS every year contract HIV from individuals aware of their status (10). Continued high-risk behaviour among PHA contributes to the failure of public health efforts to reduce HIV incidence (11). A study from Montreal reported that 34% of HIV-positive men who have sex with men (MSM) engaged in risky behaviours (12). Another study from the U.S. reported that unprotected anal intercourse among HIV-positive MSM, ranged from 10% to 46% and unprotected vaginal intercourse among HIV-positive women ranged from 37% to 52% (13).

In North America, HAART is widely accessible, decreasing HIV mortality. While HAART could potentially decrease HIV transmission risk by reducing viral load (14), it also increases life expectancy and therefore the duration of possible HIV transmission (15,16). Lifestyle changes are difficult to maintain over an extended period and individuals practising safer sex or safer injection drug use after diagnosis and counselling may become fatigued and relapse (9,17).

Why Intervene in the Clinical Setting?

The clinical setting provides a unique opportunity for health care providers to deliver prevention messages. PHA attend regular medical appointments, which allow health care providers repeated access to a large proportion of the population. Many individuals consider their health care providers to be reliable sources of HIV prevention information (18,19). The trusting relationship clients often have with their health care providers further reinforces prevention messages (5,20).

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Clinical interventions by health care providers have proven efficacious with behaviours other than sexual, such as smoking cessation (21), increased exercise, decreased alcohol use, and treatment adherence for sexually transmitted infections (STIs) (22). Brief interventions by health care providers facilitate the maintenance of antiretroviral adherence (23). There is also evidence suggesting that even if clients do not immediately change their risky behaviours, receiving regular prevention messages from their health care providers increases their receptiveness to change (24).

What Factors Impact Risk Behaviour?

Risky behaviour has been associated with many factors such as mental health issues, emotional distress and past sexual abuse

(11,25). According to the Information-Motivation-Behavioural skills (IMB) model (5,20) risk behaviour can stem from inadequate knowledge or myths about HIV, limited motivation, or deficient behavioural skills. Myths about HIV among PHA include the belief that unprotected sex is safe if viral load is undetectable (19), or that HIV-positive women are unlikely to transmit HIV (5). Motivation to reduce risk behaviour is lower for those in long-term monogamous relationships, among individuals who desire 'closeness', or who have an abusive partner, and among those who believe that condoms reduce pleasure (25). Some people have difficulty with communication and negotiation skills involving condom use, especially under the influence of drugs or alcohol (5).

How can Health Care Providers Effectively Assess Risk Behaviours?

The U.S. Centers for Disease Control (CDC) recommends that all clients, regardless of their risk profile, can benefit from brief prevention messages (26). Creating a personalized risk profile of the client is an important first step. Health care providers can screen PHA on an initial clinic visit using a face-to-face interview method, or by asking clients to fill out a questionnaire. Computer-, audio- and video-assisted screening has also been used (6). Screening questions should enquire about behaviour associated with HIV transmission (both sexual and injection drug use) and symptoms of STIs.

If the client reveals specific high-risk behaviour during screening, is diagnosed with an STI, or has a recent history of an STI, he/she should receive prevention messages tailored to their circumstances. If an STI symptom is reported, specimens should be sent for laboratory testing and the individual treated (26). Frequency of risk assessments varies, but the CDC recommends screening for risk behaviours annually or more often. STI screening could be conducted at least semi-annually.

Clear prevention messages should be delivered in a supportive, non-threatening manner, and choices of different behaviour options proposed. The suggested relationship between a health care provider and client is a collaborative partnership where both parties participate in negotiating and planning behaviour change. The client's priorities and readiness to change is of central importance in deciding which behaviours to prioritize and the approach to changing them (4,20). Motivational interviewing is a technique often used (5,19). PHAs may not want to change their behaviour and the intervention should then focus on exploring the client's resistance to change and enhancing their motivation to change (4). When a client's risk

behaviour is too complex for a health care provider to handle appropriate referral should occur (26). People often need access to basic needs such as food and shelter before they can attend to their health care needs. Women often need child care services and transportation costs to afford the time needed to attend medical appointments. Linking clients to the necessary services is therefore also a key role and providers need to be aware of services in their area (26,27).

What are Appropriate Prevention Messages?

PHAs should be encouraged to use condoms during sex, regardless of the HIV status of their partner. While some evidence suggests that a low viral plasma load reduces infectivity (28), transmission from individuals with an undetectable viral load can occur. Unprotected sex with another PHA could also have negative consequences for the client's health as contracting a new STI, or another HIV strain could accelerate disease progression (29). It also increases the likelihood of transmitting multi-drug resistant strains of HIV, especially if one partner is receiving HAART and the other is not (4).

Information for clients engaged in unsafe injection drug use should strongly encourage individuals to enter treatment and discontinue drugs. This may not be feasible for all clients, however, and the risks involved in sharing needles together with information on harm reduction approaches such as substance abuse treatment and access to clean needles should be presented (20). As with sexual transmission, infection with a drug-resistant strain of HIV may occur, as well as co-infection with Hepatitis C.

Interventions in the Clinic

Two brief prevention interventions implemented in clinical settings (13,20) were successful in reducing risky behaviours. In a randomized control trial (RCT) conducted by Richardson and colleagues (13), 840 (73% MSM) participating PHAs from six public HIV clinics were asked about risk behaviour in the preceding three months. They received brief (three to five minutes) counselling at each clinic visit framed in terms of gains (positive effects of practising safer sex) or losses (negative consequences of unprotected sex). Participants with two or more sexual partners at baseline, who received prevention messages framed in terms of the negative consequences of unprotected sex, reduced their sexual risk behaviour by 38% (12).

Using a quasi-experimental approach, Fisher and colleagues (20) tested a brief (five to 10 minutes) intervention, the Options protocol, based on the Information-Motivation-Behavioural skills

model of prevention and motivational interviewing, in two large HIV clinics. Their results indicate a decrease in unprotected vaginal and anal intercourse as well as receptive oral intercourse. Risk behaviours involving drug use can also be identified and addressed with the Options protocol (20).

Some recent evidence suggests that self-monitoring of behaviour through the repeated completion of computer risk assessments could be effective in reducing risk behaviours (16). Should this be proven in subsequent studies, this could be a low cost and easily implementable alternative to prevention messages delivered by health care providers in the clinic. Ongoing research is also testing audio-assisted computer interview systems that assess the individual patient's risk behaviour(s) and readiness to change on each of the identified behaviours. It not only provides a print out of the patient's risk profile but also includes intervention strategies to guide the health care provider during counselling (30,31).

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Barriers to Prevention in the Clinical Setting

Barriers to counselling in the clinic can be categorized as deficits in knowledge or skill, provider attitude and organizational structures (31). Frequently mentioned barriers include time constraints and the organization of primary-care services. Barriers are summarized in Appendix A.

Training of health care providers is an important strategy to overcome many barriers. Training can address health care

provider attitudes and increase confidence not only in the health care provider's knowledge and skills but also in the potential efficacy of the intervention (32). The availability of written or computerized protocols in the clinic may also facilitate counselling regardless of client characteristics (33,34). Written protocols provide a guideline for initiating and conducting counselling and can also serve as a visual reminder to the care provider (19). Computer interview systems that not only provide the patient's risk profile, but also include intervention strategies for the health care provider can reduce much of the time spent in the counselling process and could effectively overcome the barrier of time constraints (30,31).

Research Gaps

There is limited scientific evidence specific to brief interventions with PHA in the clinical setting. In two recent meta-analytical reviews of prevention interventions for PHAs (8,9), only one of the interventions included in the reviews was integrated into a clinical setting (13). There are no conclusive results on the effectiveness of interventions delivered by health care specialists specifically focused on reducing HIV transmission; however, a number of studies are in progress and preliminary results are mixed (30,31,35–37).

Appendix 1: Provider barriers to HIV prevention in the clinical setting

1. Financial disincentives to implementing positive prevention may include problems regarding the compensation of physicians and specialists. Clinics might also lack the funding to hire new staff or purchase computer equipment (35,36).
2. Care providers may not see prevention as their responsibility, wanting to focus on patient care rather than public health. Delivering preventive interventions could lead to lower professional satisfaction (25,35,36).
3. Providers may believe that other public health agencies would be better suited and more appropriate to deliver HIV prevention messages (38).
4. HIV prevention messages are complex and providers may feel uncomfortable delivering these messages to patients (25).
5. Lack of standardized tools to assess patient risk (19).
6. A lack of knowledge of risk behaviours, prevention or appropriate counselling techniques could hamper provider counselling (19,36,38).
7. According to "duty to notify" laws, providers are obliged to report certain behaviours (such as knowingly exposing a partner to HIV) to the public health authorities (4,25). Medical providers may not want to discuss risk-taking behaviours because it could reveal reportable activities.
8. Providers may also fear that prying into their patients' private lives could potentially harm their relationship with the patient (4).
9. Concerns about stigmatizing patients, personal beliefs and homophobia have been identified as factors contributing to physician discomfort in providing HIV risk reduction counselling (25).
10. Physician attitude: "Provider fatalism" or scepticism about the effectiveness of behaviour change interventions may decrease physicians' motivation (35). Absence of perception that their patients are at risk (19).



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highlights

- Even though clients may not immediately change their behaviour, receiving prevention messages from their health care providers increases their receptiveness to subsequent prevention messages.
- Prevention messages framed in terms of the negative consequences of unprotected sex and based on the Information-Motivation-Behavioural skills model of prevention results in a decrease in unprotected sex.
- PHA should be encouraged to use condoms during sex, regardless of the HIV status of their partner.

Reference List

- (1) Public Health Agency of Canada. HIV/AIDS Epi Update. Surveillance and Risk Assessment Division, Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada; 2005.
- (2) Public Health Agency of Canada. HIV and AIDS in Canada. Surveillance report to December 31, 2005. Surveillance and Risk Assessment Division, Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada; 2006.
- (3) Viviane DL, Hogg RS, Harrigan PR, Moore D, Yip B, Wood E, et al. Continued improvement in survival among HIV-infected individuals with newer forms of highly active antiretroviral therapy. *AIDS* 2007;21:685-92.
- (4) Gerbert B, Danley DW, Herzig K, Clanon K, Ciccarone D, Gilbert P, et al. Reframing "prevention with positives": incorporating counseling techniques that improve the health of HIV-positive patients. *AIDS Patient Care STDS* 2006 Jan;20(1):19-29.
- (5) Fisher JD, Comman DH, Osborn CY, Amico KR, Fisher WA, Friedland GA. Clinician-initiated HIV risk reduction intervention for HIV-positive persons: formative research, acceptability, and fidelity of the Options Project. *J Acquir Immune Defic Syndr* 2004 Oct 1;37 Suppl 2:S78-S87.
- (6) Koester K, Maiorana A, Vernon K, Myers J, Rose C, Morin S. Implementation of HIV Prevention Interventions with people living with HIV/AIDS in clinical settings: challenges and lessons learned. *AIDS Behav* 2007 Sep 4;11(10):17-29.
- (7) Crepaz N, Lyles CM, Wolitski RJ, Passin WF, Rama SM, Herbst JH, et al. Do prevention interventions reduce HIV risk behaviours among people living with HIV? A meta-analytic review of controlled trials. *AIDS* 2006 Jan 9;20(2):143-57.
- (8) Weinhardt LS, Kelly JA, Brondino MJ, Rotheram-Borus MJ, Kirshenbaum SB, Chesney MA, et al. HIV transmission risk behavior among men and women living with HIV in 4 cities in the United States. *J Acquir Immune Defic Syndr* 2004 Aug 15;36(5):1057-66.
- (9) Johnson BT, Carey MP, Chaudoir SR, Reid AE. Sexual risk reduction for persons living with HIV: research synthesis of randomized controlled trials, 1993 to 2004. *J Acquir Immune Defic Syndr* 2006 Apr 15;41(5):642-50.
- (10) Janssen RS, Valdiserri RO. HIV prevention in the United States: increasing emphasis on working with those living with HIV. *J Acquir Immune Defic Syndr* 2004 Oct 1;37 Suppl 2:S119-S121.
- (11) Veinot TV. The case for an integrated approach to HIV/AIDS prevention: support and treatment services in Canada. *Journal of HIV/AIDS and Social Services* 5[3-4], 181-199. 2006. The Haworth Press.
- (12) Cox J, Beauchemin J, Allard R. HIV status of sexual partners is more important than antiretroviral treatment related perceptions for risk taking by HIV positive MSM in Montreal, Canada. *Sex Transm Infect* 2004 Dec;80(6):518-23.
- (13) Richardson JL, Milam J, McCutchan A, Stoyanoff S, Bolan R, Weiss J, et al. Effect of brief safer-sex counseling by medical providers to HIV-1 seropositive patients: a multi-clinic assessment. *AIDS* 2004 May 21;18(8):1179-86.
- (14) Quinn TC, Wawer MJ, Sewankambo N, Serwadda D, Li C, Wabwire-Mangen F, et al. Viral load and heterosexual transmission of human immunodeficiency virus type 1. Rakai Project Study Group. *N Engl J Med* 2000 Mar 30;342(13):921-9.
- (15) Cohen MS, Gay C, Kashuba AD, Blower S, Paxton L. Narrative review: antiretroviral therapy to prevent the sexual transmission of HIV-1. *Ann Intern Med* 2007 Apr 17;146(8):591-601.
- (16) Lightfoot M, Rotheram-Borus MJ, Comulada S, Gundersen G, Reddy V. Self-monitoring of behaviour as a risk reduction strategy for persons living with HIV. *AIDS Care* 2007 Jul;19(6):757-63.
- (17) Gordon CM, Forsyth AD, Stall R, Cheever LW. Prevention interventions with persons living with HIV/AIDS: state of the science and future directions. *AIDS Educ Prev* 2005 Feb;17(1 Suppl A):6-20.
- (18) Wilkinson JD, Zhao W, Santibanez S, Arnsten J, Knowlton A, Gomez CA, et al. Providers' HIV prevention discussions with HIV-seropositive injection drug users. *AIDS Behav* 2006 Nov;10(6):699-705.
- (19) Schreibman T, Friedland G. Human immunodeficiency virus infection prevention: strategies for clinicians. *Clin Infect Dis* 2003 May 1;36(9):1171-6.
- (20) Fisher JD, Fisher WA, Comman DH, Amico KR, Bryan A, Friedland GH. Clinician-delivered intervention during routine clinical care reduces unprotected sexual behavior among HIV-infected patients. *J Acquir Immune Defic Syndr* 2006 Jan 1;41(1):44-52.
- (21) Lancaster T, Stead L. Physician advice for smoking cessation. *Cochrane Database Syst Rev* 2004;(4):CD000165.
- (22) Kiene SM, Fisher JD, Fisher WA. Interventions in clinical settings. In: Kalichman SC, editor. *Positive Prevention. Reducing HIV transmission among people living with HIV/AIDS.* New York: Springer Science and Business Media Inc.; 2006. p. 219-44.
- (23) Milam J, Richardson JL, McCutchan A, Stoyanoff S, Weiss J, Kemper C, et al. Effect of a brief antiretroviral adherence intervention delivered by HIV care providers. *J Acquir Immune Defic Syndr* 2005 Nov 1;40(3):356-63.
- (24) Kreuter MW, Chheda SG, Bull FC. How does physician advice influence patient behavior? Evidence for a priming effect. *Arch Fam Med* 2000 May;9(5):426-33.
- (25) Mayer KH, Safren SA, Gordon CM. HIV care providers and prevention: opportunities and challenges. *J Acquir Immune Defic Syndr* 2004 Oct 1;37 Suppl 2:S130-S132.
- (26) CDC, Health Resources and Services Administration, National Institutes of Health, HIV medicine Association of the Infectious Diseases Society of America, HIV prevention in Clinical Care Working Group. Recommendations for incorporating human immunodeficiency virus (HIV) prevention into the medical care of persons living with HIV. *Clin Infect Dis* 2004 Jan 1;38(1):104-21.
- (27) Aidala A, Cross JE, Stall R, Harre D, Sumartojo E. Housing status and HIV risk behaviors: Implications for prevention and policy. *AIDS Behav* 2005;9(3):251-65.
- (28) Quinn TC, Wawer MJ, Sewankambo N, Serwadda D, Li C, Wabwire-Mangen F, et al. Viral load and heterosexual transmission of human immunodeficiency virus type 1. Rakai Project Study Group. *N Engl J Med* 2000 Mar 30;342(13):921-9.
- (29) Smith DM, Richman DD, Little SJ. HIV superinfection. *J Infect Dis* 2005 Aug 1;192(3):438-44.
- (30) Grimley DM, Bachman LH, Jenckes MW, Erbeling EJ. Provider-delivered, theory-based, individualized prevention interventions for HIV positive adults receiving HIV comprehensive care. *AIDS Behav* 2007;11:S39-S47.
- (31) Chen HT, Grimley DM, Waithaka Y, Aban IB, Hu J. A process evaluation of the implementation of a computer-based, health provider-delivered HIV-prevention intervention for the HIV-positive men who have sex with men in the primary care setting. *AIDS Care* 2008;20(1):51-60.
- (32) Bluespruce J, Dodge WT, Grothaus L, Wheeler K, Rebolledo V, Carey JW, et al. HIV prevention in primary care: impact of a clinical intervention. *AIDS Patient Care STDS* 2001 May;15(5):243-53.
- (33) Myers JJ, Steward WT, Charlebois E, Koester KA, Maiorana A, Morin SF. Written clinic procedures enhance delivery of HIV «prevention with positives» counseling in primary health care settings. *J Acquir Immune Defic Syndr* 2004 Oct 1;37 Suppl 2:S95-S100.
- (34) Taylor MM, McClain T, Javanbakht M, Brown B, Aynalem G, Smith LV, et al. Sexually transmitted disease testing protocols, sexually transmitted disease testing, and discussion of sexual behaviors in HIV clinics in Los Angeles County. *Sex Transm Dis* 2005 Jun;32(6):341-5.
- (35) Callahan E, Flynn N, Kuenneth C, Enders S. Strategies to reduce HIV risk behavior in HIV primary care clinics: brief provider messages and specialist intervention. *AIDS Behav* 2007 Sep 4;11(10):48-57.
- (36) Nollen C, Drainoni ML, Sharp V. Designing and delivering a prevention project within an HIV treatment setting: lessons learned from a specialist model. *AIDS Behav* 2007 Sep 4;11(10):84-94.
- (37) Zúñiga ML, Baldwin H, Uhler D, Brennan J, Olshefsky AM, Oliver E, et al. Supporting Positive Living and Sexual Health (SPLASH): a clinician and behavioral counselor risk-reduction intervention in a university-based HIV clinic. *AIDS Behav* 2007 Sep 4;11(10):58-71.
- (38) Hansen L, Barnett J, Wong T, Spencer D, Rekart M. STD and HIV counseling practices of British Columbia primary care physicians. *AIDS Patient Care STDS* 2005 Jan;19(1):40-8.