



HIV Prevention for Serodiscordant Couples

Introduction

I. Definition of the Prevention Area

HIV-serodiscordant couples, in which one partner is HIV-positive and the other HIV-negative, are increasingly recognized as a priority for HIV prevention interventions.

II. Epidemiological Justification for the Prevention Area

Although there is considerable variation across countries, recent studies in sub-Saharan countries with mature epidemics show that up to two-thirds of infected couples are discordant. Among discordant couples, only the female partner is infected in 30 to 40 percent of cases, dispelling a common misperception that only men, not women, engage in extramarital sex.

High infection rates, largely due to heterosexual transmission in sub-Saharan Africa, have spurred efforts to assess the extent of HIV transmission within marriages. One study found that 55 to 92 percent of new, heterosexually acquired HIV infections among adults occurred within serodiscordant marital or cohabiting relationships.

According to a research review, the following factors make it more likely that a person living with HIV will transmit the virus to his or her partner: the presence of other sexually transmitted infections, particularly genital ulcerative diseases; high viral load; failure to use condoms correctly and consistently; and specific sexual practices such as a high number of sexual partners and higher frequency of sexual contact. Concurrent sexual partnership may also contribute to risk. The risk of transmission is especially high during early infection, when it is estimated to be 26 times more infectious than during later stages of infection. This makes it especially important to identify HIV infection during the acute stage.

Prevention responses also need to take into account the progress of the epidemic. One hypothesis is that in early epidemics, most discordant couples occur when HIV is introduced into a pre-existing relationship, whereas in more mature epidemics, a greater proportion of discordant couples initiate relationships with a new partner who is already infected.

III. Core Programmatic Components

A small number of interventions are aimed at preventing HIV transmission between partners in discordant couples. Three types of interventions have emerged:

- Couples HIV voluntary counseling and testing (CVCT), both via community-based outreach and in antenatal clinics
- Group-based workshops with serodiscordant couples
- Integrated antiretroviral therapy and HIV prevention programs

Couples HIV counseling and testing is the cornerstone of many discordant couple interventions; it remains the only way to identify couples in which one partner is HIV-positive and one is HIV-negative. For effective prevention programming, couples testing programs will likely require integration with broader HIV programs, including care, treatment, and support services; prevention of mother-to-child-transmission programs; male circumcision; condom promotion; partner reduction; and other behavior change activities.

IV. Current Status of Implementation Experience

Programs in developing countries aimed at reducing transmission of HIV in discordant couples are too new to evaluate for effectiveness. To date, interventions have largely been conducted within structured research protocols, so key unanswered questions are whether the efficacy of such interventions will work in real-life settings, and whether such interventions can be scaled up to achieve sufficient reach to reduce overall rates of HIV transmission.

Updated: November 2009

What we know

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HIV Transmission Risk Behavior among HIV-infected Adults in Uganda: Results of a Nationally Representative Survey

Bunnell, R., Opio, A., Musinguzi, J., et al. *AIDS* (2008), Vol. 22 No. 5, pp. 617-624.

This national cross-sectional study examined risk factors associated with HIV transmission among HIV-infected Ugandan adults. Among cohabiting couples, 40 percent had an HIV-negative spouse, yet most (79 percent) were unaware of their HIV status. Few reported condom use at last sex encounter. Individuals who knew their HIV status (21 percent) were three times more likely to use a condom at last sex act compared to those who were not tested for HIV. Those who knew their partners' HIV status (9 percent) were twice as likely to use condoms at last sex act as those who did not know their partner's HIV status. The findings highlight the need for interventions to support HIV testing among partners.

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New Heterosexually Transmitted HIV infections in Married or Cohabiting Couples in Urban Zambia and Rwanda: An Analysis of Survey and Clinical Data

Dunkle, K.L., Stephenson, R., Karita, E., et al. *The Lancet* (2008), Vol. 371 No. 9631, pp. 2183-9211.

Most HIV infections in sub-Saharan Africa are transmitted by heterosexual sex. The authors analyzed data from the Demographic and Health Surveys in Zambia and Rwanda, and from couples (married, cohabiting, and non-cohabiting) attending a voluntary counseling and testing service. They report that 55 to 93 percent of new, heterosexually acquired HIV infections among adults occurred within serodiscordant marital or cohabiting relationships. The authors calculate that an intervention for discordant couples that reduces transmission from 20 to 7 percent per year could prevent 36 to 60 percent of new HIV infections.

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Regional Differences in Prevalence of HIV-1 Discordance in Africa and Enrollment of HIV-1 Discordant Couples into an HIV-1 Prevention Trial

Lingappa, J.R., Lambdin, B., Bukusi, E.A., et al. *PLoS One* (2008), Vol. 3 No. 1, pp. e1411.

This large study of HIV-1 discordant couples in East and Southern Africa screened 51,900 couples who presented to various screening or treatment clinics. Of couples in which one person was living with HIV, 48 percent had an HIV-negative partner. 7,863 HIV-1 discordant couples were referred for enrollment in the study. Male reluctance to be tested limited enrollment. Participation in the voluntary counseling and testing program increased when voluntary counseling and testing services, palliative services, and basic health care services were provided.

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HIV-1-discordant Couples in sub-Saharan Africa: Explanations and Implications for High Rates of Discordancy

Guthrie, B., de Bruyn, G., & Farquhar, C. *Current HIV Research* (2007), Vol. 5 No. 4, pp. 416-429.

The authors review published studies of HIV discordant couples to examine the factors that allow some individuals to remain uninfected despite repeated exposure to HIV. Factors associated with increased likelihood of transmission include sexually transmitted infections (STIs), particularly genital ulcerative diseases; high HIV viral load; non-use or inconsistent use of condoms; and specific sexual practices, such as a high number of sexual partners and higher frequency of sexual contact. Concurrent sexual partnership may also contribute to risk. Study of long-term discordant couples could help researchers better understand immunity, and these couples could also be valuable as research participants in HIV vaccine and prevention trials. The authors recommend targeted interventions to identify acute infections, diagnose and treat STIs, and promote condom use in non-monogamous couples.

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Sero-discordant Couples in Five African Countries: Implications for Prevention Strategies

de Walque, D. *Population and Development Review* (2007), Vol. 33 No. 3, pp. 501-523.

This author, using nationally representative HIV test results from Burkina Faso, Cameroon, Ghana, Kenya, and Tanzania, reports two surprising findings. First, at least two-thirds of infected couples were discordant couples, highlighting the importance of directing prevention efforts toward serodiscordant couples. Second, only the female partner was infected in 30 to 40 percent of discordant couples, indicating that women, like men, engage in extramarital sexual relationships. Because of this, prevention efforts regarding non-primary sexual partnerships should be directed at both men and women.

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Living with Discordance: Knowledge, Challenges, and Prevention Strategies of HIV-discordant Couples in Uganda

Bunnell, R.E., Nassozi, J., Marum, E., et al. *AIDS Care* (2005), Vol. 17 No. 8, pp. 999-1012.

This qualitative study explored understanding of discordance among HIV-discordant couples who sought voluntary counseling and testing in Uganda. Misconceptions about discordance were widespread among both couples and counselors. Common explanations for discordance included the following: the infection wasn't detectable by HIV tests (i.e., that the HIV-negative partner is actually already infected); belief in immunity (that some people can't get HIV); the idea that gentle sex protects HIV-negative partners; and belief in protection by God. The study underscored the need for education, since many couples believed that there was little or no risk to the uninfected partner.

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Putting it into practice

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AIDSTAR-One Technical Brief: HIV Prevention for Serodiscordant Couples

AIDSTAR-One (2010).

This AIDSTAR-One resource provides a systematic review of core programmatic components related to this emerging HIV prevention topic.

[View Full Text \(PDF, 621 KB\)](#)

The Rapid Scale Up in Identification of Sero-discordant Couples through Home-based HIV Testing and Counseling by The AIDS Support Organization (TASO) Clinic in Jinja, Uganda

Moses, N.H., Luzzec, C., Birungi, J., et al. 5th IAS Conference on HIV Pathogenesis and Treatment (2009), Abstract no. MOPED076.

The researchers evaluated the impact of a home-based HIV counseling and testing (HCT) program to identify the HIV status of the partners and family members of index individuals living with HIV. Of 6,300 clients of a clinic in Jinja, Uganda, living with HIV, 811 (13 percent) were in discordant relationships. Scaled-up HCT identified close to half (49 percent) of these couples during the three-month study. Among the serodiscordant couples, 43 percent were in polygamous relationships, and roughly 40 percent were illiterate. The authors conclude that there is an urgent need for "increased access to serodiscordant couples counseling and support services, including polygamous discordant couples."

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Evolution of Couples' Voluntary Counseling and Testing for HIV in Lusaka, Zambia

Chomba, E., Allen, S., Kanweka, W., et al. *Journal of Acquired Immune Deficiency Syndromes*, (2008), Vol. 47 No. 1, pp. 108-115.

The deployment of community workers and the use of mass media are assessed as strategies to increase utilization of couples' voluntary counseling and testing (CVCT) services in Lusaka, Zambia. Cross-sectional associations between risk behaviors and HIV are presented with the finding of 29 percent HIV prevalence among couples with no risk factors. Because couples may not view themselves as at-risk, promotion is an important component of CVCT interventions.

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Couple-centred Testing and Counselling for HIV Serodiscordant Heterosexual Couples in sub-Saharan Africa

Desgrees-du-Lou, A. & Gliemann J. *Reproductive Health Matters* (2008), Vol. 16 No. 32, pp. 151-161.

Couple-centered HIV voluntary counseling and testing programs have not been widely implemented. Published research on serodiscordant, heterosexual couples in sub-Saharan Africa shows that couple-centered counseling led many infected partners to disclose their HIV status to their partner; decreased partner violence against women who disclosed their HIV status to male partners; and increased condom use. Low client participation is an ongoing challenge. However, promotion of couple-oriented services by the media and home-based visits from trained community health workers appear to be effective. The authors suggest that more programs and research with couple-centered HIV counseling programs could enhance HIV prevention outcomes.

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Project Eban: A Giant Step Forward (Editorial)

Williams, D., Allen, S. & Padian, N. *Journal of Acquired Immune Deficiency Syndromes* (2008), Vol. 49 No. 1, pp. S1-S2.

Conducted among marginalized African American individuals with multiple co-morbidities, this first-of-its-kind study examined an intervention to address "health disparities, racial and sexual minority discrimination, and misconceptions and stigma about HIV transmission." HIV serodiscordant couples in committed relationships of six months or longer participated in four couple sessions and four group sessions focused on reshaping negative stereotypes of HIV-infected

individuals and their partners. The study will test the effects of the intervention on the incidence of sexually transmitted infections and condom use (findings pending).

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Promotion of Couples' Voluntary Counselling and Testing for HIV through Influential Networks in Two African Capital Cities

Allen, S., Karita, E., Chomba, E., et al. *BMC Public Health* (2007), Vol. 7, pp. 349.

Couples voluntary counseling and testing (CVCT) is an effective strategy to prevent new HIV infections in cohabiting heterosexual couples. However, sustaining efforts to encourage couples testing is a challenge. One promising approach utilizes Influence Network Agents (INAs) from health, religious, non-governmental, and private sectors to invite couples for CVCT. Fourteen percent of couples who received invitations from INAs requested CVCT. Invitations were most successful when delivered in an INA's home, to both partners, or to someone known to the INA. Obstacles included limited time and money for transportation. Provision of home-based testing might improve uptake.

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A Group-based Intervention to Increase Condom use among HIV Serodiscordant Couples in India, Thailand, and Uganda

McGrath, J.W., Celentano, D.D., Chard, S.E. et al. *AIDS Care* (2007), Vol. 19 No. 3, pp. 418-424.

A group-based intervention with serodiscordant couples was conducted in India, Thailand, and Uganda. The intervention consisted of four sessions focused on communication, problem solving, and negotiation skills. The first two sessions were single-sex groups, and the last two sessions included both partners. Participants were enthusiastic about the intervention, citing information about HIV serodiscordancy and the opportunity to meet couples "like us" as important features. At three-month follow-up, 90 percent of participants reported using some of the skills learned. Condom use reached 100 percent at the first follow-up visit, although the authors noted that social acceptability bias might be a factor in the reported high use of condoms.

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Changes in Sexual Behavior and Risk of HIV Transmission after Antiretroviral Therapy and Prevention Interventions in Rural Uganda

Bunnell, R., Ekwaru, J.P., Solberg, P., et al. *AIDS* (2006), Vol. 20 No. 1, pp. 85-92.

The Home-Based AIDS Care Project offers home-based antiretroviral therapy care to HIV-positive patients in rural Uganda. Prevention counseling and home-based voluntary counseling and testing to all household members of positive patients are also provided. In individual sessions, participants develop personal sexual behavior plans. Overall there was a 70 percent reduction in reported risky sex (over 85 percent of risky sexual acts occurred within married couples). The authors estimate a 98 percent reduction in the number of seroconversions after six months. The study supports the incorporation of prevention activities into antiretroviral programs.

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Undiagnosed HIV Infection and Couple HIV Discordance among Household Members of HIV-infected People Receiving Anti-retroviral Therapy in Uganda

Were, M., Mermin, J.H., Wamai, N., et al. *Journal of Acquired Immune Deficiency Syndromes* (2006), Vol. 43 No. 1, pp.

This study sought to identify the HIV status of household members of individuals taking antiretroviral therapy (ART). Virtually all (99 percent) household members accepted voluntary counseling and testing (VCT) and almost all were tested in their homes. Many persons with HIV believe their partners are already infected and therefore do not avoid high-risk practices; however, the study found that, of patients' spouses tested for HIV, 43 percent were HIV-negative. The study demonstrated that delivering VCT to household members of people initiating ART is well accepted by household members and can result in the detection of a large number of previously undiagnosed HIV infections and HIV-discordant relationships.

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Influence of Partner Participation on Sexual Risk Behavior Reduction among HIV-positive Zambian Women

Jones, D.L., Ross, D., Weiss, S.M., et al. *Journal of Urban Health* (2005), Vol. 82 No. 3, pp. iv92-iv100.

This study reports on a group-based intervention (adapted from an urban US context) for women living with HIV and their HIV-negative male partners in Zambia. Females attended four group intervention sessions on sexual behavior skills training. Their male partners attended either a single session or a four-session gender concordant intervention. Both men and women reported increased and sustained condom use following the intervention. Women with partners who attended the four-session intervention reported higher rates of condom use, more positive condom attitudes, safer sex intentions, and less alcohol use. The findings highlight the advantage of including both male and female partners to influence the sexual dynamics of a relationship and increase prevention behaviors.

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Antenatal Couple Counseling Increases Uptake of Interventions to Prevent HIV-1 Transmission

Farquhar, C., Kiarie, J., Richardson, B., et al. *Journal of Acquired Immune Deficiency Syndromes* (2004), Vol. 37 No. 5, pp. 1620-1626.

Women attending an antenatal clinic in Nairobi were encouraged to invite their partners to the clinic for voluntary counseling and testing (VCT) for individuals or couple post-test counseling. Of the 2,104 women, 308 (15 percent) had partners who participated in VCT, and of those, 116 received couple counseling. Partner participation in VCT was associated with increased uptake of interventions to prevent sexual and mother-to-child HIV transmission. HIV-positive women who came with their partners for VCT were more likely to return for nevirapine. Uptake of preventive measures was strongest when partners agreed to be counseled as a couple. One of the challenges emerging from the study is identifying strategies to increase partner participation.

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Sexual Behaviour of HIV-discordant Couples after HIV Counseling and Testing

Allen, S., Meinzen-Derr, J., Kautzman, M., et al. *AIDS* (2003), Vol. 17 No. 5, pp. 733-740.

The impact of joint voluntary counseling and testing (VCT) was assessed among 963 cohabiting, heterosexual, HIV-discordant couples. Discordant couples reported a marked increase in condom use after joint VCT, and maintained this reduction for at least a year. Almost one-quarter of discordant couples reported perfect condom use. Most couples reported occasional lapses, but only 10 percent reported unprotected sex at each follow-up visit. However, biological markers

indicated significant underreporting of unprotected sex; in half of the instances in which sperm were detected and nearly one-third of pregnancies, couples had reported always using condoms. The authors recommend that biological markers should be used in addition to behavioral changes to assess program efficacy.

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The Efficacy of a Relationship-based HIV/STD Prevention Program for Heterosexual Couples

El Bassel, N., Witte, S.S., Gilbert, L., et al. *American Journal of Public Health* (2003), Vol. 93 No. 6, pp. 963-969.

This study assessed the efficacy of a relationship-based HIV and sexually transmitted infection prevention program for couples in the U.S. at risk for infection. The six-session intervention emphasized relationship dynamics. Couples were randomly assigned to one of three groups: 1) a six-session intervention delivered to couples together; 2) a six-session intervention delivered to the woman alone; and 3) a control group in which a one-session intervention was delivered to the women alone. Women in the individual and couple sessions were equally likely to reduce unprotected sex acts, compared with the control group. However, only 16 percent of women met eligibility criteria (presence of a main male partner) to participate and, of those, just over half agreed to participate.

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Sexual Practices of HIV-discordant and Concordant Couples in Rwanda: Effects of a Testing and Counselling Programme for Men

Roth, D., Stewart, K.E., Clay, O.J., et al. *International Journal of STD & AIDS* (2001), Vol. 12 No. 3, pp. 181-188.

The husbands and male cohabiting partners of 684 Rwandan women were recruited to participate in an HIV testing and a male-focused counseling program. All of the women and 256 of the men (37 percent) had previously received standard HIV testing and basic counseling services. Reported condom use increased dramatically for serodiscordant couples participating in the program after 12 months. The effect was especially strong for couples in which the male partner received HIV testing and counseling for the first time. Reported condom use also increased among couples in which both partners had been previously tested and counseled.

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Efficacy of Voluntary HIV-1 Counselling and Testing in Individuals and Couples in Kenya, Tanzania, and Trinidad: A Randomised Trial

The Voluntary HIV-1 Counseling and Testing Efficacy Study Group. *The Lancet*, (2000), Vol. 356 No. 9224, pp. 103-112.

This study examined the impact of voluntary counseling and testing (VCT) for individuals and couples in Kenya, Tanzania, and Trinidad. Couples receiving VCT reported significantly reduced unprotected intercourse with their sex partners compared to couples receiving only health information. No differences were found in unprotected intercourse with sex partners who were not enrolled in the study. Couples in which one or both partners were diagnosed with HIV were more likely to reduce unprotected intercourse than couples in which both partners were uninfected. Behavioral changes were sustained at a mean follow up of 14 months.

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Tools and Curricula

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Centers for Disease Control and Prevention

Developed primarily for experienced HIV prevention counselors, this curriculum can be adapted to various country contexts when providing couples HIV counseling and testing. The materials cover essential topics and activities for those counseling couples and include prevention messages tailored to couples' life stages, mitigating tension and diffusing blame while creating an environment safe for HIV disclosure to partners.

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Learn more

Voluntary Counseling and Testing (VCT): Paper for the UNAIDS Expert Panel on HIV Testing in United Nations Peacekeeping Operations

Baggaley, R. 17-18th September 2001, New York.

HIV can have a negative impact on peace and security in Africa, including affecting the health of international peacekeeping and support personnel. This background paper reviews the special considerations related to voluntary HIV counseling and testing (VCT) among this population. It begins by reviewing the essential elements of VCT and the minimum requirements for its ethical delivery. In addition to providing the rationale, advantages, and disadvantages of VCT among peacekeepers, the author identifies five possible approaches for providing VCT to peacekeepers. The report concludes with three possible options for scaling up VCT programs among UN peacekeeping personnel, and providers overall recommendations on providing VCT and other HIV-related services to this special group. A model for couples testing is outlined.

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