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HIV PREVENTION FOR SERODISCORDANT COUPLES

TECHNICAL BRIEF

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INTRODUCTION

HIV serodiscordant couples, where one partner is HIV positive and the other is HIV negative, are increasingly being recognized as a priority for HIV prevention in developing countries (Joint United Nations Programme on HIV/AIDS [UNAIDS] 2008).

Recent studies have estimated that in several sub-Saharan African countries, approximately two-thirds of infected couples are serodiscordant couples (de Walque, 2007). Developing effective HIV prevention interventions that target serodiscordant couples could potentially contribute to reducing HIV transmission in many countries. Moreover, provision of services to serodiscordant couples to help them manage their status is an essential component of comprehensive HIV responses.

This brief provides a summary of prevention interventions that are effective or showing promise in developing countries toward reducing HIV sexual transmission risk within serodiscordant cohabiting heterosexual or married couples.

While this brief focuses on HIV serodiscordant couples, prevention for serodiscordant couples does not occur in isolation from programs for HIV negative concordant and HIV positive concordant couples, or more broadly from other related prevention programs, such as those focused on partner reduction or condom social marketing. Prevention messages and interventions need to respond to the serostatus of both partners in the relationship. This requires ensuring that partners are aware of their own and their partners' HIV status.

This brief was developed to assist program planners and implementers to design, plan, and implement HIV prevention interventions with serodiscordant couples. It has been informed by a review of the published

literature relating to HIV prevention with serodiscordant couples and the AIDSTAR-One database of good and promising programmatic practices. Some key programs that informed this brief are highlighted in text boxes.

PRIORITIZATION OF SERODISCORDANT COUPLES

Two-thirds of infected couples have been estimated as discordant in Burkina Faso, Cameroon, Ghana, Kenya, and Tanzania; between 30 and 40 percent of the infected couples are couples where the female partner only is infected (dispelling a common perception that it is solely men who are putting their female partner at risk) (de Walque 2007). Across east Africa, national representative data suggest 40 to 50 percent of married HIV infected individuals have an HIV uninfected spouse (Bunnell and Cherutich 2008). In addition, Uganda's "modes of transmission" study found that new cases of HIV infection are increasingly occurring among married people ages 30 to 40 (Wendo 2009).

The high HIV infection rates attributable to heterosexual transmission in sub-Saharan Africa have led to increasing efforts to assess the extent of HIV transmission within marriages. One study estimates that between 55.1 to 92.7 percent of new heterosexually acquired HIV infections among adults occurred within serodiscordant marital or cohabiting relationships. The same study estimates that as high as 60.3 to 94.2 percent of these new infections occurred within serodiscordant relationships, when modeling takes into account higher reported condom use with non-cohabiting partners (Dunkle et al. 2008). However, it is important to note that these estimates may include some biases, including transmission that results from sex with partners outside of the marriage, and do not take into account the potential benefits of ART on transmission.

Prevention interventions with serodiscordant couples need to give consideration to factors that may facilitate transmission. A review of research on HIV discordant heterosexual couples identified factors that influence transmission including sexually transmitted infections (STIs), particularly genital ulcerative diseases, viral load, condom use, and specific sexual practices (such as a high number of sexual partners and higher frequency of sexual contact) (Guthrie et al. 2007). The risk of transmission is especially high during early infection—estimated to be 26 times more infectious than asymptomatic infection and to last for three months after seroconversion—which poses a challenge for interventions to identify acute infections (Hollingsworth et al. 2008).

Prevention responses also need to take into account the progress of the epidemic. One hypothesis is that in early epidemics, most discordant couples arise when HIV is introduced into a preexisting relationship; in more mature epidemics, where there are many more people who have been infected with HIV, a greater proportion of discordant couples initiate relationships with a partner who is already infected (Guthrie et al. 2007).

Other factors that play a role in HIV transmission within couples include migration and alcohol consumption. The direction of spread may not be just from migrant men, who become infected while away, but also from women with absent partners who may infect their returning migrant partner (Lurie et al. 2003). This highlights the importance of using prevention to address the needs of couples rather than focusing solely on individual partners. Alcohol use has also been associated with unprotected sex among HIV serodiscordant couples; interventions may need to include a focus on alcohol consumption (Coldiron et al. 2008).

The Home-Based AIDS Care Project

Approach: Home-based antiretroviral therapy (ART) is given to HIV positive patients, plus home-based HIV testing and prevention counseling to partners and household members

Country: Uganda

Interventions:

- Home-based ART
- Home-based counseling and testing for partners and household members
- Development of sexual behavior plans

Core elements:

- Encourage couples to receive test results together
- Offer HIV discordant couples enhanced couples counseling
- Develop personalized couple risk reduction plans

Enabling environment: Ensure operational feasibility (e.g., government testing protocols, laboratory and home testing capacity, trained staff)

Results:

- Ninety nine percent of household members accepted HIV testing
- Forty three percent of HIV positive partners were HIV negative, and 99 percent had not been previously tested
- Seventy percent reduction in risky sex (over 85 percent of risky sexual acts occurred within married couples)
- Ninety eight percent reduction in the number of estimated seroconversions after six months

Conclusions:

- Detected large number of HIV discordant relationships
- Supports arguments for incorporating couples' HIV testing and prevention into ART programs

PREVENTION WITH SERODISCORDANT COUPLES

Prevention with serodiscordant couples is a relatively new area of prevention activity in many developing countries. Only a small number of interventions targeted at serodiscordant couples have been identified. Below are some of the key elements of approaches that have proven to be effective or are showing promise. Overall, there are three broad program components:

- First, the key to prevention with serodiscordant couples is Couples HIV Counseling and Testing (CHCT). By testing together, each partner knows their own and their partner's serostatus. How CHCT is implemented within the field has varied. At times, CHCT is incorporated into antenatal clinics, while at other times it is conducted through outreach programs. There are, however, some common elements to all the approaches.
- Second, group-based interventions are another important program component. Group-based interventions include the provision of information, developing risk reduction strategies, and developing personal skills.
- The third critical component of prevention with serodiscordant couples is the need to provide a supportive environment. Fear of stigma often acts to impede access to services. Reducing stigma and building community support can enable prevention programs to function more effectively. In addition, logistical and financial obstacles often need to be overcome to further facilitate access.

While this brief specifically focuses on the components required for prevention programs with serodiscordant couples, to be effective such programs often require integration with broader HIV prevention pro-

Couples HIV Counseling and Testing (Allen et al. 2007; Chomba et al. 2008)

Approach: CHCT

Countries: Zambia and Rwanda

Outreach models:

- Peer model using community workers (CW) model—trained CWs conduct door-to-door outreach
- Trained Influential Network Agents (INAs) invite couples for CHCT

Impact of models:

- Outreach by CWs resulted in increased attendance and attendance declined by 90 percent when CWs outreach was discontinued
- Invitations delivered in an INA's home to both partners, or someone known to INA were strong indicators of uptake—14.3 percent of total invitations resulted in uptake

Challenges:

- CWs—cost- and labor-intensive
- INAs—low uptake of invitations

Enabling environment: Public support and endorsement of CHCT by community leaders

Results following CHCT:

- Almost 25 percent of discordant couples reported perfect condom use
- Most couples reported occasional lapses
- Only 10 percent reported unprotected sex at each follow-up visit

Conclusions: CHCT prompted sustained but imperfect condom use in HIV discordant couples

grams such as care and treatment support services, multiple concurrent partner and sexual exclusivity programs, condom promotion, and other behavior change communication activities. This is particularly important given that HIV prevention programs that are effective at reducing the risk of transmission within serodiscordant couples are not necessarily ef-

fective with other non-primary partners. Integration with existing services and prevention programs will also facilitate scale-up and provide venues in which messages can be reinforced.

Couples HIV Counseling and Testing

The cornerstone of prevention programs with serodiscordant couples is **ensuring couples learn if they are HIV discordant**. This knowledge is critical if serodiscordant couples are to reduce the risk of HIV transmission to the HIV negative partner. In Uganda, approximately 80 percent of adults were unaware of their HIV status, and more than 90 percent were unaware of their partners' status (Bunnell and Cherutich 2008). Yet knowledge of HIV serodiscordant status has been associated with increased condom use (Bunnell et al. 2008).

Increasingly, there has been recognition of the need for services to **work with couples**, rather than just with the individual partners. CHCT has been shown to be an effective intervention for reducing the risk of HIV transmission among serodiscordant couples (Allen et al. 2003; DeZoysa et al. 2000). As a result, couples are identified as a priority for counseling and testing in PEPFAR policy documents (PEPFAR 2009). Counseling couples together enables the challenging issue of disclosure to be addressed, although this requires ensuring that counselors are skilled at supporting serodiscordant couples.

Effective prevention with serodiscordant couples requires **prioritization of serodiscordant couples within existing programs and services**, rather than stand-alone prevention programs. Couples need to be a priority for HIV counseling and testing programs, although prioritizing couples alone does not ensure increased participation, and additional strategies to increase demand for services from couples are often required. Likewise, couples' testing has been integrated into antenatal HIV counseling and testing programs

The Partner Project (Jones et al. 2005)

Approach: Cognition-behavioral group intervention

Country: Zambia

Target population: HIV positive women and their partners

Interventions:

- Four group sessions for women
- Single or four group sessions for their male partners
- Cognitive behavioral skill training on HIV/STIs prevention and transmission, reproductive choice, mother-to-child, communication, conflict resolution, sexual negotiation, and an educational program to increase the use of and adherence to sexual barriers

Core elements:

- Same gender groups
- Led by trained gender-congruent counselors

Enabling environment:

- Importance of male participation
- Recognizing gender issues and their impact on sexual decision making

Results: After the intervention, female participants (whose partners participated in the four-session intervention) reported higher rates of condom use, more positive condom attitudes, safer sex intentions, and less alcohol use

(Farquhar, Kiarie, and Richardson 2004). Treatment and care programs have also effectively integrated counseling and testing of the partners of people with HIV within home-based ART programs (Bunnell et al. 2006; Were et al. 2006).

Group-based Interventions

In addition to prioritizing prevention for serodiscordant couples within existing programs, there is a **need for group-based interventions**. Small group-based interventions working with both partners in a serodiscordant relationship have proven to be effective at reducing risk (Jones et al. 2005; McGrath, Celentano, and Chard 2007). Group-based interventions have also highlighted male partner influence in the adoption of risk reduction strategies for serodiscordant couples (Jones et al. 2005).

Group-based interventions can be integrated with other services. The addition of a male-focused counseling program (an educational video followed by a facilitated group discussion) to the standard testing and generic counseling services normally offered as part of counseling and testing was effective at increasing dramatically the rates of condom use for serodiscordant couples when the male partner participated in the program (Roth et al. 2001).

Prevention with serodiscordant couples includes focusing on **information and education, personal risk reduction strategies, and skills development**. Group-based interventions often focus on a mixture of all three strategies. The development of personal risk reduction strategies has often occurred as part of counseling with serodiscordant couples. Another positive outcome from group-based interventions is that serodiscordant couples have reported that the interventions provide social support and reduce isolation (McGrath, Celentano, and Chard 2007). Project Eban, currently being conducted in the United States, is one of the largest interventions conducted to date to evaluate the efficacy of a couples-based intervention designed for HIV serodiscordant couples (Center for Mental Health Research on AIDS, National Institutes of Health 2008). Upcoming findings may provide valuable lessons for the development of effective group-based interventions.

Address Environmental Factors

Prevention programs do not occur in isolation; they are more effective when they occur within the context of a **supporting environment**. The stigma associated with HIV acts as a significant impediment to couples' willingness to access services (Allen et al. 2007). Government and community leaders need to support and endorse initiatives that work with couples, as well as work toward reducing the stigma associated with HIV. Some prevention interventions also require building community support to challenge cultural attitudes and beliefs. For CHCT to be effective within antenatal clinical settings, the perception that antenatal care is only for women needs to be addressed.

Another key factor that contributes to a supportive environment is **ensuring financial and logistical barriers are overcome** and that they do not prevent couples from accessing programs and services. Barriers might include transport, testing costs, childcare, hours of services, and lack of time. Financial and logistical issues have often been cited as reasons as to why there is low demand for CHCT. In situations where partners and family members are offered free and convenient access (e.g., home-based) to HIV counseling and testing and where other obstacles are overcome (e.g., transport, childcare), uptake can be improved (Chomba et al. 2008; Farquhar, Kirarie, and Richardson 2004; Wanyenze et al. 2008).

CHALLENGES

For prevention with serodiscordant couples to be effective, a range of challenges and barriers need to be overcome. Below is a summary of some of the common challenges that prevention programs have experienced and how these have been overcome.

Increasing partner participation rates: One of the significant challenges is low couple demand for CHCT,

even when incorporating mass media promotion or a peer outreach model. This may be due to fear of stigma, lack of knowledge of CHCT, and lack of familiarity about where CHCT is available (Allen et al. 2007). Demand has increased by using home-based services, door-to-door outreach, and community leaders to promote access. The delivery of home-based HIV testing to household members of HIV positive people taking ART resulted in 99 percent uptake in a study in Uganda (Were et al. 2006).

Provider-initiated HIV counseling and testing of hospital patients and their family members has proved highly acceptable; 93 percent of family members accepted the offer of testing in a study in Uganda (Wanyenze et al. 2008). Within antenatal clinics, there has been less success with only 3 to 15 percent of partners receiving testing (Farquhar, Kirarie, and Richardson 2004). The low partner participation rates may be due to a lack of community awareness of CHCT and a cultural belief that antenatal care is only for women. One strategy that has been recommended to address this involves clinics sending personalized letters directly to husbands rather than relying on the wife to convince the husband to attend (Mlay, Lugina, and Becker, 2008).

Gender inequality: Gender power imbalances have an impact on sexual relations and HIV transmission. HIV positive women in discordant couples are especially likely to face separation or divorce more than women in other HIV status couples (Porter et al. 2005). Women with HIV were significantly more likely to have experienced physical violence, sexual violence, or both with their current partner (Maman et al. 2002). HIV disclosure can be a challenge for HIV positive women. These challenges may be partially addressed by ensuring couples are counseled jointly. This requires ensuring staff are trained to provide the appropriate support to serodiscordant couples.

Knowledge of HIV Serodiscordancy

HIV prevention with serodiscordant couples requires challenging misconceptions. A widespread misconception is that HIV serodiscordancy cannot exist between couples (Bunnell et al. 2005). Explanations for discordancy include the concept of a hidden infection not detectable by HIV tests, belief in immunity, the thought that gentle sex protected HIV negative partners, and belief in protection by God (Maman et al. 2002). The denial of HIV discordancy is likely to increase the risk of HIV transmission to the HIV negative partner within serodiscordant couples. Even counselors have been found to lack clear explanations for HIV discordance, highlighting the need for quality counselor training and clear counseling protocols that can ensure the needs of serodiscordant couples are better addressed. Likewise, clear education messages (see box below) need to be developed that support risk reduction within serodiscordant couples and address misconceptions.

Key Education Messages (Bunnell et al. 2005)

- HIV discordance is common.
- Couples can remain discordant for a long time.
- HIV discordance is not a sure sign of infidelity.
- HIV is not transmitted on every exposure.
- Viral load is important in transmission, but it changes over time.
- No one is immune from HIV.
- HIV negative partners in discordant couples are at very high risk of infection.
- Effective risk reduction options exist.
- HIV transmission within discordant couples can be prevented.

Ensuring the Quality of Interventions

Attention needs to be given to the quality of prevention interventions if they are to be effective at facilitating behavior change. Increasing access to CHCT needs to occur without reducing the quality of counseling available to couples. While programs targeting couples need to increase their reach, the quality of interventions needs to be maintained. In real world settings, there is already concern that the counseling and testing focus is often on testing, with little focus on counseling for behavior change (Shelton 2008). To assist counselors working with couples, the U.S. Centers for Disease Control (CDC) has developed a CHCT curriculum in response to growing demand for the field (CDC 2009).

QUESTIONS AND ANSWERS

Can prevention interventions reach those most in need?

The interventions that have informed this brief have frequently used participants and couples who have already sought out health services. In seeking out such services, these participants may be more receptive to prevention messages and behavior change than those serodiscordant couples who do not seek out services. To be effective, prevention efforts also need to reach those serodiscordant couples who may be unaware of their serodiscordant status and who may not already be in contact with services.

Can prevention with serodiscordant couples reduce overall rates of HIV transmission?

HIV prevention targeting couples may be effective at reducing individual risk of HIV transmission with serodiscordant couples, but it may have no overall impact on reducing the overall rate of HIV transmission at a population level. Two factors that may influence whether or not HIV prevention has a population-wide impact are as follows: services must achieve sufficient

reach among serodiscordant couples; and the quality of services cannot be compromised as a result of increasing reach. By way of an example, small group interventions have shown to be effective at reducing risk for participating couples, yet for a population-wide reduction in transmission rates, a large number of serodiscordant couples would need to participate in such programs and the quality of the programs would need to be maintained. In many countries, capacity development will be required to strengthen the quality of counseling services and to teach counselors new skills required to work with couples. More effective methods of increasing awareness of serodiscordancy and created demand for couples services are also needed.

Can ART reduce overall rates of HIV transmission within serodiscordant couples?

ART may reduce the transmission risk at a personal level for serodiscordant couples, yet whether ART can play a role in reducing the risk of infection within the overall population is contentious (Garnett and Gazzard 2008; Wilson et al. 2008). It has been predicted that ART may be unlikely to have an impact on the epidemic at the population level in sub-Saharan Africa (Gray et al. 2003). Most individuals do not start ART during acute infection, when it is hypothesized that a large proportion of forward transmission occurs. In settings with limited access to ART and where only people with advanced disease receive therapy, any therapy benefits could be offset by behavioral disinhibitions. If patients increase risky sexual behavior after starting ART because they believe they are no longer able to transmit HIV, the prevention effect of ART could be negated, although recently the Home-Based AIDS Care project reported no behavioral disinhibition among uninfected household members of ART patients (Bechange et al. 2008). Furthermore, individuals on ART are more likely to be sexually active for longer periods of time given their improved health, increasing the length of time partners can be exposed

to the virus. Finally, the up-front cost of expanding and sustaining ART programs is likely to be substantial.

Are the prevention interventions effective in real life settings?

The interventions that informed this brief were often conducted within controlled research settings and for limited time periods. Questions remain as to whether the efficacy of such interventions will work in real life settings, particularly in resource-poor settings. Implementation of the existing research models on a large or national programmatic scale would be costly. In addition, interventions that have a positive effect with serodiscordant couples do not necessarily produce perfect behavior change in all couples; there is also a valid concern that participants in research studies may be providing socially desirable responses. Even when interventions appear effective at promoting positive behavior change, most research only monitors behavior in the short term (a year or less), leaving questions unresolved as to whether long-term behavior change can be maintained.

RESOURCES

For more information on the following topics, please visit the Web sites listed below:

- **UNAIDS voluntary counseling and testing information:** http://data.unaids.org/Publications/IRC-pub01/jc379-vct_en.pdf
- **CDC CHCT intervention and training curriculum:** <http://cdc.gov/globalaids/CHCTintervention/>
- **The intervention curricula for the voluntary HIV-1 counseling and testing randomized trial in Kenya, Tanzania, and Trinidad (The Voluntary HIV-1 Counseling and Testing Efficacy Study Group):** <http://www.caps.ucsf.edu/projects/VCT>
- **CHCT studies conducted by The Rwanda-Zambia HIV Research Group:** <http://www.rzhr.org/>
- **World Health Organization (WHO)**
 - HIV testing and counseling toolkit: <http://www.who.int/hiv/topics/vct/toolkit/en/index.html>
 - Guidance on provider-initiated HIV testing and counseling in health facilities: <http://www.who.int/hiv/pub/vct/pitc2007/en/index.html>
- **World Bank Policy Research Working Paper (no. 3956) on discordant couples:** <http://econ.worldbank.org>

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