

Chapter 6. HIV Testing and Counseling for Women

Knowing one's HIV serostatus is the first step in getting the appropriate treatment and care. According to UNAIDS, fewer than 40% of those living with HIV are aware of their serostatus (UNAIDS, 2010c). In parts of sub-Saharan Africa, more than 80% of people living with HIV do not know their positive serostatus (Anand et al., 2009). Global consensus exists that “greater knowledge of HIV status is critical to expanding access to HIV treatment, care and support in a timely manner, and offers people living with HIV an opportunity to receive information and tools to prevent HIV transmission to others and that increased access to HIV testing and counseling is essential in working towards universal access to HIV prevention, treatment, care and support” (WHO and UNAIDS, 2007: 5). Although evidence shows that just knowing one's serostatus can lead toward more protective behaviors for those who test positive (Booth et al., 2009; Wilson et al., 2007), far greater benefits accrue from “successful referral to treatment and care of those found to be HIV-positive,” rather than just testing alone (IOM, 2011: 83). There is little reliable data on the number of people who are successfully linked with care and treatment services following an HIV diagnosis in resource-limited settings (Nsigaye et al., 2009), although progress has been achieved in some areas.

“...HIV testing can and should be expanded without disregard for human rights” (Jurgens, 2007a: 1).

For example, in one community near Cape Town, South Africa, a review of records from 2001 to 2006 found that the proportion of clients living with HIV who received antiretroviral therapy within six months of eligibility increased from 0% in 2001 to 68% in 2006 (April et al., 2009). However progress is not universal: in a study in Ethiopia, for example, the number of clients who tested HIV-positive but were not linked to care increased from 18% in 2005 to 26% in 2008 (Assefa et al., 2010). [*See also Treatment: Provision and Access*]

There is wide recognition that the way HIV testing and counseling is undertaken is also critical to ensure that human rights are not violated and that there is an “urgency to clarify and articulate—in clear rights-based, operational terms—what is needed to ensure that people are able to obtain the full benefits from learning their HIV status for themselves and others; receive the best and most ethical care, diagnosis and treatment in health settings; and if positive, be supported to manage HIV and opportunistic infections, including prevention of transmission of HIV, and equipped to avoid, or seek redress for, stigma, discrimination and violence; and if negative, be supported through prevention strategies to stay negative” (UNAIDS Reference Group on HIV and Human Rights, 2007: 1).

Gay, J., Croce-Galis, M., Hardee, K. 2012. What Works for Women and Girls: Evidence for HIV/AIDS Interventions. 2nd edition. Washington DC: Futures Group, Health Policy Project. www.whatworksforwomen.org

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HIV testing and counseling comes in many modalities and there are both benefits and challenges in testing. This section focuses on HIV testing and counseling of women and adolescent girls in general. Specific issues relating to HIV testing in the context of safe motherhood and prevention of vertical transmission can be found in that section. [See *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]

More Testing Modalities Enable More People to Learn Their Status

Attention to testing in HIV programming has resulted in a proliferation of HIV testing and counseling (HTC) modalities. The advent of HIV rapid test technology has simplified HIV testing and counseling implementation and expanded where such testing can take place (Menzies et al., 2009). Some of these modalities include provider-initiated testing; couples counseling; client-initiated testing, also known as voluntary counseling and testing (VCT); home-based testing; and community-based testing either in mobile clinics, at the work place, or at a school, for example (WHO et al., 2011b). The term HIV testing and counseling (HTC) covers the range of options for ensuring that people know their HIV status. Different terminology has been used in HIV testing over the past three decades. Voluntary counseling and testing (VCT) has long been used to refer to client-initiated testing and can also refer to free-standing clinics where people go for the purpose of accessing HIV tests and counseling (Obermeyer and Osborn, 2007) at any facility that provides HIV testing. [Many of the points in the “what works” evidence list are based on evidence that discussed “VCT” and thus that term is used most commonly.] “Provider-initiated testing” refers to HIV testing and counseling “which is recommended by health care providers to persons attending health care facilities as a standard component of medical care” (WHO, 2007c: 19). Additionally, reference is made to “routine” or “opt-out” testing where HIV tests are given routinely unless a client decides specifically to “opt-out.” Testing costs vary by modality and outcome. Costs per client tested range from US\$6 in home-based testing; to \$9 in community testing; to \$12 with provider-initiated testing; to \$19 for VCT (WHO et al., 2011b).

“I could not even hear what he was telling me...he kept emphasizing that I was now weak and needed care. I would have preferred him to encourage me instead, because later I came to realize that this is not a death sentence” -Anne, age 33, from Kenya (cited in Hardon et al., 2011: 194)

Increased use of a variety of testing modalities has allowed more and more people to know their HIV status. Each modality has advantages and disadvantages, particularly for women. For example, home-based testing may reach people in rural areas where transport is a barrier, especially for women. Door-to-door HIV counseling and testing is a home-based provider-initiated strategy. Household-member HIV testing and counseling offers testing to clients in their own homes and also targets family members of individuals who have already tested HIV-positive (Menzies et al., 2009). One randomized controlled trial

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prior to treatment availability found that home-based HIV testing increased the numbers of those who learned their serostatus (Fylkesnes et al., 2004 cited in Bateganya et al., 2010). A recent survey in Uganda found that providing HIV testing and counseling through either facility or home-based models will reach a different client base, with home-based testing superior for rural populations (Mulogo et al., 2011). However, home-based HIV testing and counseling may be more costly in identifying people who are HIV-positive in rural areas if homes are difficult to reach and HIV prevalence is low. But home-based interventions need to have the infrastructure in place to provide safe counseling and testing, such as well-trained providers, availability of quality assurance, and the ability to protect fundamental human rights. Options to assess costs are available at PEPFAR, 2011b.

Couples testing and counseling can be an important component of HIV prevention (Allen et al., 2011 and Gray et al., 2011) if the HIV-positive partner is linked to appropriate treatment services, but this has only recently received attention. Some studies have shown that serodiscordant couples in established partnerships or marriage will significantly contribute to new HIV infections (Gray et al., 2011 cited in Allen et al., 2011). Efforts are underway in many countries to increase the number of couples seeking joint HIV testing (Wall et al., 2012; Lambdin et al., 2011). Others have argued that it is more cost-effective to provide HIV testing and counseling individually, but in a way that addresses issues that focus on relationships (Montgomery et al., 2011). Other studies show that multiple HIV testing strategies in some settings should be used for men and women: on-site testing as an option that might attract women and mobile HTC services as an option that might attract men (van Schaik et al., 2010).

Provider-initiated testing and counseling can increase the number of people tested, and has the potential to increase the number of people living with HIV who know their HIV status earlier in the stage of infection, but with “provider-initiated testing and counseling (PITC), the “c” deliberately follows the “t”: the emphasis is on encouraging people to know their status rather than on the process of counseling” (Hardon et al., 2011: 186). “Evaluating outcomes from PITC and other forms of HIV testing and counseling can be challenging. There is wide variation in programs’ definitions of what constitutes PITC and client-initiated testing and counseling...” (Sabin and Lo, 2010: 342). “Although provider-initiated testing has shown promise, optimal implementation strategies that ensure broad coverage, while preserving human rights, remain an active area of research” (Bassett and Walensky, 2010: S77)...Aggressive screening strategies must effectively balance individual rights with public health; true informed consent with the preserved ability to refuse testing is critical (Bassett and Walensky, 2010: S81).

HIV Tests Are Changing

In resource-limited settings, HIV rapid tests are the most commonly used technology (Kalou, 2012). “Nowadays nearly all health facilities use rapid testing kits requiring only

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a finger prick to extract a few drops of blood – and thirty minutes later the results can be known” (Hardon et al., 2011: 186). Of course, even with rapid finger prick procedures, laboratory procedures must also be of the highest standard to ensure quality, accurate testing. Guidance on quality assurance for HIV testing is available at Parekh et al., 2010; and Alemnji et al., 2011.

“Acute HIV infection is the period between HIV acquisition and the development of detectable antibodies against the virus” (Powers et al., 2011b: 257). Because the body takes time to manufacture anti-HIV antibodies, the “window period” is longer for antibody testing as compared to tests that determine the presence of HIV genetic material directly. Acute infection can be detected by nucleic acid amplification testing (NAAT) also called polymerase chain reaction (PCR), which tests directly for HIV genetic material. Acute HIV infection, when HIV is highly transmissible, can be tested as early as nine days following HIV acquisition via polymerase chain reaction (PCR) test (Cohen, 2009a). Different tests are used depending on the resources available. The costs for NAAT tests are currently high (Branson, 2010) and require expensive laboratory facilities generally unavailable in resource-limited settings.

Following HIV acquisition, rapid HIV antibody tests may remain negative for several weeks and require confirmatory re-testing (Fracino, 2011). However, one challenge with rapid tests is that people who receive preliminary positive rapid test results do not return for confirmatory tests (Branson, 2010). WHO’s 2010 guidance suggests a shorter window period (WHO, 2010g) of four to five weeks (Mephram et al., 2011).

New tests can now detect HIV within 15 days of infection (Branson, 2012). NAAT testing for acute infection is not currently recommended by WHO for use in resource-limited settings. NAAT testing and p24 antigen testing are costly, require specific laboratory equipment and may delay needed access to treatment and care in many resource-limited settings (Duedu et al., 2011), whereas, the benefits of rapid testing include faster turnaround, allowing for provision of timely treatment and care. New HIV testing technologies are under development (Anderson et al., 2012) and further expert consultation on this topic is likely.

Early Testing and Testing in the Era of Treatment

Early treatment (which requires early testing) can have a significant impact on HIV progression and transmission. A study in South Africa found that of 2,439 women who accepted HIV testing, 1.2% had acute infection, meaning that they were recently (within approximately two weeks) infected and were highly likely to transmit HIV if sexually active without using condoms (Kharsany et al., 2010b). This early stage of acute infection is usually when few know their HIV-positive serostatus. In a mathematical model informed by detailed behavioral and viral load data from 1987 to 2005 in Lilongwe, Malawi, an estimated 38.4% of HIV transmissions are attributable to sexual

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contact with individuals with early infection in 2010. According to the model, interventions targeted only at early infection substantially reduced HIV prevalence, though it would not lead to elimination, even with 100% coverage. To find those with early infection, repeat testing would be needed every three to six months (Powers et al., 2011b). However, studies with small numbers of acutely infected patients in the U.S. have shown that treatment during acute infection can achieve rapid and sustained HIV suppression (Gay et al., 2011b). Cohen et al., 2011a evaluated the use of treatment as a prevention approach for serodiscordant couples and showed the benefit of treatment for reduction of transmission to the HIV uninfected partner. [*See also Treatment: Staying Healthy and Reducing Transmission*]

Testing Those at High Risk for HIV Must be Accompanied by Adequate Counseling

It is critical to provide testing and re-testing to key populations and individuals in generalized epidemics for those who are at high risk of acquiring HIV (Kilonzo, 2012), in order to identify HIV infection early and link persons with HIV care and treatment. For example, among the 45 countries that reported data on sex workers, the median proportion of sex workers who knew their status from a recent HIV test was 38% (UNAIDS, 2009e). A review of gray and published literature on HIV testing policies and practices in the 22 countries of the Eastern Mediterranean region found that between 1995 to 2008, only 4% of key populations at higher risk for HIV were tested for HIV (Hermez et al., 2010). Many of those at high risk for HIV do get tested repeatedly and “repeat testing may be most cost-effective for women testing at least one year previously” (Bradley et al., 2011: 732). For persons who test negative, it is important to link these persons with HIV prevention services, and to promote behavior change, where possible. [*See also Prevention for Key Affected Populations*]

Testing and counseling programs that focus only on identifying those in need of treatment will not be sufficient to bring the epidemic under control (Hallett et al., 2009). “Reducing risk behavior with targeted counseling for repeat HIV testers [re-testers], who may be likely to continue high risk behavior between tests” (Bradley et al., 2011) may be warranted. While most studies have found little impact of HIV testing and counseling on those who test HIV-negative, more research is needed to understand why. “Could it be that HTC...leads to relative disinhibition among those who test HIV-negative along the lines of ‘I have taken risks in the past and have not been infected, so maybe I can continue with my previous behaviors’? But perhaps it is also that the post-test counseling for those who test HIV-negative is often too perfunctory or is not heard by the client who has just been told that they are HIV negative?” (Ross, 2010: S12).

Equitable Access to Testing and Counseling Services Is Needed

To ensure universal access to HIV treatment, expanding coverage of HIV testing and counseling for women is needed, both within and outside of antenatal care settings. [*See also Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]

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Most women access HIV testing within maternal health services. “Pregnant women are disproportionately tested for HIV since they come into contact with the health system regularly” (Groves et al., 2009: 2). A 2009 study in rural Mozambique found that HIV testing in non-pregnant women was “uncommon” (Hayford and Agadjanian, 2010). There are often gender differences in who gets tested and under what circumstances. A review of literature from 1980 to 2008 on gender-equitable services in rural India found that “men sought testing out of personal concern, whereas women utilized testing on the recommendation of, and in some cases reported mandatory testing by, their antenatal provider (Sinha et al., 2009: 200; Sambisa, 2008; Sambisa et al., 2010).

The emphasis on counseling and testing for prevention of maternal to child transmission (PMTCT) means that women who are not pregnant are inadequately reached with HIV testing and counseling services. Few HIV testing programs that are not part of PMTCT services are designed to meet the needs of women. More recent data from some sites suggests that even outside of PMTCT clients, more women than men access HIV testing (Greig et al., 2008). One study in 2006 that surveyed all HIV testing records in one province in South Africa found that by not counting access to HIV testing and counseling via PMTCT services, females were 65.1% of those who tested as compared to 34.9% for men. When pregnant women who were tested were included, women constituted 72.7% of those tested for HIV, as compared to 27.3% for men (Snow et al., 2010). However, in others settings, such as Jamaica, only women who were pregnant were advised to access HIV testing and counseling (Campbell-Stennett et al., 2009).

Analysis of 2005-2006 DHS data from Zimbabwe with 6,997 women and 5,359 men found that HIV testing is higher for women (30%) than men (22%). A study in South Africa—where counseling and testing for HIV is most frequently accessed in antenatal care settings and a few stand-alone centers (Mullick et al., 2008)—found that men rarely initiate discussions with their female partners concerning HIV testing and mostly relied on female partners to test as a means of determining their own HIV status, not understanding that sexual partners who are serodiscordant can exist (Mindry et al., 2011). Focus group discussions with young men in Malawi and Uganda found that gender norms, with masculinity equated with invulnerability and sexual conquest, were the real reasons they would not access HIV testing and counseling (Izugbara et al., 2009). Another study in Lesotho found that there was better access to testing for women and a strong fear of testing among men (Zerbe et al., 2012).

“Men, as I see them, don’t want to know about their status when they are fit and strong, they do not want to appear afraid...” -Nurse with male antiretroviral patients (cited in Skovdal

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A comparative study in four Asian countries (India, Indonesia, the Philippines and Thailand) found that men were more likely to be tested if they had HIV-related symptoms, whereas women were more likely if their partner tested positive (Paxton et al., 2005). The same was true in Uganda, Malawi, Burkina Faso, Thailand and Korea (Mugisha et al., 2010; Namakhoma et al., 2010; Obermeyer et al., 2009; Le Coeur et al., 2009; Lee et al., 2009). A cross-sectional survey of 832 patients receiving ART in Malawi found that wives of male patients were significantly less frequently HIV tested than husbands of female patients, possibly related to the economic vulnerability of women (Cohen et al., 2010). A recent study in Vietnam with HIV-positive women found that women who did not seek out testing but were tested as a result of, for example, applying for employment, were four times as likely – and women who were tested during pregnancy were three times as likely – to seek HIV care as compared to women who were tested because their husbands were ill or died (Nam et al., 2010). A study in India found that HIV testing was almost always provider-initiated for men and in the private sector, whereas women were most likely to be advised to test by a family member (Joseph et al., 2010). Most programs have focused on individuals rather than couples, making partner testing a challenge, but a qualitative study of 53 antiretroviral drug users and 25 healthcare providers from Zimbabwe, found that men felt that couple testing encouraged men to get tested (Skovdal et al., 2011b). Addressing gender norms that suggest that “real men do not get sick” will be critical to increasing HIV testing and counseling by men, as well as creating more opportunities for men to get HIV testing and counseling (Barker et al., 2010b).

Women’s Barriers to Testing Go Beyond Access

Women face a number of barriers to accessing testing including lack of information, time, childcare, resources, and transportation. In a study of serological and demographic survey data collected between 1994 and 2004 for 8,790 men and women living in rural Tanzania, “knowledge of VCT emerged as one of the strongest predictors of VCT use among both sexes” (Wringe et al., 2008: 326). Women who had no prior knowledge of VCT had a much lower rate of completing VCT. Only 4 percent of women who had no prior exposure to VCT and indicated a desire to get tested actually completed the program. In comparison, 17 percent of women who had heard of VCT completed the program” (Wringe et al., 2008: 326). “In Kenya, the largest barrier to HIV testing among undiagnosed HIV-

et al., 2011b)

“I did not tell my husband as he had previously revealed that he would kill me and the child if he knew we were HIV-positive. This made me feel bad and I keep our status a secret” - Female ARV patient in South Africa (cited in Gilbert and Walker, 2010: 142)

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affected couples is their perception that they are at low risk and many have low knowledge about HIV discordance” (Grabbe and Bunnell, 2010: 346).

Many women, especially rural women, are unable to afford the time or money required to travel to a facility providing HIV testing. High rates of illiteracy mean that many women cannot access information about the benefits or availability of HIV testing. Women without access to treatment may not see any advantage in learning their HIV status. Stigma, gender inequalities, and fear of negative outcomes following disclosure are significant barriers. These include moral judgement and blame; ostracism by household or community; relationship termination; verbal and/or physical abuse as well as discrimination. Women who are HIV-positive are spoken of as being promiscuous women who deserve this disease as a punishment for their sins (Gilbert and Walker, 2010). Fear of stigma and discrimination from health care providers is also a concern, especially for women from marginalized groups. *[See Strengthening the Enabling Environment and Structuring Health Services to Meet Women’s Needs]*

Gender Differences in Testing Can Increase Women’s Risk of Stigma and Discrimination
 “Men’s underutilization of HIV services significantly undermines prevention and treatment efforts” (Peacock et al., 2008: 1). The fact that fewer men get tested than women means that women end up bearing the burden of status disclosure to men, with attendant risk of stigma and abandonment (Greig et al., 2008; Finnerty et al., 2010). Men who worry that they acquired HIV from extramarital partnerships may be less likely to disclose their HIV-positive serostatus to their spouse (Anglewicz and Chintsanya, 2011). HIV support groups and community support can increase disclosure in some settings to family, but not necessarily to sexual partners (Wouters et al., 2009a). A study of 654 people who tested HIV-positive (no sex disaggregated data) found that while partner disclosure was high for regular partners (94.8%), only 13% disclosed to casual partners (Wang et al., 2010c). Some studies have found that disclosure increases safer sex; other studies have not found this to be true (Loubiere et al., 2009). Couples counseling may facilitate disclosure (Curran et al., 2012). For women, HIV disclosure may increase support but can also lead to distress and stigma. HIV disclosure may bring rejection, abandonment, violence and regret or fear (Loubiere et al., 2009; Anglewicz and Chintsanya, 2011). Women who tested HIV-positive in the study in four Asian countries referenced above were more likely than men to be excluded from social interactions and events, forced to change residences or be physically assaulted (Paxton et al., 2005).

Some countries, such as China, have mandatory policies requiring HIV-positive serostatus disclosure to sexual partners (Wang et al., 2010c). Mandatory policies can discourage people from HIV testing and counseling to assess their serostatus. Mandatory disclosure can also put women at risk for violence, stigma and worse. Patients in Russia reported that they were forced by physicians and police to declare their HIV status, a

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procedure used to create evidence that may form the basis for criminal charges against those suspected of putting others at risk (Amirkhanian et al., 2011).

Expanded Testing Must Not Put Women at Risk for Violence

While continuing to expand HIV testing and counseling options and opportunities is beneficial, it is important to ensure that testing is undertaken in ways that support women and girls. “Efforts to increase access to HIV testing must be accompanied by vastly scaled up efforts to confront the stigma and human rights abuses that deter people from seeking HIV tests in the first place....” (Jurgens and Cohen, 2007: 7). Rapid expansion of testing without ensuring informed consent and confidentiality could increase the risk of women being rejected by their families, losing their property, and suffering violence and abuse. A study of 245 women who were enrolled after pre-test counseling and prior to the collection of test results in Tanzania found that many women lack autonomy to make decisions about HIV testing. Fifty-two percent of the women, regardless of HIV serostatus, feared their partners’ reaction; principally feared abuse or abandonment. Only a small percentage of women’s male partners said they would come for HIV testing, regardless of the women’s serostatus. Partner violence was a serious problem among many female HIV testing and counseling clients, with more than 25% of women agreeing with the statement “violence is a major problem in my life.” Of the 245 women, one-third were HIV-positive and were 2.68 times more likely than HIV-negative women to have experienced a violent episode with a current partner. Young HIV-positive women aged 18-29 were ten times more likely to report partner violence than young HIV-negative women. If a woman underwent testing on her own without informing her partner, she risked being blamed as the source of infection (Maman et al., 2001a).

Disclosure does not always lead to violence. Sixty-four percent of HIV-positive women and 79.5% of HIV-negative women reported that they had shared HIV test results with their partners. Among women who did not disclose, 52% reported the reason as fear of their partner's reaction but 81.9% of HIV-negative women and 48.9% of HIV-positive women reported that their partner reacted supportively to disclosure. Less than 5% of women reported any negative reactions following disclosure (Maman et al., 2001a).

Intervention approaches such as development of screening tools and new counseling approaches are important to ensure the safety of women who want to safely disclose HIV serostatus to their sexual partners. Some studies have found no increased risk for intimate partner violence following seroconversion among 3,408 serodiscordant couples during two years of follow up. Of these couples, the initial HIV-positive partner was female. Couples received joint counseling four times per year, which may have been “an indicator of the effectiveness of ongoing counseling in addressing couples’ need for support and thereby reducing the risk of IPV report over time” (Were et al., 2011: 2017). Relationship dissolution was the most common consequence of intimate partner violence during the follow up period; other consequences included loss of economic support and

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loss of custody of children (Were et al., 2011). It is hoped that this important study (Were et al., 2011) will provide more data on the counseling interventions used.

Different testing modalities should be evaluated with respect to increased risk of violence. For example, self-testing may be more easily used without an individual's consent and with fewer legal protections against family members who wish to know someone's serostatus without their consent (Ganguli et al., 2009). It is unclear if door-to-door home testing increases the risk of violence as compared to testing in a facility due to the possible lack of privacy (Alsop, 2010). [*See also Strengthening the Enabling Environment: Addressing Violence Against Women*]

In relationships where violence already exists, serodiscordance can result in additional violence and other adverse outcomes for women. A study with interviews of 26 women in Uganda who experienced violence and were in a serodiscordant relationship found that violence increased in their relationship after knowledge of HIV serostatus. None reported their experience to law enforcement authorities. Women who tested sero-negative with a husband who tested HIV-positive reported that their husband deliberately tried to infect them with HIV by raping them in order to accuse the woman of having infected him, a more acceptable scenario for the man. Women who tested HIV-positive and had a sero-negative husband were told to leave their homes (Emusu et al., 2009). Counseling concerning violence in pre- and post-HIV testing is very much needed.

Providers need the training, skills, and tools to enable them to identify women at risk of violence or other negative consequences. Program planners also need to develop links between HIV testing services and programs that address gender-based violence and services that support survivors of violence, and develop strategies to reach women who do not come to clinics because of violence. Women living with HIV have been found to be 2.7 times more likely to have experienced a violent episode from a current partner than HIV-negative women, and this rate is even higher among younger women (Maman et al., 2001a).

Couples Testing and Counseling Can Facilitate Disclosure and Communication Between Sero-Discordant Couples

Some couples want to test together and should be able to do so. In five African countries, at least two-thirds of couples with at least one HIV-positive partner were serodiscordant; in half of them, the woman was the HIV-positive partner. To date, such couples are not among the 'key populations' to whom many prevention interventions are targeted (Desgrées-Du-Loû and Orne-Gliemann, 2008). Some sites have had success in increasing couples HIV testing and counseling, such as the AIDS Information Center in Uganda, with over 700,000 clients serviced since 1990, with an increase of 9% of clients coming with their partner for HTC in 1992 rising to 28% of clients by 2000, of whom 18% were serodiscordant (Malamba et al., 2005).

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A review of the published scientific literature from 1990 to 2008 on couple-oriented HIV counseling and testing found that in five African countries, at least two-thirds of couples with at least one HIV-positive partner were HIV serodiscordant. HIV counseling has largely been organized on an individual and sex-specific basis. Interventions are needed to promote continuous long-term condom use within long-term serodiscordant partnerships with education and information on serodiscordance (Desgrées-Du-Loû and Orne-Gliemann, 2008; Kelley et al., 2011). *[See also Prevention for Women: Male and Female Condom Use]*

Couples testing may reduce reports of violence against women, as it may address the disproportionate burden women often face in disclosure to their partner by having the provider assist the couple to cope with the diagnosis. WHO has noted this as a strong recommendation with low-quality evidence. WHO recommends that providers be sensitive to gender-based power imbalances in relationships and must be able to assess “whether and to assure that, both partner are freely able to make independent decisions about testing and disclosure...” (WHO, 2012g: 19). PEPFAR guidance states “Women should be encouraged to test together with their male partners when possible and results may be given to couples attending the session together as long as they both agree to this approach” (PEPFAR, 2011b: 12). Voluntary couples counseling can encourage men to reduce negative reactions and promote shared responsibility for reproductive health; however, if a woman does not want to disclose, her wishes should be respected and she should be supported in her decision (Cohen and Burger, 2000). Curran et al., 2012 describes numerous challenges for sero-discordant couples.

Women Must Have a Choice in Testing

Given the consequences they face, including violence or the fear of violence, women must have the right to opt out of “routine” testing. *[See also Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling]* Some studies have shown that women are coerced into testing. A study in Nigeria found that some religious groups insisted on pre-marital HIV testing because they believed that “there was no need to continue marriage with somebody who already has a death sentence,” (Arulogun and Adefioye, 2010:85), raising issues of voluntariness, stigma and appropriate counseling. A study in Cameroon found that women tested because “a refusal would have been conceived as a challenge to medical authorities” (Njizing et al., 2010: 28). Mandatory testing, besides being a human rights violation, may not lead to any positive outcomes in HIV prevention or treatment. Some studies have found that some providers have been more explicit than others in facilitating the patient’s right to refuse an HIV test (Leon et al., 2010b).

Provider-initiated testing and counseling, implemented appropriately, has the potential to increase knowledge of HIV status and provide earlier linkage to counseling and treatment. In the study of 1,268 respondents in Botswana, routine testing during antenatal

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care increased the proportion of women undergoing HIV tests by 15%, with a doubling of those on treatment (Weiser et al., 2006a). One study in Uganda and Kenya found that clients “argued that it is good if the provider initiates the testing for diagnostic purposes, because choosing voluntarily to be tested is difficult (and is) tantamount to an admission of having ‘slept around’” (Hardon et al., 2011: 190). VCT was also seen as less likely to lead to follow up care and access to treatment than PITC in a study in Kenya and Uganda. “...In the Ugandan and Kenyan health settings where we conducted our study, people were most concerned about the quality of post-test care” (Hardon et al., 2011: 198). However, some members of the International Community of Women Living with HIV/AIDS (ICW) have reported that providers do not sufficiently advise women that HIV testing is a choice: “When I got pregnant at 16 I knew nothing. I didn’t know I had a choice not to be tested” (ICW member, South Africa, cited in Bell et al., 2007: 119). A study in the Ukraine in 2003 of 15 healthcare workers and of 40 HIV-positive women ages 16–33 who were either pregnant or had been pregnant in the last two years found that 24 of the women included in the study reported feeling that they had little or no choice in the decision-making process to be tested for HIV. Only 12 reported their decision to be tested to be an independent one (Yaremenko et al., 2004). Further efforts are needed to ensure that women are able to make their own choices in testing.

Confidentiality and Consent are Critical in Testing and Counseling

PEPFAR guidance states that the core principles of “consent, confidentiality, counseling and correct test results” must be part of services (PEPFAR, 2011b: 12). If women fear that they will be pressured into having a test or that the results will not be kept confidential, they may be less likely to use services. In interviews with HIV-positive women conducted in the Dominican Republic in 2004 (no numbers given), HIV-positive women reported that they did not access reproductive health services for fear of being subjected to an HIV test and losing their jobs (Human Rights Watch, 2004a). Studies have found that women in Kenya will give birth at home rather than at a health facility in order to avoid being forced to take an HIV test, be tested without their informed consent, or have the confidentiality of their HIV tests results breeched (Turan et al., 2008a). Further, a survey of 1,268 respondents in Botswana in 2004 found that while most participants reported being in favor of routine testing, 43 percent of participants believed that routine testing would lead people to avoid going to the doctor for fear of testing (Weiser et al., 2006a).

Routine Testing Has Been Subject to Much Debate

Routine testing has been interpreted as testing that is carried out unless the patient expressly refuses it. In some settings, routine testing has been done without the patient even knowing that HIV testing is being done. Patients should always be offered the option to decline testing, but even where protocols are in place, this is not always practiced. Whether offering patients HIV testing and providing the option of declining meets the standards of informed consent is still subject to debate. Many believe that a

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policy where the patient would be tested unless they specifically declined meets the ethical demands of informed consent; however, this in fact diverges from the formal rules of consent. Others argue that a patient has to be explicitly asked if they want to refuse HIV testing. From a human rights perspective, routine testing without adequate counseling can be seen as paternalistic and coercive, identifying those who are positive against their will in order for patients to access treatment and care. In addition, some have argued that shifting the burden to patients to decline testing—given the power imbalances between health providers and patients—deprives patients of the right to choose. In the Botswana study above, 14 percent agreed that routine testing leads to more violence against women and that 62 percent of women and 76 percent of men believed that they could not refuse an HIV test (PHR, 2007a; Weiser et al., 2006a). WHO states “mandatory or coerced testing is never appropriate...” (WHO, 2012g: 19). The 2007 WHO guidelines on HIV testing [*according to WHO et al., 2011b, these guidelines are currently being updated*] do not require HIV treatment to be available before initiation of routine testing, but WHO guidelines do state that the patient should be informed that he or she has the right to decline an HIV test. Some have argued that treatment should be a precondition for opt-out testing. However, if treatment is available, opt-out testing should be practiced since it is advantageous for the patient to access treatment (April, 2010).

Clearly, HIV testing which discourages women from needed health services contraindicates all public health benefits that could accrue from knowing one’s serostatus. It is possible to increase access to HIV testing and more likely for women to engage in HIV prevention if counseling, confidentiality and consent practices are consistent with WHO protocols (WHO and UNAIDS, 2007). Increasing knowledge of HIV status in a respectful informative way is vital. Routinely offering and recommending HIV testing and counseling, but requiring that women specifically agree (“opt-in”) may increase the numbers of those tested while respecting human rights (Jurgens, 2007a). Studies are needed to compare routine testing that includes an “opt-in” component with other approaches to what have been called “opt-out” testing, evaluating outcomes both in terms of respect for human rights and increasing the numbers of those who want to get an HIV test. The “opt-in” aspect of routine testing would mean that providers explain the benefits of HIV tests and recommend an HIV test. Additional research is needed to assess how to streamline but keep essential elements of pre- and post-test counseling (Jurgens, 2007a; Chersich and Temmerman, 2008). A study in Zimbabwe of 5,775 people based on survey data between 1998 and 2000, followed by a repeat survey in 2003 found that women who had had pre-test counseling were significantly more likely to return for their test results than those with no pre-test counseling (Sherr et al., 2007). For those who test HIV-negative, testing should be seen as part of an ongoing prevention strategy, with encouragement for those who are HIV-negative or untested to protect themselves and others from HIV transmission (Bell et al., 2007).

Further Interventions are Needed to Support Disclosure

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Interventions are needed to help those who have tested HIV-positive to prepare for disclosure. Policy documents and reports that strongly advocate for the involvement of people who have tested positive often do not consider the processes involved, the psychological impact of disclosure, and the potential impact on relationships or career prospects (Manchester, 2004). Provider notification of sexual partners has been evaluated as a possible disclosure method with a randomized study from 2008 to 2009 with 245 newly diagnosed HIV-positive patients (58.3% female) in Malawi. The study found that provider notification of sexual partners increased HIV testing and counseling by sexual partners (97% were tested) and increased early referral to care but could also result in social harms, such as abandonment. One female patient reported that her male spouse abandoned her when she disclosed her HIV status, a .5% cumulative incidence. “Screening for intimate partner violence and emotional abuse could be incorporated into post-test counseling, and further operations research will be necessary to investigate the effect of provider assisted partner notification on social harms in a variety of African settings” (Brown et al., 2011a: 441).

Others have conceptualized disclosure as a process a decision on “how, when, where, what and to whom to disclose or not to disclose” (Eustace and Ilagan, 2010: 2096) rather than a simple yes/no response (Eustace and Ilagan, 2010). The process also involves identifying one’s motive for disclosure (Medley et al., 2009b). A study in Uganda among 20 men and 20 women living with HIV in found that the most common reason for disclosure was to receive support, but also to protect others from HIV (Ssali et al., 2010). Delaying disclosure may be beneficial to women living with HIV, giving them more time to anticipate and plan for possible consequences of disclosure (Eustace and Ilagan, 2010). A cross sectional study with HIV-positive women in Cameroon found that HIV disclosure to their main partner was related to safe sexual practice. However, while 83.6% of 1,014 women disclosed their positive serostatus to their main partner, only 46% of these women knew their partner’s serostatus (Loubiere et al., 2009). Possible approaches include disclosure plans, disclosure mediated by a friend or counselor, and couple counseling. In some cases, women who disclosed faced violence and abandonment (Maman et al., 2001b; Ssali et al., 2010); however, in other cases, women who expected “to be kicked out of his life like a cat or dog” (cited in Rongkavilit et al., 2010: 790) found that rather than rejection, her husband said: “we have a baby now and we had been together already, so we must face the future together...we had to take care of each other” (cited in Rongkavilit et al., 2010: 790).

Feasibility of the “Test and Treat” Approach

Clearly, all possible methods to prevent HIV transmission need to be used for “combination prevention.” An analysis in the *Lancet* called for universal HIV testing with immediate treatment access as a way to halt the epidemic (Granich et al., 2009). If feasible, such an approach could prevent untold number of infections. However, this “Test and Treat” approach has received a range of critiques about methodology and

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operational constraints from a number of experts worldwide (Cohen, Mastro, and Cates, 2009; Wilson, 2009b; Ruark et al., 2009; Epstein, 2009; Jurgens et al., 2009a; Hsieh and Arazoza, 2009; Jaffe, Smith, and Hope, 2009; Assefa and Lera, 2009). Mathematical modeling with very optimistic assumptions found that HIV elimination through test and treat would be possible but would take at least 70 years (Wagner et al., 2010). “Implementation of universal testing and treatment is clearly challenging given that a substantial proportion of those individuals who are currently HIV-infected and eligible for treatment do not receive it” (Hayes et al., 2010a: S84). “It is unlikely, however, that we will be able to eliminate the epidemic by treatment alone. We must also protect high-risk uninfected people from HIV-1 acquisition. This means broader implementation of existing interventions, such as male circumcision, blood and injection safety, condom use, evidence-based behavioral strategies and structural interventions” (Burns et al., 2010).

There are other difficulties as well: “...successful implementation of so-called test and treat strategies are challenged by the difficulties of testing large numbers of healthy people who are not attending health-care services, incomplete engagement in HIV care and inadequate technology to detect people with acute HIV infection who are the most infectious” (Padian et al., 2011b: 271-272). Therefore, universal testing and treatment seems unlikely in less resourced settings (Burns et al., 2010). “The extent to which pre-exposure prophylaxis and ART reach individuals with the highest viral load is central to the success of prevention approaches based on antiretroviral drugs...Hence, an important issue for both pre-exposure prophylaxis and treatment for prevention is to establish eligibility, for which high and frequent uptake of HIV testing is a requisite. In treatment for prevention, the difficulty in detection of people with HIV infection who are asymptomatic has been well documented” (Padian et al., 2011b: 271). A more recent analysis elaborated that the major assumptions of Granich et al., 2009 were: that all transmissions were via heterosexual sex; that acute infections account for 9% of new transmissions; high levels of HIV testing and adherence to treatment; and that significant drug resistance and treatment failures did not occur (Burns et al., 2010). However, in some contexts, the majority of HIV transmission occurs in the context of intravenous drug use or men who have sex with men. In some contexts where multiple sexual partnerships are common, more than 31% of transmissions may be caused by recent infections that are not yet detectable through HIV testing (Burns et al., 2010).

It is important to note that some of the studies in this section were done before treatment was available. Now that treatment has become more widely available and accessible in many countries, it is expected that testing will increase.

Further guidelines to testing can be found at the WHO website (WHO, 2012g; WHO, 2011a; WHO, 2011b; and WHO and UNAIDS, 2007):

- http://whqlibdoc.who.int/publications/2011/9789241501347_eng.pdf

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- http://whqlibdoc.who.int/publications/2007/9789241595568_eng.pdf
- http://whqlibdoc.who.int/hq/2011/WHO_HIV_11.01_eng.pdf

What Works in HIV Testing and Counseling for Women

6. What Works—HIV Testing and Counseling for Women

1. HIV testing and counseling (HTC) can help women know their HIV status and increase their protective behaviors, particularly among those who test HIV-positive.
2. Providing HIV testing and counseling together with other health services can increase the number of people accessing HTC.
3. Mass media interventions can increase the numbers of individuals and couples accessing HIV testing and counseling.
4. Community outreach and mobilization can increase uptake of HIV testing and counseling by reaching clients who may not present at a hospital or clinic.
5. Home testing, consented to by household members, can increase the number of people who learn their serostatus.
6. Counseling may reduce risk behaviors and HIV acquisition.
7. Incorporating discussions of alcohol use into HIV testing and counseling may increase protective behaviors such as condom use, partner reduction and reduction of alcohol use.
8. Encouraging couple dialogue and counseling, including techniques to avert gender-based violence, may increase the number of couples who receive and disclose their test results.

Promising Strategies:

9. Knowledge of treatment availability may increase uptake of HIV testing.
10. Availability of HIV testing and counseling on-site at workplaces may increase uptake of HTC.

6. Evidence

1. HIV testing and counseling (HTC) can help women know their HIV status and increase their protective behaviors, particularly among those who test HIV-positive.

- A systematic review and meta-analysis of 18 studies published between 1990 and 2006 with 1,801 combined participants found that HIV counseling and testing led to a significant impact on condom use among HIV-positive participants than on HIV negative participants, especially

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among sero-discordant couples (Kennedy et al., 2010b). (Gray I) (*HIV testing, counseling, condom use*)

- A randomized control trial in **Tanzania, Kenya and Trinidad** found that individuals over the age of 18 who received VCT significantly changed their risk behaviors compared to those who received health education. Individuals reporting unprotected intercourse with non-primary partners declined by 35% for men who received VCT as compared to 13% for those receiving health information and by 39% for women who received VCT as compared to 17% who received health education. Individual men who had received VCT reduced the mean number of non-primary partners with whom participants had unprotected intercourse from 38% to 15% and women reduced the mean number of non-primary partners with whom participants had unprotected intercourse from 43% to 22%. VCT was based on a client-centered counseling model, including personal risk assessment and developed of a personalized risk reduction plan. Participants in the health information intervention watched a 15-minute video and participated in a discussion about HIV transmission and condom use. All precipitants received free condoms and a brochure showing correct condom use. Urine samples were taken to assess if STIs were new infections. A total of 3,120 individuals and 586 couples were enrolled in Kenya, Tanzania and Trinidad (Voluntary HIV-1 Counseling and Testing Efficacy Study Group, 2000) (Gray II) (*counseling, HIV testing, education, sex behavior, condom use, Tanzania, Kenya, Trinidad*)
- A systematic review of the efficacy of VCT in **Rwanda, Kenya, Tanzania, Trinidad, Thailand and Uganda** settings in studies from 1990 to 2005 found that a significant increase in condom use was reported in four studies conducted in free-standing VCT centers, antenatal clinics, and STI clinics. One study found significant reduction in HIV incidence among ANC women whose partners also underwent VCT. The randomized control design showed a significant decrease in unprotected sex among, a) individuals with non-primary partners, and b) between couples when they were tested together. VCT was shown to promote the most behavior change between couples tested together, and among HIV-positive individuals, especially with their non-primary partners. The review used a standardized protocol. Studies were included where the intervention used CDC or WHO VCT standards; was published between 1990 and 2005, were conducted in a developing country, and used a pre/post or multi-arm study design. Nine articles from six studies were identified. Designs were 1) randomized controlled trial, 2) pre/post studies, and 3) post-intervention only assessments. (Denison et al., 2008). (Gray II) (*counseling, HIV testing, couples, sex behavior, Rwanda, Kenya, Tanzania, Trinidad, Uganda*)
- A population based open cohort study of 17,874 people in **Zimbabwe** with 7,559 men and 10,315 women aged 15–54 offered no-cost HIV counseling and testing through mobile clinics found that among women who tested HIV-positive, risk behaviors were significantly reduced. The effect of VCT in reducing risk behavior increased with greater time since testing positive with reduced levels of concurrency (Cremin et al., 2010). (Gray IIIa) (*HIV testing, counseling, sex behavior, Zimbabwe*)
- A longitudinal cohort study in **Mozambique** from 2002 to 2003 with 450 people who participated in VCT groups and 504 people who were not in VCT groups found that those participating in VCT groups increased condom use while those not in VCT groups did not. Three visits were required for the VCT group, which included both testing and counseling components. Those who did not attend VCT attended outpatient ANC clinics. Reported condom use always or sometimes was not significantly different between VCT and non-VCT groups at baseline, but was significantly higher at follow-up. Condom use at most recent sex

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was the same in both groups at baseline but became significantly more frequent in the VCT group. Condom use during the most recent sexual act increased over time for both HIV-positive and HIV-negative people, but the increase was greater in those who were HIV-positive. Change was most significant for those with no literacy skills, showing the importance of interpersonal communication: for those attending VCT an increase from 10% to 64% at the end of the project (Mola et al., 2006). (Gray IIIa) (*counseling, HIV testing, condoms, Mozambique*)

- A cluster-controlled trial with seven intervention and 14 control clinics in **South Africa** with STI patients (57.2% female in the intervention clinics and 57.5% female in the control clinics) found that a significantly higher proportion of new STI patients in the intervention group tested for HIV. The intervention clinics had provider-initiated tested as compared to the control clinics, which used VCT. In the 3,053 patients in intervention group, 56.4% of STI patients tested for HIV, with 26.7% declining to test. High rates of declining HIV testing indicated that patients could exercise their right to decline testing. There were 6,027 STI patients in the control group. The odds ratio for getting an HIV test was 2.24 for the intervention group compared to the control group. Acute, non-recurring STIs create limited opportunities to offer HIV testing. Providers in the intervention group recommended that patients be tested for HIV, obtained written consent and performed a rapid HIV test. Patients were referred to lay counselors for test results and post-test counseling once they completed the STI consult and HIV testing. STI nurses from the intervention sites received a two day training course. No significant outcomes by sex were noted (Leon et al., 2010a). (Gray IIIa) (*HIV testing, counseling, sexually transmitted infections, health facilities, South Africa*)
- A cross-sectional survey in **South Africa** between 2004 and 2005 found with 198 men and women found that of those who had disclosed to a main partner, 46.6% started using condoms as a result of HIV testing and 43.8% reported that their partner also went for HIV testing. Of those who disclosed, 8.2% reported that their relationship ended as a result of disclosure and 4.1% reported being physically hurt as a result of disclosure. Among those who reported having previously tested for HIV, 90.3% reported having disclosed to someone and, of those who disclosed, 86.9% had disclosed to a sex partner and this did not differ by sex (Pettifor et al., 2010). (Gray IIIb) (*HIV testing, counseling, sex behavior, disclosure, South Africa*)
- A cross-sectional survey of 749 men and 906 women in **Kenya** found that women who had undergone recent HIV testing were less likely to report high-risk behaviors than women who had never been tested. This was not seen among men (Huchko et al., 2011). (Gray IIIb) (*HIV testing, counseling, sex behavior, Kenya*)
- A cross-sectional and nationally representative study from 2004 to 2005 in **Uganda** of 1,092 HIV-positive people, 64% female, from an HIV/AIDS Sero-Behavioral Survey which tested 18,525 adults found that knowledge of one's HIV status, both one's own and one's partner's, was associated with increased condom use. Those who knew their HIV status were three times more likely to use a condom at last sex encounter and those who knew their partners' HIV status were 2.3 times more likely to use condoms. Of all sexually active HIV-positive adults, 80% reported only one sexual partner in the previous year. Within the subset of married HIV-positive persons, 86% reported having had sex only with their spouses in the last year, including 75% of men and 96% of women. Of all married HIV-positive persons, 13% reported only one sexual partner in their life (1% of men and 23% of women). Of the 81% of HIV-positive married persons who did not understand that HIV-discordance was possible within couples, 92% did not know the HIV status of their spouse (Bunnell et al., 2008). (Gray IIIb) (*HIV testing, condom use, contraception, sexual partners, Uganda*)

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- Interviews with 127 patients (42% male) in May 2006 in a large public hospital HIV clinic in Santiago, **Dominican Republic** found that sexually active patients reported using condoms significantly more frequently following their HIV diagnosis and were more likely to use a condom if they believed their partner did not have HIV. Most patients (72.4%) were sexually active. Following their diagnosis, 72.8% of sexually active patients used condoms more frequently. The most common reason cited for not using a condom after HIV diagnosis differed by sex: men cited decreased sexual pleasure (70%) and women reported that their partner had refused to use a condom (71.8%). Sexually active patients who believed that their partner did not have HIV were more than 16 times more likely to report condom use at their last sexual encounter than those who did not know their partner's HIV status. Those who reported their partner was HIV-positive were estimated to be more than twice as likely to use a condom as those who were unsure of their partners' HIV status. One-third reported using a condom every time they had sex following their diagnosis. A majority of men had ever paid for sex (80%), while only one woman (1.4%) had ever paid for sex (Sears et al., 2008). (Gray IIIb) (*condom use, HIV testing, disclosure, Dominican Republic*)
- A study of 963 cohabitating heterosexual couples with one HIV-positive and one HIV-negative partner in **Rwanda**, found that less than 3% reported condom use prior to VCT. The frequency of sex did not change after joint VCT, but the proportion of reported contacts with a condom increased to over 80% and remained stable through 12 months of follow-up. Couples with regular appointments thorough one year reported more frequent intercourse with condoms than couples with missing appointments. At baseline, 21% of HIV-positive men and 15% of HIV-negative men in discordant couples reported at least one sexual encounter outside the marriage in the last three months. These contacts represented 7% of all acts of intercourse in the three months preceding the study, decreasing to 3% during the first year of follow-up. Thirteen percent of incident HIV infections were acquired from an outside partner (Allen et al., 2003). (Gray IIIb) (*counseling, HIV testing, couples, condom use, Rwanda*)
- A quantitative study in **Zimbabwe** of 4,429 young men and women, complemented by informal confidential interviews and focus group discussions, found that young women found to be HIV-positive in the survey were almost two and a half times more likely to report consistent condom use if they previously had an HIV test (Gregson et al., 2002). (Gray IIIb) (*counseling, HIV testing, condom use, Zimbabwe*)
- A qualitative study of in-depth interviews with 15 women, 15 men and 15 couples in **Tanzania**, including 10 seroconcordant HIV-negative couples, found that among seroconcordant HIV-negative couples VCT was an important strategy to encourage couples who may be at risk for HIV infection to initiate preventive health behaviors to maintain their HIV-negative status. "Couples described testing as a preventive health measure they used prior to unprotected sexual intercourse, marriage or pregnancy" (Maman et al., 2001b: 597). (Gray IIIb) (*counseling, HIV testing, couples, Tanzania*)
- A review of data from 157,423 visits, of whom 117,234 clients were first time clients from VCT centers in **Botswana** (Tebelopele) found that clients previously tested at the VCT centers were much more likely to use condoms than were first time clients. Free-standing VCT centers were initiated in 2000. Testing demand increased steadily from 2000 to 2002. A rapid increase of testing was found following the introduction of ARVs in 2002. By the beginning of 2003, more than 20% of clients reported that their reason for seeking a test was illness or wanted access to treatment. The percentage of clients who were HIV-positive increased from 26.3% before the launch of the national ARV program to 38.8% after ARVs

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were available. Among those seeking a test for health reasons, 77.7% were HIV-positive. Clients who came for testing as part of a couple made up 8.2% of all clients, with no change over the five year period. Discordant results were found in 23.1% of couples. Since 2003, 16 VCT centers were opened, with free anonymous HIV rapid testing with same day results. All counselors have 8 weeks of training in counseling and testing, and many are university educated. A one hour standardized counseling and testing protocol takes approximately one hour. Information was collected anonymously from clients including sexual history, reasons for seeking an HIV test and the test result. Multivariate analysis was used (Creek et al., 2006). (Gray IV) (*counseling, HIV testing, condoms, Botswana*)

2. Providing HIV testing and counseling together with other health services can increase the number of people accessing HIV testing and counseling. [See also *Structuring Health Services to Meet Women's Needs*]

- A study in **Ethiopia** found that incorporating VCT into a reproductive health facility greatly increased the numbers of those who accessed VCT, with those accessing VCT having high HIV prevalence rates. The study used 30,257 VCT client records from Family Guidance Association of Ethiopia (FGAE), a non-governmental non-profit providing reproductive health services in clinics. When both VCT and family planning were either in the same room or offered by the same counselor, clients were 1.9-7.2 to initiate HIV testing than if VCT and family planning were simply offered in the same health facility. Relative to facilities co-locating services in the same compound, those offering family planning and HIV services in the same rooms were 2-13 times more likely to serve atypical family planning client-types than older, ever-married women. Facilities where counselors jointly offered HIV and family planning services and served many repeat family planning clients were significantly less likely to serve single clients relative to older, married women. Younger, single men (78.2%) and older, married women (80.6%) were most likely to self-initiate HIV testing, while the highest HIV prevalence was seen among older, married men (20.5%) and older, married women (34.2%). FGAE attracts both pregnant women, who are at high risk for HIV, and young, single people who want to initiate VCT (Bradley et al., 2008a). (Gray IIIb) (*counseling, HIV testing, family planning, health facilities, Ethiopia*)
- From 1985-2000, the Group Hatien d'Etude du Sarcome de Kaposi et des Infections Opportunistes (GHESKIO), an NGO with a VCT center in **Haiti** increased the integration of additional health services. The number of new people seeking VCT increased from 142 in 1985 to 8,175 in 1999, a 62-fold increase. Of new adults seeking VCT in 1999, GHESKIO provided AIDS care to 17%, TB treatment to 6%, STI management to 18%, and 19% became new users of a contraceptive method. Of the 6,709 adults coming for VCT in 1999, 36% benefited from at least one service visit. Of the 2,013 adults who tested HIV-positive, 56% benefited from at least one service visit and 21% referred a sexual partner for VCT. One hundred ten HIV-negative sexual partners of HIV-positive individuals were identified, and of these, 85 returned for repeat HIV testing after a median of 18 months, and none of these 85 seroconverted. The prevalence of HIV among patients served by GHESKIO was 30% or six times the prevalence rate in the general adult Haitian population. On their first visit to GHESKIO, individuals are assisted to develop a personalized HIV risk reduction strategy. Patients reporting a history of cough for more than 3 weeks are provided on-site, same day TB screening including clinical exam and sputum smears. Patients with STI symptoms are provided treatment based on algorithms. All patients are screened for syphilis. Same day pregnancy tests are conducted. Condoms are provided. All patients are encouraged to obtain family planning. Post-test HIV-negative patients are counseled in groups of 5. All HIV-

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positive patients are counseled individually, encouraged to refer sexual partners and offered comprehensive HIV care, including HAART for all adult patients, PMTCT, long-term access to HAART when women give birth, treatment of opportunistic infections, home care, education to family care givers, and nutritional support. Availability of other reproductive health services may encourage people to access VCT despite the fact that “people diagnosed with HIV/AIDS in Haiti still risk tremendous social stigmatization.” The study conducted a retrospective review of patient records (Peck et al., 2003). (Gray IIIb) (*HIV testing, counseling, contraception, condoms, STIs, Haiti*)

- A 2005-2007 study in **Kenya** using a pre-post design found that provider-initiated testing and counseling is feasible and acceptable in family planning services, does not adversely affect the quality of the family planning consultation and increases access to and use of HIV testing in a population who would benefit from knowing their status. One group of 28 family planning providers were trained for nine days in integrated family planning and HIV testing and counseling to family planning clients, using rapid HIV tests and another group of 47 planning providers were trained for five days to refer clients interested in a HIV test. Staff in the intervention clinics were updated on contraceptive methods, STIs and HIV, reproductive rights, informed choice and consent, safe sex and dual protection, values clarification, risk assessment and reduction, record keeping and logistics management. The proportion of clients requested an HIV test increased from 1% to 26%, with approximately one-third of these never having had an HIV test previously. In 2003, 38% of all women who had intercourse in the previous month and 44% of unmarried women who had had intercourse in the previous month reported using a contraceptive method, with the majority of these women attending clinics for family planning. The study took place in twenty-three public sector hospitals, health centers and dispensaries. Focus group discussions were held prior and following the intervention. Implementing the intervention required two to three minutes per client. For clients who decided to have an HIV test with the family planning provider, the median time increased from 10 minutes to 17 minutes, which included time both for the HIV test and counseling the client on the result. The incremental cost per family planning client ranged from USD\$5.60 per client in the hospital to \$9.63 in the dispensary and compares favorably with an estimated cost of \$27 per client for stand-alone VCT (Liambila et al., 2009). (Gray IIIb) (*HIV testing, family planning, health facilities, Kenya*)
- In a cross-sectional study of 8,444 women who attended an STI clinic in **South Africa** from 2005 to 2006, 5,612 women were provided with information and education and were offered provider-initiated HIV testing. Of the 5,612 women offered provider-initiated HIV testing, 2,439 accepted HIV testing. Of those who accepted HIV testing, 56.5% or 1,378 out of 2,439 tested HIV-positive. Counselors had completed secondary school and training and used interactive role-playing with a structured script. Topics covered included reasons why one should know one’s HIV status, consequences of an HIV test result, preventive behavior, stigma, and referral for treatment, with each session lasting 20 minutes per group of no more than eight women, with questions encouraged. Those consenting to HIV testing had a shortened individual pre-test counseling session of approximately 15 minutes duration concerning personal risk (Kharsany et al., 2010a). (Gray IV) (*HIV testing, counseling, sexually transmitted infections, health facilities, South Africa*)

3. Mass media interventions can increase the numbers of individuals and couples accessing HIV testing and counseling.

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- **A Cochrane review** of mass media interventions for promoting HIV testing, which included 35 references with two randomized trials, three non-randomized controlled studies and nine interrupted time series found that mass media was significantly effective in promoting HIV testing (Vidanapathirana et al., 2005). (Gray I) (*mass media, HIV testing*)
- Retrospective analysis of data of VCT for the two six-month periods before 2007 and after the 2008 National VCT Campaign in **Tanzania** found that that the National VCT Campaign led to increased testing for those who tested HIV-positive and for those who tested HIV-positive to subsequently enroll in HIV care. Of the 4,354 individuals who tested for HIV in 2007 before the national campaign, 23% tested HIV-positive in 2007 as compared to 26% who tested HIV-positive in 2007. Of those who tested HIV-positive after the National VCT campaign, more individuals tested who lived further than 10 kilometers from the VCT testing site. In the 356 HIV-positive people with available data, the median CD4 cell count increased from 137 to 163 following the campaign (Mossdorf et al., 2010). (Gray IIIb) (*HIV testing, counseling, mass media, Tanzania*)
- A study of scale up in **Kenya** of VCT from three sites in 2000 to 585 sites in 2005 using VCT client data from 131 VCT sites with 131,160 client records found that intensive mass media campaigns concerning VCT was correlated with increased utilization of VCT. The mass media campaigns accounted for only 10% of the total costs of the VCT program (Marum et al., 2008). (Gray IIIb) (*HIV testing, counseling, mass media, Kenya*)

4. Community outreach and mobilization can increase uptake of HIV testing and counseling by reaching clients who may not present at a hospital or clinic.

- HIV testing was increased between 2006 to 2009 among residents aged 16–32 by a combination of community mobilization, mobile community-based VCT and support after testing in 10 communities in **Tanzania**, eight in **Zimbabwe** and 14 in **Thailand** as compared to standard clinic-based VCT. Randomization and assignment of communities to intervention groups was done by the statistics center by computer. The proportion of clients receiving their first HIV test during the study was higher in community based VCT as compared to standard clinic-based VCT in Tanzania (37% as compared to 9%), Zimbabwe (51% as compared to 5%) and Thailand (69% as compared to 23%). The mean difference in the proportion of clients receiving HIV testing between community based VCT as compared to standard clinic-based VCT was 40.2%. The number of people receiving their first HIV test was much larger in community based VCT communities than in standard clinic-based VCT communities by four times in Tanzania, nine times in Zimbabwe and three times greater in Thailand. Community based VCT detected almost four times more HIV cases than did standard clinic-based VCT across all three study sites. Women constituted 42% of clients in community based VCT in and 47% of standard VCT in Tanzania; 48% of community based VCT and 46% of standard VCT in Zimbabwe; and 55% of community based VCT and 66% of standard VCT in Thailand. In Tanzania and Thailand, a larger proportion of male clients participated in community based VCT as compared to standard clinic based VCT. All study sites were rural (Sweat et al., 2011). (Gray II) (*HIV testing, community, counseling, Tanzania, Zimbabwe, Thailand*)
- A 2006 and still ongoing study that randomized communities to either a multilevel intervention providing community-based HIV mobile VCT in 48 communities in **Tanzania**, **Zimbabwe**, **South Africa** and **Thailand** or clinic-based VCT found that HIV testing uptake

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increase three-fold in the communities with mobile testing, with 21,391 people tested. In the intervention communities, community mobilization and post-test services of support groups for both HIV-positive and HIV-negative to maintain negative status were instituted, counseling, training workshops, stigma reduction workshops, and information sharing sessions as well as mobile VCT. In addition, outreach workers and volunteers were used to increase access to VCT and make awareness of HIV status more acceptable in community settings (Khumalo-Sakutukwa et al., 2008). (Gray IIIa) (*counseling, HIV testing, support groups, community outreach, Tanzania, Zimbabwe, South Africa, Thailand*)

- A home-based HIV testing and counseling program from 2004 to 2007 in rural **Uganda** where prior to 2004 about 90% of the population had never had an HIV test resulted in 282,857 being offered pretest counseling out of a total population of 323,621. Of those counseled, 94% accepted an HIV rapid test and all received their test results. Those who tested HIV positive received condoms, cotrimoxazole prophylaxis, long-lasting insecticide treated bednets, equipment to treat drinking water at home and were referred for assessment for antiretroviral therapy. The cost of testing was US\$7.83 per previously untested client and US\$139.32 per HIV-positive individual identified. Of those tested, 4.3% tested HIV-positive. Of those who tested HIV-positive, 97% initiated cotrimoxazole prophylaxis 74% received bed nets, 70% received water treatment equipment and 11% began antiretroviral therapy. CD4 test results were delivered to people in their homes. Shortages of water vessels and bed nets meant that not all who tested HIV-positive received these. “A private place in the house or within the garden was used for posttest counseling and giving of results” (Tumwesigye et al., 2010: 736). Counselors employed had a nonmedical background. Pregnant women who tested HIV-positive were referred for PMTCT and HIV-positive people who had coughed for more than two weeks were referred for TB diagnosis. Support groups were formed for sero-discordant couples and for those who tested HIV-positive (Tumwesigye et al., 2010). (Gray IIIb) (*HIV testing, counseling, malaria, tuberculosis, Uganda*)
- A study from 2002 to 2003 in rural **Thailand** with people over the age of 16 found that mobile HIV testing increased the number of people testing. Of the 427 people who were tested via mobile VCT, 131 had had a prior HIV test. Prior to testing, HIV education was launched in communities. Two-way communication and group discussions were used for the educational programs conducted at a convenient location in the community. Confidential or anonymous testing was provided. Those who chose confidential testing were provided a study unique number for receiving test results. People received pre-test counseling, HIV testing, and post-test counseling and test results by trained counselors. Non-testers were randomly selected for interviews and testers were also interviewed. 427 people who participated in community based VCT were compared to 389 community non-testers. A total of 31 village leaders, 54 testers and 43 non-testers were interviewed in-depth and all three groups viewed community testing positively due to convenience and no cost (Kawichai et al., 2007). (Gray IIIb) (*counseling, community outreach, HIV testing, Thailand*)
- An analysis of a retrospective cohort of 62,173 individuals receiving HTC from 2005 to 2006 in **Kenya** found that mobile HTC reported a higher proportion of clients with no prior HIV test (88%) as compared to stand-alone HTC. Stand-alone HTC reported a higher proportion of couples (18%) as compared to mobile HTC (2%). Stand-alone HTC also reported a higher proportion of discordant couples (12%) as compared to mobile HTC (4%). The incremental cost-effectiveness of adding mobile HTC to stand alone services was \$14.91 per client tested as compared to US\$26.75 for standalone HTC. Costs for mobile HTC was \$16.58 per previously untested client as compared to \$43.69 for standalone HTC and \$157.21 per HIV-

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positive individual identified as compared to \$189.14 for standalone HTC. Overall, the incremental cost per outcome achieved was lower when mobile HCT was added to stand alone services. The cost per HIV-positive client identified and new HIV-positive client identified was lower for mobile HTC than stand alone HTC. Women are more likely to access HTC at community sites rather than at stand-alone sites (Grabbe et al., 2010). (Gray IIIb) (*HIV testing, community-based testing, Kenya*)

- A study in **Zambia** from 1995 to 2000 found that community workers who promoted couples counseling in their neighborhoods significantly increased the numbers of couples who tested jointly. Previously tested couples were trained for three days to be community outreach workers: “Like you, I am married and have been tested with my spouse.” Community workers emphasized the importance of testing together and explained that one person in a couple can be HIV-positive and the other can be HIV-negative. Services were confidential. Complex questions were referred to counselors. Once outreach by community workers was discontinued, couples VCT dropped by 90%, from 230 couples per month to 20 couples per month when promotion was limited to mass media. Of the 8,500 cohabitating couples who sought HIV testing, 51% were concordant HIV-negative; 26% were concordant positive; and 23% were couples with one partner positive and the other partner negative. Each couple spoke privately with a counselor in deciding to test. Individual counseling was provided on request. Transport, childcare, lunch and counseling were provided whether couples elected to test or not (Chomba et al., 2008). (Gray IIIb) (*counseling, HIV testing, community outreach, couples, Zambia*)
- Data collected on utilization, costs and outcomes of VCT services in a hospital clinic with 568 clients (56% male), in a community HIV clinic with 28 clients (91% male), in a STI community clinic with 574 clients (53% male) and a prison clinic with 574 clients (no sex disaggregated data) in **Indonesia** from 2008 to 2009 found that the cost was lower in the HIV community clinic with a unit cost of \$39 and in the prison with a unit cost of \$23 followed by the STI community clinic with a unit cost of \$65 and the most expensive being the hospital clinic with a unit cost of \$74. Costs were calculated for both resources in the health care system as well as costs accrued by patients accessing care. Costs accrued by patients were obtained from a survey conducted in 2009 which collected information on travel costs, travel time, income, working hours and expenditures. Most HIV-positive cases were detected at the hospital, with 38% testing HIV-positive, as compared to 14% at the community clinic, 3% at the STI clinic and 7% in the prison. Most patients diagnosed through VCT in the hospital and the prison who tested HIV-positive enrolled in HIV care whereas few did so in community clinics. Patient costs were lowest in the community clinic, which needs more effective referral systems to HIV care (Siregar et al., 2011). (Gray IIIb) (*HIV testing, health facilities, Indonesia*)
- Using data from two sub-studies on client-initiated VCT provided in rural health centers and researcher-initiated VCT provided in a non-clinic community setting in rural **Zimbabwe** found that testing uptake was improved by using both rural health centers and non-clinic settings for VCT. Survey data was collected from 16,000 young people who were encouraged to attend VCT at local clinics, but fewer than 5% did so. By contrast when testing was offered to everyone in a non-clinic setting, 27.3% of young people chose to be tested. Data from clinic based VCT show that of 3,585 clients over the age of 18, 32.9% tested HIV positive. In the non-clinic setting, 1,368 of 5,052 of participants opted to test and 18.8% tested HIV-positive. Qualitative data from clinics found that adults, but not youth, found clinic settings acceptable, with concerns about confidentiality (Chirawu et al., 2010). (Gray IV) (*HIV testing, adolescents, health facilities, Zimbabwe*)

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5. Home testing, consented to by household members, can increase the number of people who learn their serostatus.

- An analysis of a non-randomized study from rural Southwestern **Uganda** with 1869 participants (Wolff et al. 2005) found “very high acceptability and uptake of VCT results when testing and or results were given at home compared to the standard (facility)” (Bateganya et al., 2007: 15). In Zambia, the participants who were offered home-based testing were “4.6 times more likely to accept VCT,” while in Uganda, during the year that HIV results were offered at home, “participants were 5.23 times more likely to receive their results” (Bateganya et al., 2007: 15). Overall, the review found that “home-based testing may be an effective way of delivering HIV prevention services in populations not targeted by earlier efforts” and that “the advantages of home-based VCT may outweigh any potential adverse effects that are associated with premature disclosure from home-based VCT” (Bateganya et al., 2007: 16). However, “given the limited extent of literature and the limitations in existing studies, large-scale implementation is premature. This is particularly true in developing countries, especially in sub-Saharan Africa, where the cost and feasibility of implementing large-scale home-based testing programs is wrought with infrastructure problems, as well as cost/benefit issues in areas where HIV prevalence may differ.” (Bateganya et al., 2007: 16). These two studies were included in a 2007 *Cochrane* review of home-based HIV VCT interventions in developing countries (Bateganya et al., 2007). (Gray I) (*counseling, HIV testing, Zambia, Uganda*)
- A cluster randomized study from 2005 to 2007 of 7,184 household members of people receiving treatment for HIV in **Uganda**, of whom 55.3% were female, found that those who received home-based testing were more than 10 times as likely to receive VCT than those who received HIV testing in a clinic. There were 4,798 in the household arm and 2,386 in the clinic arm. 2,938 household members (40.9%) completed VCT and received their results. In the home arm, 2,678, or 55.8% of 4,798 received their test results. The proportion of HIV household members was 17.3% for those who tested in the clinic as compared to those who were tested at home (7.1%). Clinic arm participants were given free VCT vouchers and encouraged to invite household members to the clinic for VCT. Home arm participants were visited and household members were offered VCT using a three test rapid finger stick testing algorithm. Analysis of home testing found that 93% were likely to be tested at the first visit. “In this setting, HIV stigma was low, and HIV status disclosure to household members common ...” (Lugada et al., 2010: 249), though it is unclear how confidentiality was kept as the authors note: “Although consent for HIV testing was approached on an individual basis, VCT was effectively a household decision as opposed to an individual decision” (Lugada et al., 2010: 251). (Gray IIIa) (*HIV testing, counseling, home-based testing, Uganda*)
- In **Uganda**, through mobile and home-based VCT, the proportion of adults in Uganda who have ever tested and received their HIV test results increased from 4% in 2000 to 21% in 2006 (UNAIDS, 2009b). (Gray IIIb) (*counseling, HIV testing, Uganda*)
- In a pilot study among 3,180 villagers in **Kenya** aged 15–49 exposed to a community awareness campaign, 1,984 or 63.9% agreed to be visited by counselors in their homes. Among those who agreed to be visited at home by counselors, 1,984 or 97.6% agreed to be tested and receive the results. The total cost was US\$17,569, resulting in \$84 per positive case detected. Adult HIV prevalence was 8.2%. The program cost was \$5.88 per each person

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tested for HIV. Of the costs, 40% was spent on test kits and 60% on human resources. The cost included a daily stipend of \$15 per counselor, \$30 per supervisor and \$4.60 for the community health worker for each of the 78 working days to complete the testing in the village, including three days of training. Transport costs were \$.077 per day. The village, Sauri, is the site of a multi-sectoral health and development initiative called the Millennium Villages Project, which aims to accelerate progress towards the MDGs in rural Africa (Negin et al., 2009). (Gray IIIb) (*HIV testing, counseling, home-based testing, Kenya*)

- A review of a retrospective cohort of 84,323 individuals in **Uganda** who received HIV counseling and testing between 2003 and 2005 through one of four strategies found that household and door-to-door HIV counseling and testing reached the largest proportion of previously untested clients compared to stand-alone HIV counseling and testing and compared to hospital based counseling and testing. Hospital based HIV counseling and testing diagnosed the greatest proportion of HIV-positive individuals (22%), following by stand-alone HIV counseling and testing (19%). Household member HIV counseling and testing identified the greatest percentage of discordant couples (4%). Costs per client in 2007 US\$ was: \$19.26 for stand-alone; \$11.68 for hospital-based; \$13.85 for household member HIV counseling and testing; and \$8.29 for door-to-door. More than 30% of those who tested HIV positive had CD4 counts under 200 regardless of testing strategy (Menzies et al., 2009). (Gray IIIb) (*HIV testing, counseling, home-based testing, health facilities, Uganda*)
- A cross-sectional house-to-house survey in **Uganda** in 2009 asked residents over the age of 15 if they wanted an HIV test. Of 588 participants, 408 accepting testing. Of the 408 who took an HIV test, 30 previously unknown residents were identified as HIV-positive and referred to HIV care. Most participants had never tested for HIV, but almost one-third of the 30 newly HIV-positive individuals had taken an HIV test within 12 months of prior to the home-based testing survey. However, no information was given in the study if those who tested HIV-positive did access HIV care. “Based on the reasons given by those individuals for not accepting to take the home-based test in our study such as not being emotionally prepared and having to consult with spouses or parents, it is evident that HIV programs would still need to be aware of existing barriers and seek to address them” (Sekandi et al., 2011: paragraph 17). (Gray IIIb) (*HIV testing, home-based testing, Uganda*)
- A population-based survey to include HIV testing with 5,035 participants in **Zambia** which offered HIV testing found that this increased those ever tested for HIV in the population from 18% before HIV testing to 38% following the survey which included HIV testing. Young rural men aged 15–24 had the highest levels of increase from 14% to 42%. Of those offered an HIV test, 32% accepted. Among those who accepted home-based HIV testing, 20.6% had previously been tested for HIV. The counselors did not report negative life events following offering HIV testing (Mutale et al., 2010). (Gray IIIb) (*HIV testing, counseling, home-based testing, Zambia*)
- Home-based counseling was offered to 750 adults in a rural area of **South Africa**, of whom 90.4% accepted testing with an HIV prevalence rate of 29.7%. Standardized, confidential, individualized HIV counseling and tested with risk reduction messages for all household members over the age of 18 was conducted. For those who tested HIV positive, CD4 counts were measured using point-of-care technology, ART was provided and referrals for care were facilitated. Of those who tested HIV-positive, 94% had visited an HIV clinic by three months follow up. No social harm was reported (van Rooyen et al., 2012). (Abstract) (*HIV testing, home-based testing, South Africa*)

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- Surveys between 2005 and 2007 that assessed door-to-door VCT in a rural district in **Uganda** found that the proportion of those who ever tested for HIV increased from 20% to 63%. The proportion of people disclosing their serostatus increased from 72% to 81%. Among HIV-positive people who knew their serostatus, condom use at last sex increased from 15% to 40% (Nuwaha et al., 2009). (Abstract) (*HIV testing, condoms, disclosure, Uganda*)

6. Counseling may reduce risk behaviors and HIV acquisition.

- A study of voluntary HIV counseling and testing in **Tanzania** found that a personalized risk reduction counseling session of 40 minutes was more effective in reducing risk behaviors and STIs than watching a 15-minute video. Using information from the formative research, the counseling sessions entailed a personalized risk assessment and a personalized risk reduction plan based on level of knowledge, interpersonal situation, specific risk behaviors, and readiness to change. Participants were randomly assigned to receive either HIV counseling and testing or a health information intervention where participants watched a 15-minute video in the presence of a health information officer, who responded to their questions at the end. Couples were randomized together so that both members always received the same intervention. Participants enrolling as couples were counseled together or individually, depending on their choice. Each couple member was given individual time with the counselor. Test results were initially given individually, and then the couple was encouraged to share their results in a joint counseling session. Post-test counseling then proceeded with both members of the couple. All participants were given condoms at no cost and tested for STIs and treated as appropriate if found positive. A total of 1,427 participants were enrolled (500 men, 489 women, and 222 couples). HIV prevalence among those assigned to received HIV counseling and testing at baseline was 21% - 13% for men and 29% for women. After 6 months, although there was a reduction in risk behavior for both groups, individuals who received the counseling and testing intervention showed significantly reduced risk behavior (26% to 16%) than those who received health information only (26% to 23%) (Kamenga et al., 2001). (Gray II) (*counseling, HIV testing, sex behavior, couples, Tanzania*)
- A population based open cohort study of 17,874 people in **Zimbabwe** with 7,559 men and 10,315 women aged 15 to 54 offered no-cost HIV counseling and testing through mobile clinics found that women who received VCT even if they tested HIV-negative reduced their reported number of new partners compared to those who did not get an HIV test. Mean length of follow-up was 4.2 years. Counseling was provided by trained male and female nurse counselors, but was not part of a clinical trial “where services may be implemented more assiduously than they can be done when scaled up” (Cremin et al., 2010: 712). “For treatment programmes to be sustainable, reductions in incidence are required. Thus preventing new infections through the provision of high quality counseling should be another, equally important, aim” (Cremin et al., 2010: 709.). (Gray IIIa) (*HIV testing, counseling, sex behavior, Zimbabwe*)
- A prospective cohort study of 250 HIV-negative women and 250 HIV-negative men at increased risk for HIV acquisition in **India** who received risk reduction counseling at the start, six months later and twelve month later had low rates of HIV acquisition, and reported statistically significant reductions in the number of different sex partners, the number of new partners and the proportion of sexual encounters with nonprimary partners. Only two participants, one male and one female, seroconverted over 457 person years of follow up. All attended an STI clinic and had VCT. To be considered high risk, all either had to have had

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five or more different sexual partners; had a diagnosed STI; or having had vaginal or anal sex with a known HIV-positive partner. Counseling covered prevention techniques and reducing the number of partners. Condom use was demonstrated and condoms were provided free of charge. Condom use increased. Sessions lasted about one hour (Solomon et al., 2006). (Gray IIIb) (*sex behavior, sexual partners, counseling, HIV testing, India*)

7. Incorporating discussions of alcohol use into HIV testing and counseling may increase protective behaviors such as condom use, partner reduction and reduction of alcohol use.

- A randomized community field trial in **South Africa** found that a brief HIV and alcohol risk reduction workshop reduced HIV-related risks among drinkers. 117 men and 238 women were randomly assigned either a three-hour skills training on HIV-alcohol risk reduction or a one-hour HIV-alcohol information session. The three-hour program resulted in significant declines in unprotected intercourse and sexual partners, alcohol use prior to sex and increased condom use compared to the one-hour session, evaluated six month post intervention. However, effects were weakest for the heaviest drinkers (Kalichman et al., 2008). (Gray II) (*alcohol, sex behavior, sexual partners, South Africa*)
- A 2006 study in **Kenya** with intervention and comparison sites and follow up data was conducted at 15 static and 10 mobile VCT sites with 1,073 VCT clients found that clients from interventions sites displayed more concrete intentions to change behavior, stating that they would reduce or stop their alcohol intake. The intervention consisted of alcohol counseling, which increased the VCT component time by seven minutes. Providers did not find this burdensome. Over 90% of clients reported being receptive to discussions about alcohol use while attending a VCT center. Alcohol use is associated with high-risk sexual behavior and reduced inhibitions (Zablotska et al., 2006; Ghebremichael et al., 2009a; Kalichman et al., 2007; Fisher et al., 2007). Alcohol users are more likely to perpetrate intimate partner violence. [See also *Strengthening the Enabling Environment: Addressing Violence Against Women*]. Clients were screened with AUDIT and CAGE consisting of questions concerning alcohol use, such as feeling the need to cut down on drinking; feeling guilty about drinking; seeking help for drinking, etc. (Mackenzie et al., 2008). (Gray IIIa) (*sex behavior, violence, HIV testing, alcohol, Kenya*)
- A pilot study with 80 women in **South Africa** who reported recent substance use and sex trading were randomly assigned to a standard HIV prevention intervention or a woman-focused HIV prevention intervention. Those who participated in the woman-focused intervention reported greater decrease in unprotected sex with paying clients or with baseline than those in the standard prevention intervention. Those in the woman-focused group showed a large increase from 3% to 48% in any female condom use with boyfriends, while the standard group showed a smaller increase from 20% to 40%. Focus group discussions noted that drugs and alcohol were used prior to sex work to give the women courage to approach clients. In the woman-focused intervention women learned violence prevention strategies such as staying sober to assess the situation, communication techniques, ways to exit a volatile situation and how to actively seek community resources. At baseline, although 77% considered their substance abuse a problem, only 26% knew about substance abuse treatment and only 7% had ever been in treatment. A reduction of 15% to 5% was observed in the proportion of women reporting daily alcohol use in the woman-focused group compared to a

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smaller decrease of 18% to 10% in the standard group (Wechsberg et al., 2006). (Gray IIIa) (*sex behavior, alcohol, substance abuse, violence, South Africa*)

- A study from 2004 to 2007 with 425 women in **South Africa** at high risk of alcohol abuse found that HIV education resulted in uptake of HIV testing, with 276 or 65% agreeing to HIV testing. HIV education addressed fear of stigma and testing for HIV, along with access to prevention, treatment and care services. Of the 425 women, 200 or 74% reported drinking five or more drinks containing alcohol on a typical day (Luseno and Wechsberg, 2009). (Gray IIIb) (*education, alcohol, HIV testing, South Africa*)

8. Encouraging couple dialogue and counseling, including techniques to avert gender-based violence, may increase the number of couples who receive and disclose their test results.

- A study of 293 HIV-discordant couples (married or cohabitating) in **Uganda** who received counseling, agreed to disclose, and received counselor support resulted in 81% of HIV-positive partners in discordant relationships disclosing their status to their HIV-negative partner in the presence of a counselor. Disclosure was similar irrespective of the sex of the HIV-positive partner, with 81.35% of HIV-positive men and 80.2% of HIV-positive women disclosing to their partner. HIV-discordant couples along with a random sample of 22 HIV-positive concordant couples and 22 HIV negative concordant couples to mask HIV status were invited to meetings to discuss the benefits of disclosure and couples counseling. All who participated in the meetings were required to maintain the confidentiality of everyone in the group. The meetings discussed how disclosure allows individuals who are positive to not be burdened by disclosing by themselves and having to persuade partners to test; offers a safe environment to discuss risks; enables partners to hear messages together for better understanding; receive timely interventions, such as ARVs; facilitates communication and reduces blame. Good communication skills and how to improve communication skills between partners were covered. Myths concerning discordance, such as the HIV-negative partner cannot acquire HIV, were addressed. HIV-positive partners were subsequently contacted to encourage HIV disclosure to their HIV-negative partner. If the HIV-positive partner agreed, the counselor met separately with the HIV-negative partner to assess if the HIV-negative partner would share their test result with their partner and then met with both to facilitate disclosure of HIV results and provided ongoing support. All participants were provided health education on HIV prevention and safer sex practices, were offered condoms at no cost and VCT at no cost. All who tested positive received on-going counseling every six months and clinical management, including CD4 screening and initiation of ARVs if eligible. All who tested HIV-negative and had a partner who was HIV-positive were provided with repeat HIV testing as appropriate. Counselors were trained in group psychotherapy skills. (Kairania et al., 2010). (Gray IIIb) (*HIV testing, counseling, disclosure, couples, Uganda*)
- A study of 245 women who were enrolled after pre-test counseling and prior to the collection of test results in **Tanzania** found that disclosure of HIV serostatus was significantly higher for couples who discussed HIV testing prior to coming to the health center: 94.6% of women who told their partners they were going to be tested disclosed their HIV results to their partners within three months after testing, compared to only 44% of women who did not tell their partners that they were going to be tested (Maman et al., 2001a). (Gray IV) (*HIV testing, counseling, couples, disclosure, Tanzania*)

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- A qualitative study of in-depth interviews with 15 women, 15 men and 15 couples in **Tanzania**, including 10 seroconcordant HIV-negative couples, found that among seroconcordant HIV-negative couples VCT was an important strategy to encourage couples who may be at risk for HIV infection to initiate preventive health behaviors to maintain their HIV-negative status. “Couples described testing as a preventive health measure they used prior to unprotected sexual intercourse, marriage or pregnancy” (Maman et al., 2001b: 597). (Gray IV) (*counseling, HIV testing, couples, Tanzania*)
- A study in **Rwanda** and **Zambia** that promoted couples’ voluntary counseling and testing resulted in 1,411 couples requesting couples counseling and testing. Cohabiting couples in Africa represent a large HIV risk group. (Allen et al., 2007b). (Gray V) (*counseling, HIV testing, couples, Rwanda, Zambia*)
- In-depth interviews with 23 sexually active adults (11 women and 12 men) receiving antiretroviral therapy in 2005 in **Kenya** found that disclosure and couples counseling with mutual support played a central role in sustaining safe sex. All except one man had disclosed their positive serostatus (Sarna et al., 2009). (Gray V) (*counseling, HIV testing, disclosure, couples, Kenya*)

Promising Strategies:

9. Knowledge of treatment availability can increase uptake of HIV testing. [See also *Treatment: Provision and Access*]

- A population based open cohort study of 17,874 people in **Zimbabwe** with 7,559 men and 10,315 women aged 15–54 offered no-cost HIV counseling and testing through mobile clinics found that 83% stated they would get an HIV test if cheap treatment were available (Cremin et al., 2010). (Gray IIIb) (*HIV testing, counseling, treatment, Zimbabwe*)
- A cross-sectional household survey conducted in 2007 in **South Africa** with 1,539 men and 1,877 women as part of a community randomized prevention trial found that both men and women who had heard about antiretroviral therapy were more likely to report HIV testing and repeat testing. Women were much more likely to report both first time (64.8% of women compared to 28.9%) and repeat testing compared to men (Venkatesh et al., 2011a). (Gray IIIb) (*HIV testing, treatment, South Africa*)
- A cross-sectional study during 2004 of 184 men and women (121 were women) attending a hospital for any reason in **South Africa** found a significant association for women between those who knew someone on antiretroviral therapy and having been tested for HIV. Among women, 68% of those who knew someone on ARVs had had an HIV test as compared to 48% of women who had a HIV test who did not know someone on ARVs (Mfundisi et al., 2005). (Gray IV) (*HIV testing, treatment, South Africa*)
- A study of 12 focus group discussions, half with women, in **Uganda** found that participants affirmed the incentive for testing was the possibility of accessing free ART. Prior to ART, “testing for HIV was perceived as soliciting a death warrant” (Nyanzi-Wakholi et al., 2009: 903). ART was preferred over traditional herbal treatment because it had clear dosages, expiry dates and was scientifically manufactured. ART was described as restoring physical health allowing patients to resume their daily activities. Men deliberately postponed accessing HIV

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testing until they were evidently sick. “Participants commended pre- and post-test counseling for enabling them to accept their status, cope with depression, stigma and thoughts of death... They emphasized the need for counseling to be continuous and not a one time event” (Nyanzi-Wakholi et al., 2009: 905). (Gray V) (*HIV testing, counseling, treatment, Uganda*)

10. Availability of HIV testing and counseling on-site at workplaces may increase uptake of HTC.

- A cluster-randomized trial in **Zimbabwe** found that businesses randomized to on-site rapid HIV testing at their occupational clinic greatly increased uptake of VCT compared to vouchers for off-site VCT. Over 51% or 1,957 of 3,950 employees randomized to on-site testing had VCT compared to 19% or 586 of 3,532 employees randomized to off-site testing. Of those randomized to VCT through on site rapid testing, 88% were men; 12% were women. Of those randomized to VCT through off-site vouchers, 86% were men, 12% were women. Rapid testing was linked to basic HIV care which did not include antiretroviral therapy (Corbett et al., 2006). (Gray II) (*counseling, HIV testing, workplace, Zimbabwe*)
- Between 2001 and 2007, 9,723 adults were tested for HIV in 14 Heineken company sites in **Democratic Republic of Congo, Rwanda, Burundi, Republic of Congo, and Nigeria**. Coverage was higher among female (28%) compared to male employees (22%) and higher among female spouses (18%) compared to 6% of male spouses, with spouses harder to reach than employees. VCT was made freely available at company sites. The median CD4 count of newly diagnosed persons rose significantly over the years, from 227 cells/ul in the first year to 316 cells/cubic mm in the fifth year. Each year an estimated 20% of the target population was tested for HIV through VCT. Of the 370 people found to be HIV-positive, 239 had started HAART by 2008. Initially employees were encouraged just to get tested; more recent policy has been to test every two years (Van der Borgh et al., 2010). (Gray IV) (*HIV testing, counseling, workplace, Democratic Republic of Congo, Rwanda, Burundi, Republic of Congo, Nigeria*)

6. Gaps in Programming—HIV Testing and Counseling for Women

1. Further interventions are needed that support women safely through the disclosure process.
2. Additional efforts are needed to identify opportunities to offer HIV testing and counseling in health care settings that might reach women who are otherwise inaccessible.
3. Further efforts are needed to ensure optimal counseling strategies and topics, with detailed information about accessing treatment and risk reduction.
4. Enforcement of standard protocols is needed to reduce the risk of provider coercion in HIV testing, particularly in provider-initiated testing and counseling.
5. Further efforts are needed to guarantee confidentiality of HIV test results.

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6. Strengthened post-test counseling for those who test HIV-positive must explain who is eligible for treatment; the importance of treatment and reducing transmission; and where to access treatment.
7. Further efforts are needed to determine the optimal frequency of testing in order to minimize HIV transmission in a cost-effective way.
8. Links are needed between religious leaders and health facilities.
9. In some countries, knowledge of how and where to access HIV testing is needed.
10. Older adults need HIV testing and counseling.
11. Affordable incidence assays need to be developed which will distinguish new and recent HIV infections.
12. Rapid testing is needed in some countries so that people can quickly learn their serostatus without long follow up.
13. Further efforts are needed to make HIV testing and counseling available and accessible to young people.

1. Further interventions are needed that support women safely through the disclosure process. [See also *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*] Studies found that women in some settings experienced increased violence and abandonment following disclosure or feared violence as a result of disclosure. Some HIV-positive women wish to disclose their serostatus but want trained health providers to help them do so.

- Gap noted, for example, in **Ethiopia** (Deribe et al., 2010; Deribe et al., 2009); **Uganda** (Emusu et al., 2009); **Tanzania** (Milay et al., 2008 and Maman et al., 2001a); and **Brunei, Cambodia, Indonesia, the Lao's People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam** (Ishikawa et al., 2011b).

2. Additional efforts are needed to identify opportunities to offer HIV testing and counseling in health care settings that might reach women who are otherwise inaccessible.

- Gap noted generally by Askew and Berer, 2003; de Bruyn, 2003 and Oosterhoff et al., 2008a; and among sero-discordant couples in **Rwanda and Zambia** (Grabbe et al., 2009).

3. Further efforts are needed to ensure optimal counseling strategies and topics, with detailed information about accessing treatment and risk reduction. Studies found that women who went for an HIV test prior to marriage felt they did not need another HIV test for the duration of the marriage and that pre-test counseling was important. Providers do not feel comfortable asking about sexual practices. Studies have found that those who test HIV-negative engage in a high frequency of sexual risk behaviors.

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- Gap noted, for example, **globally** (Jurgens, 2007a); **South Africa** (Venkatesh et al., 2011a); **Pakistan** (Hussain et al., 2011); **Tanzania** (Mmbaga et al., 2009); and **Zimbabwe** (Sherr et al., 2007).
- 4. Enforcement of standard protocols is needed to reduce the risk of provider coercion in HIV testing, particularly in provider-initiated testing and counseling.** Studies found that significant numbers of women reported that they could not refuse an HIV test or that HIV testing was mandatory.
- Gap noted, for example, in **22 countries in the Eastern Mediterranean region** (Hermez et al., 2010); **Zimbabwe** (Sambisa et al., 2010); **India** (Joseph et al., 2010); **Kenya** (Karau et al., 2010); **South Africa** (Groves et al., 2009); **Botswana** (PHR, 2007a and Weiser et al., 2006a); **China** (Li et al., 2007); and **Ukraine** (Yaremenko et al., 2004).
- 5. Further efforts are needed to guarantee confidentiality of HIV test results.** A study found that nurses and physicians did not access HTC because of fears of confidentiality.
- Gap noted, for example, in **Zambia** (Bond, 2010); **Cameroon** (Njizing et al., 2010); **Vietnam** (Nam et al., 2010); **Malawi** (Namakhoma et al., 2010).
- 6. Strengthened post-test counseling for those who test HIV positive must explain who is eligible for treatment; the importance of treatment and reducing transmission; and where to access treatment.** A study found that women who tested positive did not know about treatment nor where to go to access treatment.
- Gap noted, for example, in **Vietnam** (Nam et al., 2010) and **Ghana** (Tenkorang and Owusu, 2010).
- 7. Further efforts are needed to determine the optimal frequency of testing in order to minimize HIV transmission in a cost-effective way.** In some settings, testing for acute infection is warranted which would require testing every three to six months. A study found that 12% of women and 10% of women who had reported testing HIV-negative were found to be seropositive one to two years later. Modeling studies have found that screening one time, annually, can be cost-effective and that yearly testing in a high incidence area found that potential high-risk transmission with high viral load could be reduced by yearly HIV testing.
- Gap noted, for example, in **Kenya** (Huchko et al., 2011); **Botswana** (Novitsky et al., 2010); **Malawi** (Powers et al., 2011b) and **South Africa** (Walensky et al., 2011).
- 8. Links are needed between religious leaders and health facilities.** A study found that religious leaders wanted to refer people living with HIV for counseling and up to date information on HIV but did not know where to advise people to go.
- Gap noted, for example, in **Senegal** (Ansari and Gaestel, 2010).

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9. In some countries, knowledge of how and where to access HIV testing is needed. Studies found that significant proportions of youth did not know where or how to take an HIV test, with cost being a barrier.

- Gap noted, for example, in **Yemen** (Al-Serouri et al., 2010) and **Nigeria** (Uzochukwu et al., 2011).

10. Older adults need HIV testing and counseling. A study found that significant proportions of adults, particularly adult men, had not had HIV testing yet had unprotected sex with multiple partners and paid partners.

- Gap noted, for example, in **Thailand** (Ford and Chamrathirong, 2009).

11. Affordable incidence assays need to be developed which will distinguish new and recent HIV infections. No affordable incidence assays, which can detect recent and new infections, have been developed or have to be used with conditions that no longer exist, such as lack of access to ARVs. Such an incidence assay could be used to assess impact of particular programmatic efforts and distinguish between older and more recently acquired HIV infections.

- Gap noted, for example, in **Africa** (IOM, 2011; Kim et al., 2010); Duedu et al., 2011); **South Africa** (Fiamma et al., 2010).

12. Rapid testing is needed in some countries so that people can quickly learn their serostatus without long follow up. In some countries, HIV testing is only done by ELISA tests, takes one month for test results and requires follow up appointments.

- Gap noted, for example, in **Ukraine** (Brown et al., 2011b).

13. Further efforts are needed to make HIV testing and counseling available and accessible to young people. *[See also Prevention for Young People: Increasing Access to Services]* Opt-in testing for young people, with consent of guardians, may increase the number of young people learning their serostatus.

- Gap noted, for example, in **Zimbabwe** (Ferrand et al., 2011).

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