

# Drug-Using Women Need Comprehensive Sexual Risk Reduction Interventions

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**In the United States, drug users have dramatically reduced drug-related risk behaviors but continue sexual behaviors that place them at risk for human immunodeficiency virus (HIV) infection. Successful interventions are likely to be those that intervene at multiple levels, yet, historically, sexual interventions for drug users have primarily addressed only personal factors, such as condom use. Sexual risk arises from personal factors (e.g., perceived vulnerability and protective behaviors); interpersonal factors (e.g., relationship type and a partner's risk profile); social factors (e.g., gender roles and sexual mixing patterns among and between networks); and, finally, community-level factors (e.g., access to preventive methods and the prevalence of a sexually transmitted pathogen within a network). For female drug users, multiple sources of risk plus concurrent drug use during sex pose additional prevention challenges that disproportionately elevate their risk of sexually acquired HIV infection. New, multimodal interventions need to be developed and tested to more effectively address the many sources of sexual risk facing female drug users.**

Injection drug users (IDUs) were identified early on as a high-risk group for acquiring HIV/AIDS in the United States [1, 2] and continue to be an important at-risk group [3]. Over the course of the epidemic, risky injection-related behaviors have diminished dramatically among IDUs, but risky sexual behaviors have persisted. This finding was observed early on across the United States [4] and with IDUs both in [5] and out of drug treatment [6, 7]. Observational studies throughout the second decade of the AIDS epidemic continued to document that there is a movement toward safer injection behavior but that resistance or inability among IDUs to make their sexual behavior safer is persistent [8, 9]. Early-generation intervention studies have also sug-

gested that motivating change among drug users toward safer sexual behavior is difficult [10–16].

The persistence of risky sexual behavior among IDUs is problematic for several reasons. Injection drug use and sexual risk-taking are associated behaviors [17–19], and, even among IDUs, unprotected sexual intercourse is an independent risk factor for HIV infection [20–22]. Sexual transmission may be an important mode for acquiring HIV among female IDUs, in particular [23, 24]. Unprotected sex can result in other sexually transmitted infections—a parallel public health problem in their own right—and they are often asymptomatic, especially in women. Furthermore, untreated silent infections can ascend to upper reproductive organs and cause permanent damage, such as infertility, or can be passed to offspring.

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## WHY FOCUS ON WOMEN?

The HIV epidemic in the United States has increasingly shifted away from men who have sex with men toward an epidemic spread by heterosexual contact involving women of color. Since the beginning of the HIV epidemic, the proportion of all AIDS cases accounted for

by adult and adolescent females has more than tripled, from 7% in 1985 to 25% in 1999 [25]. This increase was seen in part because proportion measures for a given group can be influenced by proportion changes in other groups. Nevertheless, heterosexual contact was the fastest-growing mode of HIV transmission during the early 1990s [26], and, by end of the decade, it accounted for one-half of all AIDS cases among women [27, 28]. The estimated number of new cases of AIDS in the United States has remained relatively steady among women (13,175 in 1996 and 10,305 in 2000), compared with a continued dramatic decline among men (47,571 in 1996 to 29,800 in 2000) [3]. The US AIDS epidemic is also concentrated among minority women: African American and Hispanic women, who account for <25% of the US population, account for 78% of all AIDS cases [25].

The incidence of HIV and its progression are similar for women and men [27], and the incidence of HIV spread through heterosexual contact has remained steady throughout the 1990s [29]. However, these overall trends may mask an increased HIV risk among young women. Earlier studies of prison populations [30] and recent studies of IDU [31] and surveillance populations [32, 33] suggest higher HIV incidence among women than among men. These differences were explained by higher rates among young women in particular, suggesting that the onset of risky sexual activity plays an important role in transmission. Among female IDUs, dual modes of risky sexual and parenteral behaviors also appear to fuel their increased risk for HIV infection [31].

## **WHY FOCUS ON SEXUAL RISKS IN DRUG-USING WOMEN?**

Women are increasingly at risk for HIV infection because of sexual rather than parenteral routes of transmission [26]. From 1996 to 2000, the estimated number of new AIDS cases among women that were due to injection drug use decreased by 40%, but cases due to heterosexual contact remained steady [3]. Through mid-2001, 19% of the cumulative total of HIV infections were due to injection drug use, whereas 42% were due to heterosexual transmission [34]. Among women infected through heterosexual contact, one-quarter of the infections were due to sex with an IDU, but it is troubling that two-thirds of cases of infection via heterosexual sex involved sex with a person whose source of HIV transmission could not be specified by the infected woman. In fact, historically, among cases of HIV transmission in women that were initially classified as "unspecified," two-thirds were later reclassified as cases of heterosexual transmission, and one-quarter were attributed to injection drug use [25]. These figures suggest that women are initially reluctant to admit risky behavior but also that women may be unknowingly at risk for HIV infection because of frank

ignorance of their sexual partners' risk profiles. Even among IDU samples, sexual risk behaviors have been found to have a strong influence on the prevalence [35] and incidence of HIV infection among women [22, 23, 31]. Compared with males, female IDUs also report a larger overlap between their drug and sex partners, suggesting that a complex interplay of both sexual and drug use behaviors place women at risk for HIV infection [36, 37]. The predominance of heterosexual contact and contact with partners with both known and unknown risk profiles means that drug-using women are at risk for HIV infection from dual, and at times overlapping, routes of sexual and parenteral transmission, which represents a new and difficult prevention challenge.

Biological, behavioral, and social factors all collude to place drug-using women at risk for HIV infection. However, the relative contribution of biological factors to sexual versus parenteral transmission differs. Epidemiological studies and biological mechanisms suggest that HIV may be more efficiently transmitted through sex from men to women than from women to men [38, 39]. Biological explanations also extend to young women, who may be especially vulnerable to sexually acquired HIV infection because of the immaturity of their genital tracts [40]. Thus, in addition to the onset of sexual activity, biological factors may account for the increasing incidence of sexually acquired HIV infection among young women in the second decade of the US HIV epidemic. However, there is no parallel biological vulnerability associated with parenteral transmission, indicating that social and behavioral factors play an important role in facilitating this mode of transmission of HIV to women.

## **SOURCES OF HIV RISK**

Risk behavior for HIV infection differs along a number of social constructs. For example, the frequency of condom use differs by type of partner [41, 42], duration of the relationship [43, 44], and gender roles [45, 46]. Injection behaviors also appear to be socially circumscribed, with women often in roles that place them at great risk for HIV infection [47]. For example, in a sample of Hispanic IDUs, women were significantly more likely than men to report being introduced to injection drug use by their sex partner, who was often much older [48]. Women reported that such introduction occurred despite being as aware as men of the risks involved in needle sharing and despite being more likely to have been sober at the time. Although another report from a predominately African American sample population suggests that women and men are equally likely to be introduced to injection drug use by another, same-sex initiator, women introduced by men had a slightly increased risk profile for HIV infection [49]. Thus, even in the absence of biological susceptibility, women appear to be in harm's way

for HIV infection because of strong social forces that affect their behavior in both their sexual and drug-use relationships.

However, behavior is only one of many sources contributing to HIV risk. The risk of HIV infection derives from a number of factors spanning personal, interpersonal, social, and community levels. Some levels operate independently on HIV risk—such as the HIV infection status and clinical indicators [40] of a sexual or drug-sharing partner—but often these levels operate through strong influences on behavior. For example, personal factors, such as a history of sexual abuse [50] and less perceived power in a relationship [37, 45, 51], are associated with risky sexual behavior among women. As documented above, social roles and gender expectations can also foster risky injection behavior among women. Community-level factors, such as the physical condition of a neighborhood [52], involvement in community organization [52, 53], and the settings in which injection drug use occurs [54, 55], are also associated with HIV-related health outcomes and behavior. Yet, historically, efforts to prevent the sexual transmission of HIV have predominantly focused only on changing personal factors associated with risk behavior while ignoring the full spectrum of factors contributing to HIV risk.

## **WHAT DO DRUG-USING WOMEN NEED?**

Given the evidence that female drug users must negotiate safer sex practices and drug use from less powerful social positions than those of their male counterparts, there is a clear need for sexual transmission prevention strategies to break out of historical molds and address complicated social realities. To be most effective, prevention strategies need to take into account the personal, interpersonal, social, and community-level factors that place female drug users at risk for sexually acquired HIV infection. The harm reduction model for drug addiction is a good example of a multimodal prevention approach that could inform future sexual risk reduction interventions. The harm reduction model attempts to minimize HIV risks by simultaneously working against and within the larger context that facilitates drug use. Harm reduction approaches work at the personal level, by providing counseling and treatment referrals for drug users; at the social level, by working to destigmatize drug use; and at the community level, by improving access to clean injection equipment.

A multimodal harm reduction approach for sexual interventions tailored to drug-using women would include services such as individual counseling to address debilitating personal histories and to improve self-efficacy for safe sex practices. To address interpersonal and social factors, the intervention could include counseling couples or male clients in general on safer sex practices as a means of shifting social norms toward protecting women. Working at the community level to protect

women might involve changing the economic landscape that leads women to engage in commercial sex acts for drugs or money and integrating the social, reproductive, and sexually transmitted infection/HIV medical services that drug-using women need. Inroads have been made for developing and more vigorously promoting female-friendly prevention technologies, such as the female condom [56], the diaphragm [57], and microbicidal vaginal formulations that could inactivate HIV [58]. Yet, use of these technologies is similarly regulated by the same factors that shape all other HIV sexual risk behavior [59]. This reality reinforces the need to address the full range of powerful influences that shape HIV risk behavior and precludes reliance on a single “magic bullet” to curb the HIV epidemic among women.

The rationale for more sophisticated prevention strategies is also born of the evolution of HIV prevention efforts in the United States. Early on in the HIV epidemic, there was an urgent need to increase awareness about HIV. Correspondingly, the centerpiece of early prevention strategies was providing information to at-risk groups. These “first-generation” interventions were successful in improving drug users’ knowledge and correcting myths about HIV and may have prompted initial, simple changes to safer behavior [60]. However, as the epidemic progressed, and as methodologies to test intervention approaches became more refined, information alone was found to be a necessary but insufficient component to prompt risk-reduction changes in behavior among IDUs over the short or long term [61].

Additional interventions have been tested that included information plus opportunities for skills building with corrective feedback. Many of these “second-generation” interventions were based on psychosocial models of behavior change. Implicit in psychosocial models is the assumption that risk behaviors are largely under the control of the individual [62], and, therefore, they fail to address the full range of factors that can influence behavior. Summary evidence from second-generation studies among groups at high risk for HIV infection suggests that they can prompt modest behavior change but that their effects are often limited in scope and duration [63–66]. In addition, factors associated with initial behavior change among IDUs may not necessarily be those that help maintain protective behavior over time [67].

## **MOVING BEYOND INDIVIDUAL SOURCES OF RISK**

More recently, prevention approaches have started to use other theoretical frameworks, such as sociological, interpersonal, and community-level models. These models are promising, because social factors have been found to account for a greater influence on behavior than have psychological factors [68]. In a successful

adaptation of a sociological model to reduce risky injection behavior, participants were asked to bring in the members of their immediate drug-using social networks, who then, as a group, took part in a risk reduction intervention [69]. By involving the social network, this intervention reassociated social and environmental cues for risky behavior with safer injection practices, and it did not make the index IDU solely responsible for countering the often powerful social forces that can lead to risky injection practices.

A relationship-based approach to promote female condom use involved counseling both women and their male sexual partners [70]. Despite being heralded as a completely “female-controlled” method of prevention, use of the female condom, too, is often strongly regulated by the male partner [71, 72]. Rather than put the exclusive onus for change on women—who often hold the least influence on sexual and drug-use processes—this intervention approach simultaneously worked within and against the interpersonal context wherein women must negotiate safer sex. The literature on contraceptive use supports such an approach, because involving men in contraceptive decision-making is associated with improved use, especially when cultural considerations dictate passive sexual roles for women [73–75].

A community-level intervention that relied heavily on key community opinion leaders to design and implement a safer-sex condom intervention was successful in positively changing condom use norms and in prompting increases in self-reported condom use among community members [76]. Improving community access to condoms through widespread distribution via nontraditional vendors and locales was also effective in increasing condom use among community members [77]. Additional sexual interventions for drug users currently undergoing evaluation have added structured, observable, volunteer placements in the community for those who first participate in a series of cognitive-behavioral safer-sex workshops (R. Garfein and D. Purcell [Centers for Disease Control and Prevention], personal communication). Hallmarks of these newer, “third-generation” prevention approaches are that they are designed to influence sources of risk from multiple levels—beyond mere individual factors.

## CHALLENGES

Challenges associated with sexual risk reduction interventions stem from the fact that sexual behavior is private. Given this, there are ultimate boundaries that limit the extent to which prevention programs can shape intimate behavior. Sexual behavior is emotionally, culturally, socially, and, at times, economically regulated. Such influences provide avenues for shaping sexual interactions, but they can only be indirect. The private nature of sexual behavior also limits the way in which

interventions can be delivered. Small-group interventions are a more efficient way to reach at-risk people, but pressure to provide socially desirable responses may inhibit the frank discussion necessary to address the realities of risky sexual behavior. Individual sessions may be needed to complement group sessions. Alternatively, addressing sexual issues in small-group settings may be a powerful method of modeling healthy approaches for talking about, and conceptualizing, sexual interactions. Despite increasingly widespread and explicit depictions of sexual behavior in the US mass media, there has been no analogous response to help people interpret and incorporate these messages into their lives in healthy ways. Given this, health care professionals who have been socialized by (i.e., have grown up and lived in) US culture may find it challenging to initiate honest, comprehensive discussions about sexual behavior with clients who may desperately need exposure to healthy alternative ways of conceptualizing sex. Finally, unlike individual-based interventions, comprehensive prevention interventions are also more resource-intensive and require structural changes for implementation that can be much more difficult to achieve.

## CONCLUSION

A constellation of overlapping personal, biological, social, and community-level factors operate to put drug-using women at excess risk for HIV infection. New intervention approaches need to take the complicated realities faced by women into account by supplementing traditional emphases on personal factors with stronger efforts to change the larger social and community-level factors that also shape sexual risk. A new emphasis will take courage, because it involves an admission that structural factors, and not just personal will, are responsible for fostering HIV infection among one of the most vulnerable sectors of the population. It will also require a sustained commitment of resources and attention to help women who are often regarded as the least worthy of public beneficence.

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