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# Lowering the Risk of Secondary HIV Transmission: Insights From HIV-Positive Youth and Health Care Providers

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**CONTEXT:** Both perinatally and behaviorally infected HIV-positive youth engage in sexually risky behaviors, and a better understanding of the perceptions of these youth and of health care providers regarding disclosure of HIV status and risk reduction would aid in the development of behavioral interventions for such youth.

**METHODS:** In spring 2007, some 20 HIV-positive inner-city youth (aged 13–24) and 15 health care providers who work with HIV-infected youth participated in in-depth, semistructured interviews. Youth were recruited at an HIV clinic, AIDS clinics and an AIDS service organization, and had received care from participating providers. Detailed contextual and thematic discourse analysis was performed on interview transcriptions.

**RESULTS:** Eighteen of the 20 youth had disclosed their HIV status to another individual at least once. Eleven reported being sexually active, and three of these had been perinatally infected. Qualitative analysis revealed four subthemes related to disclosure: stigma and emotions, trust issues, reasons for disclosing and strategies for addressing disclosure. Five subthemes were identified related to sexual risk reduction: dating challenges, attitudes toward condom use, self-efficacy for condom use negotiation, pregnancy attitudes and sexual risk reduction strategies. Providers reported that access to more engaging and interactive educational tools within the clinic setting could enhance their risk reduction counseling with HIV-positive youth.

**CONCLUSIONS:** HIV-positive youth experience multiple challenges regarding disclosure and sexual risk reduction, and health care providers need innovative tools that can be used in clinic settings to improve adolescents' skills in reducing risky sexual behavior.

*Perspectives on Sexual and Reproductive Health, 2010, 42(2):110–116, doi: 10.1363/4211010*

Improvements in the medical management of HIV have reduced the rate of perinatal transmission from mothers to their children, and 91% of U.S. children with perinatally acquired HIV survive into adolescence and young adulthood.<sup>1</sup> Nevertheless, youth continue to acquire HIV through risky behaviors such as unprotected sex and injection-drug use. The Centers for Disease Control and Prevention (CDC) estimates that at least half of all new HIV infections in the United States are among people younger than 25 and are largely due to these two risk behaviors.<sup>1</sup> The extended survival of perinatally infected youth, combined with rising numbers of behaviorally infected youth, presents health care providers with the critical challenge of providing HIV-positive youth with information and methods to prevent secondary HIV transmission.

Successes in HIV medical management have not been matched by successes in behavioral interventions to curtail risky behaviors among HIV-positive youth. Despite researchers' advanced understanding of the pathophysiology and transmission of HIV, as well as the use of clinic-based education relating to risk reduction, the translation of relevant health messages into behavioral practice remains flawed, as HIV-positive youth continue to engage in risky behaviors.<sup>2–6</sup> In one study, 43% of HIV-positive youth reported not using a condom at last intercourse.<sup>2</sup> A small

number of behavioral interventions for HIV-positive youth have been rigorously evaluated, but the assessment of their effectiveness has been hampered by poor attendance.<sup>5,7,8</sup>

To fully understand the challenges of preventing secondary HIV transmission among youth, the experiences of both HIV-positive youth and health care providers need to be explored. Although quantitative studies<sup>9–11</sup> have examined the attitudes and perceptions of such youth toward sexual risk reduction and disclosure of their HIV status, qualitative data to inform the development of interventions have been limited.<sup>12,13</sup> Furthermore, little is known about providers' attitudes toward risk reduction and disclosure among HIV-positive youth.<sup>14</sup> The present study explores the views of health care providers and HIV-positive youth about disclosure and sexual risk reduction, and suggests how prevention efforts and clinical behavioral interventions might be strengthened.

## METHODS

This study was conducted in spring 2007 as a formative component for the development and evaluation of a computer-based clinical intervention for HIV-positive youth. Purposive sampling was used to recruit youth participants at a pediatric HIV clinic, AIDS clinics and a local AIDS service organization. Case managers referred

potential participants to the study coordinator. To be eligible, participants had to be HIV-positive and aged 13–24 (the age-group defined as adolescents by the CDC<sup>15</sup>). Prior to the interview, informed consent was obtained from parents and adolescents. For participants who were younger than 18 and not emancipated, their assent and consent from one parent were obtained. Youth completed a survey that assessed gender, age, race or ethnicity, HIV status and mode of infection. Health care providers were recruited by personal contact; to be eligible, providers had to have more than a year of pediatric HIV-positive care experience.

In-depth interviews were conducted with the youth at the clinic or agency from which they were recruited, and with the providers in private offices at their hospital or clinic. All interviews were recorded and transcribed verbatim; each interview lasted approximately one hour, and the youth received a \$10 gift certificate at its completion. The interviews followed a semistructured format with open-ended probes, and focused on the two principal themes of interest: disclosure of HIV status and sexual risk reduction. The interview guide was developed by a panel consisting of a pediatric HIV specialist, a health educator experienced with HIV-positive youth and behavioral scientists experienced in adolescent HIV prevention. To enhance rapport with the youth, interviewers progressed from less sensitive to more sensitive topics. Regardless of personal experiences, respondents were asked to report any thoughts or opinions they had about HIV disclosure or sexual risk reduction.

Detailed contextual and thematic discourse analysis was performed with the aid of ATLAS.ti, version 5.2.20, software. Transcriptions were entered into the computer program, and the text was analyzed using constant comparative and thematic analysis. For each transcription, at least two investigators independently performed the coding and categorized codes into themes and sub-themes, which were then compared and contrasted for interrater reliability. Results of youth and provider groups were compared to evaluate trends that emerged from the data.

## RESULTS

Thirty-five interviews were conducted: 20 with HIV-positive youth (five males, 15 females)\* and 15 with health care providers. Twelve youth (four males, eight females) had been infected perinatally, and eight (one male, seven females) behaviorally. Participants were 17 years old, on average; 16 identified themselves as black, three as Latino and one as white. The provider sample consisted of three pediatricians, two obstetrician-gynecologists, three nurse practitioners, one nurse and six social workers. Although it was not an inclusion criterion, all youth participants had received medical care from the health care providers taking part in this research.

Eighteen of the 20 youth had disclosed their HIV status to another individual at least once, though not necessarily to a sexual partner. Of the 11 who reported being sexually

active, three had been perinatally infected. Responses from both youth and health care providers revealed a number of common subthemes regarding the principal themes of disclosure and sexual risk reduction.

### Disclosure

•*Stigma and emotions.* When asked “What is the most difficult thing about living with HIV?” more than a third of the youth responded that it was not being able to disclose their status. A 19-year-old behaviorally infected black male stated that the biggest burden related to HIV was “keeping it a secret, because the people I hang around talk about [HIV] a lot.” Some youth said keeping their HIV status a secret was a barrier to obtaining the emotional support they desperately desired. Expressing the feelings of several youth, one adolescent commented:

“I was so scared. I was like, worried, and I was kind of nervous. I didn’t know what to say, how exactly to say it and how to put it. ... I got mixed feelings that day [I disclosed]. I swear I thought I was sick. I was just, like, oh my God.”—18-year-old perinatally infected Hispanic female

Health care providers also believed that nondisclosure was the most difficult thing for youth living with HIV. Providers noted that many youth associated nondisclosure with societal stigma. A pediatrician explained:

“Because of stigma, they don’t get much community support like other chronic diseases. [HIV is] not like cancer, [where] at the convenience store there’s a picture of the child and they’re collecting donations.”

In addition, some providers attributed nondisclosure to an adolescent’s acceptance or internalizing of the disease. As one pediatrician stated, “I think it becomes really difficult for many of them to adjust to that transition of ‘I’m a teen, I am HIV-positive,’ and that whole societal piece of the [stigma].”

Both youth and providers said that fear of a negative reaction prevented youth from disclosing their HIV status. One 15-year-old perinatally infected black female recalled hearing, “Oh, don’t touch this person, because you are going to have AIDS,” or “Don’t touch that, because you’re going to catch AIDS and die.” Trepidation over possible gossip or rejection was cited by the majority of youth and providers as barriers to disclosure. One pediatrician reported, “There’s that question of, ‘If I tell him now, will he leave?’ And for [youth] who’ve tried, they have found that that is exactly what happened.” Another 15-year-old perinatally infected black female explained her fear of gossip: “Because people are [stupid]. They talk too much. ... Like, if I tell my friend, my friend goes to tell her friend, and she tells her friends, [and] it gets around.”

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\*The gender distribution of our sample reflects that of HIV-infected individuals of this age in the local study area (source: Houston Department of Health and Human Services, Bureau of Epidemiology, AIDS: summary of Houston/Harris County cases, 2009, <<http://www.houstontx.gov/health/HIV-STD/1stQRT2009.pdf>>, accessed July 29, 2009).

•**Trust issues.** Health care providers reported emphasizing trust issues when discussing disclosure with their patients. A nurse practitioner explained:

“They really have to feel like they trust the person with that information. ... But I advise them not to tell somebody that might turn around and try to hurt them, ... because it’s a big piece of information to give anybody.”

Youth also emphasized the importance of trusting a person before disclosing, but “trust” emerged as a vague, undefined concept. Only one youth offered a definition: “loyalty, respect and honor.” The majority appeared unsure about how to handle disclosure, even with someone they knew they “could trust.” A few participants described methods of gauging a person’s reaction before they disclosed their status. For example, one youth explained:

“First I would ask them, ‘Well, what do you think about HIV?’ ... If they tell me, ‘Oh, I don’t like to hang out with [HIV-positive] people and everything,’ I just stay back. And I’m like, ‘Oh, I’m not going to tell them.’ If they give me another [answer], like ‘Oh, no matter if somebody has that; I’ll be his friend,’ or ‘I’ll be there for him,’ I’ll be like, ‘Oh. Well, I have HIV.’”—16-year-old behaviorally infected Hispanic female

•**Disclosure reasons.** Fourteen of the 18 youth who had disclosed their HIV status said they desired a closer relationship with another person, and described their postdisclosure relationship as more open than before. All providers reported spending time with their adolescent patients discussing the pros and cons of disclosure. Providers’ responses revealed that they encouraged disclosure so that the youth would have someone to talk with to lessen their isolation, would have someone to assist with medication reminders and would ensure that their potential sexual partners were aware of the importance of using condoms.

When asked to describe a disclosure incident, eight youth described disclosure to a friend, six to a significant other and four to a family member. All youth who had disclosed their HIV status reported at least one compassionate reaction. Half agreed that this supportive experience encouraged them to consider future disclosure. Only two participants recounted a negative reaction to their disclosure, including a 19-year-old behaviorally infected black female, who said: “He told me he loved me so much, he wanted to marry me. Then I told him [my HIV status]. He walked away. [Now], he just treats me like an outsider.” These two participants said the negative reactions would not prevent them from disclosing again, but they would be more selective in whom they would tell.

Other youth described the medical and emotional benefits of disclosure. For example:

“Now [my friend] protects me. She’s like my guard. ... She tries to keep me from certain things. Like when she knows someone’s sick, she’s like, ‘Don’t go by them.’ ... She’s like another person that tells me to take my medicine.”—14-year-old perinatally infected black female

Some youth indicated that another reason to disclose was to warn others of the risk of infection:

“If they’re doing stuff that I don’t think is smart or putting themselves in danger, then I’ll tell them, make them realize that it’s not just a certain population [who get infected], ... that it can happen to anyone.”—19-year-old perinatally infected white female

•**Disclosure strategies.** Health care providers identified various strategies to help HIV-positive adolescents address disclosure issues. One social worker described the use of role-play:

“We write ... down who they’d like to disclose to and why. ... We [ask] who would be the hardest, the easiest, and the pros and cons of what will happen if they don’t want to talk to them again.”

A pediatrician stated:

“I have a handout that ... tells [patients] to be very careful who they disclose to, talks to them about only telling people you trust, being very careful about telling people you think are your best friends, because you don’t know how people are going to respond to this information.”

In addition, videos in which HIV-positive peers address disclosure issues were cited as a helpful resource. Another strategy was to offer the clinic as the location for disclosure. As one pediatrician told an HIV-positive patient, “Anything we can do to be here for you if you want to tell him here, then we can back it up right away with some information.”

### Sexual Risk Reduction

•**Dating challenges.** The term “dating” was not defined for the youth, but their responses indicated that they considered dating to mean going out regularly with someone as a romantic partner. Of the 18 youth who reported a disclosure incident, nine said they disclosed to a dating partner, and four stated that disclosure was a dating challenge. Twelve of the 15 respondents who answered the question about whether their HIV status prevented them from dating did not feel that it did. Nine of the 17 who responded to the question about whether being HIV-positive influenced their intimacy with another person (e.g., made them restrict themselves to holding hands or kissing) said that it did not. One 14-year-old perinatally infected black female reported, “I’m only going to kiss or hold hands, but none of the other stuff, ... like tongue kiss, because I’d be scared for him and myself.” Health care providers said disclosure was the main dating challenge for HIV-positive youth. As one social worker commented, “Their relationships often don’t last long, so next week [their] boyfriend is dating someone else and sharing their secret around.”

Nine out of 14 youth who commented on the issue felt that an HIV-negative partner would have trouble relating to their circumstances and that there would be difficulties with physical as well as emotional intimacy. Regarding physical closeness, one youth explained:

“[With an] HIV-negative guy, it’s more difficult. ... ‘Cause after a while you get more intimate with the person, and you think about it, and you know you can’t do that or this will happen. But you love this person, you

care for this person, but you don't want to pass this thing along.”—18-year-old perinatally infected black female

Upon being questioned about dating an HIV-positive individual, 10 out of 14 youth said that an HIV-concordant relationship would be easier. Only a couple of participants reported fear of reinfection or a partner's illness as a deterrent for dating another HIV-positive person. A few others said that dating an HIV-positive individual would provide commonality with their partner, greater confidence in the relationship and assistance with their antiretroviral medication schedule. One participant stated:

“[It would be] better, because y'all both have to take medicine. ... So if you see that person taking the medicine, you're going to remember to take your medicine. And you can talk to that person instead of, like, I'm scared to say this or say that.”—15-year-old perinatally infected black female

•**Attitudes toward condom use.** Discussion related to condoms focused on attitudes toward sex with an HIV-negative individual versus sex with someone who was HIV-positive. Of the 16 youth who responded, half felt it was acceptable to have sex with an HIV-negative partner if a condom was used. As an 18-year-old behaviorally infected black female remarked, “I feel that the person that has HIV should automatically tell the person he'll need to wear a condom because, you know, they should have feelings about the other person. If he refuses, then it just won't happen.”

Twelve of the 16 youth did not condone having unprotected sex with an HIV-negative partner. As a 15-year-old perinatally infected black female exclaimed, “Oh, that's not good. ... If you know you have it, you shouldn't do that because you don't want to have to pass it on to anybody else and make them have it.” However, four felt it was acceptable to have unprotected sex with an HIV-negative partner if they had disclosed their HIV status.

More than half of the youth believed that using a condom with another HIV-positive person was important. Reinfection was the main concern, followed by pregnancy and risk of other STDs. A 19-year-old behaviorally infected black male explained:

“Y'all can think y'all's pretty much got the same thing, but something bad's going to end up happening [to] one of the two people, because somebody's HIV load is worse than another person's.”

Youth and providers reported similar reasons for why condoms might not be used: reduced pleasure, males' resistance, religious beliefs, females' lack of empowerment, a desire to have children and loss of spontaneity.

•**Self-efficacy for condom negotiation.** While all health care providers gave detailed accounts of counseling youth on the mechanics of condom use, they considered the youth to possess low self-efficacy regarding condom negotiation with a partner. As one nurse practitioner stated:

“I've noticed it is a little difficult for them to ask their partners to use a condom. I think that has a lot to do with their age. You know, they're not real self-assured at that age

anyway, and then they're initiating something that's very adult. And asking them to be something that they may not be—self-assertive.”

Another nurse remarked, “There's no way that they're going to say, ‘You know what? You're not doing that until you put a condom on.’ They're just afraid to say that or feel that they don't have the right to say that.”

When the youth were asked about condom use and negotiation, 16 of the 20 expressed a higher level of self-efficacy than suggested by the providers. Many reported using a direct approach with a partner, as did the 16-year-old perinatally infected Hispanic female who said: “You have to use a condom now. Use it, or now you're not going to have sex.” However, responses from five youth revealed limited awareness of how to put on a condom, purchase condoms and initiate a discussion of condom use with a partner. In addition, a 17-year-old behaviorally infected black female said, “Oh, I make sure the condom don't have no holes in it, it's not old.”

•**Attitudes toward pregnancy.** All of the 11 youth who discussed pregnancy (10 females and one male) expressed interest in having a child in the future. None reported concern about HIV transmission to a partner; rather, concern focused on possible transmission to the baby. For example, an 18-year-old perinatally infected black female stated:

“I wouldn't encourage anybody to get pregnant, because it's a possibility sometimes that the baby can catch AIDS. But if you wanted to, then I would take the medications the proper way and just do the right thing.”

Recognizing the need for family planning, many health care providers discussed birth control with their patients. In particular, the providers addressed the potential decreased efficacy of oral contraceptives when taking certain HIV antiretroviral medications, the adverse effect that antiretrovirals can have on the baby in utero, treatment protocols during pregnancy to reduce transmission risk, potential transmission risk to the partner and the responsibilities of parenting.

•**Risk reduction strategies.** Health care providers identified various strategies to motivate HIV-positive youth regarding sexual risk reduction. A common strategy was to engage in discussions with youth about the risk of acquiring other STDs, reinfection with another strain of HIV and pregnancy. A condom demonstration was another commonly used strategy. For example, one social worker cited the importance of “teaching them about [condoms]. Letting them have fun with them. Letting them blow them up and play with them ... see what they are and understand the importance of them. Then it isn't a secret anymore.” A few providers conveyed the need to find ways to increase self-esteem among HIV-positive youth. According to one pediatrician:

“It's empowerment, self-esteem. ... They're worth something; they're not worthless. That's the most important thing, and from there, everything else follows. It has nothing to do with the mechanics of condoms.”

**[Most youth] expressed a higher level of self-efficacy [for condom negotiation] than suggested by the providers.**

**Recommendations for an Intervention**

Both youth and health care providers were asked about the potential utility of a computer-based intervention. Providers responded that it could help standardize and reinforce risk reduction messages. Providers and youth thought the computer program should include images, interactive components and personal testimonies from HIV-positive youth. In addition, both groups felt that waiting periods within a clinical visit would offer ample time for patients to engage in a computer-based intervention.

Recognizing that HIV-positive youth fear being stigmatized, most providers felt that computer-based interventions within the clinic setting would help to address confidentiality issues. One social worker stated, "It's more anonymous. . . . They would probably feel less on the spot, and there wouldn't be, maybe, the anxiety." Many health care providers thought that disclosure could be addressed well in a computer-based behavioral intervention by offering peer modeling of disclosure scenarios. Providers also believed that such an intervention about condom use could enhance conversations between providers and HIV-positive youth regarding condom use, since this is often a difficult subject to broach. In addition, many providers said any new behavioral intervention should include self-esteem as a topic. One obstetrician-gynecologist remarked, "[Self-esteem] has nothing to do with condoms. Most teenagers, by the time they're 13, they know more of the gymnastics of sex than I do. But the self-esteem issues are the [critical] issues."

**DISCUSSION**

In this study, both youth and health care providers reported that disclosure was a major hurdle for young people to overcome when living with HIV. Youth's hesitation about disclosure appeared to be closely tied to their perceptions of society's views toward HIV-positive individuals. Specifically, the fear that members of their social network would look unfavorably upon them kept youth from disclosing their status. Similarly, other studies have found that fear of discrimination and rejection due to HIV-related stigma is a barrier to disclosure.<sup>12,13</sup> The revelation that both perinatally and behaviorally infected youth are concerned about stigma suggests that HIV stigma is a universal fear.

As found in previous research,<sup>16</sup> youth disclosed their status to generate support and acceptance. When asked to describe a disclosure experience, most discussed disclosing to a friend or significant other. This finding suggests that disclosing to individuals outside the family is foremost in their minds and represents a particularly stressful challenge. Prior research has found that disclosure to a significant other was especially disconcerting for HIV-positive youth.<sup>17</sup> Perhaps youth feel that the risk of rejection and breach of confidentiality is especially high with people outside their family. Youth may feel that family members share a bond that is not easily broken, whereas others are less emotionally invested. Interventions that

include testimonies from HIV-positive youth who have experienced favorable disclosure outcomes could provide positive reinforcement for disclosing one's HIV status.

Our finding that being HIV-positive affected participants' level of intimacy with HIV-negative individuals corresponds with results from a study suggesting that infected youth may avoid penetrative sex by delaying sexual debut or by engaging in touching behaviors as harm reduction strategies.<sup>18</sup> A study with HIV-negative youth found that relationship satisfaction was strongly associated with achieving the level of intimacy they wanted with a dating partner.<sup>19</sup> By not obtaining desired levels of intimacy, HIV-positive youth may experience dissatisfaction with romantic relationships. Most research on sexual behaviors among HIV-positive youth has examined risk reduction efforts, such as condom use, and has overlooked intimacy issues that may directly impact the development of fulfilling relationships. For example, one study's intervention to reduce risky sexual behavior among HIV-infected youth focused on increasing self-efficacy of condom use and negotiation skills, yet did not address adolescents' intimacy level with their partners.<sup>8</sup>

For infected youth who engage in sexual relationships, disclosure may influence decisions regarding condom use. Although one study with HIV-positive youth found that disclosure of HIV status was positively associated with condom use,<sup>10</sup> a few youth in our study believed that sex without a condom was acceptable as long as they had disclosed their status. Similarly, another study found that HIV-positive youth assumed that disclosure of their status shifted the burden of possible infection and need for protection to their sexual partners.<sup>20</sup> This finding demonstrates the need to develop interventions that increase HIV-positive youth's motivation to protect the partner regardless of the partner's knowledge of their status. One approach would be to develop exercises that provide youth with an opportunity to explore the moral and ethical challenges of disclosure and risk reduction. Future interventions that include a component involving an HIV-infected adolescent's partner could be an important tool in addressing risk reduction.

While previous studies have reported the nonuse of condoms among HIV-positive youth,<sup>3,21,22</sup> actual condom use was not assessed in this study. Although the youth talked confidently about using condoms with their partners, their confidence and skill level with respect to use remained unclear. The apparent discrepancy between providers and youth regarding self-efficacy indicates the importance of providers' fully assessing clients' skills for proper condom use and negotiation. Future research should examine HIV-positive adolescents' competency levels for these skills.

One reason for nonuse of condoms that is unique to HIV-positive adolescents is their partner's HIV status. A study with HIV-positive adolescent females found that they were more likely not to use a condom if they perceived their sexual partners to also be HIV-infected.<sup>10</sup>

**Many... providers thought that disclosure could be addressed well in [an] intervention by offering peer modeling of disclosure scenarios.**

This may indicate that youth lack knowledge or understanding of the risks of HIV reinfection or acquisition of additional STDs, and may highlight a need for explicit prevention messages that address sex with another HIV-positive individual.

In our study, about half of the participants wanted to get pregnant in the future; however, they did not appear to appreciate the link between conceiving a child and the risk of infecting their partner. While earlier studies have demonstrated society's unfavorable view of HIV-positive women choosing to have children,<sup>23,24</sup> we could not tell whether the youth were aware of these attitudes. Without specific information about their motivations for wanting children, the adolescents' desire for future pregnancies suggests that they have embraced having children in the same ways as HIV-negative individuals.<sup>24,25</sup> This finding reveals the need for interventions that educate youth about preventing HIV transmission to their partner while trying to conceive.

The U.S. Department of Health and Human Services recommends that HIV-infected adolescents who are clinically and immunologically stable receive clinical follow-up every 3–4 months.<sup>26</sup> Hence, by utilizing clinic waiting periods, behavioral interventions can occur approximately 3–4 times a year for most HIV-positive youth. Such interventions would allow for ongoing delivery and reinforcement of prevention messages, which are essential for risk reduction. In addition, conducting behavioral interventions within a clinic setting could stimulate discussions between youth and health care providers regarding sensitive topics, such as safer sex. Although the providers in this study were well trained and experienced in counseling their patients, further research is needed to evaluate how much youth apply their care providers' lessons in their everyday lives. Interventions that query youth directly and monitor clinic encounters could enhance adolescents' self-efficacy for condom use and disclosure skills, and could be tailored to address the specific needs of perinatally and behaviorally infected HIV-positive youth.

### Limitations

This study has a number of limitations. It is important to acknowledge the potential for recall bias associated with self-reported behaviors; participants might overstate or understate their experiences. Some participants may not provide an honest response regarding risk reduction behaviors because that response may not be socially desirable or may garner disapproval. In addition, because the participants in our study were recruited from local HIV and AIDS clinics and an AIDS service organization, and so received specialty care and prevention counseling, they may have greater knowledge and awareness about HIV and disclosure issues than HIV-positive youth who have not been exposed to such care.

Future studies should include a large enough sample to assess disclosure and risk reduction differences based on gender, age and transmission mode. Also, exploring disclosure experiences related to the different relationships

in an HIV-positive adolescent's life could assist in tailoring techniques for counseling about disclosure with specific individuals. Furthermore, the CDC's definition of an adolescent covers a broad age range (13–24), which encompasses different stages of psychological and social development. Distinct risk behaviors may exist among youth within these different developmental stages that require unique intervention approaches to be effective. For example, the initiation of sexual intercourse may be a much less normative behavior for younger than for older adolescent populations. Therefore, it would be beneficial for future studies to examine HIV-positive youth while taking into account their developmental stage.

Finally, although adolescent participants were asked to describe their perceptions about sexual risk reduction, they were not asked to explain if these perceptions were associated in any way with their sexual behavior. Thus, we cannot comment on any potential differences between youth who were sexually active and those who were not. In future studies, adolescents should be asked if their perceptions about risk reduction have influenced their sexual experiences.

### Conclusions

More interventions are needed to help HIV-positive adolescents overcome multiple challenges in the areas of disclosure and sexual risk reduction. Efforts to stem the HIV pandemic—including universal voluntary testing and immediate treatment for infected individuals—must comprise effective interventions to reduce secondary transmission.<sup>27</sup> Health care providers need innovative educational tools that can be used in a clinic setting to improve adolescents' skills in reducing their risky sexual behaviors.

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**Acknowledgment**

This study was conducted with funding from the Baylor College of Medicine–University of Texas at Houston Center for AIDS Research, under grant P30 A103621 1-12.

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