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AIDS CLINICAL CARE

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FEATURE TOPIC

Adolescents and HIV

This is the first of two articles that will discuss the practice of HIV/AIDS counseling and treatment of adolescents. This article provides an overview of the epidemic among youth and outlines the central psychosocial issues as well as methods for counseling, prevention, and outreach. The second article — to appear in March — will examine clinical care of HIV-infected adolescents.

Worldwide, the highest rate of new HIV infections is among young people. Half of the 5.8 million new infections in the past year occurred among youth between the ages of 15 and 24.¹ In the U.S., 25% of new infections occur in persons aged 13 to 21 years: a rate of one new infection every hour.²

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RISK FOR HIV INFECTION AND SEXUALLY TRANSMITTED DISEASES

In 1996, the Institute of Medicine released a report that highlights the interaction of behavioral, biological, and socioeconomic factors that increase the vulnerability of adolescents (particularly females) to sexually transmitted diseases (STDs), including HIV infection. Sexually transmitted diseases are known to increase susceptibility to HIV. Of the 12 million cases of STDs reported in the U.S. each year, 25% occur among teenagers and 2/3 are acquired by the age of 25. Forty-six percent of reported cases of chlamydia — the most common STD in the U.S. — occur in female adolescents aged 15 to 19 years.³

Behavioral Factors

Many normative behaviors of adolescents intersect with risk-taking behaviors. Sexual activity is often initiated during adolescence; 48% of high school youth report sexual intercourse, with 16% having engaged in sexual intercourse with more than four partners. Only 50% of youth report condom use at last intercourse.⁴ Youth who are gay, bisexual, transgender, homeless or runaway, injection drug users, incarcerated, in foster care, mentally ill, or have been sexually or physically abused are at increased risk for HIV infection because of greater exposure to the virus in their social networks. These vulnerable adolescents also experience higher rates of health and social problems in general than do other youth.

Experimentation with alcohol and other drugs is common during adolescence and is associated with an increase in risk-taking activities, including sexual activity and violence. Alcohol and drug use may also impede the development of psychosocial skills. Adolescents are less likely than adults to recognize their drug or alcohol use as problematic. Rarely do they initiate drug treatment on their own. Instead they tend to enter treatment systems through their schools, parents, or the criminal justice system. One-third of high school youth⁵ report drinking five or more alcoholic beverages at least once in the prior month, more than 25% smoke marijuana, and 16% report use of inhalants such as industrial solvents, paints, and nitrates. Heroin use among teens has nearly doubled since 1991, and nearly 1 in 50 high school students report having injected an illegal drug.⁶

Biological Factors

Several biological risk factors contribute to the heightened infection rate among young women, including: 1) the physical developmental stage of the cervix — during puberty the single-layer columnar cells (known to be more susceptible to chla-

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mydia and the gonococcus) are replaced by less susceptible multilayer squamous cells, 2) the greater efficiency of STD transmission from males to females because of the mechanics of sexual intercourse and the larger surface area of the female genital tract, and 3) the fact that sexually transmitted diseases are more likely to be asymptomatic (thus remaining unnoticed and untreated) for a longer period of time in women.

Socioeconomic Factors

Poverty and lack of access to health care, education, and prevention tools are associated with increased vulnerability to HIV. Twenty-five percent of youths aged 15 to 29 years have no health insurance. Youth face additional barriers to receiving adequate care. Many adolescents fear inappropriate disclosure or do not understand their right to confidentiality in the provider-client relationship. They often use walk-in facilities and hospital emergency rooms for their acute health care needs and so do not build a relationship with a health care provider. Moreover, providers often are unable to communicate risk reduction messages adequately. Since adolescence is a time when behavior patterns, cognitive skills, decision-making ability, and attitudes towards health and self care are established, youths' experiences with health care providers form the basis for future provider-client relationships, communication patterns, and help-seeking behaviors.¹⁰

State laws allow minors to consent to treatment (without parental consent) for specific health services, including emergency care, STDs, and substance abuse treatment services; but not all providers are aware of these rights.⁷ As long as explicit information and messages remain controversial, the lack of adequate sex education for youth will continue to result in new HIV infections. Supportive and direct safe sex education for gay and bisexual youth is even more constrained, denying health-enhancing information to this vulnerable population. Moreover, the adolescents who are at greatest risk are those most likely to be outside systems that could provide prevention, counseling, testing, and treatment services.

EPIDEMIOLOGY OF HIV INFECTION IN YOUTH

International and national studies demonstrate that the AIDS pandemic remains dynamic among adolescents. Nineteen percent of U.S. AIDS cases occur among people in their 20s.⁸ It is estimated that one in four new infections strike people by age 21, and this may be lower than the actual rate because of the 10-year latency period between HIV infection and the development of AIDS.

In comparison to adults, a disproportionate number of African-American and Hispanic adolescents are HIV positive, accounting for 59% of the AIDS cases in this age group in the U.S. From 1988 to 1993, estimates of HIV prevalence increased 36% among women aged 18 to 22 while declining 27% among men in the same age group.⁹ In 1997, females comprised 37% of AIDS cases among adolescents aged 13 to 19 compared with 18% among adult AIDS cases. The majority of young women with AIDS (52%) are infected in heterosexual encounters, with an additional 15% to 20% presumed to be infected sexually but classified as having "no identified risk" because they are unable to name their partner's risk factor. Injection drug use accounts for a much smaller percentage of transmission in this population than among adult women (13% of 13- to 19-year-olds and 27% of 20- to 24-year-olds). Perinatally infected youth account for a small but growing number of adolescents living with HIV/AIDS.

The leading transmission category among adolescent males remains receipt of infected blood products (before 1985) by youth with hemophilia and other coagulation disorders, accounting for 43% of male teen AIDS cases. The next highest transmission group in young males is male-sex-with-males, accounting for 33% of cumulative transmission in teens and 62% in males aged 20 to 24. However, by 1996 male-sex-with-males had become the leading transmission category for new infections among teenage boys. There is a difference between behavior and sexual orientation that is important to keep in mind in communicating with young people. Same-sex experimentation is more common than the development of a gay or bisexual identity. Moreover, for gay or bisexual youth,

identity development is a process that unfolds over several years. Some youth infected in same-sex encounters do not identify as gay or bisexual, and for this reason, safe-sex messages directed at gays may not be viewed as personally relevant.¹⁰

YOUTH OF HIV+ PARENTS

It is estimated that by the year 2000, over 80,000 U.S. children and teenagers will have lost a parent to AIDS. In addition to the emotional devastation of this loss, the great disruption that occurs in families where a parent is ill or dies may heighten risk behaviors among youth. Children of HIV+ parents are also often living in communities with high rates of HIV, placing them at increased risk of infection. The percentage of children of HIV+ parents who are themselves infected is unknown. However, a review of 81 sexually infected teens followed at Montefiore Medical Center's Adolescent AIDS Program¹¹ found that 21% reported having at least one HIV+ parent. The ways in which parental HIV infection mediates sexual risk behaviors and subsequent HIV infection in youth needs further research. However, these findings are already guiding a program initiative to offer risk assessment, referrals for care, and HIV counseling and testing to the adolescent children of patients followed in Montefiore's Adult AIDS Program.

ADOLESCENT-SPECIFIC HIV COUNSELING, TESTING, AND PREVENTION

Although many youth engaging in unsafe practices do not believe that they are at risk, it is a myth that adolescents do not get tested for HIV and do not want providers to ask personal questions. In fact, many youth prefer that the clinician initiate such discussions.¹² The promise of new advances in HIV care, combined with the documented advantages of early detection, heightens the need for routine HIV counseling and testing among youth in more settings than just prenatal care.

In order to be successful, HIV-testing programs must be accessible to youth. Mobile units, school-based health clinics, and drug treatment programs are venues particularly well situated to provide testing programs geared to young people. Services need to be youth-friendly, flexible, free or low cost, and help youth overcome barriers such as transportation. In states with mandatory

partner notification laws, providers may need to discuss with adolescents the implications of the law and the availability of anonymous HIV testing. However, the confidential testing relationship establishes a stronger clinical bond, opportunity for follow-up, and youth-sensitive care, compared with anonymous testing.

The pretest counseling visit presents an opportunity for the health provider to promote preventive health behaviors and assess concerns such as substance use or family planning needs. It also provides an invaluable opportunity to educate adolescents about condom use and safer sex, regardless of whether testing occurs. Effective HIV counseling for adolescents should be culturally sensitive and tailored to the developmental needs of the youth and in accordance with local laws (see Table 1). Youth who are judged to

be at risk for self-destructive or impulsive behaviors require careful assessment prior to testing. Special care to safeguard confidentiality should be taken in settings such as foster care, residential institutions, or detention facilities.¹³

There are new options for HIV testing that have not been extensively implemented with adolescents. For example, OraSure, a noninvasive test that collects an oral sample, can facilitate testing in nonmedical settings. Rapid HIV tests enable youth to learn their HIV antibody status on the day they are tested, with a negative test being definitive and a positive test requiring further confirmation. While this method potentially increases the number of youth who learn their antibody status, implementation of rapid HIV testing will necessitate changes in how and when prevention

counseling is delivered to youth. Regardless of the testing method, a "one shot" approach to counseling does not work with all at-risk youth. Two short counseling sessions using personalized risk reduction plans can increase condom use and prevent new HIV and other STD infections.¹⁴ Funding is needed to support more than one counseling session for some at-risk adolescents.

All facilities providing adolescent medical care should make condoms available and provide education on their proper use. Among the reasons youth have difficulty incorporating condoms into their sex lives are 1) lack of knowledge on effective use, 2) lack of communication and social skills, 3) lack of availability of condoms at the time of sexual

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Table 1. Teen AIDER (Assess, Inquire, Discuss, Educate, Readiness) Interview

I. ASSESS AND INQUIRE

CREATE A CONFIDENTIAL ATMOSPHERE

- Assure youth that visit is confidential, that testing is their choice, and that they are free to consent to or decline testing per local laws
- Acknowledge that it can be embarrassing to discuss sexual behaviors
- Help youth to identify a supportive adult who is aware that he/she is being tested

HIV/AIDS KNOWLEDGE

- Allow adolescent to verbalize understanding of HIV. Clarify misconceptions and fill in knowledge gaps
- Assess youth's feelings about testing and previous HIV testing experiences
- Inquire if youth knows anyone with HIV/AIDS (e.g., sexual partner, family member)

SEXUAL RISK ASSESSMENT

- Assess sexual behaviors without making assumptions about sexual orientation
- Assess number of partners, age differential, and their known risks
- Assess frequency of substance use in the context of sexual behavior
- Assess consistency of condom use and obstacles to use (e.g., unassertiveness, desire to become pregnant, fear of violence, or religious beliefs)
- Assess for history of sexual abuse or rape

SUBSTANCE USE AND OTHER RISK ASSESSMENT

- Assess level of drug and alcohol use and contexts in which use occurs
- Review risk of impaired judgment that may result in unsafe sex
- Assess potential need and motivation for drug treatment
- Assess violence and substance use in home and community

II. DISCUSS AND EDUCATE

- Discuss postponing sex for youth who are not sexually active
- Demonstrate proper male condom, female condom, and dental dam use on anatomical model, and provide opportunity for practice
- Discuss sexual activities that do not involve exchange of body fluids (outercourse)
- Rehearse effective ways to communicate risk reduction with sexual partner(s)
- Discuss harm reduction strategies for youth using drugs
- Develop a personalized risk-reduction plan

III. READINESS FOR HIV TESTING AND REFERRAL

- Inform adolescent about both anonymous and confidential testing
- Provide education about partner notification programs and other options for disclosure to partners
- Assess youth's understanding of the meanings of positive and negative test results
- Assess youth's understanding of benefits of early intervention
- Determine with youth if testing should occur at this time and, if so, obtain informed consent
- Discuss strategies for coping (how to relieve stress and anxiety during the testing process)
- Arrange follow-up appointment and means of contacting youth confidentially, if needed
- Determine referral needs (e.g., medical, psychosocial, school/vocational, substance abuse, reproductive health, legal, housing, psychiatric)

tutes as PCP prophylaxis for those who cannot tolerate TMP/SMX. While the toxicities for both drugs were comparable, study authors found that atovaquone was easier to tolerate than dapsone in dapsone-naïve patients. Further research is needed into alternatives for PCP prophylaxis in TMP/SMX-intolerant patients.

El-Sadr WM et al. Atovaquone compared with dapsone for the prevention of *Pneumocystis carinii* pneumonia in patients with HIV infection who cannot tolerate trimethoprim, sulfonamides, or both. *N Engl J Med* 1998 Dec 24; 339:1889-95.

Prophylaxis Against Fungal Infections

Fluconazole administered weekly was roughly equivalent to daily administration in preventing invasive fungal disease and slightly less efficacious in preventing thrush. Itraconazole is effective in preventing relapse of *Penicillium marneffei*.

In patients with HIV, fungal infections cause a broad spectrum of diseases, presenting everything from mild complications to life-threatening conditions. Two recent studies looked at the efficacy of fungal prophylaxis. The first studied the use of fluconazole. Fluconazole is effective in preventing thrush, but it is not routinely employed as prophylaxis against candida and cryptococcus strains because it has not been shown to reduce mortality, is expen-

sive, and may lead to wider emergence of azole-resistant fungi, which are difficult to treat. This study explored whether weekly dosage of fluconazole is as efficacious, less expensive, and less likely to lead to resistance as compared with daily use.

Researchers compared fluconazole 400 mg weekly with 200 mg daily in a randomized, double-blind trial of 636 HIV-infected persons, all of whom had CD4 counts below 100 cells/mm³. Invasive fungal disease (candidal esophagitis, candidemia, cryptococcosis, or histoplasmosis) occurred in 5.5% of daily users and 7.7% of weekly users. Mucocutaneous candidiasis occurred in 12.3% of daily users and 19.9% of weekly users. There was no important difference in the rates of fluconazole-resistant isolates. Only 2 of 26 isolates analyzed were resistant to fluconazole.

Weekly fluconazole did not offer major benefits over daily fluconazole and was slightly less efficacious in preventing superficial disease. This and other studies indicate that the routine use of fluconazole in the primary prevention of fungal disease is not warranted. Fluconazole may be useful in patients with particularly severe and frequent recurrences of disease.

The second study looked at the administration of itraconazole to prevent relapse after an episode of *Penicillium marneffei*. *P. marneffei* is a common cause of invasive fungal disease in Southeast Asia, Hong Kong, and southern China. In Thailand, it is the third most common opportunistic infection after tuberculosis and cryptococcosis.

Researchers enrolled 72 HIV+ Thai patients who had completed initial therapy for *P. marneffei*. Patients were randomly assigned to receive itraconazole 200 mg daily or placebo. The mean CD4 count was 71 cells/mm³ in the itraconazole group and 65 cells/mm³ in the placebo group. None of the patients were receiving antiretroviral therapy. Twenty of 35 patients in the placebo group suffered a relapse of *P. marneffei* after a median interval of 24 weeks. No patient in the itraconazole group relapsed. The study was not designed to detect a mortality difference, and none was noted. Mortality ranged from 31% to 43% at 48 weeks in this advanced population.

Whether or not secondary prophylaxis against invasive fungal disease should be continued indefinitely, even after prolonged and successful viral suppression with HAART, remains unclear. For the time being, it seems prudent to continue prophylaxis against cryptococcosis, histoplasmosis, and *P. marneffei* until the issue is resolved through clinical trials.

Havir et al. Prophylaxis with weekly versus daily fluconazole for fungal infections in patients with AIDS. *Clin Infect Dis* Dec 1998; 27:1369-75.

Supparatpinyo K et al. A controlled trial of itraconazole to prevent relapse of *Penicillium marneffei* infection with patients infected with HIV. *N Engl J Med* 1998 Dec 10; 339:1739-43.

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activity, and 4) impulsive behavior exacerbated by drug or alcohol use. Because condoms are used by men, gender power imbalances in relationships (heightened when the male partner is older) contribute to the greater vulnerability of adolescent females and gay males. Helping youth to identify their personal values may increase self-esteem and help them resist pressures to engage in risky sexual behaviors.

When assessing potential referral sources, health care providers should note that successful primary and secondary programs for adolescents are those that increase self-esteem and self efficacy, build social skills, and provide basic information. Successful prevention programs (not primary and secondary

programs) are often built on a peer support model, and use adolescents to promote and diffuse the skills they learn into the community at large. Ideally, broad-based education and skills building to motivate the formulation of healthy patterns of behavior should occur before youth become sexually active.

OUTREACH

Community outreach is central to the care of HIV+ youth. It is essential to engage the attention of youth at risk for HIV and their health care providers concerning the need for and availability of services for prevention and care. The majority of HIV-infected youth are unaware of their infection, and connections with community service agencies are necessary to link adolescents with age-appropriate services that address

their considerable mental health and social service needs.

Recognizing that existing agencies have not been sufficient to identify at-risk and HIV+ youth and link them to care, the Adolescent AIDS Program initiated a social marketing campaign spanning the HIV continuum, from prevention to testing to care. "HIV. Live with it. Get Tested." uses youth language for having sex ("knockin' boots" or "hittin' the skins") and links HIV risk with the importance of HIV testing. Designed in collaboration with an ad agency, medical communications company, and adolescents themselves, the campaign used media placements and community outreach in the venues of at-risk youth to promote testing and care services at a

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New York City-wide coalition of adolescent HIV programs and community-based youth agencies. A highly successful component of the campaign was "Get Tested! Week," launched at a youth-led town hall meeting. The campaign generated extensive media coverage, more than 2,000 calls to the hotline, and — when coupled with peer-led community outreach — increased testing.¹⁵ The initial success of this campaign has prompted efforts to duplicate it on a national level within the Adolescent Medicine HIV/AIDS Research Network (AMHARN).¹⁶

CONCLUSION

HIV infection in adolescents continues to challenge health care providers, policy makers, and advocates for youth. Primary care providers working with at-risk youth and their parents are in a unique position to identify or help develop HIV prevention and care programs that address multiple needs. Effective interventions are those that move beyond moralism to realism and show a willingness to engage young people. Youth at high risk for HIV should be identified and engaged in primary care as soon as possible. HIV+ youth need intensive individual and group interventions to stay healthy and reduce transmission to others. It is incumbent on all providers to make adolescent services visible, flexible, affordable, confidential, culturally appropriate, and available for all youth.

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