ABSTRACT. The human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) epidemic has grown during the past 15 years. Education remains a critical component of our efforts to prevent HIV infection/AIDS in school children and young adults. To accomplish this goal, school personnel should receive updated information about HIV infection/AIDS so that accurate teaching on this topic can be included in the K–12 health education curriculum. Informed pediatricians and nurses can serve as important resources for school health services and administration to provide current information for the curriculum. Each community should have a school health advisory committee that enlists community support and provides input to health education programs in schools.

ABBREVIATIONS. HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome.

INTRODUCTION

Since the onset of the human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) epidemic, in 1982, more than 7629 cases of AIDS have been diagnosed in the United States among children younger than 13 years. An additional 2754 cases have been diagnosed among adolescents and more than 100,000 cases among individuals in their twenties, many of whom likely became infected during their teenage years.1 The common etiologic factors of sexual or drug use behaviors lead to acquisition of the virus by adolescents and adults. These risk behaviors, predominantly heterosexual intercourse, result in the majority of HIV infections in childbearing women and therefore are indirectly responsible for nearly all perinatal HIV infection. Advances in current treatment regimens to decrease the rate of transmission of HIV infection to newborns are essential for disease control.2 Education leading to the reduction of risk-taking behavior remains a critical component of our efforts to prevent HIV infection. The responsibility to provide such education is broadly shared by families, the media, health professionals, schools, and community organizations that serve youth. Schools, however, have a particular advantage in such educational initiatives because they have the opportunity and the expertise necessary to deliver an effective and comprehensive curriculum. They have access to children and adolescents for many hours over many years and they interact with students at a time of their lives when they are developing knowledge, attitudes, and skills that will enable them to develop healthy lifestyles.3

ORGANIZATION OF THE PROGRAM

Legislative Mandates

Many states presently mandate HIV/AIDS education.4 In some states, HIV/AIDS education programs may exist without any other health education programs or may not be required for graduation. It would be preferable if HIV/AIDS education were required for graduation as part of a broadly based K–12 comprehensive health education curriculum. The Academy supports mandated comprehensive health and physical education in all states and school districts.

School Health Advisory Committees

HIV/AIDS education programs should be developed by the school medical advisor, school administrators, health educators, and the school nursing supervisor. They should be promoted to the community by a school health advisory committee.5 Members of this committee, for each school or district, should consist of the school medical advisor, community pediatrician and/or public health physician, the school nurse, a health educator, a mental health professional, the school administrator, a faculty member, parents, students, and appropriate community representatives to reflect the ethnic diversity of the student population.

Education of Teachers

HIV/AIDS education should be included as part of a comprehensive health education course at a college level and updated when an educator is employed in school.6 At all levels teachers should be educated in how to instruct students about child health and development, human sexuality, AIDS as a sexually and blood transmitted infection, and standard infectious disease precautions. They should be taught to develop health education curricula that are sensitive to ethnic and cultural differences.7 Qualified health educators should play an important role in educator curriculum development, skills training, supervision, and consultation with school medical personnel. School boards need to allot time and re-
sources for continuing educator training in these subjects.

Physicians' and Nurses' Training

Physicians, especially pediatricians and school physicians, and school nurses should receive continuing education about HIV/AIDS that includes information not only about HIV infection/AIDS as a sexually transmitted infectious disease but also on issues of ethics, testing, and counseling. This should include information about modes of transmission by injection drug use and an understanding of the interaction of substance abuse (including alcohol and noninjection drug use) with high-risk behaviors such as unprotected sexual intercourse. Physicians and nurses with an active role in the schools should: 1) participate in education programs for teachers, school administrators, parent groups, community groups, psychologists, and other mental health personnel; 2) assist schools and organizations in the development of educational programs for special groups; 3) review, adapt, and develop educational materials; 4) participate in public discussions, including radio and television programs and newspaper articles; 5) take part in meetings between school administrators and staff and between administrators and parents; and 6) facilitate networking among parents, educators, and AIDS community groups. Both information and educational methods for teaching this subject should be updated on a regular basis.

Community Support

Programs of sex education including AIDS education may be controversial in the community. Economic pressures have led to reduction or elimination of some health education programs. The pediatrician should function as an advocate and resource in developing education programs for parents and the community. An informed community could provide support to the school health administration and health services to ensure successful implementation of these programs.

CURRICULUM

In the face of controversy surrounding sexuality education and despite economic limitations affecting curricula, the current epidemic of AIDS has increased the importance and urgency of comprehensive health education including human sexuality education. Pediatricians should advocate the maintenance and expansion of such curricula. There is an emerging body of information on what constitutes AIDS education. School curricula should be based on that body of information. These programs should have a concentrated focus; give accurate information; use active learning methods, including small group discussions; examine media and social influences; and most importantly, emphasize skill modeling and practice, including decision-making and refusal skills and should also address the issue of self-esteem. Studies have shown that these HIV/AIDS education programs can increase a student's knowledge and tolerance and influence subsequent behavior.

HIV/AIDS education in the schools should be taught in developmentally appropriate grade-specific programs by skilled educators who are ethnically and culturally sensitive. The curriculum should be developed through a cooperative process involving members of the community, educators, and health care professionals, and should reflect the ethnic diversity of the student body.

The elementary school modules for HIV/AIDS education should emphasize general concepts of health and disease, cleanliness, the role of microorganisms in disease, and the prevention of infection. The content should define HIV infection and AIDS and differentiate between myths and facts regarding transmission, explain the effects of HIV on the immune system, and identify appropriate resource people such as physicians and nurses to clarify further unresolved issues.

Middle school and high school students need intensive exposure to health education, especially because of their potential participation in high-risk behaviors that lead to HIV infection. The curriculum should include: 1) the spectrum and natural history of HIV infection/AIDS as an infectious disease; 2) the effect of HIV on the human immune system; 3) methods of transmission of HIV; 4) testing issues; 5) the prevention and treatment of HIV infection/AIDS; 6) an understanding of the relationship of substance abuse and HIV transmission; and 7) social and psychological aspects of HIV infection/AIDS, including legal and discrimination issues.

The curriculum must emphasize behaviors that minimize the transmission of HIV. In some school systems, peer-led participation in high school and college HIV/AIDS education programs may be a useful adjunct to teaching. The curriculum should also describe the right to receive health service in a confidential manner if there is reason to believe that a student has a sexually transmitted disease, including HIV infection. To understand prevention, students need to learn about all modes of transmission. Infection among adolescents occurs through blood transmission by intravenous injection or the sharing of needles, resulting in exposure to blood containing HIV, and transmission of genital fluid containing HIV by sexual intercourse. Students need to understand that increasingly HIV is spread by unprotected heterosexual intercourse. HIV may be transmitted from infected mothers to their babies in utero, during the birth process, or through breastfeeding. Discussions should include the need for standard precautions for contact with blood and other potentially infectious (high-risk) body fluids. Such discussions must be culturally sensitive and grade-specific.

Prevention

The prevention of HIV infection/AIDS and its consequent illness must be the primary component of any education program. This requires an overall approach to responsible sexual behavior and decision-making that includes prevention of all sexually transmissible infections. The best strategy to prevent sexual transmission is to practice abstinence until a mutually faithful relationship is established with a
person who has never been exposed to HIV infection. Education programs should provide adolescents with the knowledge, attitudes, and skills they need to both refrain from sexual intercourse and to use contraceptives and condoms effectively if they choose to have intercourse.10,14,15

Sharing needles exposes individuals to blood that may be infected with HIV, hepatitis B or C virus, or other infectious agents and therefore poses a significant risk. In addition, the use of psychotropic drugs, including alcohol, increases the likelihood of engaging in risky behavior. The role of drug use and the value of sterile needles to prevent transmission of HIV should be discussed.16 The likelihood of transmission of HIV from an infected woman to her infant can be decreased by the use of antiretroviral medications during pregnancy and labor and during the newborn period.2 It should be emphasized to students that all pregnant women should know their HIV status to enable them to make informed decisions about appropriate medical care including antiretroviral treatment.17

**PROGRAM ASSESSMENT**

AIDS education curricula should be periodically updated by the school medical advisor and public health experts to conform with current knowledge. Pediatricians, acting in concert with school health services, administration, and the community at-large can be effective in educating students and faculty about HIV infection.

**RECOMMENDATIONS**

The American Academy of Pediatrics has been a long-time advocate of comprehensive school health education and makes the following recommendations:

1. Educators should become knowledgeable about HIV infection/AIDS as part of comprehensive health and human sexuality education during their certification process and in faculty workshops. Such education must be ongoing, for which resources and time should be allocated.

2. HIV/AIDS education should be included as part of comprehensive health education from grades K through 12. This education should be developmentally appropriate, ethnically and culturally sensitive, and should be mandatory for graduation.

3. Physicians and nurses should receive continuing HIV/AIDS education. Together with school health services and administration they can then serve as important resources for school HIV/AIDS education programs.

4. School health advisory committees, which include individuals who reflect the ethnic diversity of the student body, should be formed to oversee and garner community support for health education programs in school.

5. Curricula should be reviewed periodically and updated to reflect current knowledge including prevention, treatment, and testing issues, as well as the psychosocial aspects of HIV infection/AIDS.

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