

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Adolescents and HIV Infection: The Pediatrician's Role in Promoting Routine Testing

Committee on Pediatric AIDS

Pediatrics 2011;128;1023; originally published online October 31, 2011;

DOI: 10.1542/peds.2011-1761

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/128/5/1023.full.html>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2011 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™





POLICY STATEMENT

Adolescents and HIV Infection: The Pediatrician's Role in Promoting Routine Testing

COMMITTEE ON PEDIATRIC AIDS

KEY WORDS

HIV testing, adolescence, opt-out testing, risk-reduction counseling

ABBREVIATIONS

STI—sexually transmitted infection

CDC—Centers for Disease Control and Prevention

EIA—enzyme immunoassay

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

www.pediatrics.org/cgi/doi/10.1542/peds.2011-1761

doi:10.1542/peds.2011-1761

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2011 by the American Academy of Pediatrics

abstract

FREE

Pediatricians can play a key role in preventing and controlling HIV infection by promoting risk-reduction counseling and offering routine HIV testing to adolescent and young adult patients. Most sexually active youth do not feel that they are at risk of contracting HIV and have never been tested. Obtaining a sexual history and creating an atmosphere that promotes nonjudgmental risk counseling is a key component of the adolescent visit. In light of increasing numbers of people with HIV/AIDS and missed opportunities for HIV testing, the Centers for Disease Control and Prevention recommends universal and routine HIV testing for all patients seen in health care settings who are 13 to 64 years of age. There are advances in diagnostics and treatment that help support this recommendation. This policy statement reviews the epidemiologic data and recommends that routine screening be offered to all adolescents at least once by 16 to 18 years of age in health care settings when the prevalence of HIV in the patient population is more than 0.1%. In areas of lower community HIV prevalence, routine HIV testing is encouraged for all sexually active adolescents and those with other risk factors for HIV. This statement addresses many of the real and perceived barriers that pediatricians face in promoting routine HIV testing for their patients. *Pediatrics* 2011;128:1023–1029

INTRODUCTION AND BACKGROUND

The HIV epidemic persists in the United States despite great progress in treatment and continued efforts to screen targeted populations. In 2006, an estimated 1 106 400 HIV-infected people were living in the United States, of whom 55 320 (5%) were adolescents and young adults aged 13 to 24 years.¹ Between 2005 and 2008, the estimated number of HIV/AIDS cases increased among 15- to 19-year-olds and 20- to 24-year-olds.² HIV continues to be among the top 10 leading causes of death in the 20- to 24-year age group.³ Of the 1.1 million people living with HIV/AIDS in the United States, approximately 20% are unaware of their infection⁴; this is a group that accounts for 54% to 70% of new HIV infections.⁵ In 2006, an estimated 48% of HIV-infected adolescents and young adults were unaware of their infection.^{6,7} The American Academy of Pediatrics encouraged HIV testing of all sexually active youth in a 2001 policy statement.⁸ This updated statement reflects advances in diagnostic testing, changes in epidemiology, and updated recommendations.

The risk of HIV infection varies with community prevalence rates, sexual behaviors, and concurrent substance use. The rate of new HIV

diagnoses per 100 000 population increases with age from 12.6 in the 15- to 19-year age group to 37.2 in the 20- to 24-year age group.² In 2007, 73% of 13- to 24-year-olds diagnosed with HIV/AIDS were male, and 27% were female.⁹ As with adults, most adolescent cases occur through sexual transmission. Among young men, at least two-thirds of HIV transmissions occur via male-to-male sex, whereas heterosexual encounters are the primary means of transmission among female adolescents and young adults.³ The greatest increase in new diagnoses has occurred among young minority men who have sex with men, which is a finding that necessitates new approaches to prevention. HIV infection disproportionately affects minorities, occurring 7 times more often in black people and 2.6 times more often in Latino people than in white people¹⁰ and is more common in people living in the South and the Northeast.³

Drug and alcohol use contributes to high-risk sexual activity. The 2009 Youth Risk Behavior Survey found that 46% of high school students reported having engaged in sexual activity (62% by the 12th grade), and 22% had consumed alcohol or used drugs before their last sexual intercourse.¹¹ History of other sexually transmitted infections (STIs) can increase the risk of HIV acquisition,¹² and a recent survey found that 26% of adolescent girls (14–19 years of age) tested positive for an STI.¹³

Most sexually active adolescents and young adults do not feel that they are at risk of HIV infection and do not get tested. Although 65% of the high school students who took the survey reported being sexually active by the 12th grade and more than 85% had received HIV/AIDS education, only 13% had been tested for HIV.¹¹ Surveys of sexually active youth aged 15 to 19 years found that they do not

believe that they are at risk of HIV infection, and fewer than one-third of them had been tested for HIV.¹⁴ In contrast, surveys of older youth (18–25 years of age) have revealed that 48% have been tested for HIV at some point, but fewer than one-third of them have been tested in the preceding 12 months.¹⁵ This sense of invulnerability is, in part, attributable to the adolescent's physical, psychological, and social development—factors that contribute to low testing rates. Adolescents also cite concerns about confidentiality, access to testing, and invasive blood procedures as barriers to testing.¹⁶ A 2005 American Academy of Pediatrics survey revealed that nearly 50% of pediatricians recommend that all sexually active youth be screened for STIs; however, only 28% of them recommend that all adolescents be tested for HIV.¹⁷

In light of the increasing numbers of people with HIV/AIDS and missed opportunities for HIV testing, the Centers for Disease Control and Prevention (CDC) recommends universal and routine HIV screening rather than targeted testing. Opt-out HIV testing, which refers to testing performed unless the patient declines,¹⁸ should be routinely performed for all patients aged 13 to 64 years who are seen in health care settings; this testing is performed without a separate written informed consent or pretest counseling.⁴ Individual states are changing local laws to meet these recommendations.¹⁸ The complex issues of confidentiality, disclosure, and consent in adolescent care make implementation of these recommendations more challenging. Nevertheless, pediatricians can play a key role in preventing and controlling HIV infection by promoting risk reduction and offering HIV testing to their adolescent and young adult patients.

RISK ASSESSMENT AND COUNSELING

Because adolescents are a vulnerable population at increased risk of HIV infection, they should be routinely assessed for high-risk behaviors and screened for HIV. Pediatricians should also implement primary and secondary prevention strategies for STIs and HIV infection. Resources that facilitate assessment in a busy practice include the *Bright Futures* curriculum¹⁹ and *Guidelines for Adolescent Preventive Services* (GAPS)²⁰ questionnaires. Although the new CDC recommendations deemphasize risk assessment and counseling as precursors for opt-out testing, these activities are critical components of routine adolescent visits. Adolescents may be more willing to disclose high-risk behaviors if pediatricians establish confidential, private discussions at each health maintenance visit.²¹ Ideally, a confidentiality policy should be reviewed with adolescents and their parents in early adolescence (ie, before 14 years of age) and can be modeled on a sample provided by *Bright Futures*.¹⁹

Discussing same-sex and opposite-sex attractions, sexual identity, sexual activity, and exposure to sexual violence or abuse are key components of taking sexual histories and providing health guidance to adolescents.²² Creating a supportive atmosphere and factual, nonjudgmental counseling is essential for reaching youth.

The US Preventive Services Task Force²³ and the American Academy of Pediatrics recognize that all youth are at current or future risk of STIs and HIV infection. Both groups recommend that all youth receive behavioral counseling to prevent STIs, including the recommendation that they delay sexual activity. Opportunities to discuss HIV and STIs with youth during routine health assessments are often missed, and youths of ethnic minorities are

less likely to receive regular preventive health care.²⁴ The expansion of adolescent vaccine requirements to include human papillomavirus vaccine has provided additional opportunities for risk counseling, because discussion regarding this vaccination affords a natural segue into discussions of other STIs and HIV.²⁵ School physicals and annual athletic preparticipation physical examinations provide other opportunities to discuss HIV and STIs, conduct risk assessments, and provide health guidance and offer testing; these examinations are often the only contact youth have with any health provider.²¹

The use of postexposure prophylaxis with antiretroviral drugs should be considered for adolescents who may have been exposed to HIV after an episode of high-risk sexual activity or needle use. Victims of sexual violence should have baseline HIV testing as well as STI screening and treatment and should be offered mental health counseling.²⁶ Guidelines for the use of postexposure prophylaxis in nonoccupational exposures are available,²⁷ and practitioners can get expert consultation from the AIDS Education and Training Centers National Clinicians Consultation Center (800-448-8765).

TESTING FOR HIV

Much progress has been made in the area of HIV testing, and rapid and less invasive diagnostic HIV tests are readily available²⁸ (<http://www.cdc.gov/hiv/topics/testing/resources/factsheets/rt-lab.htm>). The gold standard for HIV diagnosis remains the detection of HIV antibody in serum by enzyme-linked immunoassay (EIA) followed by confirmatory Western blot or immunofluorescent assay. The sensitivity and specificity of current assays are more than 99%. False-positive EIA results, although uncommon, can occasionally occur. False-negative results can oc-

cur if testing is performed during the acute phase of infection, before the development of an antibody response, or in subjects with severe immunosuppression. The use of an oral fluid testing device that measures HIV antibody in mucosal transudate is well accepted by youth and is used in many outreach settings.¹⁶ In addition, several point-of-care rapid HIV-1 antibody tests provide results in minutes to hours.²⁹ These tests have sensitivity and specificity rates similar to those for standard EIA. In routine care, a negative rapid antibody test result does not need confirmation; however, as with EIAs, positive results should be confirmed with a more specific test, such as a Western blot or immunofluorescent assay. If the rapid test or EIA result is positive but the Western blot result is indeterminate, the adolescent might be in the process of seroconversion, or the result could be false-positive; the test should be repeated, and a virologic test (eg, nucleic acid test; HIV RNA test, or viral load test) should be performed for confirmation.

Most laboratories that perform standard EIA testing will automatically repeat an EIA if the first result is positive, followed by a Western blot test if the repeat EIA result is positive and will not report the positive results unless the Western blot confirms positivity. However, the advantage of the rapid test is that the results can be given to the patient immediately with the caution that the results need to be confirmed. Pediatricians who see youth with initial positive rapid test results should discuss the results with the patient and obtain a confirmatory Western blot. A positive HIV test result should be discussed with the patient in person; positive results should not be given by telephone. Local health departments or case management agencies can assist with linking youth with appropri-

ate care and counseling after diagnosis. HIV-infected youth should be cared for by providers with expertise in HIV medicine.³⁰ Reviewing negative HIV results with youth provides an opportunity for pediatricians to provide additional risk counseling. In high-risk situations such as sexual assault or other nonoccupational exposures, negative testing should be repeated in 3 months and postexposure prophylaxis considered as previously discussed.

Pediatricians should be aware that an estimated 50% of patients acutely infected with HIV present with symptoms to health care providers; however, few providers make the diagnosis at this time.³¹ Symptoms of acute retroviral syndrome are outlined in Table 1. During the acute stages of infection, antibody testing might yield a negative or indeterminate result while RNA testing results are positive. HIV RNA (viral load) testing should be performed on patients with suspect symptoms of acute infection and a negative antibody test result. Influenza-like illness and aseptic meningitis are also frequent presentations of the acute retroviral syndrome, and HIV testing may be appropriate, especially during seasons in which influenza and aseptic meningitis are not prevalent. The decision to include HIV RNA testing in this clinical scenario is based on age, risk factors, social history, and prevalence of HIV in the geographic area.

IMPLEMENTATION OF HIV SCREENING

The CDC recommendation is to screen, through opt-out testing, all patients aged 13 to 64 years unless or until the HIV prevalence of their patient population is determined to be less than 0.1% (Table 2). Pediatricians who care for youth in areas that have low prevalence rates should continue targeted testing. Youth at risk include all sexually active

TABLE 1 Identifying and Diagnosing Acute HIV-1 Infection

Suspecting acute HIV infection: signs or symptoms of acute HIV infection with recent (within 2–6 wk) high HIV risk exposure ^a
Signs/symptoms/laboratory findings can include but are not limited to ≥ 1 of the following: fever, lymphadenopathy, skin rash, myalgia/arthralgia, headache, diarrhea, oral ulcers, leucopenia, thrombocytopenia, transaminase elevation, aseptic meningitis
High-risk exposures include sexual contact with a person infected with HIV or at risk of HIV, sharing of injection drug use paraphernalia, or contact of potentially infectious blood with mucous membranes or breaks in skin ^a
Differential diagnosis: EBV and non-EBV (eg, CMV)—related infectious mononucleosis syndromes, influenza, viral hepatitis, streptococcal infection, syphilis
Evaluation/diagnosis of acute/primary HIV infection
HIV antibody EIA (rapid test if available)
Reactive EIA must be followed by Western blot
Negative EIA result or reactive EIA with negative or indeterminate Western blot should be followed by a virologic test ^b
A positive virologic test result in this setting is consistent with acute HIV infection
Positive quantitative or qualitative HIV RNA test results should be confirmed with subsequent documentation of seroconversion

EBV indicates Epstein-Barr virus; CMV, cytomegalovirus.

^a In some settings, behaviors conducive to acquisition of HIV infection might not be ascertained or might not be perceived as “high risk” by the health care provider, the patient, or both. Thus, symptoms and signs consistent with acute retroviral syndrome should motivate consideration of this diagnosis even in the absence of reported high-risk behaviors.

^b p24 antigen or HIV RNA assay. The p24 antigen is less sensitive but more specific than HIV RNA tests; HIV RNA tests are generally preferred. HIV RNA tests include quantitative branched DNA (bDNA) or reverse-transcriptase polymerase chain reaction (RT-PCR) or qualitative transcription-mediated amplification (APTIMA [GenProbe, San Diego, CA]).

Data source: modified from Panel on Antiretroviral Guidelines for Adults and Adolescents. Department of Health and Human Services. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Available at: www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf.

TABLE 2 CDC Recommendations on Consent and Pretest Information

Screening should be voluntary and undertaken only with the patient’s knowledge and understanding that HIV testing is planned
Patients should be informed verbally or in writing that HIV testing will be performed unless they decline (opt-out screening). Verbal or written information should include an explanation of HIV infection and the meanings of positive and negative test results, and the patient should be offered an opportunity to ask questions and to decline testing. With such notification, consent for HIV screening should be incorporated into the patient’s general informed consent for medical care on the same basis as are other screening or diagnostic tests; a separate consent form for HIV testing is not recommended
Easily understood informational materials should be made available in the languages of the commonly encountered populations within the service area. The competence of interpreters and bilingual staff to provide language assistance to patients with limited English proficiency must be ensured
If a patient declines an HIV test, the decision should be documented in the medical record

Data source: Branson BM, Handsfield HH, Lampe MA, et al; Centers for Disease Control and Prevention. *MMWR Recomm Rep*. 2006;55(RR-14):1–17.⁴

adolescents. Youth at high risk, which include those who use intravenous drugs, exchange sex for money, or have sex with multiple partners or are men who have sex with men, should be tested yearly. Pediatricians should be aware of their local HIV prevalence data, because some communities have very high rates of HIV, which places youth at disproportionate risk (www.cdc.gov/hiv/topics/surveillance/resources/slides/2007report_tables). Because 13% of pregnancies occur in youth aged 15 to 19 years, routine HIV

testing and early identification can also positively affect prevention of mother-to-child transmission of HIV.

The US Preventive Services Task Force strongly recommends HIV testing of at-risk adults and adolescents and all pregnant women; however, it has made no recommendation for or against routine screening.³² Its accompanying review of the evidence discusses that, depending on the setting, many patients will be missed with risk-

based screening and that there is good evidence for routine screening of patients seen in high-risk or high-prevalence settings, including STI clinics, correctional facilities, and adolescent clinics with high STI rates.³³ Although several studies have shown the cost-effectiveness of routine HIV screening, data addressing this issue in youth are insufficient.^{34–36}

Nearly half of recently identified infected people had their first HIV test within 1 year of being diagnosed with AIDS. These so-called late testers are generally young, heterosexual, poorly educated, and black or Latino, and they are more likely to be identified through a health care setting than through targeted testing.⁴ Early testing plays an important role in the health of the individual adolescent and the community. There is evidence that at least 20% of newly diagnosed youth seroconverted within the previous 6 months.³⁷ This early phase of illness is a time of high viremia, during which the risk of infectivity and transmission is greatest. People who are aware of their HIV status are more likely to practice safer sex or remain abstinent.³⁸ Patients who are diagnosed and treated earlier have a slower progression to AIDS, are more likely to restore immunologic function, and are less likely to transmit HIV to others.³⁹

The health care setting has many advantages as a site of HIV testing for youth. Adolescents are more likely to agree to be tested if it is recommended by a physician,⁴⁰ and youth who are diagnosed at a health care facility are more likely to enter into HIV care in a timely fashion.³⁷ The 2007 National Health Interview Survey found that among adults who received an HIV test, more than 80% did so in doctors’ offices, hospitals, emergency departments, and clinics compared with test-

ing at HIV counseling and testing centers or STI clinics.⁴¹

The use of acute care settings to improve testing rates is attractive to youth, because they are more likely to use urgent care settings for their health care needs.⁴² In the years before diagnosis, many HIV-infected adults seek care for HIV-related symptoms in acute care settings.⁴³ Implementation of rapid HIV testing in the emergency department setting has improved testing rates and greatly benefits youth who prefer rapid testing. A recent study in a large pediatric emergency department used a multisystems approach to implement routine screening with rapid HIV testing. More than 50% of youth were offered HIV testing, and only 13% opted out.⁴⁴ Effective implementation in emergency care settings requires commitment by emergency department staff, education, training, and an effective means of reminding staff to routinely perform the test (eg, electronic prompts).

PERCEIVED BARRIERS TO ROUTINE TESTING

Research has found that youth might forgo reproductive health services if parental consent is required.⁴⁵ Laws concerning consent and confidentiality for HIV care and treatment vary among states; thus, physicians need to familiarize themselves with local laws. Public health statutes and legal precedents allow for medical evaluation and treatment of minors with certain illnesses—particularly STIs—without parental knowledge or consent. Consent and confidentiality laws, even for the treatment of STIs, may have special provisions in some states for teenagers in foster care. Minors can now consent to HIV testing in all states, although the age of consent varies (www.guttmacher.org/statecenter/spibs/spib_OMCL.pdf).⁴⁶ Although these state laws might be in the process of being

changed, pediatricians need to know and abide by the laws in effect in their jurisdiction. The Compendium of State HIV Testing Laws from the National HIV/AIDS Clinicians' Consultation Center (www.nccc.ucsf.edu) can help clinicians seeking clarification of how their state laws and the CDC recommendations apply in clinical practice. The compendium comprehensively presents clinicians with regular updates to each state's HIV testing laws. Excellent tools are also available to assist providers in implementing HIV testing in their adolescent practices (www.adolescentaids.org/healthcare/acts.php).⁴⁷ Reimbursement and disclosure to parents via insurance billing are issues that require additional attention. At present, health insurance coverage of HIV screening is variable.¹⁸ Health advocates, insurers, and states must influence policies around confidentiality and insurance coverage that can address the aforementioned issues.

If pediatricians are unable to ensure confidentiality for HIV testing for adolescent patients in their office setting, they should identify and refer youth to confidential community-based HIV testing. Pediatricians should familiarize themselves with available resources in their communities. A CDC Web site (www.hivtest.org) provides assistance in finding local testing sites.

Disclosure of the HIV status of an adolescent should be held to the same legal and ethical standards as those for an adult. An important concern for HIV-positive adolescents is the limits of confidentiality related to notification of sexual partners. Partner-notification services can play a key role in preventing and controlling the HIV epidemic in the United States. Physicians should be familiar with state laws, and they should use reasonable means to persuade an infected person to voluntarily

inform his or her partner(s). Physicians who intend to disclose their adolescent patient's HIV status to sexual partners or parents should inform the patient of their intent before testing and should describe the circumstances under which disclosure would occur. Optimally, adolescents should have the support of a parent or guardian when faced with a diagnosis of HIV; however, each case should be approached individually. Disclosure of HIV-infection status is regulated by state laws, and disclosure to school authorities without an adolescent's consent generally is not indicated.⁴⁸

CONCLUSIONS AND RECOMMENDATIONS

1. Routine HIV screening should be offered to all adolescents at least once by 16 to 18 years of age in health care settings when the prevalence of HIV in the patient population is more than 0.1%.
2. In areas of lower community HIV prevalence, routine HIV testing is encouraged for all sexually active adolescents and those with other risk factors for HIV (eg, substance use).
3. High-risk youth should be tested annually for HIV. Adolescents tested for other STIs should be tested for HIV at the same visit.
4. Emergency departments and urgent care facilities in high-prevalence areas should implement routine HIV testing, which will provide an excellent opportunity to reach youth who do not seek primary care services often.
5. Physicians should recognize the symptoms of the acute retroviral syndrome, such as mononucleosis-like syndromes, and consider including HIV RNA testing (viral load) in the diagnostic workup of youth when the appropriate risk factors are present.

6. Although parental involvement in adolescent health care is always desirable, consent of the adolescent should be sufficient to provide testing and treatment for HIV infection or STIs. Pediatricians should make use of free and confidential community-based testing programs if there are cost or confidentiality concerns.
7. Pediatricians should assess sexual and substance use behaviors, an essential component of routine adolescent care, regardless of perceived risk. Standardized assessment tools and a confidentiality protocol can be helpful.
8. Pediatricians are encouraged to create an environment of tolerance and facilitate open discussion of gender and sexual orientation.
9. Opt-out HIV testing is preferred if allowed by state laws, and rapid HIV testing has similar sensitivity to EIAs and can provide immediate notification of preliminary results.

Physicians must follow the guidelines of their local jurisdictions for routine HIV opt-out testing in adolescents and are encouraged to advocate for change when such jurisdictions create barriers for implementation of opt-out testing.

10. A negative HIV test result should be used as an opportunity to counsel adolescents on sexual and drug use behaviors to reduce future risk.
11. For adolescents with a positive HIV test result, it is critical to arrange linkages to age-appropriate HIV specialty care, including prenatal care when appropriate.
12. Pediatricians are encouraged to advocate for the dissemination of accurate, evidence-based prevention education, access to confidential HIV and STI testing and counseling, and HIV treatment for adolescents.
13. Preventive care screening should include universal coverage and adequate payment for HIV testing

and related counseling. Physicians should advocate for confidential billing practices related to HIV and STI testing in adolescent and young adults.

LEAD AUTHORS

Patricia J. Emmanuel, MD
Jaime Martinez, MD

COMMITTEE ON PEDIATRIC AIDS, 2010–2011

Patricia M. Flynn, MD, Chairperson
Grace M. Aldrovandi, MD
Ellen Gould Chadwick, MD
Rana Chakraborty, MD
Ellen Rae Cooper, MD
Patricia J. Emmanuel, MD
Jaime Martinez, MD
Russell B. Van Dyke, MD

PREVIOUS COMMITTEE MEMBERS

Michael Brady, MD
Laura Hoyt, MD

LIAISONS

Kenneth L. Dominguez, MD, MPH – *Centers for Disease Control and Prevention*
Lynne M. Mofenson, MD – *Eunice Kennedy Shriver National Institute of Child Health and Human Development*

CONSULTANT

Gordon E. Schutze, MD

STAFF

Anjie Emanuel, MPH

REFERENCES

1. Centers for Disease Control and Prevention. HIV prevalence estimates: United States, 2006. *MMWR Morb Mortal Wkly Rep.* 2008; 57(39):1073–1076
2. Centers for Disease Control and Prevention. HIV surveillance report 2008. Available at: www.cdc.gov/hiv/surveillance/resources/reports/2008report/pdf/2008SurveillanceReport.pdf. Accessed July 5, 2010
3. Rangel MC, Gavin L, Reed C, Fowler MG, Lee LM. Epidemiology of HIV and AIDS among adolescents and young adults in the United States. *J Adolesc Health.* 2006;39(2): 156–163
4. Branson BM, Handsfield HH, Lampe MA, et al; Centers for Disease Control and Prevention. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep.* 2006;55(RR-14):1–17; quiz CE1–CE4
5. Marks G, Crepaz N, Janssen RS. Estimating sexual transmission of HIV from persons aware and unaware that they are infected with the virus in the USA. *AIDS.* 2006;20(10): 1447–1450
6. Campsmith ML, Rhodes PH, Hall HI, Green TA. Undiagnosed HIV prevalence among adults and adolescents in the United States at the end of 2006 [published correction appears in *J Acquir Immune Defic Syndr.* 2010; 54(1):112]. *J Acquir Immune Defic Syndr.* 2010;53(5):619–624
7. Centers for Disease Control and Prevention. HIV testing among high school students: United States, 2007. *MMWR Morb Mortal Wkly Rep.* 2009;58(24):665–668
8. American Academy of Pediatrics, Committee on Pediatric AIDS, Committee on Adolescence. Adolescents and human immunodeficiency virus infection: the role of the pediatrician in prevention and intervention. *Pediatrics.* 2001;107(1):188–190
9. Centers for Disease Control and Prevention. HIV/AIDS surveillance in adolescents and young adults (through 2007). Available at: www.cdc.gov/hiv/topics/surveillance/resources/slides/adolescents/index.htm. Accessed January 14, 2010
10. Hall HI, Song R, Rhodes P, et al; HIV Incidence Surveillance Group. Estimation of HIV incidence in the United States. *JAMA.* 2008; 300(5):520–529
11. Eaton DK, Kann L, Kinchen S, et al; Centers for Disease Control and Prevention. Youth risk behavior surveillance: United States, 2009. *MMWR Surveill Summ.* 2010;59(SS-5): 1–142
12. Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Infect.* 1999;75(1):3–17
13. Forhan S. Prevalence of sexually transmitted infections and bacterial vaginosis among female adolescents in the United States: data from the National Health and Nutritional Examination Survey (NHANES) 2003–2004 [abstr]. Presented at: 2008 National STD Prevention Conference; March 10–13, 2008; Chicago, IL. Available at: cdc.confex.com/cdc/std2008/techprogram/P14888.HTM. Accessed September 23, 2011

14. Henry J. Kaiser Family Foundation. National survey of teens on HIV/AIDS. Available at: www.kff.org/youth/hivstds/upload/National-Survey-of-Teens-on-HIV-AIDS.pdf. Accessed September 23, 2011
15. Henry J. Kaiser Family Foundation. *Survey of Americans on HIV/AIDS*. Available at: www.kff.org/kaiserpolls/pomr050806pkg.cfm. Accessed June 27, 2010
16. Peralta L, Deeds BG, Hipszer S, Ghalib K. Barriers and facilitators to adolescent HIV testing. *AIDS Patient Care STDS*. 2007;21(6):400–408
17. Henry-Reid LM, O'Connor KG, Klein JD, Cooper E, Flynn P, Futterman DC. Current pediatrician practices in identifying high-risk behaviors of adolescents. *Pediatrics*. 2010;125(4). Available at: www.pediatrics.org/cgi/content/full/125/4/e741
18. Bartlett JG, Branson BM, Fenton K, Hauschild BC, Miller V, Mayer KH. Opt-out testing for human immunodeficiency virus in the United States: progress and challenges. *JAMA*. 2008;300(8):945–951
19. American Academy of Pediatrics. *Bright Futures* adolescent supplemental questionnaire 15 to 17 year visits. Available at: <http://brightfutures.aap.org/pdfs/D.Adol.SQ.Patient.15-17yr.SAMPLE.pdf>. Accessed February 2, 2010
20. American Medical Association. *AMA Guidelines for Adolescent Preventive Services (GAPS): Recommendations and Rationale*. Elster AB, Kuznets NJ, eds. Baltimore, MD: Williams & Wilkins; 1994
21. American Academy of Pediatrics, Committee on Adolescence. Achieving quality health services for adolescents. *Pediatrics*. 2008;121(6):1263–1270
22. Frankowski BL; American Academy of Pediatrics, Committee on Adolescence. Sexual orientation and adolescents. *Pediatrics*. 2004;113(6):1827–1832
23. US Preventive Services Task Force. Behavioral counseling to prevent sexually transmitted infections: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2008;149(7):491–496, W95
24. Burstein GR, Lowry R, Klein JD, Santelli JS. Missed opportunities for sexually transmitted diseases, human immunodeficiency virus, and pregnancy prevention services during adolescent health supervision visits. *Pediatrics*. 2003;111(5 pt 1):996–1001
25. Rupp R, Rosenthal SL, Middleman AB. Vaccination: an opportunity to enhance early adolescent preventative services. *J Adolesc Health*. 2006;39(4):461–464
26. Kaufman M; American Academy of Pediatrics, Committee on Adolescence. Care of the adolescent sexual assault victim. 2008;122(2):462–470
27. Smith DK, Grohskopf LA, Black RJ, et al; US Department of Health and Human Services. Antiretroviral postexposure prophylaxis after sexual, injection-drug use, or other non-occupational exposure to HIV in the United States. *MMWR Recomm Rep*. 2005;54(RR-2):1–20
28. Branson BM. State of the art for diagnosis of HIV infection. *Clin Infect Dis*. 2007;45(s4):S221–S225
29. Food and Drug Administration. Anti-HIV-1 testing service. Available at: www.fda.gov/BiologicsBloodVaccines/BloodBloodProducts/ApprovedProducts/LicensedProductsBLAs/BloodDonorScreening/InfectiousDisease/ucm126582.htm. Accessed January 14, 2010
30. Landon BE, Wilson IB, McInnes K, et al. Physician specialization and the quality of care for human immunodeficiency virus infection. *Arch Intern Med*. 2005;165(10):1133–1139
31. Weintrob AC, Giner J, Menezes P, et al. Infrequent diagnosis of primary human immunodeficiency virus infection: missed opportunities in acute care settings. *Arch Intern Med*. 2003;163(17):2097–2100
32. US Preventive Services Task Force. Screening for HIV. Available at: www.ahrq.gov/clinic/uspstf/uspshivi.htm. Accessed July 5, 2010
33. Chou R, Huffman LH, Fu R, Smits AK, Korhuit PT; US Preventive Services Task Force. Screening for HIV: a review of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med*. 2005;143(1):55–73
34. Paltiel AD, Weinstein MC, Kimmel AD, et al. Expanded screening for HIV in the United States—an analysis of cost-effectiveness. *N Engl J Med*. 2005;352(6):586–595
35. Walensky RP, Freedberg KA, Weinstein MC, Paltiel AD. Cost-effectiveness of HIV testing and treatment in the United States. *Clin Infect Dis*. 2007;45(suppl 4):S248–S254
36. Sanders GD, Bayoumi AM, Sundaram V, et al. Cost-effectiveness of screening for HIV in the era of highly active antiretroviral therapy. *N Engl J Med*. 2005;352(6):570–585
37. Grant AM, Jamieson DJ, Elam-Evans LD, Beck-Sague C, Duerr A, Henderson SL. Reasons for testing and clinical and demographic profile of adolescents with non-perinatally acquired HIV infection. *Pediatrics*. 2006;117(3). Available at: www.pediatrics.org/cgi/content/full/117/3/e468
38. Weinhardt LS, Carey MP, Johnson BT, Bickham NL. Effects of HIV counseling and testing on sexual risk behavior: a meta-analytic review of published research, 1985–1997. *Am J Public Health*. 1999;89(9):1397–1405
39. Moore RD, Keruly JC. CD4⁺ cell count 6 years after commencement of highly active antiretroviral therapy in persons with sustained virologic suppression. *Clin Infect Dis*. 2007;44(3):441–446
40. Murphy DA, Mitchell R, Vermund SH, Futterman D; Adolescent Medicine HIV/AIDS Research Network. Factors associated with HIV testing among HIV-positive and HIV-negative high-risk adolescents: the REACH Study. Reaching for Excellence in Adolescent Care and Health. *Pediatrics*. 2002;110(3). Available at: www.pediatrics.org/cgi/content/full/110/3/e36
41. Centers for Disease Control and Prevention. QuickStats percentage of adults aged >18 years who had ever been tested for human immunodeficiency virus (HIV), by age group and sex: National Health Interview Survey, United States, 2007. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5803a7.htm. Accessed September 23, 2011
42. Miller CA, Tebb KP, Williams JK, Neuhaus JM, Shafer MA. Chlamydial screening in urgent care visits: adolescent-reported acceptability associated with adolescent perception of clinician communication. *Arch Pediatr Adolesc Med*. 2007;161(8):777–782
43. Centers for Disease Control and Prevention. Missed opportunities for earlier diagnosis of HIV infection: South Carolina, 1997–2005. *MMWR Morb Mortal Wkly Rep*. 2006;55(47):1269–1272
44. Minnietar TD, Gilmore B, Arnold SR, Flynn PM, Knapp KM, Gaur AH. Implementation of and barriers to routine HIV screening for adolescents. *Pediatrics*. 2009;124(4):1076–1084
45. Lehrer JA, Pantell R, Tebb K, Shafer MA. Forgone health care among U.S. adolescents: associations between risk characteristics and confidentiality concern. *J Adolesc Health*. 2007;40(3):218–226
46. Guttmacher Institute. Minors' access to STI services. Available at: www.guttmacher.org/statecenter/spibs/spib_MASS.pdf. Accessed September 23, 2011
47. Children's Hospital at Montefiore, Adolescent AIDS Program. Experience ACTS. Available at: www.adolescentaids.org/healthcare/acts.php. Accessed September 30, 2011
48. American Academy of Pediatrics, Committee on Pediatric AIDS. Education of children with human immunodeficiency virus infection. *Pediatrics*. 2000;105(6):1358–1360

Adolescents and HIV Infection: The Pediatrician's Role in Promoting Routine Testing

Committee on Pediatric AIDS

Pediatrics 2011;128;1023; originally published online October 31, 2011;

DOI: 10.1542/peds.2011-1761

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/128/5/1023.full.html
References	This article cites 32 articles, 10 of which can be accessed free at: http://pediatrics.aappublications.org/content/128/5/1023.full.html#ref-list-1
Citations	This article has been cited by 4 HighWire-hosted articles: http://pediatrics.aappublications.org/content/128/5/1023.full.html#related-urls
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Committee on Pediatric AIDS http://pediatrics.aappublications.org/cgi/collection/committee_on_pediatric_aids Infectious Disease & Immunity http://pediatrics.aappublications.org/cgi/collection/infectious_disease
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://pediatrics.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://pediatrics.aappublications.org/site/misc/reprints.xhtml

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2011 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

