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Fast Facts

1. An estimated four in 10 sexually-active adolescent females between the ages of 14 and 19 have an STD; the most commonly found STD among these adolescents is human papillomavirus (HPV).²
2. Although rates of human immunodeficiency virus (HIV) are very low among adolescents, males make up 77 percent of HIV diagnoses among 13- to 19-year-olds.³
3. Some STDs can be cured easily with antibiotics when caught early; others have no known cure but are treatable.⁵
4. STDs are spread through sexual contact, including vaginal, anal, and oral sex.⁵
5. The only way people can find out for sure if they have an STD is to get tested, with separate tests needed to detect most types of infections.⁵
6. Adolescents who have multiple sexual partners and have unprotected sex are at a greater risk of getting an STD.⁵

Sexually Transmitted Diseases (STDs)

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Adolescents and young adults between the ages of 15 and 24 account for half of the nearly 20 million new sexually transmitted diseases (STDs) diagnosed in the United States every year.¹ These diseases are an ongoing threat to young people's health and well-being. This *Adolescent Health Highlight* presents key research findings about the trends in STD rates among U.S. adolescents; discusses factors that heighten or reduce adolescents' risk of acquiring an STD; and provides information and resources on STD prevention and testing.

Reasons adolescents are at risk for STDs

A number of factors help explain why adolescents are particularly vulnerable to many STDs. Adolescents are biologically more susceptible than are adults to certain infections, including gonorrhea and Chlamydia.⁴ Adolescents are also more likely to have multiple sexual partners—either at the same time or one shortly after another—which increases their risk for STDs.^{5,6} In addition, some adolescents use condoms inconsistently and some have much older sexual partners, behaviors that have been linked to an increased risk of getting an STD.^{5,7}

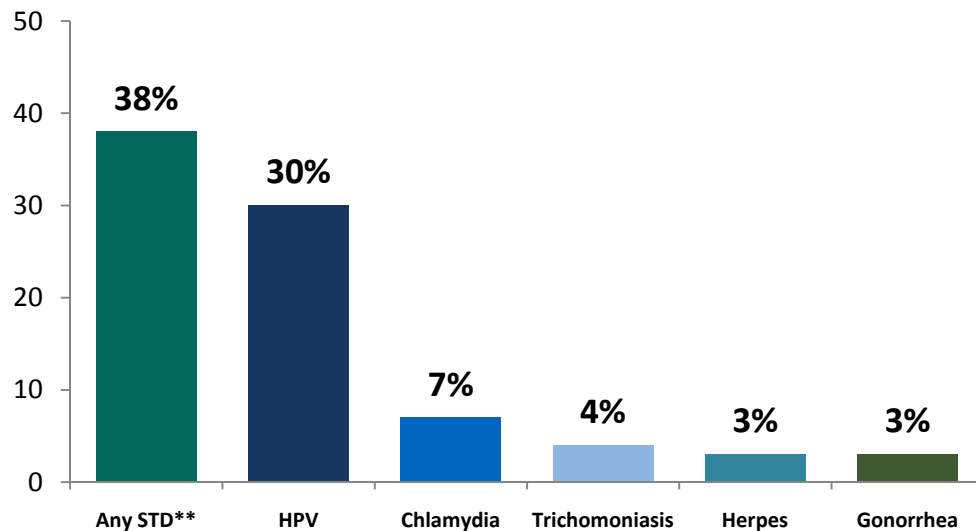
Many adolescents also face unique barriers to obtaining STD-related services, including not having a way to get to a clinic or doctor's office; feeling uncomfortable in the clinic setting; having concerns about the confidentiality of their clinic visit; not having money to pay for health care; and not having health insurance (although the majority of adolescents have health insurance coverage).^{4,8}

Human papillomavirus (HPV) is the most common STD among male and female adolescents.

The most common STDs among adolescents

Researchers at the Centers for Disease Control and Prevention (CDC) estimated the prevalence of various STDs among sexually experienced adolescent females between the ages of 14 and 19. They found that the human papillomavirus (HPV) was the most common STD (30 percent); followed by Chlamydia (7 percent); trichomoniasis (4 percent); herpes simplex virus type 2, the virus most commonly associated with genital herpes (3 percent); and gonorrhea (3 percent) (see Figure 1).² No comparable study has been conducted with adolescent males. However, other studies suggest that HPV levels among males are similar to those of females across age groups,⁹ while females have higher reported levels of Chlamydia and slightly higher levels of herpes than do males.^{4,10} Of all HIV diagnoses among adolescents ages 13-19 in 2011, males accounted for an estimated 77 percent, due primarily to HIV contracted by males having unprotected sex with other males.³ Levels of some STDs are very low among both male and female adolescents; less than one percent of adolescents were found to have HIV, hepatitis A, hepatitis B, or syphilis.^{4,11,12}

FIGURE 1: Percentage of females ages 14-19 with an STD, 2003-2004, among those who ever had sexual intercourse*



Just because an STD is incurable does not mean it is untreatable; in fact, treatments can make many conditions less burdensome.

* The estimates for trichomoniasis, herpes, and gonorrhea are unstable due to small numbers. HPV infections were limited to cancer-causing and wart-causing HPV types.

**Any of the following STDs: HPV, Chlamydia, Trichomoniasis, herpes, or gonorrhea.

Source: Forhan, S. E., Gottlieb, S. L., Sternberg, M. R., Xu, F., Datta, S. D., McQuillan, G. M., et al. (2009). Prevalence of sexually transmitted infections among female adolescents ages 14 to 19 in the United States. *Pediatrics*, 124(6), 1505-1512.

The health consequences of STDs

STDs are problematic because, if left untreated, they can sometimes lead to infertility, pregnancy complications, organ damage, and even death.

Many STDs are curable, but some are not.⁵ However, just because an STD is incurable does not mean it is untreatable; treatments can make many conditions less burdensome, and vaccines are available to prevent transmission of some STDs.

Curable STDs. Chlamydia, gonorrhea, and syphilis are all bacterial infections. If diagnosed and treated early, they can each be cured successfully with antibiotics. Trichomoniasis is a parasitic STD that, when diagnosed, can be cured easily with prescription medication. However, if these diseases go untreated, they can cause major health problems.⁵

Genital herpes, HPV, hepatitis A and B, and HIV are all viral infections. Although these infections cannot be cured, available treatments can make them more manageable.

- **Chlamydia and gonorrhea**—If left untreated, Chlamydia and gonorrhea can lead to pelvic inflammatory disease (PID) in women which, in turn, can lead to infertility and pregnancy complications. These infections may also increase the risk of HIV infection for men and women.⁴
- **Syphilis**—If left untreated, syphilis can cause major organ damage and neurologic complications. In pregnant women, untreated syphilis can cause complications during gestation, including death of the fetus. A baby born to a mother with untreated syphilis may develop serious health problems soon after birth. Untreated syphilis may also increase the risk of HIV transmission.¹³
- **Trichomoniasis**— Untreated trichomoniasis may increase the risk of HIV transmission and of premature births among some pregnant women.¹⁴

Incurable STDs. Genital herpes, HPV, hepatitis A and B, and HIV are all viral infections (hepatitis C is not transmitted through sexual activity and so is not considered an STD). Although these infections cannot be cured, available treatments can make them more manageable. What’s more, there are vaccines that can help protect against getting some strains of HPV and hepatitis A and B in both males and females (see Table 1).⁵

- **Genital herpes**—The virus that causes genital herpes can stay in the body indefinitely and can cause recurrent outbreaks of painful blisters and sores in the genital and anal areas. For some adolescents, however, the infection may have no symptoms. Antiviral medication can be taken to shorten and prevent outbreaks and may reduce transmission of the herpes virus to a sexual partner.¹⁵
- **Human papillomavirus (HPV)**—There are many strains of HPV. Although, in most cases, people with HPV do not develop any health problems and the virus often goes away on its own, some strains are linked to genital warts and some are linked to cervical, anal, and other cancers. Treatments, such as the removal of warts and precancerous lesions, are available for some of the complications caused by HPV.^{16,17} There is a vaccine for HPV (see Table 1).
- **Hepatitis B**—is a contagious liver disease that ranges in severity from a mild illness lasting a few weeks (acute) to a serious, lifelong illness (chronic). Advances in medication have improved the treatment of hepatitis. Current treatments are available to those with hepatitis B that can delay and reverse the effects of liver disease.¹⁸
- **Hepatitis A**—is a contagious liver disease, as is hepatitis B. However, hepatitis A generally has a relatively short life—lasting from a few weeks to a few months—and does not result in chronic infection. Almost all people who get hepatitis A recover completely without treatment and do not have any lasting liver damage. However, in very rare cases, hepatitis A can cause liver failure and death.¹⁹
- **HIV**—is the virus that can lead to acquired immunodeficiency syndrome (AIDS). Untreated HIV infection can affect a person’s immune system, making it easier to get life-threatening infections. Even though HIV remains an incurable infection, it is generally manageable because of improvements in treatment. Current medications can

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limit or slow the destruction of the immune system caused by HIV and improve the health of people living with it, and may reduce the ability to transmit the virus. The best clinical outcomes are achieved by individuals who are brought into care as soon as possible after infection.²⁰

STD or STI?

Sexually transmitted disease (STD) and sexually transmitted infection (STI) are often used interchangeably. *Infection* occurs when bacteria, viruses or other microbes enter your body and begin to multiply. *Disease* occurs when the cells in your body are damaged — as a result of the infection — and signs and symptoms of an illness appear. Recently, especially in the medical community, STI has been used instead of STD. This is because people can be infected, contagious, and carrying the potential of a disease without showing symptoms. In this highlight we use the term STD, because it is the term the CDC uses and more people are familiar with it.

TABLE 1: When should adolescents be vaccinated for STDs?*

STD	Recommendation
Human Papillomavirus (HPV)**	Recommended for all 11-12 year-olds but can be started at 9 years of age. Catch-up vaccination recommended for males ages 13-21 and females ages 13-26 who have not yet received or completed the vaccine series. Catch-up vaccine may be given for males ages 22-26, and is recommended through age 26 for men who have sex with men or men who have a weakened immune system.
Hepatitis B Virus (HBV)	If not already vaccinated, recommended for all adolescents.
Hepatitis A Virus (HAV)	If not already vaccinated, recommended for children and adolescents ages 2–18 who live in areas with existing HAV vaccination programs. In areas without a program, catch-up vaccination of unvaccinated children ages 2–18 years can be considered.

Some of the higher STD rates among minorities may be due to greater levels of STD testing among black and Hispanic adolescents.

*Table based on recommendations from the governmental Advisory Committee on Immunization Practices (ACIP). Because these vaccines are recommended by ACIP, the Affordable Care Act requires that new group and individual health insurance plans that started on or after September 23, 2010, cover these vaccines without charging a deductible, copayment, or coinsurance.

**HPV vaccines are most effective when given before a person’s first sexual contact, when he or she could be exposed to HPV.

Sources: Centers for Disease Control and Prevention. (2010). *Sexually transmitted diseases treatment guidelines, 2010*. MMWR 2010; 59 (No. RR-12).

Centers for Disease Control and Prevention. (2013). *HPV (Human Papillomavirus) Gardasil VIS*. Retrieved August 6, 2013 from, <http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hpv-gardasil.html>

Rates of gonorrhea are near the lowest level ever recorded, in large part because of the implementation of the national gonorrhea control program that began in the 1970s.

In some cases, people can carry and spread an STD for many years without knowing they are infected.

Differences in STD rates by race and ethnicity

Among adolescent males and females, black adolescents have the highest rates of Chlamydia, gonorrhea, and syphilis.⁴ Rates of these three diseases among Hispanic adolescents are not nearly as high as rates for black adolescents but are consistently higher than rates for white adolescents.⁴ Three of the viral STDs (herpes, HPV, and HIV) are also more common among black adolescents than among their white or Hispanic counterparts. White and Hispanic adolescents have a similar prevalence of these viral STDs.^{3,10,17}

Higher STD rates among black and Hispanic adolescents may be due in part to more testing, as well as to more comprehensive reporting of STDs by public (versus private) health clinics that serve more black and Hispanic clients.⁴ However, the higher STD rates may also reflect the social circumstances in which black and Hispanic adolescents grow up, live, and work. For example, minority households are more likely to be poor; to have limited access to quality healthcare; to seek out health care less frequently; and to live in communities with a high prevalence of STDs—all of which are linked to a greater risk of contracting an STD.⁴

Trends in adolescent STD rates

STDs that are generally increasing:

- **Chlamydia**— Among adolescent females between the ages of 15 and 19, rates of Chlamydia increased more than 20 percent between 2006 and 2010. This increase may reflect the fact that more adolescent females were tested, resulting in more cases detected. Chlamydia rates among adolescent males are lower than among adolescent females, but have also increased. Again, this may be due to higher rates of testing.⁴
- **Syphilis**— Although less common among adolescents, rates of syphilis among adolescents increased between 2002 and 2009, before declining slightly in 2010 and 2011. Nonetheless, in 2011 rates of syphilis for adolescent males between the ages of 15 and 19 were more than four times higher than rates in 2002. The increase in syphilis has mostly been observed in males having unprotected sex with other males. Rates of syphilis among women followed a similar pattern, increasing between 2002 and 2009 and declining slightly since then.⁴

STDs that are stable:

- **HIV**— Although less common among adolescents, reported rates of HIV were more or less stable among adolescents ages 15-19 between 2008 and 2011.⁴

STDs that are generally decreasing:

- **Gonorrhea**— In general, rates of gonorrhea among adolescents have been declining for years, although they showed a *small* increase between 2009 and 2010 and remained stable in 2011. Nonetheless, rates are near the lowest level ever recorded, in large part because of the implementation of the national gonorrhea control program that began in the 1970s.²¹
- **Genital herpes**— Since the early 1990s, the proportion of adolescents found to have one of the two strains of the genital herpes virus has declined, likely a result of safer sexual behaviors such as increased condom use.¹⁰
- **Hepatitis A and B**— Rates of Hepatitis A and B among adolescents have also declined, primarily as a result of the vaccine introduced in the 1990s to protect children and adolescents from the disease.^{11,18,19}

Routes to infection

STDs are primarily spread through genital contact, most often during vaginal and anal sex when people are exposed to bodily fluids, such as semen, vaginal secretions, or blood. Somewhat less often, STDs can be spread through oral sex.⁵ It is also possible to pass on or acquire some STDs (e.g., herpes or HPV) that can be present on the skin around the genital area through genital-to-genital contact, without having intercourse. STDs can be passed between both heterosexual and same-sex partners and can be spread even when the infected partner has no signs or symptoms of the disease. In some cases, people can carry and spread an STD for many years without knowing they are infected. In addition, some STDs can be passed from a mother to her baby during pregnancy, vaginal childbirth, and breastfeeding.²²

People can lower their risk of acquiring STDs by having only one sexual partner (who has no other partners) at a time.

The only certain way to prevent getting STDs is to abstain from any sexual contact with another person. For people who choose to be sexually active, condoms lower the risk of transmission. However, for condoms to be most effective, they need to be used correctly with every sex act from start to finish and not only during ejaculation. Even then, some STDs, such as herpes and HPV, can infect areas that are not covered by a condom. During oral sex, using a condom over the penis and a dental dam over the vagina can help prevent the spread of STDs.²³

Adolescents can prevent or reduce their chances of getting an STD by abstaining from sex, limiting the number of sexual partners that they have, using condoms consistently and correctly, and being in a long-term, mutually monogamous relationship with a partner who has been tested and is known to be uninfected.²⁴

When to get tested?

Although STDs can sometimes cause symptoms, many times STDs have no signs or symptoms or only mild symptoms that can be easily overlooked. The only way an adolescent can know for certain whether he or she has an STD is to get tested by a medical professional. Some health care providers will test for some infections as part of a regular checkup, but some do not. Therefore, it is important to ask specifically to be tested for STDs. Getting tested is recommended when adolescents (or adults) are having or have had unprotected sex; before they have genital contact with a new sexual partner; or if there is any reason to believe they may have been exposed to an STD.⁵ A doctor or healthcare provider can recommend specific STD tests based on individual situations. At a minimum, all sexually active adolescent females should be tested for Chlamydia and gonorrhea annually (see table 2).⁵

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TABLE 2: When should adolescents be tested for STDs?*

STD	Sexually Active Males	Sexually Active Females
Chlamydia	If symptomatic (signs can include discharge from the penis and a burning sensation when urinating) or if sexual partner is infected; in high-prevalence settings (such as adolescent clinics, STD clinics and correctional facilities)**	Annually
Gonorrhea	If symptomatic (signs can include discharge from the penis, a burning sensation when urinating, and painful and/or swollen testicles) or if sexual partner is infected**	Annually
HIV	All sexually active adolescents should get tested at least once. Annual testing is recommended for sexually active adolescents at higher risk, including: <ul style="list-style-type: none"> • Adolescent males who have sex with other males; • Adolescents who use injection drugs; • Adolescents who have other STDs (syphilis, Chlamydia, trichomoniasis, etc.) 	
Cervical Cancer (HPV is the STD that causes cervical cancer)	N/A	Either upon turning 21 or three years after initiating sexual activity, but by no later than age 21.

*All STDs that an adolescent may have are not represented here. The CDC recommends routine testing for a few STDs, and for others—such as syphilis and trichomoniasis—the adolescent should be tested if he or she has symptoms of, or specific risk factors for, those conditions.

**For both Chlamydia and gonorrhea, routine screenings are not recommended for males.

Sources: Centers for Disease Control and Prevention. (2010). *Sexually transmitted diseases treatment guidelines, 2010*. MMWR 2010; 59 (No. RR-12).

Branson, B. M., Handsfield, H. H., Lampe, M. A., Janssen, R. S., Taylor, A. W., Lyss, S. B., et al. (2006). *Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings*. Atlanta: Division of HIV/AIDS Prevention and the Division of STD Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.

The imperative to increase adolescent awareness of—and screening for—STDs

The large number of STD diagnoses among adolescents indicates that more needs to be done to protect this population. Adolescents are often misinformed about STDs, which may influence both their sexual behaviors and whether they get tested or seek treatment for STDs. For example, many adolescents think that you can tell whether someone has (or does not have) an STD by how he or she looks, others do not know the symptoms of specific STDs, and some do not know that STDs can be transmitted through oral or anal sex.²⁵

School-based, clinic-based, and community-based programs all have the potential to educate adolescents, help them reduce risky sexual behaviors, and thus reduce their risk of contracting STDs. Parents can play a crucial role as well. Improving communication between parents and adolescents, and increasing parental monitoring and awareness of where adolescents are when they are not at home or school, have been linked to an older age at first sex and increased use of contraception.²⁶ All of these steps may reduce the likelihood of getting an STD.²⁷

Healthcare providers may need to change their practices as well. Although testing for STDs has expanded and improved, such testing is not always a routine part of a gynecological exam in a physician’s office, and not all doctors adhere to recommended screening guidelines for STDs. Thus, interventions aimed at increasing screenings for STDs should

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involve outreach to healthcare providers, making sure they have access to up-to-date information and encouraging them to routinely counsel and screen all sexually-active adolescents for STDs.^{5,28,29}

Resources

STD testing resources

Most primary care doctors and gynecologists offer STD testing (see Table 2 for routine testing recommendations for adolescents).

- Adolescents and others can find a Title X family planning clinic near their homes at <http://www.hhs.gov/opa>. Title X family planning clinics offer low-cost testing services for income-qualifying patients.
- Adolescents can also find other testing locations using <http://www.aids.gov>, <http://hivtest.cdc.gov/STDTesting.aspx>, or <http://www.gytnow.org>.

Information about the confidentiality of STD and HIV test results

Minors in all states can give consent to receive their own health care services for STDs.⁵ STD test results are protected under the same privacy rules as all other medical information, and this information cannot be released to anyone, including parents, without patient consent/approval. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) ensures that the privacy of individuals' health information is protected while accessing medical care. Gonorrhea, Chlamydia, and syphilis cases are confidentially reported to the Centers for Disease Control and Prevention (CDC) for public health surveillance purposes; names and identifying information are not included in these reports.

In most states, HIV tests can be either confidential or anonymous.

- **Confidential testing** means that names and other identifying information will be attached to test results. The confidential results will go in medical records and may be shared with health care providers, insurance companies, and public health departments.
- **Anonymous testing** means that nothing ties test results to a specific individual. For information on test sites and the type of testing offered in your area, contact the local health department or 1-800-CDC-INFO (800-232-4636), or go to www.aids.gov.³⁰

Other resources

Multiple agencies are actively addressing the prevention of STDs among adolescents. Selected resources include:

- The CDC's series of brochures providing facts about various STDs, available at <http://www.cdc.gov/std/healthcomm/the-facts.htm>.
- Basic information about HIV/AIDS is available at: <http://www.aids.gov/hiv-aids-basics/>, and information specifically on HIV/AIDS in adolescence, found at: <http://www.cdc.gov/hiv/resources/factsheets/PDF/youth.pdf>. More information on federal HIV/AIDS policies can be found at <http://www.hhs.gov/ash/ohap/>.

In most states, HIV tests can be either confidential or anonymous.

The Childs Trends LINKS (Lifecourse Interventions to Nurture Kids Successfully) database summarizes evaluations of out-of-school time programs that work (or do not) to enhance children's development.

The Child Trends DataBank includes brief summaries on well-being indicators, including several that relate to STDs and teen sexual activity:

- Sexually transmitted infections: <http://www.childtrends.org/?indicators=sexually-transmitted-infections-stis>
- Condom use: <http://www.childtrends.org/?indicators=condom-use>
- Sexually active teens: <http://www.childtrends.org/?indicators=sexually-active-teens>
- Sexually experienced teens: <http://www.childtrends.org/?indicators=sexually-experienced-teens>

The Childs Trends [LINKS](#) (Lifecourse Interventions to Nurture Kids Successfully) database summarizes evaluations of out-of-school time programs that work (or not) to enhance children's development. The LINKS Database is user-friendly and directed especially to policy makers, program providers, and funders.

- Programs related to STD reduction can be found by selecting the STD/HIV/AIDS box under Reproductive Health.
- Evaluations of programs proven to work (or not) in reducing STD contraction and use of a condom for STD and/or pregnancy prevention, in addition to other reproductive health behaviors, are summarized in the fact sheet [What works for adolescent reproductive health: Lessons from experimental evaluations of programs and interventions](#).

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