# Sexually Transmitted Diseases/Infections (STDs/STIs)

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Objectives:

* Define STDs, explain how they are transmitted, and identify the most common STDs/STIs
* Identify the incidence, prevalence, and cost of STIs in the United States
* Learn prevention techniques and treatment options
* Develop a personal plan for STI prevention

**What are STDs?**

The following information about STDs is published by the Office of Disease Prevention and Health Promotion on the website HealthyPeople.gov., and is found on the page “[Sexually Transmitted Diseases](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases)”:

STDs refer to more than 35 infectious organisms that are transmitted primarily through sexual activity. STD prevention is an essential primary care strategy for improving reproductive health.1

Despite their burdens, costs, and complications, and the fact that they are largely preventable, STDs remain a significant public health problem in the United States. This problem is largely unrecognized by the public, policymakers, and health care professionals. STDs cause many harmful, often irreversible, and costly clinical complications, such as:

* Reproductive health problems
* Fetal and perinatal health problems
* Cancer
* Facilitation of the sexual transmission of HIV infection2

**Why Is Sexually Transmitted Disease Prevention Important?**

The Centers for Disease Control and Prevention (CDC) estimates that there are approximately 20 million new STD infections each year—almost half of them among young people ages 15 to 24.[3](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#three) The cost of STDs to the U.S. health care system is estimated to be as much as $16 billion annually.[4](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#four) Because many cases of STDs go undiagnosed—and some common viral infections, such as human papillomavirus (HPV) and genital herpes, are not reported to CDC at all—the reported cases of chlamydia, gonorrhea, and syphilis represent only a fraction of the true burden of STDs in the United States.

Untreated STDs can lead to serious long-term health consequences, especially for adolescent girls and young women. CDC estimates that undiagnosed and untreated STDs cause at least 24,000 women in the United States each year to become infertile.[5](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#five)

**Understanding Sexually Transmitted Diseases**

Several factors contribute to the spread of STDs.

**Biological Factors**

STDs are acquired during unprotected sex with an infected partner.[6](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#six) Biological factors that affect the spread and complications of STDs include:

* **Asymptomatic nature of STDs**. The majority of STDs either do not produce any symptoms or signs, or they produce symptoms so mild that they are unnoticed; consequently, many infected persons do not know that they need medical care.
* **Gender disparities**. Women suffer more frequent and more serious STD complications than men do. Among the most serious STD complications are pelvic inflammatory disease, ectopic pregnancy (pregnancy outside of the uterus), infertility, and chronic pelvic pain.[7](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#seven)
* **Age disparities**. Young people ages 15 to 24 account for half of all new STDs, although they represent just 25% of the sexually experienced population. Adolescent females may have increased susceptibility to infection because of increased cervical ectopy.[8](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#eight)

**Social, Economic, and Behavioral Factors**

The spread of STDs is directly affected by social, economic, and behavioral factors. Such factors may cause serious obstacles to STD prevention due to their influence on social and sexual networks, access to and provision of care, willingness to seek care, and social norms regarding sex and sexuality. Among certain vulnerable populations, historical experience with segregation and discrimination exacerbates the influence of these factors.

Social, economic, and behavioral factors that affect the spread of STDs include:

* **Racial and ethnic disparities**. Certain racial and ethnic groups (mainly African American, Hispanic, and American Indian/Alaska Native populations) have high rates of STDs, compared with rates for whites. Race and ethnicity in the United States are correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STDs.[9](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#nine)
* **Poverty and marginalization**. STDs disproportionately affect disadvantaged people and people in social networks where high-risk sexual behavior is common, and either access to care or health-seeking behavior is compromised.
* **Access to health care**. Access to high-quality health care is essential for early detection, treatment, and behavior-change counseling for STDs. Groups with the highest rates of STDs are often the same groups for whom access to or use of health services is most limited.[10,](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#ten)[11](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#eleven)
* **Substance abuse**. Many studies document the association of substance abuse with STDs.[12](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#twelve) The introduction of new illicit substances into communities often can alter sexual behavior drastically in high-risk sexual networks, leading to the epidemic spread of STDs.[13](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#thirteen)
* **Sexuality and secrecy**. Perhaps the most important social factors contributing to the spread of STDs in the United States are the stigma associated with STDs and the general discomfort of discussing intimate aspects of life, especially those related to sex.[14](https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases#fourteen) These social factors separate the United States from industrialized countries with low rates of STDs.
* **Sexual networks**. Sexual networks refer to groups of people who can be considered “linked” by sequential or concurrent sexual partners. A person may have only 1 sex partner, but if that partner is a member of a risky sexual network, then the person is at higher risk for STDs than a similar individual from a lower-risk network.

The following information about what causes STD’s or STI’s is Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, is published by the US Department of Health and Human Services and found on the NICHD’s website on the page “[What causes sexually transmitted diseases (STDs) or sexually transmitted infections (STIs)?](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/causes#:~:text=Any%20STI%20can%20be%20spread,pass%20from%20person%20to%20person)”

**What Causes Sexually Transmitted Diseases (STDs) or Sexually Transmitted Infections (STIs)?**

There are three major causes of STDs/STIs:

* **Bacteria**, including chlamydia, gonorrhea, and syphilis
* **Viruses**, including [HIV/AIDS](https://www.nichd.nih.gov/health/topics/hiv/Pages/default.aspx), herpes simplex virus, human papillomavirus, hepatitis B virus, cytomegalovirus (CMV), and Zika
* **Parasites**, such as *trichomonas vaginalis,* or insects such as crab lice or scabies mites[1](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/causes#f1)

Any STI can be spread through sexual activity including sexual intercourse, and some STIs also are spread through oral sex and other sexual activity. Ejaculation does not have to occur for an STI to pass from person to person.

In addition, sharing contaminated needles, such as those used to inject drugs, or using contaminated body piercing or tattooing equipment also can transmit some infections, such as HIV, hepatitis B, and hepatitis C. A few infections can be sexually transmitted but are also spread through nonsexual, close contact. Some of these infections, like CMV, are not considered STIs even though they can be transmitted through sexual contact.

Regardless of how a person is exposed, once a person is infected by an STI, he or she can spread the infection to other people through oral, vaginal, or anal sex, even if he or she has no symptoms.

## **What are the Most Common Types of STIs?**

The following information about some types of STDs and STIs is Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, is published by the US Department of Health and Human Services and found on the NICHD’s website on the page “[What are some types of sexually transmitted diseases or sexually transmitted infections (STDs/STIs)?](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx)”:

**Chlamydia**

* Caused by the bacterium *Chlamydia trachomatis*
* Can be transmitted during vaginal, oral, or anal sexual contact with an infected partner
* Many infected individuals will not experience symptoms, but chlamydia can cause fever, abdominal pain, and unusual discharge from the penis or vagina.
* Can be treated with antibiotics
* If untreated, can cause [pelvic inflammatory disease](http://www.cdc.gov/std/pid/stdfact-pid.htm), which can lead to chronic pelvic pain and permanent damage to a woman's reproductive organs. This damage may lead to ectopic pregnancy (in which the fetus develops outside of the womb, a condition that can be life-threatening) and [infertility](https://www.nichd.nih.gov/health/topics/infertility).
* Can be transmitted to fetus during pregnancy or to infant during delivery, causing eye infections or pneumonia. Antibiotic ointment is usually applied to a baby's eyes after birth to treat undetected chlamydia.
* Because chlamydia and gonorrhea often occur together, people who have one infection are typically treated for both by their health care provider.
* To prevent health complications and sexual transmission, treatment should be provided promptly for all persons testing positive for infection, and recent sexual partners should be treated at the same time to prevent reinfection.
* Infected individuals should follow their health care provider's recommendations about how long to abstain from sex after the treatment is completed to avoid passing the infection back and forth.[1](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f1)

**Gonorrhea**

* Caused by the bacterium *Neisseria gonorrhoeae,* which can grow and multiply rapidly in the warm, moist areas of the reproductive tract
* Most common symptoms include discharge from the vagina or penis and painful or difficult urination.[2](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f2)
* Can be treated with antibiotics
* Like chlamydia, if left untreated, gonorrhea can cause [pelvic inflammatory disease](http://www.cdc.gov/std/pid/stdfact-pid.htm), which can lead to chronic pelvic pain and permanent damage to a woman's reproductive organs. This damage may lead to ectopic pregnancy (in which the fetus develops outside of the womb, a condition that can be life-threatening) and [infertility](https://www.nichd.nih.gov/health/topics/infertility).[2](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f2)
* In both men and women, gonorrhea can also infect the mouth, throat, eyes, and rectum and can spread to the blood and joints, where it can become a life-threatening illness.
* Can be transmitted to the fetus during pregnancy[2](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f2)
* Because chlamydia and gonorrhea often occur together, people who have one infection are typically treated for both by their health care provider.
* To prevent health complications and sexual transmission, treatment should be provided promptly for all persons testing positive for infection, and recent sexual partners should be treated at the same time to prevent reinfection.
* People with gonorrhea can more easily contract HIV, the virus that causes AIDS. HIV-infected people with gonorrhea are also more likely to transmit the virus to someone else.3

**Genital Herpes**

* Caused by the herpes simplex virus (HSV)[4](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f4)
* There are two different strains, or types: HSV type 1 (HSV-1) and type 2 (HSV-2). Both can cause genital herpes, although most cases of genital herpes are caused by HSV-2.[5](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f5)
* Symptoms of HSV-1 usually appear as fever blisters or cold sores on the lips, but it can also infect the genital region through oral-genital or genital-genital contact. Symptoms of HSV-2 are typically painful, watery skin blisters on or around the genitals or anus. However, substantial numbers of people who carry these viruses have no or only minimal signs or symptoms.
* Cannot be cured, but can be controlled with medication
* One medication can be taken daily to make it less likely that the infection will pass on to sex partner(s) or to infants during childbirth.[4](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f4)
* Periodically, some people will experience outbreaks of symptoms in which new blisters form on the skin in the genital area; at those times, the virus is more likely to be passed on to other people.
* If a pregnant woman has an outbreak when she goes into labor, she may need to have a cesarean section (C-section) to prevent the infant from getting the virus during birth.[4](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f4)
* Pregnant women, especially those who acquire genital herpes for the first time during pregnancy, may pass the infection to their newborns, causing life-threatening neonatal HSV, an infection affecting the infant's skin, brain, and other organs.[6](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f6)

**HIV/AIDS**

* HIV, human immunodeficiency virus,[7](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f7) is the virus that causes AIDS
* Destroys the body's immune system by killing the blood cells that fight infection. Once HIV destroys a substantial proportion of these cells, the body's ability to fight off and recover from infections is compromised. This advanced stage of HIV infection is known as AIDS.
* People whose HIV infection has progressed to AIDS have a weakened immune system and are very susceptible to opportunistic infections that do not normally make people sick and to certain forms of cancer.
* In people who do not have HIV, the infection can be prevented by many tools, including abstaining from sex, limiting the number of sexual partners, never sharing needles, and using condoms appropriately. Persons who may be at very high risk of HIV infection may be able to obtain [HIV Pre-Exposure Prophylaxis or PrEP](http://www.cdc.gov/hiv/risk/prep/index.html), which consists of the HIV medication called Truvada, from their doctor to take every day so they can prevent HIV infection. PrEP will not work if it is not taken consistently.
* AIDS can be prevented in those with HIV infection by early initiation of antiretroviral therapy.
* Transmission of the virus primarily occurs during unprotected sexual activity and by sharing needles used to inject intravenous drugs.
* HIV can also spread from mother to fetus during pregnancy and from mother to infant during delivery and breastfeeding. However, treatments are available that can virtually eliminate these types of transmission.

Click on the following link to learn more about HIV:

[HIV in the United States and Dependent Areas](https://www.cdc.gov/hiv/statistics/overview/ataglance.html)

**Human Papillomavirus (HPV)**

* HPV[8](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f8) is the most common STI. More than 40 HPV types exist, and all of them can infect both men and women.
* The types of HPVs vary in their ability to cause genital warts; infect other regions of the body, including the mouth and throat; and cause cancers of the cervix, vulva, penis, anus, and mouth.[8](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f8)
* Cannot be cured but can be prevented with vaccines and controlled with medications
* Genital warts caused by the virus[8](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f8) can also be treated.
* Regular screening with a Pap smear test can prevent or detect at an early stage most cases of HPV-caused cervical cancer. (A Pap smear test involves a health care provider taking samples of cells from the cervix during a standard gynecologic exam; these cells are examined under a microscope for signs of developing cancer).
* Two available vaccines protect against most (but not all) HPV types that cause cervical cancer. A group advising the Centers for Disease Control and Prevention recommends this vaccine for boys and girls starting at 11 or 12 years old.9

**Syphilis**

* Caused by the bacterium *Treponema pallidum*
* Passes from person to person during vaginal, anal, or oral sex through direct contact with syphilis sores
* Syphilis can also be spread from an infected mother to her fetus.[10](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f10)
* In 2001, the number of cases of syphilis was at its lowest in 60 years. Rates have increased among both men and women, but men account for a vast majority of syphilis cases.[11](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f11)
* The first sign of syphilis is a chancre, a painless genital sore that most often appears on the penis or in and around the vagina. Chancres typically resolve on their own, but the body does not clear the infection on its own.
* Chancres make a person two to five times more likely to contract an HIV infection.[10](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f10) If the person is already infected with HIV, chancres also increase the likelihood that the HIV virus will be passed on to a sexual partner.[3](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f3)
* Can be treated with antibiotics:
  + If recognized during the early stages, usually within the first year of infection, syphilis can be treated with a single injection of antibiotic.
  + If not recognized early, or not treated immediately, syphilis may need longer treatment with antibiotics.
* Without treatment:
  + Usually spreads to other organs, including the skin, heart, blood vessels, liver, bones, and joints in secondary syphilis.
  + Other sores, such as a syphilis rash, can break out in later stages.
  + Tertiary syphilis can develop over a period of years and involve the nerves, eyes, and brain and can potentially cause death.
* Can pass to the fetus during pregnancy and to the infant during delivery
* Infants who get syphilis infection in the womb may have misshapen bones, very low red blood cell count (called severe anemia), enlarged liver and spleen, jaundice (yellowing of the skin or eyes), nerve problems, blindness or deafness, meningitis, and skin rashes.[12](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f12)
* Those being treated for syphilis must avoid sexual contact until the syphilis sores are completely healed to avoid infecting other people.
* Persons with syphilis must notify their sex partners so that they also can be tested and receive treatment if necessary.
* Pregnant women with syphilis, especially untreated syphilis, are at an increased risk of miscarriage and stillbirth.

**Bacterial Vaginosis**

* Occurs when problematic bacteria that are normally present only in small amounts in the body increase in number. Their levels get so high that they replace normal vaginal bacteria and upset the usual balance.
* More likely if a woman douches frequently or has new or multiple sexual partners
* Most common symptom is a thin, milky discharge that is often described as having a "fishy" odor. However, some women will have no symptoms at all.
* Can be treated with antibiotics, typically metronidazole or clindamycin
* Generally, sexual partners of women with bacterial vaginosis do not need to be treated because treatment of partners has not been shown to reduce the risk of recurrence.
* Treatment is recommended for all pregnant women who show symptoms.[13](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f13)
* Increases the risk of getting other STIs even if the woman doesn't have any symptoms
* Associated with [preterm labor and birth](https://www.nichd.nih.gov/health/topics/preterm) and having a low birth weight baby
* Also associated with pelvic inflammatory disease, an infection of the female reproductive organs, including the uterus and the fallopian tubes (which carry eggs to the uterus), and with infections that commonly occur after surgery[13](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f13)

**Trichomoniasis**

* Caused[14](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f14) by the single-celled parasite *Trichomonas vaginalis*
* Common in young, sexually active women but also infects men, though less frequently
* The parasite can be transmitted between men and women as well as between women whenever physical contact occurs between the genital areas.
* Can cause frequent, painful, or "burning" urination in men and women as well as vaginal discharge, genital soreness, redness, or itching in women. However, it may not cause any symptoms.
* Because the infection can occur without symptoms, a person may be unaware that he or she is infected and continue to re-infect a sexual partner who is having recurrent signs of infection.
* Can be treated with a single dose of an antibiotic, usually either metronidazole or tinidazole, taken by mouth
* Because of re-infection, it is important to make sure that the diagnosed individual and all sexual partners are treated at the same time.
* Retesting is recommended for all sexually active women within 3 months after initial treatment even if they believe their partners were treated.[15](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f15)
* Infection during pregnancy is associated with an increased risk of [preterm labor or birth](https://www.nichd.nih.gov/health/topics/preterm/Pages/default.aspx) and infants with low birth weight.
* [Stillbirth](https://www.nichd.nih.gov/health/topics/stillbirth/Pages/default.aspx) and [newborn death](https://www.nichd.nih.gov/health/topics/infant-mortality/Pages/default.aspx) are more than twice as likely among pregnant women with *Trichomonas* infection than among uninfected pregnant women.[16](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f16)

**Viral Hepatitis**

Viral hepatitis is a serious liver disease that can be caused by several different viral strains, which can be transmitted through sexual contact.

**Hepatitis A virus (HAV):**

* Causes a short-term or self-limited liver infection that can be quite serious.
* Does not result in chronic infection.
* Can be transmitted during sexual activity and through oral-anal contact.
* Vaccination can prevent HAV infection.[17](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f17)
* May cause abdominal pain, nausea, and vomiting.
* Usually the infection gets better on its own without requiring treatment. In some cases, however, individuals may have such severe nausea and vomiting that they must be admitted to the hospital or may have lasting damage to their livers.[18](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f18)

**Hepatitis B virus (HBV):**

* Causes a serious liver infection that can result in both immediate illness and lifelong infection and disease, leading to permanent liver scarring (cirrhosis), cancer, liver failure, and death.
* Can be treated with antiviral medications.
* Vaccination can prevent HBV infection.
* Spreads through sexual contact, as well as through contact with other bodily fluids, such as blood; through shared contaminated needles used for injecting intravenous drugs; and through tattooing and piercing.
* Pregnant women with HBV can transmit the virus to their infants during delivery, but a series of vaccinations and a shot of hepatitis B immune globulin for the baby beginning at birth can prevent this transmission. Without vaccination, babies born to women with HBV infection can develop chronic infection, which can lead to serious health problems.[19](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f19)
* People with chronic HBV infection will need to see a liver specialist with experience treating individuals with chronic liver disease. These individuals need to take special care not to pass on the virus to their sexual partners, and sexual partners should receive hepatitis B vaccine if they are not already immune.[18](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types#f18)

**Hepatitis C virus (HCV):**

* Serious infection of the liver that can cause an immediate illness but that, in most people, becomes a silent, chronic infection that leads to liver scarring (cirrhosis), cancer, liver failure, and death
* Most infected people may not be aware of their infection because they do not develop symptoms.
* Most commonly transmitted through sharing needles or exposure to infected blood. Less commonly, it can spread through sexual contact or from mother to fetus during pregnancy and delivery.
* Can be treated. New medications seem to be more effective and have fewer side effects than previous options. The Food and Drug Administration maintains a complete [list of approved treatments for Hepatitis C](https://www.hepatitisc.uw.edu/page/treatment/drugs).20

Click on the following links to learn more about STDs in the United States:

[CDC Fact Sheet](https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/std-trends-508.pdf)

[National Overview - Sexually Transmitted Disease Surveillance, 2019](https://www.cdc.gov/std/statistics/2019/overview.htm" \l "Chlamydia)

**What is the Incidence, Prevalence, and Cost of STIs?**

Click on the following link to learn more about the incidence, prevalence, and cost estimates of STIs in the United States:

[Sexually Transmitted Infections Prevalence, Incidence, and Cost Estimates in the United States](https://www.cdc.gov/std/statistics/prevalence-2020-at-a-glance.htm)

**Prevention Techniques for STIs/STDs**

Click on the following link to learn how to prevent STIs:

[How You Can Prevent STDs](https://www.cdc.gov/std/prevention/default.htm)

**STI Treatment Options:**

The following information about the treatments for STDs and STIs is Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, is published by the US Department of Health and Human Services and found on the NICHD’s website on the page “[What are the treatments for sexually transmitted diseases and sexually transmitted infections (STDs/STIs)?](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/treatments.aspx)”:

STDs/STIs caused by bacteria or parasites can be treated with antibiotics. These antibiotics are most often given by mouth (orally). However, sometimes they are injected or applied directly to the affected area.

The treatments, complications, and outcomes for viral STIs depend on the particular virus (HIV, genital herpes, human papillomavirus, hepatitis, or cytomegalovirus). Treatments can reduce the symptoms and the progression of most of these infections. For example, medications are available to limit the frequency and severity of genital herpes outbreaks while reducing the risk that the virus will be passed on to other people.

Individuals with HIV need to take special antiretroviral drugs that control the amount of virus they carry. These drugs, called highly active antiretroviral therapy, or HAART,[1](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/treatments#f1) can help people live longer, healthier lives and can prevent onward transmission of HIV to others. If a woman with HIV becomes pregnant, these medicines also can reduce the chance that her fetus or infant will get the infection.

Getting tested and treated for STIs is especially important for pregnant women because some STIs may be passed on during pregnancy or delivery. Testing women for these STIs early in their pregnancy is important so that steps can be taken to help ensure delivery of a healthy infant. The necessary treatment will depend on the type of STI involved.

Whatever the infection, and regardless of how quickly the symptoms resolve after beginning treatment, the infected person and their partner(s) must take all of the medicine prescribed by the health care provider to ensure that the STI is completely treated. Likewise, they should follow health care provider recommendations about how long to abstain from sex after the treatment is completed to avoid passing the infection back and forth.

**Developing a Personal Plan for STI Prevention**

Complete the following lab to develop a personal plan for STI prevention.

[Plan for Change: Preventing STIs](http://media.pearsoncmg.com/bc/bc_hopson_health_2/labs/hopson2_lab14_3.pdf)

**Lesbian, Gay, Bisexual, and Transgender Resources:**

[Lesbian, Gay, Bisexual, and Transgender Health](https://www.healthypeople.gov/2020/topics-objectives/topic/lesbian-gay-bisexual-and-transgender-health)

[CDC Fact Sheet: What Gay, Bisexual and Other Men Who Have Sex with Men Need to Know About Sexually Transmitted Diseases](https://www.cdc.gov/std/life-stages-populations/stdfact-msm.htm)

**Helpful Resources and Testing Information:**

[How to Get Tested](https://gettested.cdc.gov/)

[Georgia Department of Public Health](https://nwgapublichealth.org/programs/hiv-aids/)

[AIDS Resource Council](https://npin.cdc.gov/organization/aids-resource-council)

[GHC's Student Support Services](https://www.highlands.edu/student-support-services/)

**Terminology Checklist:**

**STDs:** More than 35 infectious organisms that are transmitted primarily through sexual activity. 1

**Chlamydia**: Chlamydia1 is a common STD/STI caused by the bacterium *Chlamydia trachomatis*.

**Gonorrhea**: Gonorrhea[2](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f2) is caused by the bacterium Neisseria gonorrhoeae, which can grow rapidly and multiply easily in the warm, moist areas of the reproductive tract.

**Genital Herpes**: Genital herpes[4](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f4) is a contagious infection caused by the herpes simplex virus (HSV). There are two different strains, or types, of HSV: herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2). Both can cause genital herpes, although most cases of genital herpes are caused by HSV-2.[5](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f5)

**HIV & AIDS:** [HIV](https://www.nichd.nih.gov/health/topics/hiv), or the human immunodeficiency virus,[7](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f7) is the virus that causes AIDS (acquired immunodeficiency syndrome).

**Human Papillomavirus (HPV):** HPV[8](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f8) is the most common STD/STI. More than 40 HPV types exist, and all of them can infect both men and women.

**Syphilis:** Syphilis[10](https://www.nichd.nih.gov/health/topics/stds/conditioninfo/Pages/types.aspx#f10) infections, caused by the bacterium Treponema pallidum, are passed from person to person during vaginal, anal, or oral sex through direct contact with syphilis sores.

**[Bacterial vaginosis](https://www.nichd.nih.gov/health/topics/bacterialvag):** Bacterial vaginosis13 occurs when problematic bacteria that are normally present only in small amounts in the body increase in number. Their levels get so high that they replace normal vaginal bacteria and upset the usual balance.

**Trichomoniasis:** Trichomoniasis12 infection is caused by the single-celled protozoan parasite Trichomonas vaginalis and is common in women but also infects men, though less frequently.

**Test Your Knowledge:**

1. AIDS is always the end result for people with HIV. T F

2. There will always be symptoms present if a person has an STD. T F

3. \_\_\_\_\_\_\_\_\_\_\_ can develop over a period of years and involve the nerves, eyes, and brain and can potentially cause death.

a) Tertiary syphilis

b) HIV

c) Human Papillomavirus (HPV)

d) Hepatitis C virus (HCV)

4. List 3 clinical complications of STDs.

5. List 3 ways that you can prevent STDs.

**Answers:** 1. F, 2. F, 3. A

4. Any 3 from the chapter including:

* Reproductive health problems
* Fetal and perinatal health problems
* Cancer
* Facilitation of the sexual transmission of HIV infection

5.Any 3 from the chapter including:

* Abstinence
* Vaccination
* Reduce Number of Sex Partners
* Mutual Monogamy
* Use Condoms

**References by Section:**

**What are STDs?**

**Sexually Transmitted Diseases**

Healthy People 2020 [Internet]. Washington, DC: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion [cited [May 05, 2021]]. Available from: [https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases].

1. King K, et al. Sexually Transmitted Diseases. 4th Edition. 2007. The McGraw-Hill Companies: New York.
2. St. Louis ME, Wasserheit JN, Gayle HD, editors. Janus considers the HIV pandemic: Harnessing recent advances to enhance AIDS prevention. Am J Public Health. 1997;87:10-12.
3. Satterwhite CL, et al. Sexually transmitted infections among U.S. women and men: Prevalence and incidence estimates, 2008. Sex Transm Dis 2013; 40(3): pp. 187-193.
4. Owusu-Edusei K, et al. The estimated direct medical cost of selected sexually transmitted infections in the United States, 2008. Sex Transm Dis 2013; 40(3): pp. 197-201.
5. Centers for Disease Control and Prevention. Unpublished estimate.
6. Institute of Medicine. The hidden epidemic: Confronting sexually transmitted diseases. Eng TR, Butler, WT, editors. Washington: National Academies Press; 1997.
7. Chandra A, Stephen EH. Impaired fecundity in the United States: 1982–1995. Fam Plann Perspect. 1998 Jan–Feb;30(1):34-42.
8. Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2014. Atlanta: U.S. Department of Health and Human Services; 2015.
9. Krieger N, Waterman PD, Chen JT, et al. Monitoring socioeconomic inequalities in sexually transmitted infections, tuberculosis and violence: Geocoding and choice of area-based socioeconomic measures. Public Health Rep. 2003 May–Jun;118(3):240-60.
10. Geisler WM, Chyu L, Kusunoki Y, et al. Health insurance coverage, health-care-seeking behaviors, and genital chlamydia infection prevalence in sexually active young adults. Sex Transm Dis. 2006 Jun;33(6):389-96.
11. Institute of Medicine. Unequal treatment: Confronting racial and ethnic disparities in health care. Washington: National Academies Press; 2002.
12. Beltrami J, Wright-DeAguero L, Fullilove M, et al. Substance abuse and the spread of sexually transmitted diseases. [Commissioned paper for the IOM Committee on Prevention and Control of STDs]. Washington: Institute of Medicine; 1997.
13. Marx R, Aral SO, Rolfs RT, et al. Crack, sex, and STDs. Sex Transm Dis. 1991 Apr–Jun;18(2):92-101. [Review].
14. Brandt, A. No magic bullet: A social history of venereal disease in the United States since 1880. New York: Oxford University Press; 1985.

**What Causes Sexually Transmitted Diseases (STDs) or Sexually Transmitted Infections (STIs)?**

Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development <https://www.nichd.nih.gov/health/topics/stds/conditioninfo/causes#:~:text=Any%20STI%20can%20be%20spread,pass%20from%20person%20to%20person>.

1. Medline Plus. Sexually transmitted diseases. Retrieved December 23, 2015, from <https://www.nlm.nih.gov/medlineplus/sexuallytransmitteddiseases.html>

## **What are the Most Common Types of STIs?**

**What are some types of and treatments for sexually transmitted diseases (STDs) or sexually transmitted infections (STIs)?**

Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development

<https://www.nichd.nih.gov/health/topics/stds/conditioninfo/types>

1. Centers for Disease Control and Prevention. (2014). *Chlamydia – CDC fact sheet.* Retrieved May 27, 2016, from <http://www.cdc.gov/std/chlamydia/STDFact-Chlamydia.htm>
2. Centers for Disease Control and Prevention. (2014). *Gonorrhea – CDC fact sheet.* Retrieved May 27, 2016, from <http://www.cdc.gov/std/gonorrhea/STDFact-gonorrhea.htm>
3. Centers for Disease Control and Prevention. (2015). *HIV transmission.* Retrieved May 27, 2016, from <http://www.cdc.gov/hiv/basics/transmission.html>
4. Centers for Disease Control and Prevention. (2014). *Genital herpes – CDC fact sheet.* Retrieved May 27, 2016, from <http://www.cdc.gov/std/herpes/STDFact-Herpes.htm>
5. Xu, F., Sternberg, M. R., Kottiri, B. J., McQuillan, G. M., Lee, F. K., Nahmias, A. J., et al. (2006). Trends in herpes simplex virus type 1 and type 2 seroprevalence in the United States. *Journal of the American Medical Association, 296*(8), 964–973.
6. Marquez, L., Levy, M. L., Munoz, F. M., & Palazzi, D. L. (2011). A report of three cases and review of intrauterine herpes simplex virus infection. *Pediatric Infectious Disease Journal, 30,* 153–157.
7. Centers for Disease Control and Prevention. (2016). *About HIV/AIDS.* Retrieved May 27, 2016, from <http://www.cdc.gov/hiv/basics/whatishiv.html>
8. Centers for Disease Control and Prevention. (2016). *Genital HPV infection – CDC fact sheet.* Retrieved May 27, 2016, from <http://www.cdc.gov/std/hpv/stdfact-hpv.htm>
9. Petrosky, E., Bocchini, J. A. Jr., Hariri, S., Chesson, H., Curtis, C. R., Saraiya, M., et al. (2015). Use of 9-valent human papillomavirus (HPV) vaccine: Updated HPV vaccination recommendations of the Advisory Committee on Immunization Practices. *Morbidity and Mortality Weekly Report, 64*(11), 300–304. Retrieved May 27, 2016, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6411a3.htm>
10. Centers for Disease Control and Prevention. (2015). *Syphilis – CDC fact sheet (detailed).* Retrieved December 24, 2015, from <http://www.cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm>
11. Centers for Disease Control and Prevention. (2018). 2016 *Sexually transmitted disease surveillance.* Retrieved May 4, 2018, from <https://www.cdc.gov/std/stats16/CDC_2016_STDS_Report-for508WebSep21_2017_1644.pdf> (PDF 2.53 MB)
12. Centers for Disease Control and Prevention. (2015). *Congenital syphilis – CDC fact sheet.* Retrieved December 24, 2015, from <http://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm>
13. Centers for Disease Control and Prevention. (2015). *Bacterial vaginosis – CDC fact sheet.* Retrieved December 24, 2015, from <http://www.cdc.gov/std/bv/STDFact-Bacterial-Vaginosis.htm>
14. Centers for Disease Control and Prevention. (2015). *Trichomoniasis – CDC fact sheet.* Retrieved December 24, 2015, from <http://www.cdc.gov/std/trichomonas/STDFact-Trichomoniasis.htm>
15. Centers for Disease Control and Prevention. (2015). *2015 sexually transmitted diseases treatment guidelines: Trichomoniasis.* Retrieved December 30, 2015, from <http://www.cdc.gov/std/tg2015/trichomoniasis.htm>
16. Klebanoff, M. A., Carey, J. C., Hauth, J. C., Hillier, S. L., Nugent, R. P., Thom, E. A., et al.; National Institute of Child Health and Human Development Network of Maternal-Fetal Medicine Units. (2001). Failure of metronidazole to prevent preterm delivery among pregnant women with asymptomatic *Trichomonas vaginalis* infection. *New England Journal of Medicine, 345,* 487–493.
17. Centers for Disease Control and Prevention. (2015). *Hepatitis A questions and answers for the public.*Retrieved December 24, 2015, from <http://www.cdc.gov/hepatitis/hav/afaq.htm>
18. Centers for Disease Control and Prevention. (2015). *2015sexually transmitted diseases treatment guidelines: Viral hepatitis*. Retrieved December 30, 2015, from <http://www.cdc.gov/std/tg2015/hepatitis.htm>
19. Centers for Disease Control and Prevention. (2015). *Hepatitis B FAQs for the public.* Retrieved December 24, 2015, from <http://www.cdc.gov/hepatitis/hbv/bfaq.htm>
20. Centers for Disease Control and Prevention. (2015). *Hepatitis C FAQs for the public.* Retrieved December 24, 2015, from <http://www.cdc.gov/hepatitis/hcv/cfaq.htm>

**STI Treatment Options  
What are the treatments for sexually transmitted diseases and sexually transmitted infections (STDs/STIs)**

Courtesy: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development

<https://www.nichd.nih.gov/health/topics/stds/conditioninfo/treatments>

1. Panel on Antiretroviral Guidelines for Adults and Adolescents. (2015). Guidelines for the use of antiretroviral agents in HIV-1–infected adults and adolescents. Washington, DC: Department of Health and Human Services. Retrieved December 24, 2015, from <https://clinicalinfo.hiv.gov/en/guidelines/pediatric-arv/introduction>

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