Centers for Disease Control and Prevention
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Sexually Transmitted Diseases (STDs)

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Syphilis – CDC Detailed Fact Sheet

What is syphilis?

Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*. Syphilis can cause serious health effects without adequate treatment.

How common is syphilis?

Syphilis case reports continue to increase since reaching a historic low in 2000 and 2001. During 2020, there were 133,945 new cases of syphilis (all stages). Men who have sex with men (MSM) are experiencing extreme effects of syphilis. They account for 43 percent of all primary and secondary syphilis cases in the 2020 STD Surveillance Report. They also account for 53 percent of all male P&S cases. However, case rates are increasing among heterosexual men and women in recent years.[1] Congenital syphilis continues to be a concern in the United States. Congenital syphilis occurs when a pregnant person passes syphilis to their baby. Preliminary 2021 data show more than 2,100 cases of congenital syphilis.

How do people get syphilis?

Syphilis spreads from person-to-person by direct contact with a syphilitic sore, known as a chancre. Chancres can occur in, on, or around the penis, vagina, anus, rectum, and lips or mouth. Syphilis can spread during vaginal, anal, or oral sex. Pregnant people with syphilis also can transmit the infection to their unborn child.

How quickly do symptoms appear after infection?

The average time between acquisition of syphilis and the start of the first symptom is 21 days. However, this can range from 10 to 90 days.

What are the signs and symptoms in adults?

Many refer to syphilis as “The Great Pretender”, as its symptoms can look like many other diseases. However, syphilis typically follows a progression of stages that can last for weeks, months, or even years:

Primary Stage

A single chancre marks the onset of the primary (first) stage of syphilis, but there may be multiple sores. The chancre is usually (but not always) firm, round, and painless. It appears at the location where syphilis enters the body. These painless chancres can occur in locations that make them difficult to notice (e.g., the vagina or anus). The chancre lasts 3 to 6 weeks and heals regardless of whether a person receives treatment. However, the infection will progress to the secondary stage if the person with syphilis does not receive treatment.

Secondary Stage

Skin rashes and/or mucous membrane lesions (sores in the mouth, vagina, or anus) mark the second stage of symptoms. This stage typically starts with the development of a rash on one or more areas of the body. Rashes during the secondary stage:

- can appear when the primary chancre is healing or several weeks after the chancre heals.
- usually does not cause itching.
- may appear as rough, red, or reddish-brown spots on the palm of the hands and bottoms of the feet. However, rashes with a different appearance may occur on other parts of the body. Sometimes they resemble rashes caused by other diseases.
- may be so faint they are hard to notice.

Condyloma lata are large, raised, gray or white lesions. They may develop in warm, moist areas like the mouth, underarm or groin region.

In addition to rashes, signs and symptoms of secondary syphilis may include:

- fever
- swollen lymph nodes
- sore throat
- patchy hair loss
- headaches
- weight loss
- muscle aches
- fatigue

The symptoms of secondary syphilis will go away with or without treatment. However, without treatment, the infection will progress to the latent and possibly tertiary stage of disease.

Latent Stage

The latent (hidden) stage of syphilis is a period when there are no visible signs or symptoms of syphilis. Without treatment, syphilis will remain in the body even though there are no signs or symptoms. *Early latent syphilis* is latent syphilis where infection occurs within the past 12 months. *Late latent syphilis* is latent syphilis where infection occurs more than 12 months ago. *Latent syphilis of unknown duration* is when there is not enough evidence to confirm initial infection was within the previous 12 months. Latent syphilis can last for years.

Tertiary Syphilis

Tertiary syphilis is rare and develops in a subset of untreated syphilis infections. It can appear 10–30 years after a person gets the infection, and it can be fatal. Tertiary syphilis can affect multiple organ systems, including the:

- brain
- nerves
- eyes
- heart
- blood vessels
- liver
- bones
- joints

Symptoms of tertiary syphilis vary depending on the organ system affected.

Neurosyphilis, Ocular Syphilis, and Otosyphilis

At any stage of infection, syphilis can invade the:

- nervous system (neurosyphilis)
- visual system (ocular syphilis)
- auditory and/or vestibular system (otosyphilis).

These infections can cause a wide range of symptoms.[3]

Signs and symptoms of neurosyphilis can include:

- severe headache;
- trouble with muscle movements;
- muscle weakness or paralysis (not able to move certain parts of the body);
- numbness; and
- changes in mental status (trouble focusing, confusion, personality change) and/or dementia (problems with memory, thinking, and/or making decisions).

Signs and symptoms of ocular syphilis can include:

- eye pain or redness;
- floating spots in the field of vision (“floaters”);
- sensitivity to light; and
- changes in vision (blurry vision or even blindness).

Signs and symptoms of otosyphilis may include:

- hearing loss;
- ringing, buzzing, roaring, or hissing in the ears (“tinnitus”);
- balance difficulties; and
- dizziness or vertigo.

Healthcare providers should be aware of neurosyphilis, ocular syphilis, and otosyphilis, as well as how to diagnose and manage these infections.

How does syphilis affect a pregnant person and their baby?

When a pregnant person has syphilis, the infection can spread to their unborn baby. All pregnant people should receive testing for syphilis at the first prenatal visit. Some people will need testing again during the third trimester (28 weeks gestation) and at delivery. This includes people who live in areas of high syphilis rates or are at risk for getting syphilis during pregnancy[3].

Risk factors for getting syphilis during pregnancy include:

- sex with multiple partners;
- sex in conjunction with drug use or transactional sex;
- late entry to prenatal care (i.e., first visit during the second trimester or later) or no prenatal care;
- methamphetamine or heroin use;
- incarceration of the pregnant person or their partner; or
- unstable housing or homelessness.

Also, assess the risk for reinfection by discussing ongoing risk behavior and treatment of sex partners. Any person who delivers a stillborn infant after 20 weeks’ gestation should also receive testing for syphilis.

Depending on how long a pregnant person has had syphilis, they may be at high risk of having a stillbirth. The baby could also die shortly after birth. Untreated syphilis in pregnant people results in infant death in up to 40 percent of cases.

A baby born alive with syphilis may not have any signs or symptoms of disease. However, if treatment is not immediate, the baby may develop serious problems within a few weeks. Babies who do not receive treatment may have developmental delays, seizures, or die. Babies born to those who test positive for syphilis during pregnancy should receive congenital syphilis screening and a thorough exam. [3]

Healthcare providers should only use penicillin therapy to treat syphilis and prevent passing it to the baby. Treatment with penicillin is extremely effective (success rate of 98%) in preventing transmission to the baby. [4] Pregnant people who are allergic to penicillin should see a specialist for desensitization to penicillin.

How can healthcare providers diagnose syphilis?

Treponemal tests detect antibodies that are specific for syphilis. These tests include TP-PA, various EIAs, chemiluminescence immunoassays, immunoblots, and rapid treponemal assays. Treponemal antibodies appear earlier than nontreponemal antibodies. They usually remain detectable for life, even after successful treatment. If using a treponemal test for screening and the results are positive, perform a nontreponemal test with titer. This will confirm diagnosis and guide patient management decisions. The results may require further treponemal testing. For further guidance, please refer to the 2021 STI Treatment Guidelines. This sequence of testing (treponemal, then nontreponemal, test) is the "reverse" sequence testing algorithm. Reverse sequence testing can identify people previously treated for syphilis and those with untreated syphilis. False-positive results can occur in those with low likelihood of infection with reverse sequence testing as well.[5]

Special note: Untreated syphilis in a pregnant person can infect their developing baby. This is why every pregnant patient should have a blood test for syphilis. Healthcare providers should screen all pregnant people at their first prenatal visit. Some patients should receive a second test during the third trimester (at 28 weeks) and again at delivery. For further information on screening guidelines, please refer to the 2021 STI Treatment Guidelines.

Babies born to someone with reactive nontreponemal and treponemal test results should be evaluated for congenital syphilis. Perform a quantitative nontreponemal test on infant serum. If reactive, examine the infant thoroughly for evidence of congenital syphilis. Examine suspicious lesions, body fluids, or tissues (e.g., umbilical cord, placenta) by darkfield microscopy, PCR testing, and/or special stains. Other recommended evaluations may include:

- analysis of cerebrospinal fluid by VDRL;
- cell count and protein;
- CBC with differential and platelet count; and
- long-bone radiographs.

For further guidance on evaluation of infants for congenital syphilis, please refer to the 2021 STI Treatment Guidelines.

What is the link between syphilis and HIV?

In the United States, about half of MSM with P&S syphilis also have HIV.[2] Additionally, MSM who are HIV-negative and diagnosed with P&S syphilis are more likely to get HIV in the future. [6] Genital sores caused by syphilis make it easier to transmit and acquire HIV infection sexually. The risk of acquiring HIV increases if exposure to that infection occurs when syphilis is present. [7] Furthermore, syphilis and other STDs might indicate ongoing behaviors and exposures that place a person at greater risk for acquiring HIV.

What is the treatment for syphilis?

For detailed treatment recommendations, please refer to the 2021 CDC STI Treatment Guidelines. The recommended treatment for adults and adolescents with primary, secondary, or early latent syphilis is:

- Benzathine penicillin G 2.4 million units administered intramuscularly in a single dose

The treatment recommendation for adults and adolescents with late latent syphilis or latent syphilis of unknown duration is:

- Benzathine penicillin G 7.2 million units total, administered as 3 doses of 2.4 million units administered intramuscularly each at weekly intervals

The treatment recommendation for neurosyphilis, ocular syphilis, or otosyphilis is:

- Aqueous crystalline penicillin G 18-24 million units per day, administered as 3-4 million units intravenously every 4 hours or continuous infusion, for 10-14 days

Treatment will prevent disease progression, but it might not repair damage already done.

Selection of the appropriate penicillin preparation is important to properly treat and cure syphilis. **Combinations of some penicillin preparations are not appropriate replacements for benzathine penicillin. For example, Bicillin C-R, a combination of benzathine penicillin and procaine penicillin.** These combinations provide inadequate doses of penicillin. [8]

Data to support the use of alternatives to penicillin is limited. Options for non-pregnant patients who are allergic to penicillin may include:

- doxycycline
- tetracycline
- potentially ceftriaxone (for neurosyphilis)

Healthcare providers should use these therapies only in conjunction with close clinical and laboratory follow-up. This ensures appropriate serological response and cure. [3]

People receiving syphilis treatment should not have sex with new partners until syphilis sores completely heal. People with syphilis should notify their sex partners so they also can receive testing and treatment if necessary.

Who should receive syphilis testing?

Any person with signs or symptoms suggestive of syphilis should receive a test for syphilis. Also, anyone with an oral, anal, or vaginal sex partner who receives a recent syphilis diagnosis should receive testing.

Some people should receive testing (screening) for syphilis even if they do not have symptoms or know of a sex partner who has syphilis. Anyone who is sexually active should discuss their risk factors with a healthcare provider. They should ask their healthcare provider about testing for syphilis or other STDs.

In addition, healthcare providers should routinely test for syphilis in people who

- are pregnant;
- are sexually active MSM;
- are living with HIV and are sexually active; and
- are taking PrEP for HIV prevention.

Will syphilis recur?

After appropriate treatment, evaluating clinical and serologic response to treatment is necessary. However, even following successful treatment, reinfection can occur. People who experience reinfection or treatment failure likely

- have signs or symptoms that persist or recur, or
- have a continuous fourfold increase in nontreponemal test titer.

For further details on the management of persistent syphilis or reinfection, refer to the 2021 STI Treatment Guidelines.

Asymptomatic chancres can be present in the vagina, rectum, or mouth. Therefore, it may not be obvious that a sex partner has syphilis. For further details on the management of sex partners, refer to the 2021 STI Treatment Guidelines.

How can someone prevent syphilis?

Condoms, when used correctly every time someone has sex can reduce the risk of getting or giving syphilis. Condoms offer protection when the condom covers the infected area or site of potential exposure. However, syphilis transmission can occur with lesions not covered by a condom.

The only way to completely avoid syphilis is to not have vaginal, anal, or oral sex. Another option is to be in a long-term mutually monogamous relationship with a partner who does not have syphilis.

Partner-based interventions include partner notification – a critical component in preventing the spread of syphilis. Sexual partners of patients with syphilis are at risk and should receive treatment per the 2021 STI Treatment Guidelines.

Sources

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