

# Syphilis

## Summary

Syphilis is a sexually transmitted infection (STI) that is passed through contact with a syphilis lesion (sore or chancre). Outbreaks of syphilis have been reported in every major Canadian urban centre, particularly among men who have sex with men (MSM). In recent years, the number of new cases has risen dramatically.

Symptoms of early syphilis vary considerably—from a painless chancre, a sore or a rash, to a fever, headache, problems with vision or more serious symptoms. Sexually active people should have blood tests for syphilis at least once a year and in some cases, more often (such as every three months). If caught early, syphilis can be treated effectively. If left untreated, syphilis can become a serious chronic disease.

In HIV-positive people, syphilis can cause damage faster and sometimes be harder to treat than in HIV-negative people. People infected with both syphilis and HIV can also transmit HIV more easily.

Key messages on syphilis for clients are available at the end of this fact sheet.

## What is syphilis?

Syphilis is the name given to an infection caused by the bacteria *Treponema pallidum*, or *T. pallidum*. This disease can be spread when one person comes into contact with syphilis lesions (sores or chancres). For example, it can be passed through:

- wet kissing
- anal, oral or vaginal sexual contact
- sharing sex toys
- sharing equipment for injecting, smoking or snorting drugs
- pregnancy or birth from an infected mother to her child

# FACT SHEET

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The germs that cause syphilis (called treponemes or spirochetes) can cause lesions, sores or ulcers on the genitals, and inside the rectum and mouth. These sores can be an entry point for HIV and other STIs to get inside the body. Once inside the body, treponemes can enter the lymphatic system or the bloodstream. In a matter of hours or days, treponemes can quickly spread throughout the body and reach the brain.

## Who is at risk for syphilis?

All people who are sexually active can be at risk for syphilis. People living with HIV are at greater risk of acquiring syphilis than HIV-negative people. Both men and women can get syphilis but more cases have been reported among men than women. Most of the new cases reported have been in men who have sex with men.

## Symptoms

Many people with syphilis initially experience no symptoms (however, they can transmit syphilis and remain at risk for complications). Others experience a variety of symptoms that can range from mild to severe. If left untreated, syphilis can cause serious illness.

### Primary syphilis

In the early stages of syphilis, a lesion (sore) can appear on or inside the penis, vagina, rectum or mouth, usually two to three weeks after infection. In people co-infected with HIV, multiple lesions may appear. Because the lesions may be painless and may develop in hidden locations, early-stage syphilis in both men and women can go unnoticed.

Lymph nodes in the groin may become swollen, usually within a week of the syphilitic lesion appearing. Although the lesion can heal within four to six weeks, lymph nodes may remain swollen for several months.

However it is important to know that early-stage syphilis can have minimal or no symptoms and may go unnoticed by affected people. This is why frequent testing for syphilis is important for sexually active people. Troublingly, treponemes have been

found in the spinal fluid of people with primary syphilis, regardless of whether they are HIV positive or negative. This means that the germs that cause syphilis have penetrated the central nervous system and can attack the brain. When this occurs, neurosyphilis can develop.

### Secondary syphilis

At this stage, generally two to 12 weeks after the lesion appears, symptoms of widespread infection can occur. Symptoms can vary considerably but the following are common:

- rash
- low-grade fever
- lack of energy
- sore throat
- lack of appetite

The rash can begin on the trunk but may also appear elsewhere, for example, on the palms of the hands and soles of the feet. If the rash affects a hairy area, temporary patchy hair loss can occur. For instance, thinning of the eyebrows, beard or parts of the head can be a feature of syphilitic rash.

Painless lesions, called mucous patches, can appear on the wet tissues of the genitals, mouth, throat and tonsils. These lesions are teeming with treponemes and are highly infectious.

In up to 40% of people with secondary syphilis, the brain and spinal cord (the central nervous system — CNS) can become infected, with or without symptoms. Some people may experience the following symptoms:

- ringing in the ears
- decreased ability to hear clearly
- difficulty seeing clearly
- headache

### Late syphilis (tertiary syphilis)

Without treatment, secondary syphilis turns into late syphilis (also called latent or tertiary syphilis). This can develop from two to thirty years after

infection. At this stage, no symptoms are present and the infection can only be detected with blood tests. However, the disease continues to cause damage.

At this stage of illness, any organ of the body may slowly become inflamed and affected by *T. pallidum*. Late syphilis can affect the nervous system (neurosyphilis, which can amplify HIV-related neurocognitive problems), the heart and blood vessels (cardiovascular syphilis), the liver (which can cause liver damage or hepatitis), the kidneys, eyes or just about any organ system.

If left untreated, late-stage syphilis can eventually lead to complications, including the following:

- difficulty falling asleep
- problems with vision
- peripheral neuropathy (damage to the nerves of the peripheral nervous system)
- problems getting and maintaining an erection
- changes in personality
- poor memory
- decreased capacity for insight and good judgment
- meningitis
- poor control of muscles
- damaged joints
- seizures
- stroke

In rare cases, untreated syphilis can be life-threatening.

### **Syphilis passed from mother to baby (congenital syphilis)**

When a woman is infected with syphilis while pregnant, the disease can cause miscarriage, stillbirth or the death of a newborn. Most babies born with syphilis have no symptoms although some may have a rash. If the syphilis is not treated, babies can have developmental problems, seizures and other serious health issues.

## **Testing and Diagnosis (Screening)**

Syphilis is commonly diagnosed using blood tests that detect antibodies to proteins unrelated to *T. pallidum* but which occur in cases of syphilis. Blood tests commonly used to help diagnose syphilis include the following:

- VDRL (venereal disease research laboratory)
- RPR (rapid plasma reagin)

In people with primary syphilis or latent syphilis, these indirect tests do not always work. If syphilis is suspected but the test produces a negative result, the Public Health Agency of Canada (PHAC) recommends that doctors repeat the test several weeks later and also consider using tests that look specifically for antibodies to *T. pallidum*. These tests include:

- treponemal enzyme immunoassay (EIA)
- FTA-ABS
- MHA-TP

Some provincial laboratories reverse the order of these tests and first use tests that assess the presence of antibodies to *T. pallidum*. For more information about which tests are available in your region and the order of tests used, contact your doctor or local laboratory.

In some cases, syphilis can also be diagnosed by swabbing an infectious chancre and examining the sample under a microscope.

Screening is recommended for sex partners who may have syphilis, men who have sex with men, injection drug users, sex workers and people who have had sex with people from endemic countries. Because untreated syphilis in a pregnant woman can infect and potentially harm her developing fetus or newborn, every pregnant woman should get tested.

Researchers in the Netherlands have suggested that routine assessment of blood for syphilis may be useful in HIV-positive MSM because syphilis can, at least initially, be symptom-free.

## Notification of partners

Syphilis is a reportable infection. This means that when an infection is confirmed by a clinic, doctor, or laboratory it must be reported to public health authorities. When someone has a confirmed syphilis diagnosis, they will be asked by the healthcare provider or public health nurse to contact or provide contact information for all their sexual partners during their trace-back period (the time period before symptoms started or if asymptomatic, the time prior to specimen collection) based on their stage of syphilis.

The trace-back periods for syphilis stages are:

- primary syphilis – three months
- secondary syphilis – six months
- early latent – one year
- late latent/tertiary – depending on the estimated time of original infection, long-term partners (spouses) and children should be screened.

If no partners in the recommended trace-back period test positive for syphilis, the next most recent partner outside of the trace-back period should be notified.

If the client chooses not to contact their sexual partners, the healthcare provider or public health nurse will attempt to contact the partners and encourage them to be tested and treated for syphilis. The name of the original client is not given to the sexual partners when they are contacted in an attempt to retain their anonymity. PHAC recommends that all notified partners be treated without waiting for test results.

## Treatment

An antibiotic called **benzathine penicillin G** is considered the gold standard of anti-syphilis therapy. If syphilis is diagnosed within a year of infection, it can usually be treated with a single injection of this type of penicillin (a single dose of 2.4 million units injected into muscle, usually in the buttocks). It is important to note that this dose is inadequate for people with neurosyphilis.

People who have had syphilis for more than a year need to take higher doses of the medication for longer. In cases of neurosyphilis Canadian guidelines recommend an intravenous formulation of penicillin, such as **penicillin G**. When used to treat neurosyphilis, this intravenous formulation of penicillin is given in a dose of several million units every four hours for between 10 and 14 days. Some doctors may decide to use a longer period of treatment depending on the severity of symptoms.

Antibiotics such as **doxycycline** impair the growth of treponemes and are sometimes used in patients who are allergic to penicillin. Bear in mind that unlike penicillin, doxycycline does *not* kill treponemes and may be less effective in people with severely weakened immune systems. For people who are allergic to penicillin and for pregnant women with syphilis, some experts prefer to desensitize their patients to penicillin. This involves giving people tiny but gradually increasing amounts of penicillin under close medical supervision, until they are able to tolerate a complete dose.

The antibiotic azithromycin (Zithromax) has also been used to treat syphilis; however, cases of syphilis resistant to azithromycin have been reported in Canada, the United States and other countries, particularly among MSM. PHAC does not recommend the use of this antibiotic for the routine treatment of syphilis. Similarly, the antibiotic ceftriaxone is not recommended for routine treatment of syphilis in Canada.

## What about HIV infection?

The treatment of syphilis in people co-infected with HIV is controversial. Some physicians favour using the same therapy that would be used in HIV-negative people—a single intramuscular injection of benzathine penicillin. Others opt for more rigorous therapy for HIV-positive people, due to the following factors:

- There is a high risk of treponemes invading the brain, even in primary syphilis, so a single injection of penicillin may be inadequate.

- HIV-positive people are at high risk for neurological problems and neurosyphilis may increase this risk.
- HIV infection weakens the immune system and possibly its ability to control syphilis.
- Syphilis is a relatively common STI among sexually active MSM.

Such considerations have prompted some physicians to use benzathine penicillin, injected intramuscularly, once a week for three consecutive weeks, as treatment in HIV-positive people for primary or secondary syphilis.

Alternatively, physicians may opt for the antibiotic doxycycline taken orally twice daily for two to four consecutive weeks. Although effective in early-stage syphilis, doxycycline has not been tested for late-stage syphilis. Some syphilis experts recommend desensitization to penicillin in patients with an allergy to penicillin, followed by penicillin treatment.

For neurosyphilis, regardless of a person's HIV infection status, PHAC recommends therapy with penicillin for 10 to 14 days.

PHAC has excellent guidelines (*Canadian Guidelines on Sexually Transmitted Infections*) for the management of patients with syphilis, including a penicillin desensitization plan.

## Sex after syphilis

It takes time for treponeme levels to decrease and for your body to recover from syphilis. Even though you may feel better after syphilis treatment, there may still be treponemes lurking in your body. Your doctor will order blood tests to let you know when your body has recovered and when it is safe for you to resume sexual activity.

PHAC recommends re-screening for syphilis three, six and 12 months after treatment for those not co-infected with HIV. PHAC outlines specific treatment plans based on the patient and type of syphilis.

## Prevention

To prevent the transmission of syphilis, you can:

### Practise safer sex.

- Use latex or polyisoprene condoms and/or oral dams for all sexual activities, including oral sex. (This does not eliminate the chance of transmission because a syphilis lesion may be in an area not covered by a condom or oral dam, but consistent use reduces the risk.)
- Talk to your sex partners about their history of STIs.
- If you or your partner notice any unusual discharge, a sore or a rash, especially around the groin, avoid having sex and see your doctor as soon as possible.

### Get tested and treated.

- Get tested regularly for syphilis. If you are a pregnant woman, get tested early on in your pregnancy.
- If you test positive, treat the infection as soon as possible and notify your sex partner(s), so they can get tested too. It is important that the people you have had sex with know that they may have been exposed to syphilis; however, doing this is not always easy. So ask your doctor or nurse for a referral to your local public health department, which can discreetly inform your sexual partner(s) of their need for syphilis testing.

### If you use drugs, avoid sharing drug equipment.

For more information about syphilis and HIV, see "The story of syphilis" in *The Positive Side* magazine (Spring/Summer 2004).

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## Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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# What you need to know about syphilis

Syphilis is a sexually transmitted infection (STI) that is most easily passed on by contact with a syphilis sore during sex. Early on, it can cause sores on or in the genitals, anus or mouth. The infection can be cured with a single dose of penicillin, and there are ways to lower the chance of getting or passing on syphilis, such as using a condom each time you have sex.

**The words we use here** – CATIE is committed to using language that is relevant to everyone. People use different terms to describe their bodies. This text uses medical terms, such as vagina and penis, to describe genitals. Other people may use other terms, such as private parts or dick or front hole. CATIE acknowledges and respects that people use words that they are most comfortable with.

## What is syphilis?

Syphilis is a sexually transmitted infection (STI). It can cause sores on or in the genitals, anus, rectum, and/or lips and mouth and can lead to other health complications. A person with syphilis can pass it on to another person during sex.

Many people with syphilis have no symptoms, so they don't know they have syphilis. When symptoms of initial infection do occur, they usually take 2 to 3 weeks to appear. Untreated syphilis progresses through stages. Common symptoms vary depending on the stage.

**Primary syphilis:** A painless sore appears at the site of infection but will heal in 3 to 6 weeks with or without treatment. Because many people do not see the sore, they are not aware of the infection.

**Secondary syphilis:** A non-itchy rash may appear, most commonly on the chest, stomach, genitals, palms of the hands and soles of the feet, 2 weeks to 3 months after infection, and it may last for 2 to 6 weeks. Additional sores may also appear. Fever, headache, muscle ache, lack of appetite and fatigue can occur.

**Late syphilis (tertiary stage):** Without treatment, secondary syphilis turns into late syphilis (also called latent or tertiary syphilis). This can develop from 2 to 30 years after infection. Initially, the infection may show no signs but the syphilis germs are injuring tissues. Eventually, the injury to important organs, such as the eyes, skin, bones, liver, kidneys and heart, can cause symptoms.

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Neurosyphilis: Syphilis can affect the brain. This is called neurosyphilis. In cases where the brain is affected, changes in personality can occur, as can problems with thinking clearly and memory. Neurosyphilis can occur at any stage of syphilis.

## Could I get syphilis?

Anyone who is sexually active, including people who experience sexual violence, can get syphilis.

Syphilis can be passed on:

- during vaginal sex or anal sex without a condom
- when a person with syphilis in their mouth or throat gives oral sex to another person
- when a person gives oral sex to a person who has syphilis in or on their genitals
- through oral-anal contact (rimming)
- through sharing sex toys or during a hand job or fingering if syphilis germs get onto the sex toy or hand

## Syphilis and HIV

Having syphilis increases the chance of getting HIV. People whose HIV is not well treated may be at increased risk for passing on HIV if they also have syphilis. People with HIV may also experience brain complications earlier and more severely than people without HIV. Individuals with HIV may require a longer course of medication to treat syphilis.

## What can I do?

### Prevent infection

Using a condom during anal or vaginal intercourse may help to lower the chance of getting or passing on syphilis.

Using a condom or oral dam during oral sex may help to lower the chance of getting or passing on syphilis.

There is no vaccine to protect against syphilis.

### Get tested

The only way to know for sure whether or not you have syphilis is to get tested. A doctor or nurse can do the test. If the infection is in the primary or secondary stages, tests can involve blood tests or testing fluids taken from a sore.

It is a good idea to get tested for other sexually transmitted infections (STIs), including HIV, when you get tested for syphilis. Other STIs can be passed on in the same way as syphilis. Talk to your healthcare provider about how often you should be tested for syphilis and other STIs.

If you are diagnosed with syphilis, a public health staff person will talk to you about informing your sex partners that they might have been exposed to syphilis and encouraging them to get tested. Your identity will not be revealed.

### Get treated

Syphilis can be cured with a single dose of penicillin if diagnosed within the first year of infection. People with HIV and those infected for longer than one year may require more medication for a longer period.

After treatment is completed, you should wait 7 days before having sex again. If you have a lesion or rash, you should wait until the symptoms disappear before having sex again.

Once you are cured, you cannot pass on syphilis to your sex partners. But you can be infected again. Being treated for syphilis does not protect you from getting syphilis in the future.

**This information sheet was developed in partnership with the Sex Information and Education Council of Canada (SIECCAN).**



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