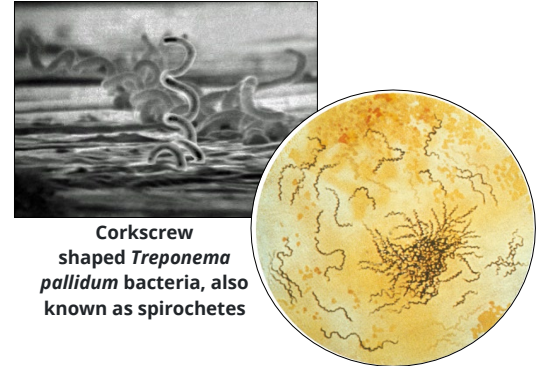




**Syphilis**

Syphilis is a sexually transmitted infection (STI) caused by a corkscrew-shaped bacteria called *Treponema pallidum*. Throughout history, syphilis has had some major impacts on the world. If you are interested in more information on the history and origins of syphilis, you can see [Origins of Syphilis](#), [A Medieval French Skeleton Is Rewriting the History of Syphilis](#), and [Revisiting the Great Imitator: The Origin and History of Syphilis](#).




Corkscrew shaped *Treponema pallidum* bacteria, also known as spirochetes

Syphilis spreads person to person during vaginal, anal, or oral sex or other similar close intimate contact. It doesn't spread by casual contact with items such as doorknobs, toilet seats, towels, or clothing. Using condoms and other barriers during sex lowers the risk of getting syphilis but it can still spread if there is an infectious syphilis sore not covered by the condom or barrier.

**Signs and Symptoms of Syphilis**

**Syphilis** is a bacterial infection typically spread through sexual contact. Congenital syphilis occurs when infection is passed from parent to fetus during pregnancy and can result in stillbirth, infant death, or other health issues.

 Syphilis can present at different stages, so early diagnosis and treatment are important to prevent disease progression and transmission to others.

Stage	Time period	Symptoms
Primary	10-90 days after infection	Painless ulcer (chancre) on the genitals or mouth Typically heals on its own within 3-6 weeks
Secondary	Varies, typically 4-10 weeks after primary stage	Full-body rash (can involve palms of hands and soles of feet) and flu-like symptoms (eg, fever, headache, sore throat)
Latent	After untreated secondary syphilis	No symptoms but the infection is still present Can still be transmitted congenitally
Tertiary	Years or decades after initial infection	May cause damage to the brain, nerves, eyes, heart, blood vessels, liver, bones, and joints May be life-threatening

**Neurosyphilis** (infection of the brain and spinal cord) can occur at any stage and cause meningitis, stroke, hearing loss, blindness, paralysis, and dementia.

Syphilis can lead to lifelong suffering, disability, and death. Unlike most other STIs, syphilis can cause a variety of unusual symptoms at various stages of infection. Infection during pregnancy can pass to the fetus causing a serious infection called congenital syphilis.

The different stages of syphilis are primary, secondary, latent, and tertiary. Primary syphilis, or the earliest part of the infection, causes a painless ulcer called a chancre. This chancre will appear where the germ first entered the body, either on the genitals, anus, mouth, or other parts of the body. On average, the chancre forms about 3 weeks after the infection happened, but it may develop as soon as 3 days to as long as 3 months after. The chancre may go unnoticed because it is painless. The chancre usually goes away on its own in 3 to 6 weeks even without treatment.

Secondary syphilis happens when the bacteria move from the chancre into the blood stream and spreads throughout the body. If the primary stage is not treated, secondary syphilis will develop in about 1 in 4 people that are infected, usually within weeks to a few months. Secondary syphilis can cause a wide variety of symptoms such as fever, headache, sore throat, feeling unwell, muscle aches, weight loss, patchy hair loss, and swollen lymph nodes. The most classic symptom in secondary syphilis is a rash, which can be all over the body including the palms of the hands and soles of the feet. Sores or large, raised growths called condylomata lata may form on mucus membranes like the mouth, tongue, or genital areas. Injury to the liver (hepatitis), ulcerations in the stomach and intestines, inflammation of the bones and joints, and kidney damage can also occur.

Without treatment, the symptoms of secondary syphilis usually go away on their own. This phase without symptoms is called latent syphilis. Latent syphilis is further divided into early latent and late latent. It is considered

early latent infection if the infection started within the past year and late latent if the infection started more than a year ago. Even though there are no symptoms, the syphilis infection is still in the body.

About 25% to 40% of those that don't get treatment will go on to develop symptoms of late syphilis disease, called tertiary syphilis. This can happen any time from 1 to 30 years after the infection started. The infected person may never have had or noticed symptoms of syphilis before. Tertiary syphilis can cause a wide variety of symptoms. It can affect the cardiovascular system, causing enlargement of the upper part of the aorta, called an aneurysm. This can result in a heart valve problem and heart failure. It can also affect the arteries in the heart, causing them to narrow and block. A less common symptom in tertiary syphilis is the formation of gumma, which are tumor-like growths caused by inflammation that can occur anywhere in the body. The gumma destroys the tissue where they are growing. Syphilis can affect the nervous system at any stage of infection, but especially during the tertiary phase. It can cause headaches, meningitis, stroke, hearing loss, blindness, paralysis, and dementia. Conditions that happen during tertiary syphilis include general paresis, which is a type of dementia caused by syphilis, and tabes dorsalis, which causes weakness, problems walking, pain, and abnormal sensations.

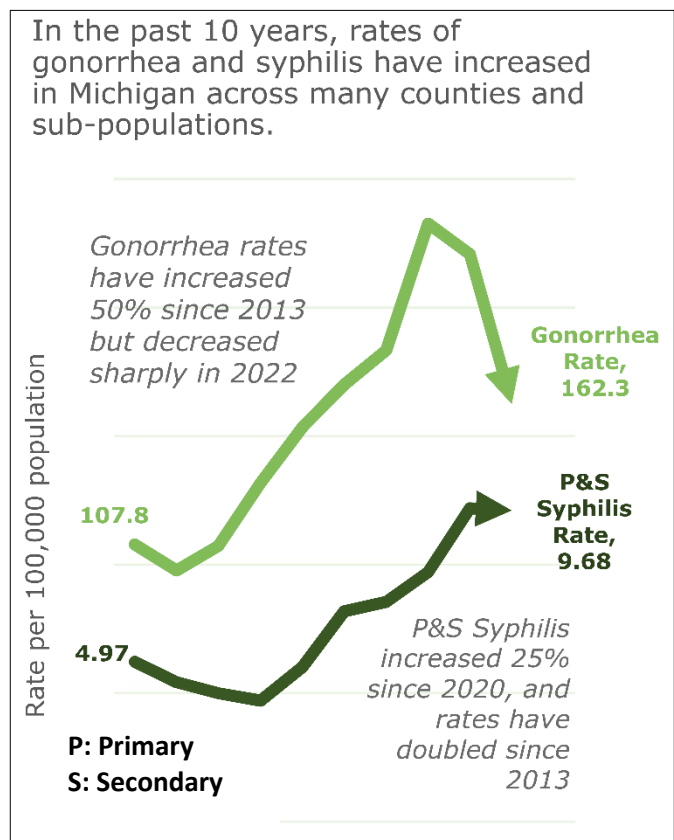
Pregnant women with syphilis can pass it their fetus, which is called congenital syphilis. When the bacteria pass to the fetus, it is in the blood circulation and spreads to almost all organs of the fetus. Of pregnant women with early syphilis infections that do not get treated, 40% with end up having a miscarriage. Other serious and common complications of congenital syphilis are stillbirth, infant death, early birth, and low birth weight. For children that are born with congenital syphilis, most show no symptoms at birth but start to show symptoms by 3 months of age on average. Some children may not have any symptoms for years. Congenital syphilis can cause a wide variety of symptoms such as enlarged liver and spleen, skin rashes, peeling skin, eye and vision damage, hearing loss, anemia, abnormalities and deformities of the teeth, bones, and face, and developmental delay.

### Increases in Cases in U.S. and Michigan

The rates of new syphilis infections in the U.S. have been increasing over the past 20 years. More than half of the new cases have been reported in men who have sex with men (MSM), but there have been increases in the number of women with syphilis, leading to more cases of congenital syphilis.

Rates of congenital syphilis in the U.S. have steadily risen since 2012. In Michigan, the number of women of child-bearing age (15 to 45 years of age) and the number of pregnant women with any stage of syphilis has tripled since 2018. Last year, 37 newborns in Michigan were reported to have congenital syphilis, which is more than double the number in 2018.

[Public Act 538 of 2018](#) requires health care providers test for pregnant women for syphilis at the first prenatal visit, and again early in the third trimester. There has been an increase in testing for syphilis in pregnant women, but despite this nearly half of pregnant women still do not get the syphilis testing that is required by Michigan law.



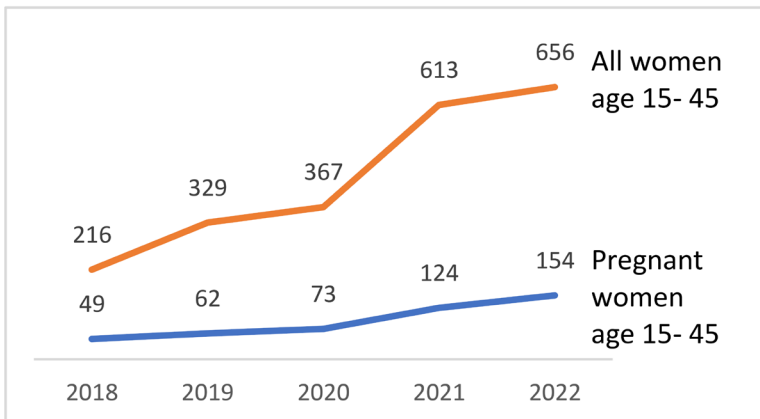


Fig. 1: Michigan syphilis (all stages) among women of child-bearing age

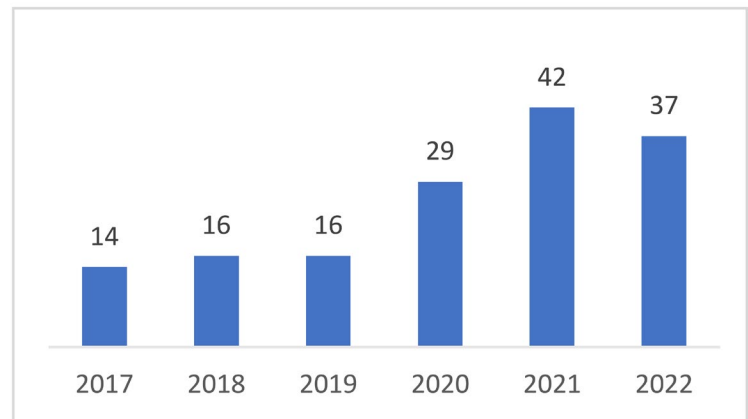


Fig. 3: Michigan congenital syphilis diagnoses

Congenital Syphilis Reports by Local Health Jurisdiction, 2022			
	count	rate per 100,000	live births*
Calhoun County	2	129.4	1,545
Detroit City	18	225.2	7,994
District 10	1	48.1	2,080
Genesee County	2	45.2	4,425
Jackson County	2	120.0	1,667
Kalamazoo County	2	72.5	2,760
Kent County	1	12.2	8,195
Lenawee County	1	119.0	840
Macomb County	2	22.8	8,787
Mid-Michigan District	1	56.0	1,785
Oakland County	2	15.5	12,876
Wayne County	3	22.4	13,368

### Testing and Screening

Testing for syphilis is done by blood tests for antibodies showing signs of possible infection with syphilis. If the first test is positive, a second blood test is performed to confirm the diagnosis. In addition to those with symptoms of syphilis or recent exposure to syphilis, there are recommendations for syphilis screening which are listed in the table below.

Syphilis Screening Recommendations	
<b>Women</b>	<ul style="list-style-type: none"> <li>Screen women at increased risk for syphilis infection (history of time in jail/prison, sex work, living in areas of higher levels of syphilis, history of drug use, of a higher risk demographic)</li> </ul>
<b>Pregnant Women</b>	<ul style="list-style-type: none"> <li>Screen all pregnant women at the first prenatal visit</li> <li>Retest early in the third trimester and at delivery if at high risk for syphilis infection (living in areas of higher levels of syphilis or is at risk for getting syphilis during pregnancy [history of drug use, other STIs during pregnancy, has had multiple partners or a new partner, has had partner with STIs, etc.])</li> </ul>
<b>Men Who Have Sex with Women (MSW)</b>	<ul style="list-style-type: none"> <li>Screen adults at increased risk for syphilis infection (history of time in jail/prison, sex work, living in areas of higher levels of syphilis, history of drug use, of a higher risk demographic, and being a male younger than 29 years)</li> </ul>
<b>Men Who Have Sex with Men (MSM)</b>	<ul style="list-style-type: none"> <li>Screen sexually active MSM at least once a year</li> <li>Screen every 3 to 6 months if at increased risk for syphilis infection (history of time in jail/prison, sex work, living in areas of higher levels of syphilis, history of drug use, of a higher risk demographic, and being a male younger than 29 years)</li> </ul>
<b>Transgender and Gender Diverse People</b>	<ul style="list-style-type: none"> <li>Consider screening at least once a year based on reported sexual behaviors and exposure</li> </ul>
<b>Persons with HIV</b>	<ul style="list-style-type: none"> <li>For sexually active individuals, screen at first HIV evaluation, and at least once a year after that</li> <li>More frequent screening might be appropriate based on individual risk behaviors and the local levels of syphilis</li> </ul>

Source: <https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm>

## Treatment

The best treatment for syphilis is injectable penicillin (Benzathine penicillin G, or Bicillin LA). The length of treatment needed depends on the stage of syphilis and whether any signs of neurosyphilis are present. There are a couple of other treatments that can be used if the patient is allergic to penicillin or if penicillin is not available. Only penicillin is recommended to treat syphilis during pregnancy to prevent congenital syphilis.

There have been worldwide shortages of the injectable penicillin used for syphilis over the past decade. Currently in the U.S. there is a severe shortage of Bicillin LA. Pfizer is the sole supplier of this medication and they have reported manufacturing issue due to problems with their supply chain. There has also been increased demand due to the increased numbers of syphilis infections in the United States. The limited number of doses have had to be reserved for pregnant women and women of childbearing age, with second line antibiotics used for all other people. There is a real danger the supply of penicillin will run out which will be a true public health crisis.

## Recommendations:

1. Support efforts to prevent and correct critical drug shortages. For more information, see the report of the inter-agency Drug Shortage Task Force, which was led by FDA: [Drug Shortages: Root Causes and Potential Solutions](https://www.fda.gov/drugs/drug-shortages/report-drug-shortages-root-causes-and-potential-solutions) (<https://www.fda.gov/drugs/drug-shortages/report-drug-shortages-root-causes-and-potential-solutions>)
2. Support recommended STI testing and appropriate safer sex programming.
  - a. For local information see <https://www.dhd10.org/sexualhealth/sti-hiv/>, <https://www.mmdhd.org/hiv/>, and <https://www.cmdhd.org/testing>.
  - b. For free, in-home, anonymous, mail-in testing, see <https://takemehome.org/>.
  - c. Find mail-order condoms at <https://www.dhd10.org/mail-order-condoms/>, <https://caresswm.org/condoms/>, and here: [Condom order form](#).
3. Support appropriate community information sharing about STI illnesses and testing recommendations.
  - a. A simple list of screening recommendations can be found here <https://www.cdc.gov/std/prevention/screeningreccs.htm>.
  - b. Basic and detailed fact sheets about all STIs can be found here [https://www.cdc.gov/std/healthcomm/fact\\_sheets.htm](https://www.cdc.gov/std/healthcomm/fact_sheets.htm).
  - c. Information to help people talk to their healthcare providers about testing and sexual health can be found at the Take Charge of Your Sexual Health <https://www.ncshguide.org/>.

## Sources

- Up To Date: Chapters on syphilis epidemiology, clinical manifestations, congenital syphilis
- CDC: Sites on syphilis and Bicillin LA shortage
- JAMA Patient Page. 2023. What Is Syphilis? [https://jamanetwork.com/journals/jama/fullarticle/2804366?utm\\_campaign=articlePDF&utm\\_medium=articlePDFlink&utm\\_source=articlePDF&utm\\_content=jama.2023.2897](https://jamanetwork.com/journals/jama/fullarticle/2804366?utm_campaign=articlePDF&utm_medium=articlePDFlink&utm_source=articlePDF&utm_content=jama.2023.2897)
- MDHHS. August 2023. Maternal and Congenital Syphilis in Michigan Fact Sheet. <https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Keeping-Michigan-Healthy/HIVSTI/Data-and-Statistics/2023/Maternal-and-Congenital-Syphilis-in-Michigan-Fact-Sheet.pdf?rev=027f8dc9bc734234861b4e0f82c6725f&hash=D47EA87AAC6F69BA8FADA4A72A60763C>
- MDHHS. April 2022. STI Fact Sheet, 2022. <https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Keeping-Michigan-Healthy/HIVSTI/Data-and-Statistics/2022/2022-STIs-in-Michigan-Fact-Sheet.pdf?rev=bba9e1ebc1c6433da45293f2e8457a17&hash=C007FC803AC49C938FDF8C380350939A>
- MDHHS. 2023. STI Diagnoses in Michigan, 2022. <https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Keeping-Michigan-Healthy/HIVSTI/Data-and-Statistics/2022/2022-STIs-in-Michigan-Tables-Summary.pdf?rev=92bf78dfb8c04b6598380ade4e2297d5&hash=21E14AB375BFE0B2958C2F142BB7B413>