

A Publication of the Genesee County Health Department

## Syphilis at a Glance

**S**yphilis is a curable genital ulcerative disease caused by the bacterium *Treponema pallidum*. It is a highly infectious organism that is primarily spread through sexual contact with a 60% transmission probability. Infection with syphilis bacteria causes a systemic disease that manifests in stages if left untreated. The disease increases the risk of transmitting and acquiring HIV (human immunodeficiency virus) by 3- to 5-fold and may be important in contributing to HIV transmission in those parts of the country where rates of both infections are high. *T. pallidum* can also be transferred across the placenta with infection of the fetus of a pregnant woman in 80% of cases. Perinatal death can result in up to 40% of cases or the baby can be born with serious mental and physical problems.

**T**he rate of syphilis infection dramatically decreased in the 1950s due to the discovery of penicillin, which is still the drug of choice, as a successful treatment for the disease. In the year 2000, the rate of primary and secondary (P&S) syphilis in the United States (US) was the lowest ever recorded. Between 2006 and 2007, syphilis cases increased 15.2%, indicating the 7<sup>th</sup> consecutive yearly increase in syphilis in the US. Increases in P&S syphilis cases have been in part due to outbreaks among high risk behavior groups including illicit drug users and men who have sex with men leading to an increase in the male to female ratio of P&S syphilis cases, but 2007 marked the 3<sup>rd</sup> consecutive increase in cases among women. Even more alarming is the increase in the rate of congenital syphilis after a 14 year decline. Among adults, most P&S syphilis in 2007 cases occurred in persons 25 to 29 years of age. Recent increases in the P&S syphilis rate have been documented among all race groups. Although the disparity in rates between Whites and African Americans had declined over time, African Americans have had a larger burden of syphilis with a 6-fold higher rate in 2007. Michigan is considered a low morbidity state for syphilis. In 2007, 123 cases of P&S syphilis were reported in Michigan representing a rate of 1.2 cases per 100,000. Of those, 69 (50.4%) were reported from the city of Detroit which has historically had the highest rates of infectious syphilis in Michigan.

**S**yphilis morbidity in Michigan has recently changed. In April 2008 the Genesee County Health Department (GCHD) announced that Flint and Genesee County were experiencing a significant outbreak of infectious syphilis. In 2008, 131 cases of infectious syphilis were reported in Genesee County, representing a 600% increase compared to 2007. The outbreak is

primarily among heterosexuals (1:1 male to female ratio) and individuals with high risk behaviors. These behaviors include substance use, having multiple partners, and trading sex for drugs or money. The median age among the cases in the outbreak is 29 years. The majority of cases live in the city of Flint and a large racial disparity is seen among the cases, with over 85% of cases among African Americans. As a result of the high rate of infection in females, 7 cases of congenital syphilis were reported in Genesee County in 2008.

**S**yphilis has often been called “the great imitator” because many of the signs and symptoms are indistinguishable from those of other diseases. The primary stage of syphilis manifests 10 to 90 days after infection and is marked by the appearance of a single painless chancre at the site of inoculation, but there may be multiple sores. The chancre lasts 3 to 6 weeks and will heal without treatment. Two to 12 weeks after initial infection secondary stage symptoms appear and are characterized by a generalized skin rash and mucous membrane lesions. The rash of secondary syphilis appears as rough, red, or reddish brown spots often involving the palms of the hands and soles of the feet. The degree of severity of the rash varies and it may be subtle and mimic other dermatologic diseases. Systemic symptoms of secondary syphilis that can commonly occur during this stage include lymphadenopathy, fever, alopecia, headaches, weight loss, malaise, and fatigue. Other symptoms may include mucus lesions, condylomata lata, and meningitis. The signs and symptoms of secondary syphilis will resolve with or without treatment, but the infection will progress to the latent stages of disease during which no symptoms are present for a long period of time. People who are not treated will eventually develop complications of tertiary syphilis in which the bacteria damage the heart, eyes, brain, nervous system, bones, joints, or almost any other part of the body. This stage can last for years, or even for decades. Tertiary syphilis can result in mental illness, blindness, other neurologic problems, heart disease, and death. Co-infection with HIV increases the risk of neurological involvement and greatly accelerates the progression to neurosyphilis.

*The purpose of this newsletter is to inform the community and health care providers in Genesee County about disease trends in the county. We welcome any comments or questions. Contact Fatema Mamou, MPH, Epidemiologist, at (810) 768-7971 or email [fmamou@gchd.us](mailto:fmamou@gchd.us)*

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Initial screening for syphilis is performed with one of the nontreponemal antibody tests, the Venereal Disease Research Laboratory (VDRL) test, or the Rapid Plasma Reagin (RPR) test. These tests are very sensitive, but not necessarily specific for syphilis. The specific treponemal tests include the Fluorescent Treponemal Antibody Absorbed (FTA-ABS) and *T. pallidum* particle agglutination (TP-PA). Compared with nontreponemal tests, treponemal tests may be positive earlier in the course of infection. Nontreponemal test antibody titers should be reported quantitatively and typically become non-reactive with time after treatment. In most cases treponemal tests remain active regardless of treatment or disease activity. The definitive method to detect *T. pallidum* is direct visualization of the organism by darkfield examinations or direct fluorescent antibody tests of lesion exudates or tissue.

During the primary, secondary, and early latent phases of syphilis, a single dose of penicillin administered parenternally will cure the disease. People who are allergic to penicillin (and not pregnant) may be given oral antibiotics (doxycycline or tetracycline) for 2 weeks. People who are diagnosed to be in the late latent stage of syphilis and those with tertiary syphilis will require 3 doses of penicillin, at 1 week intervals. For those allergic to penicillin, oral antibiotics (doxycycline or tetracycline) are given and patients must be closely monitored with serologic and clinical follow-up. If syphilis has advanced to neurosyphilis, treatment with IV penicillin every 4 hours for 10-14 days may be required. A pregnant woman with syphilis must be treated with penicillin. If she is allergic to it she must allow for desensitization procedures. A Herxheimer reaction may occur in patients 2-12 hours after treatment begins as a result of the dying bacteria within the body which can lead to constitutional symptoms and exacerbation of previous symptoms. This reaction usually ends within 24 hours.

An important treatment consideration in preventing the transmission of disease is identifying sexual partners of infected patients. The sexual transmission of *T. pallidum* occurs when mucocutaneous syphilitic lesions are present, usually within the first year of infection. However, sexual partners of a patient with any stage of syphilis should be evaluated. Partners exposed within 90 days of the diagnosis of primary, secondary or early latent syphilis may be infected even if they are seronegative, so presumptive treatment is recommended. Partners exposed after the 90 days following diagnosis should be treated presumptively if serologic test results are not immediately available and the opportunity for follow-up is uncertain. Long-term sexual partners of patients with latent syphilis should be evaluated clinically and serologically for syphilis, and treated accordingly.

As a result of the ongoing syphilis outbreak in Flint and Genesee County the GCHD has asked health care providers to increase screening for syphilis among their patients. In this period of high morbidity, testing for syphilis should be performed if one or more of the following criteria is met: 1) Patients with signs or symptoms indicative of syphilis (these patients should be presumptively treated if it is believed that the patient is infectious or may be difficult to follow-up), 2) Patients with a history of signs or symptoms of syphilis, 3) Patients admitting to sexual contact with someone who had symptoms indicative of syphilis, 4) Patients exhibiting high risk lifestyle behaviors such as substance abuse, unprotected sex, or multiple partners, and 5) Patients who test positive or present with signs or symptoms of another sexually transmitted disease. In addition, expanded screening of pregnant women should be performed. All pregnant women in Genesee County should be tested for syphilis during her third trimester visit and at delivery regardless of previous test results. Health care providers must report all cases of syphilis to the health department.

### Selected Reportable Communicable Diseases in Genesee County

Disease	Reported cases in the week ending 1/10/2009	Reported cases in previous week, ending 1/3/2009	Reported cases to date this FY* 2008-2009	Reported cases to date last FY 2007- 2008	Total reported cases last FY 2007-2008
Chickenpox	0	0	46	36	124
Pertussis	0	0	2	2	7
Flu-like illness	1,265	91	13,858	16,565	46,373
TB, New	0	0	3	1	3
Chlamydia	10	9	567	840	2,867
Gonorrhea	3	7	249	464	1,365
HIV, Adult	4	1	13	15	51
Infectious Syphilis, Adult	2	1	36	9	104
Hepatitis B, Acute	0	0	3	2	11
Hepatitis C, Chronic	5	3	97	87	331
Campylobacter	3	0	3	12	26
Hepatitis A	0	1	1	0	7
Salmonellosis	0	0	9	7	36
Meningitis-Viral	0	0	20	14	55
Meningococcal Disease	0	0	0	1	1

\*FY – Fiscal Year, October 1-September 30

Genesee County Health Department

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