Washoe County Health District

EPI - NEWS

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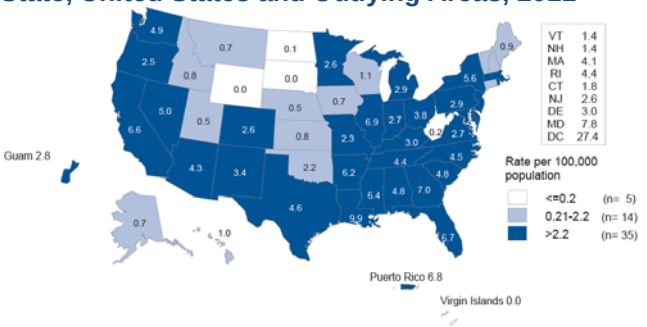
INFECTIOUS SYPHILIS

Morbidity of Infectious Syphilis

Recent data on infectious syphilis in the state of Nevada and Washoe County has shown that infectious syphilis morbidity has been increasing statewide and locally.

Data from 2011 indicate that Nevada holds the distinction of being ranked the 12th highest state nationally with a rate of 5.0 cases of primary and secondary (P & S) syphilis per 100,000 population. This is above the national rate of 4.5 cases per 100,000 population (Figure 1). This represents a dramatic increase from 2004, when Nevada ranked twentieth in the nation, with a rate of 1.8 per 100,000. These rates are considerably above the Healthy People (HP) 2010 objective of 0.2 cases per 100,000 population. The rate among males in 2011 was 9.3 cases per 100,000 male population, considerably above the HP 2020 objective of 6.8 cases per 100,000 population.

Figure 1. Primary and Secondary Syphilis Rates by State, United States and Outlying Areas, 2011



Washoe County has been experiencing a remarkable increase in syphilis cases in all stages over the past 3 years. Reported cases of P & S syphilis have increased dramatically, from 2 cases in 2010 to 15 cases in 2012, a 650% increase. Early Latent and cases of Unknown Duration have also increased. Two clusters involving five infectious syphilis cases were identified in 2012. One cluster was a married couple. The other cluster involved several homeless men. Investigation of this cluster and other early syphilis cases was challenging due to transiency, anonymous partners, multiple partners and lack of cooperation from index cases. Advances in social media and networking have impacted traditional disease investigation methods as anonymity of the partner is easier to maintain, leaving little or no method to contact a partner.

Therefore, the WCHD's Sexual Health Program encourages local providers to test sexually active patients for syphilis and to utilize WCHD staff for any questions or concerns regarding syphilis diagnosis, treatment, and reporting. All reported sexually transmitted diseases in Washoe County in 2012 are described in Table 1.

Table 1. Reported Sexually Transmitted Diseases in Washoe County, 2012

Disease	No. Cases	Rate per 100,000 Population*
Chlamydia	1,629	388.2
Gonorrhea	238	56.7
HIV	26	6.2
AIDS	21	5.0
P & S Syphilis	16	3.8
Early Latent Syphilis	5	1.2

Source: Nevada State Health Division Sexually Transmitted Disease Management Information Systems and HIV/AIDS Reporting System data as of April 2013.
**Washoe County Rates per 100,000 population were calculated using 2012 population projections from the Nevada State Demographer.*

Symptoms & Diagnosis

Physicians are encouraged to consider syphilis in the differential diagnosis of sexually active patients presenting with lesions or rash.

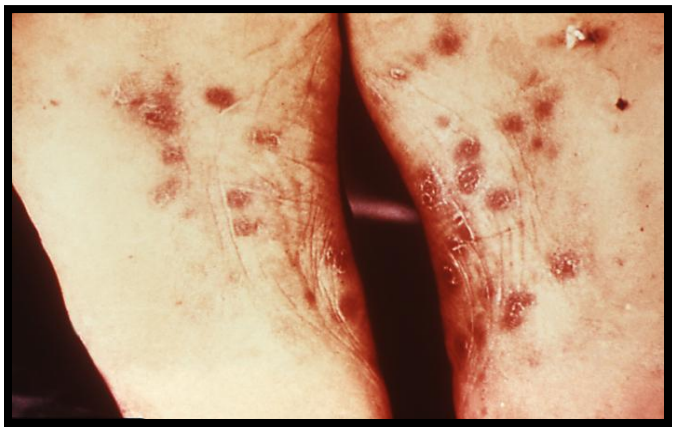
The primary lesion (chancre) of syphilis usually appears about 10 - 90 days (average 21 days) after exposure. It appears as an indurated, painless ulcer with a serous exudate at the site of inoculation. The chancre will heal on its own without treatment in 3-6 weeks. Darkfield examinations and direct fluorescent antibody tests of lesion exudates or tissue are the definitive methods of diagnosing primary syphilis. Patients presenting with any genital ulcer should have a syphilis serology and a herpes culture during the initial visit to rule out these infections.

Secondary syphilis is often marked by a generalized or localized skin eruption 3-6 weeks after the chancre appears. The rash often appears as rough, red or reddish brown spots about the size of a penny (Figure 2). Although the rash may cover the whole body or appear only in a few areas, the palms of the hands and soles of the feet are almost always involved. Sometimes the rashes are so faint they are not noticed. Rashes disappear without treatment. Other

symptoms can include fever, swollen lymph nodes, sore throat, patchy hair loss, fatigue, headache, and weight loss. Serologic tests for syphilis should be considered for all patients presenting with a skin rash in the absence of a known diagnosis, or rashes that do not respond to usual treatment. The titer for syphilis antibodies is usually high during this stage. Signs of secondary syphilis may come and go over the next one to two years. A person with primary or secondary stage syphilis is contagious. There is also a possibility of early latent syphilis cases being contagious because of how the stage has to be diagnosed.

Latent syphilis is defined as syphilis characterized by seroreactivity without other evidence of disease. Patients who have latent syphilis and who acquired syphilis during the preceding year are classified as having early latent syphilis. Patients' conditions can be diagnosed as early latent syphilis if, during the year preceding the evaluation, they had 1) a documented seroconversion or fourfold or greater increase in titer of a nontreponemal test; 2) unequivocal symptoms of primary or secondary syphilis; or 3) a sex partner documented to have primary, secondary, or early latent syphilis. In addition, for persons whose only possible exposure occurred during the previous 12 months, reactive nontreponemal and treponemal tests are indicative of early latent syphilis. In the absence of these conditions, an asymptomatic person should be considered to have late latent syphilis or syphilis of unknown duration. Nontreponemal serologic titers usually are higher during early latent syphilis than late latent syphilis. However, early latent syphilis cannot be reliably distinguished from late latent syphilis solely on the basis of nontreponemal titers. All patients with latent syphilis should have careful examination of all accessible mucosal surfaces (i.e., the oral cavity, perianal area, perineum and vagina in women, and underneath the foreskin in uncircumcised men) to evaluate for internal mucosal lesions. All patients who have syphilis should be tested for HIV infection.

Figure 2. Secondary Syphilis Rash



Laboratory Tests

Nontreponemal screening tests for syphilis are used to assist in the diagnosis of all stages of syphilis. The most often used tests are the **RPR (Rapid Plasma Reagin)** and the **VDRL (Venereal Disease Research Laboratory).** These tests are useful in assessing disease activity and evaluating response to therapy. Results of these tests must be reported quantitatively (i.e., 1:2, 1:8, 1:16, 1:64, etc.). False-positive results are associated with a variety of other acute and chronic diseases and are usually reactive at low dilutions (<1:8). A confirmatory treponemal test for syphilis is required when the RPR or VDRL is positive. These tests include the **TP-PA (*T.pallidum* Passive Agglutination), FTA-ABS (Fluorescent Treponemal Antibody-Absorption)**, and the **quantitative MHA-TP (Microhemagglutination Assay for antibody to *T. pallidum*).** A patient who has a reactive treponemal test for syphilis will usually have a reactive test for life. These tests correlate poorly with disease activity and should not be used to assess response to treatment.

Most physicians screen for syphilis with the RPR test. It is recommended that this be ordered with a reflex quantitative RPR (titer) and confirmatory TP-PA or FTA-ABS. Other physicians screen with a treponemal test such as the TP-PA. When used as a screening test, the TP-PA should also be ordered as a **screening cascade to reflex to a quantitative RPR on positives**. Reporting a RPR as positive is not sufficient to diagnose syphilis**. A quantitative RPR and a confirmatory treponemal test are needed.** If additional testing is needed for diagnosis, contact the lab immediately as most laboratories keep blood samples for up to one week. It's important to choose the correct test number or test code at the lab ordering slip to reflect above testing recommendation.

Population at High-Risk

Men who have sex with men (MSM) should be screened for syphilis at least once a year. More frequent screening (e.g., every 3-6 months) should be considered for MSM who:

- acknowledge sex with anonymous partners or multiple partners,
- use crystal methamphetamine or inhaled nitrites ("poppers"),
- have partners that participate in these activities.

Nevada Prenatal Syphilis Screening Requirements

During the 2009 State Legislative Session, requirements for syphilis screening of pregnant women changed. This change increased screenings from a one-time screening during the third trimester to two screenings, one in the first trimester and one in the third trimester.

Treatment

Penicillin G, administered parenterally, is the preferred drug for treating all stages of syphilis. The preparation used (i.e., benzathine, aqueous procaine, or aqueous crystalline), the dosage, and the length of treatment depend on the stage and clinical manifestations of the disease. Selection of the appropriate penicillin preparation is important, because *T. pallidum* can reside in sequestered sites (e.g., the CNS and aqueous humor) that are poorly accessed by some forms of penicillin. Combinations of benzathine penicillin, procaine penicillin, and oral penicillin preparations are not considered appropriate for the treatment of syphilis. Reports have indicated that practitioners have inadvertently prescribed combination benzathine-procaine penicillin (Bicillin C-R) instead of the standard benzathine penicillin product (Bicillin L-A) widely used in the United States. Practitioners, pharmacists, and purchasing agents should be aware of the similar names of these two products to avoid using the inappropriate combination therapy agent for treating syphilis.

References

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3. CDC. (2010). Sexually Transmitted Diseases Treatment Guidelines. Available at: http://www.cdc.gov/std/treatment/2010/default.htm
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For information on syphilis and other sexually transmitted diseases, please contact Jennifer Howell, Sexual Health Program Coordinator at (775) 328-3647 or by email at jhowell@washoecounty.us. Syphilis is a reportable disease by Nevada law (NAC 441A). To report a case, please fax case report form to the Communicable Disease Program at (775) 328-3764.

Guidelines for Syphilis Diagnosis and Treatment

		Possible Test Results		
		Nontreponemal	Treponemal	
SYPHILIS	**SYMPTOMS**	**RPR* VDRL***	**FTA-ABS** MHA-TP** TP-PA****	**TREATMENT (for Adults)**
Primary	Chancre or ulcer present	Positive or negative High or low titer	Reactive	Benzathine penicillin G, 2.4 million units (m.u.) IM single dose (Bicillin L-A)
Secondary	Rash or mucocutaneous lesions present	Positive High titer	Reactive	Benzathine penicillin G, 2.4 m.u. IM single dose (Bicillin L-A)
Early Latent (<1 yr)	None	Positive Low or high titer	Reactive	Benzathine penicillin G, 2.4 m.u. IM single dose (Bicillin L-A)
Late Latent or Latent Syphilis of Unknown Duration	None	Positive Low titer	Reactive	Benzathine penicillin G, 2.4 m.u. IM weekly x 3 weeks (Bicillin L-A)
Neurosyphilis	Cranial nerve dysfunction, meningitis, stroke, altered mental status, loss of vibratory sense, auditory or ophthalmic abnormalities, etc.	Positive **A reactive VDRL in cerebrospinal fluid (CSF) is required for laboratory confirmation of neurosyphilis**	Reactive	Aqueous crystalline penicillin G, 18 to 24 m.u. IV daily, administered as 3-4 million units IV every 4 hours or continuous infusion, for 10-14 days; **OR** Procaine penicillin 2.4 m.u. IM once daily **PLUS** probenecid 500 mg orally 4 times daily, **both** for 10-14 days. Some experts recommend the above regimens be followed by benzathine penicillin, 2.4 million units IM, once per week for up to 3 weeks.
Treated Syphilis	None	Positive or negative Low titer	Reactive	None

***** *May not be detectable for up to six weeks after infection.*

****** *May not be detectable for up to two weeks after infection.*