WASHOE COUNTY HEALTH DISTRICT
ENHANCING QUALITY OF LIFE

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EPI-NEWS

Public Health

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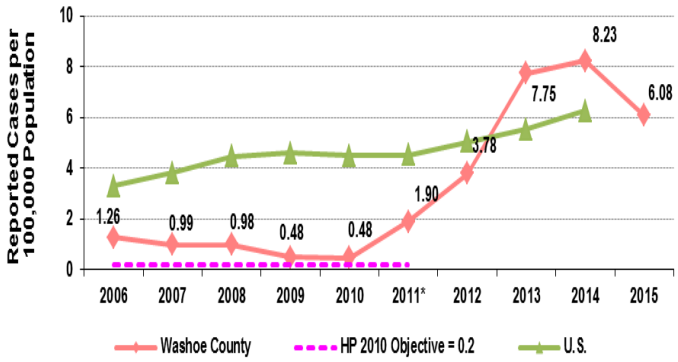
IN THIS ISSUE: Primary and Secondary Syphilis

April is STD Awareness Month
PRIMARY AND SECONDARY SYPHILIS IN WASHOE COUNTY

Background

Sexually Transmitted Diseases (STD) are the most frequently reported communicable diseases in the United States as well as in Washoe County. In 2016, of 38 notifiable diseases with 7795 reported cases received by the Washoe County Health District (WCHD), five STDs (Chlamydia, Gonorrhea, Syphilis, HIV, AIDS) accounted for ~40% of total reports. The costs associated with STDs are substantial. Direct medical costs associated with STD treatment are estimated at $16 billion per year in the nation. Washoe County has been experiencing a remarkable increase in syphilis cases since 2011 (see Figure 1). WCHD has previously published two Epi-News articles on infectious syphilis on May 31, 2007 and May 28, 2013. Please check out this link http://www.tinyURL.com/WashoeEpiNews for previously published articles. This issue will focus on updates regarding laboratory testing, screening, and treatment of primary & secondary (P&S) syphilis.

Figure 1. Reported Incidence of P&S Syphilis in Washoe County, 2006-2015

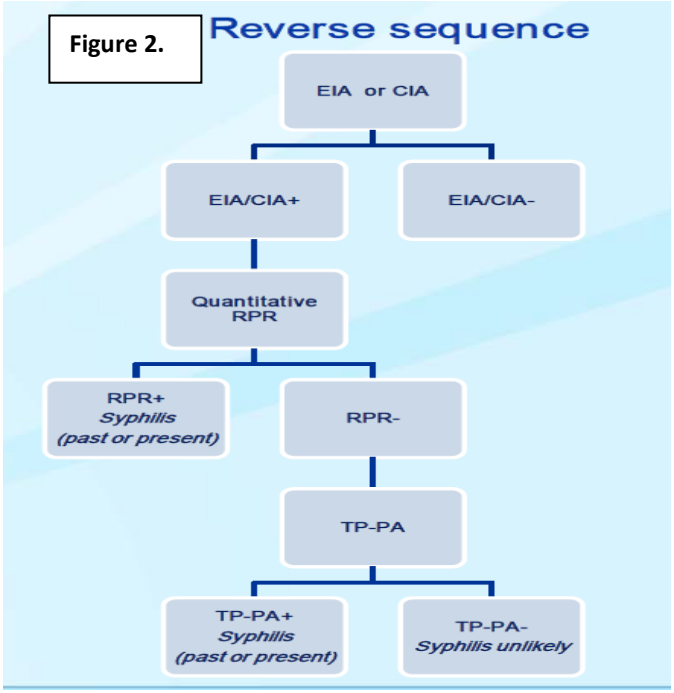


Laboratory Tests

A presumptive diagnosis of syphilis requires use of two tests: a **nontreponemal test** (i.e., Venereal Disease Research Laboratory [VDRL] or Rapid Plasma Reagin [RPR]) and a **treponemal test** (i.e., fluorescent treponemal antibody absorbed [FTA-ABS] tests, the *T. pallidum* passive particle agglutination [TP-PA] assay, various enzyme immunoassays [EIAs], chemiluminescence immunoassays [CIAs], immunoblots, or rapid treponemal assays). [1]

Nontreponemal screening tests for syphilis are used to assist in the diagnosis of all stages of syphilis. The most often used test is the **RPR (Rapid Plasma Reagin).** This test is useful in assessing disease activity and evaluating response to therapy. Results of the test 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

Figure 2.



[1] https://www.cdc.gov/std/tg2015/syphilis.htm

reactive test for life. These tests correlate poorly with disease activity and should not be used to assess response to treatment.

Since 2011, CDC has recommended using "reverse sequence" for syphilis serological screening (Figure 2). If additional testing is needed for diagnosis, contact the lab immediately as most laboratories only keep blood samples for up to one week. It is important to choose the correct test number or test code on the lab ordering slip to reflect the above testing recommendation.

Population at High-Risk

Recently, CDC published its first report on the incidence rate of P&S syphilis among Men who have sex with men (MSM) using 2015 national data. Nevada ranked #4 in incidence of P&S Syphilis in the general population and ranked #8 in the MSM population nationally. For 2015 in Nevada, the MSM had a rate of P&S syphilis 81.3 times the rate among men who reported sex with women only. This publication further highlights the disproportionate impact of syphilis among MSM. [2] 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 have partners that participate in activities such as:

- acknowledge sex with anonymous partners or multiple partners,
- use crystal methamphetamine or inhaled nitrites ("poppers").

Nevada Prenatal Syphilis Screening Requirements[3]

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. Additionally no infant should be discharged without knowing maternal syphilis serology which should be completed at time of delivery unless otherwise very recently completed and negative.

[2] https://www.cdc.gov/mmwr/volumes/66/wr/mm6613a1.htm?s_cid=mm6613a1_e

[3] Nevada State Health Division. (2009). Prenatal Syphilis Screening Technical Bulletin. Available at: http://www.health.nv.gov/PDFs/AidsTF/Resources/Final_SyphilistestingTB_incl_sig.pdf

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.

For more information on diagnostic tests and treatment guideline, please check out CDC's website at https://www.cdc.gov/std/tg2015/syphilis.htm

For information on syphilis, please contact Angela Penny, RN, PHN, DIS at (775) 328-6151 or by email at apenny@washoecounty.us.

Syphilis is a reportable disease by Nevada law (NAC 441A). To report a case, please fax the case report form to the Communicable Disease Program at (775) 328-3764.

Guidelines for Syphilis Diagnosis and Treatment

		Possible Test Results		
		Nontreponemal	Treponemal	
		RPR*	FTA-ABS**	
		VDRL*	MHA-TP**	
SYPHILIS	**SYMPTOMS**		TP-PA**	**TREATMENT (for Adults)**
Primary	Chancre or ulcer present	Positive or negative High or low titer	Reactive Possible non-reactive	Benzathine penicillin G, 2.4 million units (m.u.) IM single dose (Bicillin L-A)
Secondary	Rash or mucocutaneous lesions present, Warts condylomata lata are also a sign. These are full of treponema when 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 (May occur at any stage)	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. A combination of CSF lab abnormalities and neurologic signs and symptoms are needed to dx.	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, occasionally high 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.*