Nebraska Department of Health and Human Services

Health Alert Network

ALERT

July 18, 2023

Syphilis Incidence Continues Increasing in Nebraska

- Syphilis incidence is rapidly increasing in the United States and in Nebraska with notable trends in heterosexual and congenital transmission, and substantial disparities among Native American and black people
- Screening *must* increase to identify infections and the reverse screening algorithm is increasingly preferred; in pregnancy, screening is required by Nebraska law
- The stage of infection determines treatment dose and frequency; treatment requires intramuscular (IM) benzathine penicillin G (Bicillin L-A), which is in short supply nationally; DHHS and the Antimicrobial Stewardship Assessment & Promotion Program (ASAP) are helping clinicians navigate the shortage (and navigate treatment for patients with penicillin allergies) with resources found below
- Doxycycline postexposure prophylaxis (doxy-PEP) is an emerging strategy that should be considered for men who have sex with men and transgender women who have had a bacterial sexually transmitted infection (STI) in the past 12 months

Over the last two decades (2000–2021), primary and secondary syphilis rates in the US increased from 2 to 16 cases per 100,000 people, a 700% increase. Since 1949, the most recent peak occurred in 1990 at 20 cases per 100,000 people; at our current pace it's possible we've already surpassed that in 2022 (national data still being compiled). Throughout the US, individuals in their 20s and 30s are being infected most frequently, there are roughly 4 male cases to every female case, and Native American and black people are being infected at rates 4–5 times higher than white people. Our neighbor South Dakota is seeing syphilis rates higher than anywhere else in the US.

In Nebraska, syphilis rates are similarly increasing at an alarming pace. Since 2017, we've seen a 373% overall increase in Nebraska, a 1,163% increase among females, and a 1,100% increase in congenital syphilis. While most new infections in Nebraska are occurring among men who have sex with men, these findings additionally reveal increasing trends in heterosexual and congenital transmission. National disparities among Native American and black people are similarly reflected in Nebraska.

Screening: The reverse screening algorithm utilizes a treponemal assay (e.g., EIA, which can remain positive for life following infection) followed by a nontreponemal assay (e.g., RPR, which results with a titer.) A fourfold decrease in nontreponemal titers 6–12 months after treatment verifies successful treatment; failure to decrease fourfold (inadequate serologic response) might be indicative of treatment failure. Reinfection should be suspected when a patient with an adequate serologic response in the past now has a fourfold increase in titers.

Men who have sex with men should be screened at least yearly, or more frequently if at increased risk. Men who have sex with women should be screened if younger than 29 years and if otherwise at increased risk. Women should be screened if at increased risk. Increased risk is defined according to the population being screened, find more specifics here: https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm but in general a very low threshold for screening should be strongly considered.

Nebraska law requires syphilis screening in pregnancy (Neb.Rev.Stat. §71-502.03) and best practice is to screen up to three times: the first prenatal visit, the beginning of the third trimester (if at increased risk), and at delivery. All infants born to women with reactive syphilis testing require diagnostic and clinical evaluation for congenital syphilis. Sex partners of someone with primary, secondary, or early latent syphilis should be evaluated and screened.

Staging: Positive screening results in an asymptomatic patient defines a latent infection. Latent syphilis acquired within the preceding year is early latent syphilis; all other cases of latent syphilis are classified as late latent or latent syphilis of unknown duration. Primary syphilis classically presents as a single painless ulcer or chancre at the site of infection but can also present with multiple, atypical, or painful lesions. Secondary syphilis manifestations can include skin rash, mucocutaneous lesions, and lymphadenopathy. Tertiary syphilis can present with cardiac involvement, gummatous lesions, tabes dorsalis, or general paresis. At any stage, *Treponema pallidum* can invade the nervous system (neurosyphilis: headaches, weakness, numbness, altered mental status), visual system (ocular syphilis: changes in vision, blindness), and auditory/vestibular system (otosyphilis: tinnitus, vertigo, hearing loss). Early, appropriate treatment is critical to avoid permanent damage.

Treatment: intramuscular (IM) benzathine penicillin G (Bicillin L-A) with dose and frequency based on stage.
Primary, secondary, and early latent syphilis: 1 dose of 2.4 million units of benzathine penicillin G IM
Tertiary, late latent, and unknown duration syphilis: 1 dose of 2.4 million units IM once weekly for 3 weeks
Neurosyphilis (including tabes dorsalis), ocular syphilis, otosyphilis: 18–24 million units aqueous crystalline penicillin G IV daily, administered as 3–4 million units IV every 4 hours or continuous infusion, for 10–14 days

A national shortage of benzathine penicillin G is complicating syphilis response efforts. A list of facilities in Nebraska that normally stock benzathine penicillin G and treat syphilis can be found with ASAP here: https://asap.nebraskamed.com /pathogens-of-interest/syphilis/. If at any point you're having trouble finding treatment you can call your local health department (https://dhhs.ne.gov/Pages/local-health-departments.aspx) or the ASAP program (402-552-2881). Additional treatment information can be found here: https://www.cdc.gov/std/treatment-guidelines/syphilis.htm.

Penicillin allergy: A patient's history of penicillin allergy should *not* unnecessarily delay treatment. Some patients who report an allergy might be candidates for an oral challenge and others might need to undergo desensitization. If the patient gives a low-risk history for IgE-mediated penicillin allergy (e.g., absence of anaphylaxis) a one-time oral dose of 250mg amoxicillin can be administered to document the absence of an allergy. The risk for severe amoxicillin-mediated anaphylaxis has decreased over time and is rare. If the reaction occurred in the distant past (>10 years), the likelihood is reduced even further. More information regarding managing patients with a penicillin allergy, including oral challenge, skin testing, and desensitization can be found here https://asap.nebraskamed.com/pathogens-of-interest/syphilis/.

Postexposure prophylaxis: Emerging evidence suggests that doxycycline taken soon after condomless oral, anogenital, or vaginal sex, significantly reduces combined incidence of chlamydia, gonorrhea, and syphilis. Doxycycline is not FDA approved for STI post-exposure prophylaxis, however, the CDC has shared considerations for doxy-PEP as an STI prevention strategy (https://www.cdc.gov/std/treatment-guidelines/clinical-primary.htm#CautionsForDoxyPEP). Doxy-PEP can be prescribed to men who have sex with men and transgender women who have had a bacterial STI in the past 12 months. The dose is 200 mg of doxycycline to be taken orally within 24 hours (or up to 72 hours) after condomless oral, anogenital, or vaginal sex. Doxycycline can be taken daily depending on sexual activity, but no more than 200 mg every 24 hours. Further information on doxy-PEP including patient counselling recommendations can be found at https://asap.nebraskamed.com/pathogens-of-interest/syphilis/.

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