



ID Snapshot, Infectious Diseases

ID Snapshot: Rates of congenital syphilis increasing in U.S.

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Dr. Meissner Congenital syphilis occurs when a mother infected with *Treponema pallidum* transmits the infection to her infant during pregnancy. In the United States, rates of congenital syphilis decreased from 2008 to 2012 but increased from 8.4 to 11.6 cases per 100,000 live births from 2012 to 2014. The rates among blacks in 2014 remained approximately 10 times higher than among whites and three times higher than among Hispanics.

During 2014, 458 cases of congenital syphilis were reported compared to less than 200 babies with HIV infection. The increase in congenital syphilis mirrors the national increase in rates of primary and secondary syphilis among women.

Maternal treatment with penicillin is 98% effective in preventing transmission of the infection among women who deliver after 20 weeks' gestation. Without treatment, an estimated 70% of pregnant women will transmit the infection to their fetus.

Which of the following statements regarding congenital syphilis are false?

- Every neonate at risk of congenital syphilis should be tested for HIV infection.
- Treponemal tests (TP-PA, FTA-Abs, EIA, CIA) or any commercially available immunoglobulin M (IgM) test for syphilis on neonatal serum are not recommended.
- The absence of a fourfold or greater non-treponemal titer for a neonate (relative to mother) excludes congenital syphilis.
- If an infant's non-treponemal test is non-reactive at 6 months, no further evaluation is needed.
- All babies born with *T. pallidum* infection will have symptoms at birth.

Answer: c and e are false

The Centers for Disease Control and Prevention (CDC) recommends that all pregnant women be screened for syphilis at the first prenatal visit. Women at increased risk for syphilis also should be screened at the beginning of the third trimester and again at delivery. No mother or newborn infant should be discharged from the hospital unless the serologic status of the mother has been determined at least once during the current pregnancy.

Parenteral penicillin G is the only therapy with documented efficacy for treatment of syphilis during pregnancy. Pregnant women with syphilis who report penicillin allergy should be referred for desensitization and treated with penicillin. Data are insufficient regarding the effectiveness of other antimicrobial agents, such as ampicillin.



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All neonates born to a mother with reactive non-treponemal (RPR, VDRL) and treponemal test (TP-PA, FTA-ABS, EIA, CIA) result should be evaluated with a quantitative non-treponemal serologic test performed on the neonate's serum. Treponemal serologic testing on neonatal serum is not recommended because interpretation is difficult. IgM tests are not reliable in this setting.

In addition, all neonates born to a mother with reactive serologic tests should be evaluated for nonimmune hydrops, jaundice, hepatosplenomegaly, rhinitis, skin rash, osteitis and pseudoparalysis of Parrot (lack of limb motion because of pain). Pathologic examination of the placenta should be conducted. Approximately 60% of infants infected with congenital syphilis are asymptomatic.

The diagnosis of congenital syphilis can be difficult. Treatment decisions are based on the status of syphilis in the mother; the adequacy of maternal treatment; clinical, laboratory or radiographic abnormalities in the infant; and comparison of maternal and neonatal non-treponemal serologic titers obtained at about the same time.

Cerebrospinal fluid (CSF) should be obtained for VDRL, cell count and protein to address the question of neurosyphilis. The CSF is abnormal in about 10% of asymptotically infected infants.

The CDC recommends one of two regimens for treatment of an infant born to a woman with any stage of syphilis who has not received appropriate treatment during gestation or for whom the possibility of congenital syphilis cannot be ruled out:

Aqueous crystalline penicillin G 100,000-150,000 units/kg/day administered intravenously every 12 hours at a dose of 50,000 units/kg/dose during the first seven days of life and every eight hours thereafter for a total of 10 days or

Procaine penicillin G 50,000 units/kg/dose intramuscular (IM) in a single daily dose for 10 days up to the adult maximum dose of 2.4 million units/dose.

If more than one day of therapy is missed, the complete course should be restarted. Single dose benzathine penicillin G 50,000 units/kg/dose IM in a single dose may be used if the complete evaluation is normal and follow-up is assured. If any part of the evaluation is abnormal, not performed or un-interpretable, a 10-day course of penicillin is required.

Neonates born to a mother with untreated early syphilis at the time of delivery or to a mother who received the recommended treatment less than four weeks before delivery are at increased risk for congenital syphilis and should receive a 10-day course of penicillin G even if the evaluation is normal.

A neonate does not need evaluation for congenital syphilis if the physical examination is normal, a serum quantitative non-treponemal serologic titer is equal to or less than fourfold the maternal titer, a mother was appropriately treated during pregnancy and there is no evidence of re-infection.

Tests for syphilis

Non-treponemal

VDRL Venereal Disease Research Laboratory

RPR rapid plasma reagin



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Treponemal specific

FTA-Abs fluorescent treponemal antibody absorbed

TP-PA *T. pallidum* passive particle agglutination

EIAs various enzyme immunoassays, including chemiluminescence immunoassays, immunoblots or rapid treponemal assay

Resource

Information on congenital syphilis in AAP *Red Book*, <http://bit.ly/1SlrH9w>

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