Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention
11 State House Station
Augusta, Maine 04333-0011
Phone: (800) 821-5821 / Fax: (207) 287-7443

Maine Health Alert Network (HAN) System

PUBLIC HEALTH ALERT

To: All HAN Recipients
From: Dr. Isaac Benowitz, State Epidemiologist
Subject: **Case of Congenital Syphilis in Maine**
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Case of Congenital Syphilis in Maine

Summary

- Maine CDC recently received notification of a probable case of congenital syphilis (CS).
  - From 2012 to 2021, syphilis cases increased from 20 to 101 (405%) per year in Maine.
  - In 2022, preliminary data show that, of the 112 reported cases of syphilis in Maine, 20.5% were among women between the ages of 15 and 44 years.
- Health care providers should test all pregnant persons for syphilis at least once during pregnancy, ideally at the first prenatal visit. If at high risk, they should be retested twice during the third trimester: at 28 weeks' gestation and at delivery.
- The majority of missed prevention opportunities among persons delivering babies with CS in the U.S. were those with no timely prenatal care or syphilis testing and those with timely syphilis testing but no adequate treatment of the pregnant person.
- Pregnant persons with syphilis should be treated with one to three shots (depending on the stage of syphilis) of benzathine penicillin G, 2.4 million units IM (see CDC treatment guidelines).
- Adequate and timely treatment of syphilis in pregnant persons is 98% effective in preventing CS. CS should be considered in all stillbirths after 20 weeks, and in infants birthed from persons with syphilis infection during pregnancy. Infected infants can be asymptomatic at birth but can develop serious symptoms in the neonatal period or later in life.
- Healthcare providers can contact Disease Intervention Specialists (DIS) at Maine CDC by phone at 1-800-821-5821. DIS can help with timely and appropriate treatment and follow-up, and can facilitate partner services, including interview, testing, treatment, and follow-up.
- Syphilis reports can be provided to Maine CDC through electronic laboratory reporting, by fax at 207-287-8186, or by phone at 1-800-821-5821.

Background

Syphilis rates in the United States (U.S.) have been increasing since 2012. From 2012 through 2021, the rate of syphilis cases increased by 224% in the U.S. and by 405% in Maine.[1] In 2022, 112 cases of syphilis were reported in Maine, 20.5% of whom were women between the ages of 15 and 44 years (preliminary data).

Maine CDC recently received notification of a case of probable congenital syphilis (CS). This is the first case of CS reported in a Maine resident in nearly 30 years. In 2021, there were 2,677 cases of CS reported in the U.S., an increase of 702% from 2012. In 2021, the highest rates of CS were among birthing persons who were non-Hispanic American Indian or Alaska Native (364 cases per 100,000 live births), non-Hispanic Native Hawaiian or other Pacific Islander (221 cases per 100,000 live births), and non-Hispanic Black or African American (153 cases per 100,000 live births)[1].

CS occurs when a pregnant person with syphilis passes the infection to the fetus during pregnancy. This can happen during any stage of syphilis and any trimester of pregnancy; the risk of transmission is highest if the pregnant person has been infected recently. Approximately 40% of babies born to persons with untreated syphilis can be stillborn or die from the infection as a newborn. CS can lead to preterm labor and newborn/childhood illness including hydrops fetalis; hepatosplenomegaly; rashes; fevers; failure to thrive; deformity of the face, teeth, and bones; blindness; and deafness. Adequate and timely treatment of syphilis in pregnant persons is 98% effective in preventing CS. During 2017 through 2021, the majority of missed prevention opportunities among persons delivering babies with CS in the U.S. were those with no timely prenatal care or syphilis testing (38% of cases) and those with timely syphilis testing but no adequate treatment of the pregnant person (34% of cases).

Testing

- All pregnant persons should be tested for syphilis at least once during pregnancy, ideally at the first prenatal visit. If at high risk (someone who lives in a community with high syphilis morbidity or who is at risk for syphilis acquisition during pregnancy from drug misuse, STIs during pregnancy, multiple partners, a new partner, or partner with STIs), they should be retested twice in the third trimester, at 28 weeks' gestation and at delivery.
- Sexual partners of pregnant persons with syphilis should be evaluated, tested, and treated for syphilis.
- Persons who experience a stillbirth after 20 weeks of pregnancy should be tested for syphilis.
- Infants should not be discharged from the hospital until there is documentation that the birthing parent has been tested for syphilis at least once during pregnancy.

Diagnosis, Treatment & Follow-Up

Syphilis during pregnancy:

- Two tests are required to diagnose syphilis: a nontreponemal assay (Venereal Disease Research Laboratory [VDRL] or Rapid Plasma Reagin [RPR]) and a confirmatory treponemal test (fluorescent treponemal antibody absorbed [FTA-ABS] tests or the pallidum passive particle agglutination [TP-PA] assay). False positive non-treponemal tests are seen in pregnancy so confirmatory testing with a treponemal test is necessary to diagnose syphilis.
- When syphilis is diagnosed during the second half of pregnancy, management should include a sonographic fetal evaluation for CS. However, this evaluation should not delay therapy.
- Pregnant persons treated for syphilis during the second half of pregnancy are at risk for premature labor or fetal distress if the treatment precipitates the Jarisch-Herxheimer reaction. Persons should be advised to seek obstetric attention after treatment if they notice any fever, contractions, or decrease in fetal movements.

[1] Preliminary 2021 United States STI surveillance data are available at https://www.cdc.gov/std/statistics/2021/default.htm

Stillbirth is a rare complication of treatment and concern for this complication should not delay necessary treatment. Pregnant persons with penicillin allergies should be desensitized and treated with penicillin as it is the only known effective antimicrobial for preventing transmission to the fetus.

- Partners of pregnant persons should, at a minimum, be presumptively treated for syphilis with benzathine penicillin G 2.4 million units IM. Ideally partners should be evaluated for syphilis by a healthcare provider and staged and treated appropriately.
- Healthcare providers should obtain information concerning ongoing risk behaviors of pregnant persons and their partner(s) to assess the risk for reinfection.
- Pregnant persons diagnosed with syphilis should be offered testing for other STIs, including HIV.
- If syphilis is diagnosed and treated at or before 24 weeks' gestation, serologic titers should not be repeated before 8 weeks after treatment (e.g., at 32 weeks' gestation) but should be repeated at delivery. Titers should be repeated sooner if reinfection or treatment failure is suspected. For syphilis diagnosed and treated after 24 weeks' gestation, serologic titers should be repeated at delivery.

CS in the infant:

- CS diagnosis can be difficult because a pregnant persons' nontreponemal and treponemal immunoglobulin G (IgG) antibodies can be transferred through the placenta to the fetus, complicating the interpretation of reactive serologic tests for syphilis among neonates (infants aged <30 days).
- All neonates born to persons who have reactive nontreponemal and treponemal tests should be evaluated with a nontreponemal test (RPR or VDRL) performed on the neonate's serum; ideally with the same type of nontreponemal test, processed at the same laboratory as was used for the birthing person.
- All neonates born to persons who have reactive nontreponemal test at delivery should be examined thoroughly for evidence of CS. Pathologic examination of the placenta or umbilical cord using specific staining (e.g., silver) or a *T. pallidum* PCR test using a CLIA-validated test should be considered. PCR testing of suspicious lesions or body fluids (e.g., bullous rash or nasal discharge) also should be performed. In addition to these tests, for stillborn infants, skeletal survey demonstrating typical osseous lesions might aid in the diagnosis because these abnormalities are not detected on fetal ultrasound.
- Providers should work with a pediatric infectious disease specialist to manage screening and treatment of neonates with suspected CS. Treatment decisions frequently must be made on the basis of identification of syphilis in the pregnant person; adequacy of treatment; presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate; and comparison of the nontreponemal titers (RPR or VDRL) of the birthing person and the neonate. Infants should not be discharged from the hospital until there is documentation that the birthing parent has been tested for syphilis at least once during pregnancy.
- All neonates with reactive nontreponemal tests should receive thorough follow-up examinations and serologic testing (RPR or VDRL) every 2–3 months until the test becomes nonreactive.
- For a neonate who was not treated because CS was considered less likely or unlikely, nontreponemal titers should decrease by age 3 months and be nonreactive by age 6 months, indicating that the reactive test result was caused by passive transfer of maternal IgG antibody. At age 6 months, if the nontreponemal test is nonreactive, no further evaluation or treatment is needed; if the nontreponemal test is still reactive, the infant is likely infected and should be treated.
- Neonates with a negative nontreponemal test at birth should be retested at age 3 months to rule out serologically negative incubating CS at the time of birth.

Treatment Population	Stage	Treatment
Syphilis during pregnancy	Primary Secondary Early latent	2.4 million units of IM Benzathine penicillin G[1]
	Unknown duration or late	Benzathine penicillin G 7.2 million units total, administered as 3 doses of 2.4 million units IM each at 1-week intervals[2]
	Neuro and ocular syphilis	Aqueous crystalline penicillin G 18–24 million units per day, administered as 3–4 million units IV every 4 hours or continuous infusion, for 10–14 days
Confirmed or highly probable congenital syphilis in the infant[3]		Aqueous crystalline penicillin G 100,000–150,000 units/kg/day, administered as 50,000 units/kg/dose IV every 12 hours during the first 7 days of life and every 8 hours thereafter for a total of 10 days OR Procaine penicillin G 50,000 units/kg/dose IM in a single daily dose for 10 days

[1]Patients with penicillin allergies should be desensitized and treated with penicillin as it is the only known effective antimicrobial for preventing transmission to the fetus and treating fetal infection.
[2]If doses are further apart than 9 days or missed, the treatment schedule must restart from the beginning.
[3]If more than 1 day of therapy is missed the entire course should be restarted.

Additional Syphilis Resources

- For more information on syphilis in Maine, contact Maine CDC at 1-800-821-5821 or disease.reporting@maine.gov.
- Congenital syphilis evaluation and treatment guidelines: https://www.cdc.gov/std/treatment-guidelines/congenital-syphilis.htm
- U.S. CDC syphilis website: http://www.cdc.gov/std/syphilis
- U.S. CDC STI Treatment Guidelines (2021): https://www.cdc.gov/std/treatment-guidelines/default.htm
- Maine CDC STI Treatment Guidelines Summary: https://www.maine.gov/dhhs/mecdc/infectious-disease/hiv-std/documents/pdf/ME%20STI%20Treatment%20Chart%20Mar2022_FINAL_LOGOS_COLOR.pdf HETL Laboratory Submission Information Sheet for syphilis: https://www.maine.gov/dhhs/mecdc/public-health-systems/health-and-environmental-testing/micro/documents/Detection-of-Syphilis-by-Three-Methods-LSIS.pdf
- STI Clinical Consultation Network: https://www.stdccn.org/render/Public
- STI Training Opportunities: https://www.nnptc.org/
- U.S. CDC: Sexually Transmitted Diseases (STDs): Data & Statistics (http://www.cdc.gov/std/stats16/default.htm)
- HETL Laboratory Submission Information Sheet for syphilis: https://www.maine.gov/dhhs/mecdc/public-health-systems/health-and-environmental-testing/micro/documents/Detection-of-Syphilis-by-Three-Methods-LSIS.pdf