

Congenital Syphilis

- Diagnosis of congenital syphilis can be difficult because maternal 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).
- Therefore, treatment decisions frequently must be made on the basis of
 - identification of syphilis in the mother;
 - adequacy of maternal
 - treatment;
 - presence of clinical, laboratory, or radiographic
 - evidence of syphilis in the neonate; and
 - comparison of maternal (at delivery) and neonatal nontreponemal serologic titers (e.g.,
 - RPR or VDRL) by using the same test, preferably conducted by the same laboratory.
- Any neonate at risk for congenital syphilis should receive a full evaluation and testing for HIV
- All neonates born to mothers who have reactive nontreponemal and treponemal test results should be evaluated with a quantitative nontreponemal serologic test (RPR or VDRL) performed on the neonate's serum because umbilical cord blood can become contaminated with maternal blood and yield a false-positive result.

Scenario 1: Confirmed Proven or Highly Probable Congenital Syphilis

Any neonate with

- an abnormal physical examination that is consistent with congenital syphilis;
- a serum quantitative nontreponemal serologic titer that is fourfolds (or greater) higher than the mother's titer at delivery (e.g., maternal titer = 1:2, neonatal titer $\geq$ 1:8 or maternal titer = 1:8, neonatal titer $\geq$ 1:32); or

- a positive darkfield test or PCR of placenta, cord, lesions, or body fluids or a positive silver stain of the placenta or cord.

Recommended Evaluation: CSF analysis for VDRL, cell count, and protein

Treatment for scenario 1: Confirmed Proven or Highly Probable Congenital Syphilis)

- Aqueous crystalline penicillin G 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 (100,000–150,000 units/kg/day),
or
- Procaine penicillin G 50,000 units/kg/dose IM in a single daily dose for 10 days

All neonates with reactive nontreponemal tests should receive thorough follow-up examinations and serologic testing (i.e., RPR or VDRL) every 2–3 months until the test becomes nonreactive

Scenario 2: Possible Congenital Syphilis

Any neonate who

- has a normal physical examination and
- a serum quantitative nontreponemal serologic titer equal to or less than fourfold of the maternal titer at delivery (e.g., maternal titer = 1:8, neonatal titer $\leq$ 1:16) and
- one of the following:
 - The mother was not treated, was inadequately treated, or has no documentation of having received treatment.
 - The mother was treated with erythromycin or a non-penicillin G regimen
 - The mother received the recommended regimen (penicillin) but treatment was initiated <30 days before delivery.

Recommended Evaluation

- CSF analysis for VDRL/ RPR, cell count, and protein**

- CBC, differential, and platelet count
- Long-bone radiographs

This evaluation is not necessary if a 10-day course of parenteral therapy is administered. For instance, a lumbar puncture might document CSF abnormalities that would prompt close follow-up. Other tests (e.g., CBC, platelet count, and long bone radiographs) can be performed to further support a diagnosis of congenital syphilis

Treatment for scenario 2: Possible congenital syphilis

- Aqueous crystalline penicillin G 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 (100,000–150,000 units/kg/day),
or
- Procaine penicillin G 50,000 units/kg/dose IM in a single daily dose for 10 days
or
- Benzathine penicillin G 50,000 units/kg /dose IM stat

All neonates with reactive nontreponemal tests should receive thorough follow-up examinations and serologic testing (i.e., RPR or VDRL) every 2–3 months until the test becomes nonreactive

Scenario 3: Congenital Syphilis Less Likely

Any neonate who has

- a normal physical examination and
- a serum quantitative nontreponemal serologic titer equal or less than fourfold of the maternal titer at delivery (e.g., maternal titer = 1:8, neonatal titer $\leq$ 1:16) and
- both of the following are true:
 - The mother was treated during pregnancy, treatment was appropriate for the infection stage, and the treatment regimen was initiated $\geq$ 30 days before delivery.
 - The mother has no evidence of reinfection or relapse.

Recommended Evaluation: No evaluation is recommended.

Treatment for scenario 3: Congenital Syphilis Less Likely

- Benzathine penicillin G 50,000 units/kg /dose IM in a single dose*

* Another approach involves not treating the newborn if follow-up is certain but providing close serologic follow-up every 2–3 months for 6 months for infants whose mothers' nontreponemal titers decreased at least fourfold after therapy for early syphilis or remained stable for low titer, latent syphilis (e.g., VDRL <1:2 or RPR <1:4).

All neonates with reactive nontreponemal tests should receive thorough follow-up examinations and serologic testing (i.e., RPR or VDRL) every 2–3 months until the test becomes nonreactive

Scenario 4: Congenital Syphilis unlikely

Any neonate who has

- a normal physical examination and
- a serum quantitative nontreponemal serologic titer equal to or less than fourfold of the maternal titer at delivery and
- both of the following are true:
 - The mother's treatment was adequate before pregnancy.
 - The mother's nontreponemal serologic titer remained low and stable (i.e., serofast) before and during pregnancy and at delivery (e.g., VDRL ≤1:2 or RPR ≤1:4).

Recommended Evaluation: No evaluation is recommended.

No treatment is required.

Benzathine penicillin G 50,000 units/kg as a single IM injection might be considered, particularly if follow-up is uncertain and the neonate has a reactive nontreponemal test.

All neonates with reactive nontreponemal tests should receive thorough follow-up examinations and serologic testing (i.e., RPR or VDRL) every 2–3 months until the test becomes nonreactive

References

- CDC STI guideline 2021
- MAM STI guideline 2023