

# Congenital Syphilis in West Virginia

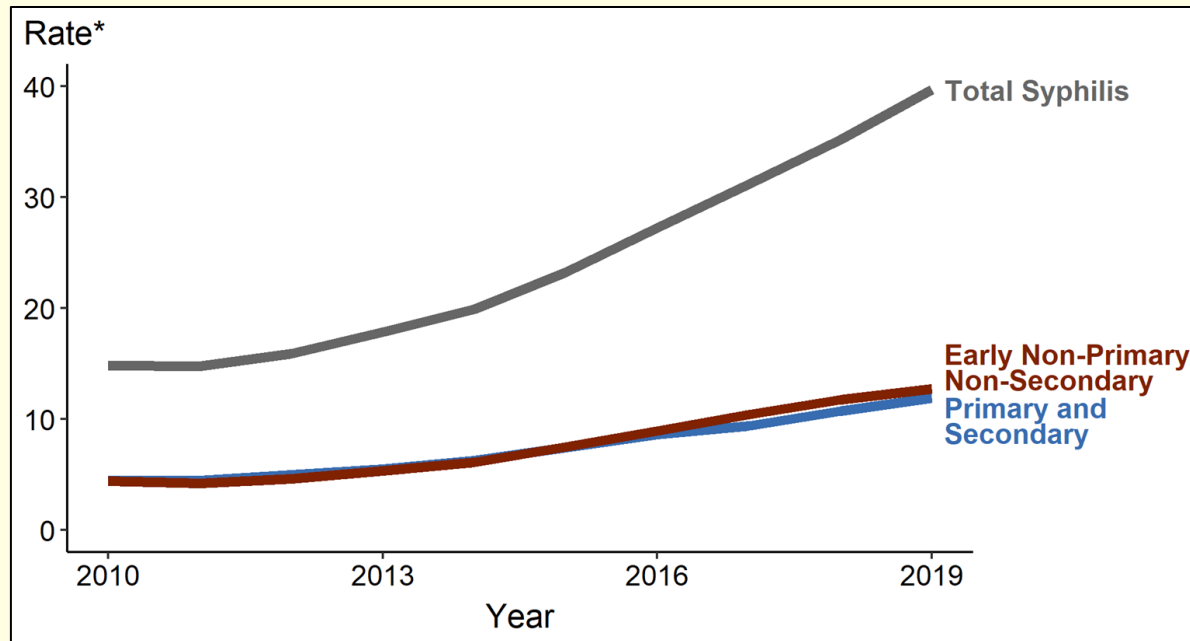
Office of Epidemiology and Prevention Services  
Division of STD, HIV, Hepatitis, and Tuberculosis

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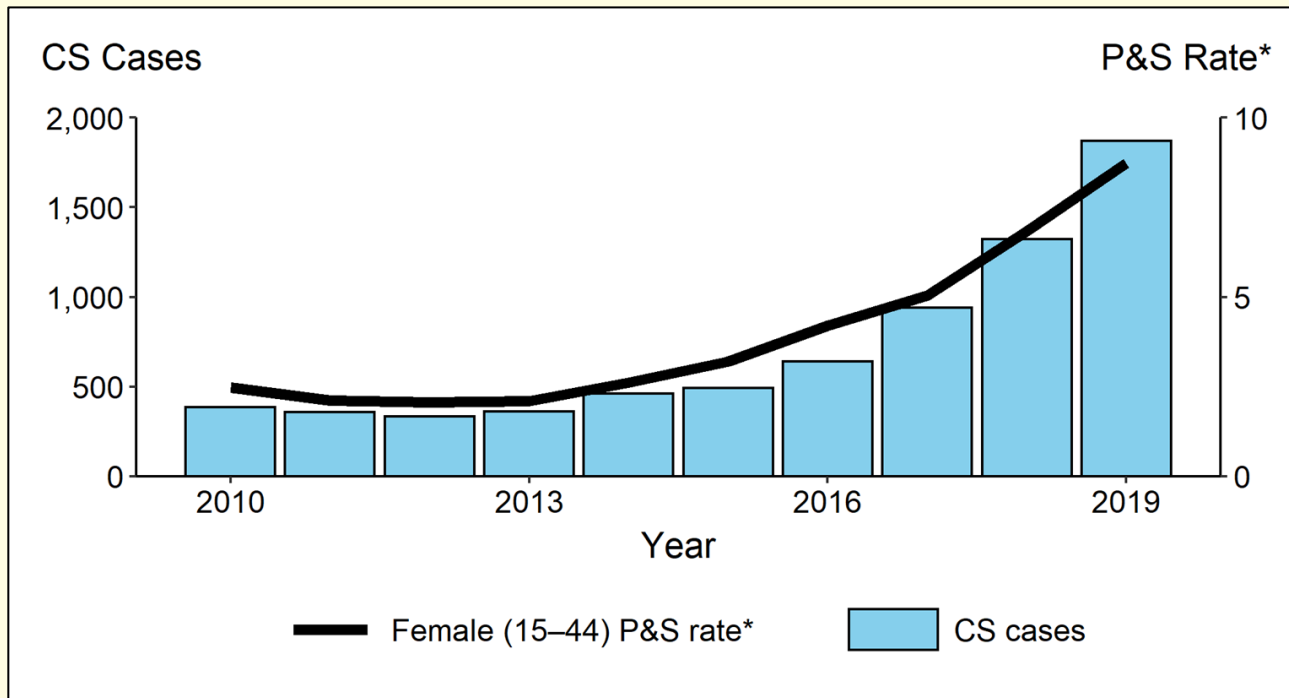
# Rise of Syphilis in the United States

## Syphilis - Rates of Reported Cases by Stage of Infection, United States, 2011–2020



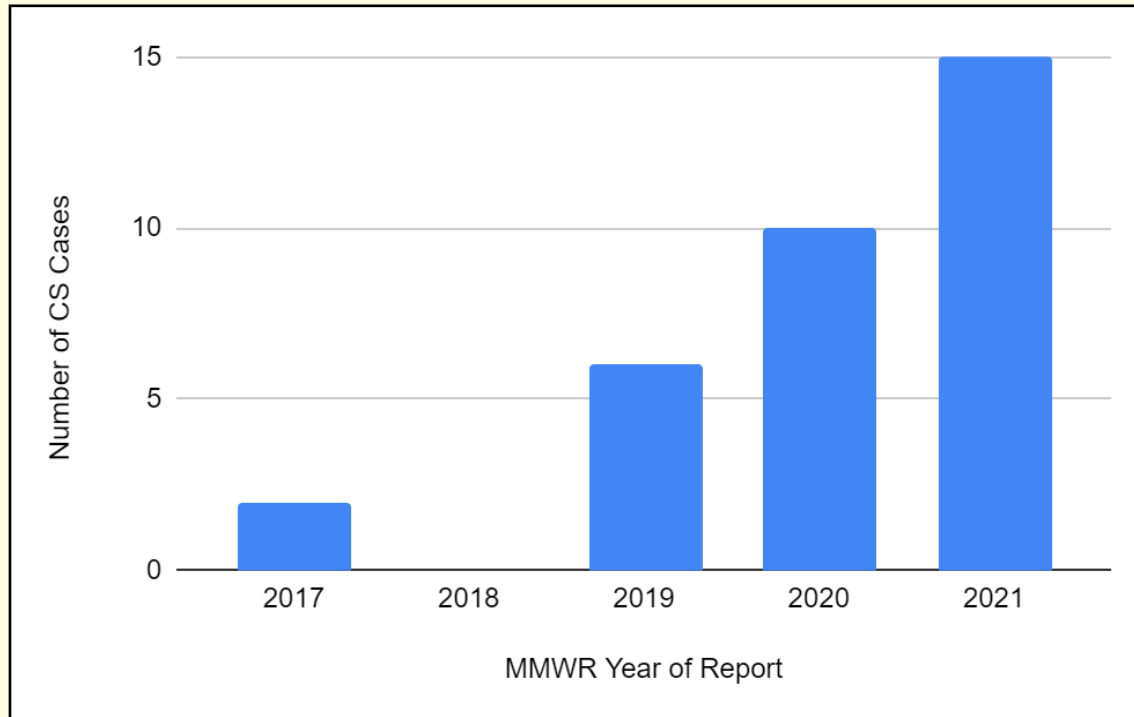
# Rise of Congenital Syphilis in the United States

## Congenital Syphilis (CS) — Reported Cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15–44 Years, United States, 2011–2020



# Rise of CS in West Virginia

## CS — Reported Probable Cases, West Virginia, 2017–2021



CS cases reported to West Virginia Department of Health and Human Resources increased 650% from 2017 to 2021.

# Management During Pregnancy

- Early intervention and timely treatment during pregnancy is imperative to preventing CS.
- **W.Va. Code Chapter 16, Article 4A**: All pregnant people must be tested for syphilis **at the first prenatal care visit.**
- Due to rapid increases in CS, the West Virginia Department of Health and Human Resources (DHHR) recommends pregnant people should also be tested at:
  - **28-32 weeks gestation, AND**
  - **Delivery** (baby should also be tested at this time)

# Treatment During Pregnancy

- Penicillin G Benzathine (AKA Benzylpenicillin or Bicillin) is the only recommended treatment for syphilis and preventing CS.
- Pregnant people should be treated with the recommended regimen for their stage of infection (1 or 3 doses of Bicillin L-A).
  - For late latent or unknown duration, each 2.4mu dose must be given at 7-day intervals.
  - An exception can be made for 8 days if follow-up testing can be assured.
- Pregnant people must be **desensitized** if there is a known penicillin allergy.
- Some may experience a Jarisch-Herxheimer reaction (JHR) within 24 hours.
  - Includes chills, fever, early contractions, and preterm delivery (rare).

# Syphilitic Stillbirth

- All fetal deaths that occur after 20-weeks gestation and/or in a fetus weighing >500g should be evaluated for syphilitic stillbirth.
- Mothers should be screened and tested for syphilis immediately.
- Any pregnant person with untreated or inadequately treated syphilis is at-risk of delivering a baby with CS.
- Adequate treatment is stage-appropriate bicillin initiated at least 30 days prior to delivery.

**Any suspected CS case (by lab and/or clinical criteria) must be reported to the state health department within 24 hours.**



# Clinical Guidance for Baby At Delivery

- A child born to a mother with a history of syphilis should automatically be **tested at delivery**.
- A child born to a mother who was not adequately treated at least 30 days prior to delivery should be **immediately treated** regardless of symptoms and/or pending lab results.
  - Please call the state health department for titer and treatment history.
- CS is often asymptomatic, and the newborn presents as healthy.
- There can be symptoms of CS at or soon after birth.
  - **Immediately treat** the newborn (do not wait for lab results).
  - Document any possible signs or symptoms consistent with CS in patient chart.

**Any suspected CS case (by lab and/or clinical criteria) must be reported to the state health department within 24 hours.**



# Snuffles



- Upper respiratory infection that is present immediately at delivery
- Spirochaetes infiltrate mucous membranes, causing mucus teeming with bacteria
- **Highly infectious**

# Rash or Lesions



- Punched out appearance of lesions on the skin
- Desquamation (peeling) along extremities

# Hepatosplenomegaly



- Enlarged liver and/or spleen
- Jaundice

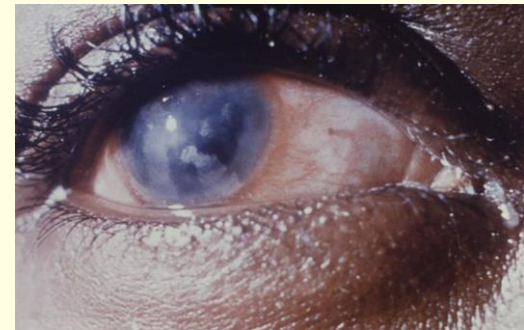
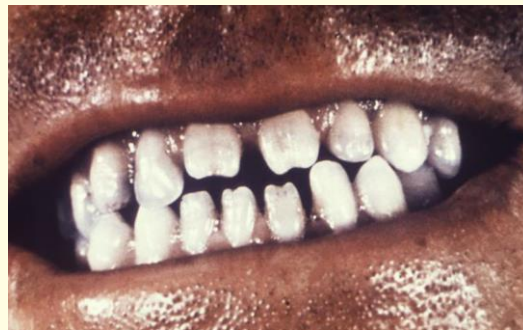
# Long Bone Deformities



- Periostitis
  - Inflammation of connective tissue covering the bones
- Cortical demineralization
  - Changes in bone density

# Late CS Manifestations

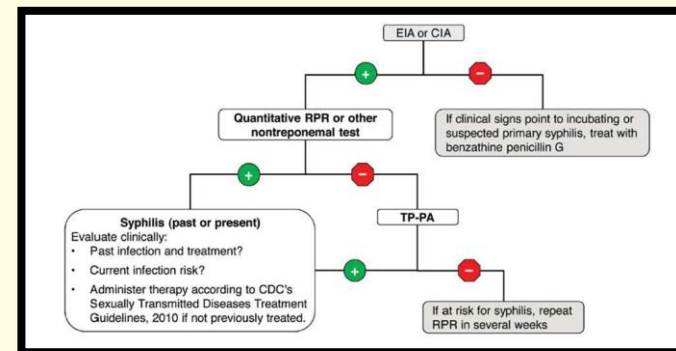
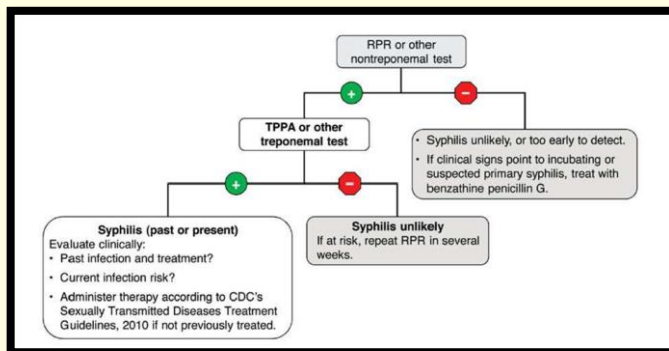
- Congenital syphilis diagnosed > 2 years of age.
- Rare in the United States, but can include:
  - Saber shins: Bone growth abnormality causing the shins to bow out
  - Hutchison's triad: Deafness, teeth abnormalities, corneal inflammation
  - Palatal perforation: Hole through the roof of the mouth into the sinus
  - Clutton's joints: Swelling and inflammation of the joints



**Any suspected CS case (by lab and/or clinical criteria) must be reported to the state health department within 24 hours.**

# Syphilis Serology

- Regardless of circumstance, if the birth mother has ever tested positive for syphilis, the child should have two types of serology labs ordered/run soon after delivery:
  - Non-Treponemal (RPR with reflex to titer)
  - Treponemal (TPPA, EIA, or other confirmatory treponema test)
- Traditional testing algorithm vs. reverse algorithm:



# Treatment and Management Scenario #1

## Scenario 1: Confirmed or Highly Probable CS

Any neonate with an abnormal physical exam that is consistent with CS, AND:

- A quantitative nontreponemal titer that is fourfold (or greater) higher than the birth mother's titer at delivery; OR
- A positive darkfield test or PCR of placenta, cord, lesions, mucous or other body fluids

### Recommended Evaluation:

- CSF analysis for VDRL, cell count, and protein\*
- Complete blood count (CBC) and differential and platelet count
- Long-bone radiographs
- Other tests as clinically indicated (e.g., chest radiograph, liver function test, neuroimaging, ophthalmologic examination, and auditory brain stem response)

### Recommended Regimens:

- **Aqueous crystalline penicillin G** administered as 50,000 units/kg body weight/dose by IV q12 hours for first 7 days, then q8 hours thereafter for a total of 10 days; OR
- **Procaine penicillin G** 50,000 units/kg of body weight/dose IM daily dose for 10 days

\*If >1 day of therapy is missed, the entire course should be restarted. A full 10-day course of penicillin is preferred, even if ampicillin was initially provided.



# Treatment and Management Scenario #2

## Scenario 2: Possible CS

Any neonate with normal physical exam and nontreponemal titer equal to or less than fourfold of the maternal titer at delivery and has one of the following:

- Birth mother was not treated, inadequately treated, or has no treatment documented
- Birth mother was treated with erythromycin or a regimen other than those recommended in the current STI Treatment Guidelines (i.e., a non-penicillin G regimen)
- Birth mother received the recommended regimen, but it was initiated <30 days prior to delivery

### Recommended Evaluation:

- CSF analysis for VDRL, cell count, and protein\*\*
- CBC, differential, and platelet count
- Long-bone radiographs

\*This evaluation is not necessary if a 10-day course of penicillin is administered, although such evaluations might be useful.

\*\*Before using the single-dose IM regimen, the above recommended evaluation must be normal. If any part of the evaluation is abnormal or if follow-up is uncertain, a 10-day course of penicillin G is required.

### Recommended Regimens:

- **Aqueous crystalline penicillin G** administered as 50,000 units/kg body weight/dose by IV q12 hours for first 7 days, then q8 hours thereafter for a total of 10 days; OR
- **Procaine penicillin G** 50,000 units/kg of body weight/dose IM daily dose for 10 days; OR
- **Benzathine penicillin G** 50,000 units/kg body weight/dose IM in a single dose



# Treatment and Management Scenario #3

## Scenario 3: CS Less Likely

Any neonate with normal physical exam and nontreponemal titer equal to or less than fourfold of the maternal titer at delivery and all three of the following are true:

- Birth mother was treated appropriately during pregnancy for the stage of infection
- Birth mother's treatment was initiated 30 days or more prior to delivery
- Birth mother has no evidence of reinfection or relapse

### Recommended Evaluation:

- No evaluation is recommended

### Recommended Regimens:

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

\*Another approach involves not treating the newborn if follow-up is certain but requires providing close serological lab evaluation every 2-3 months for 6 months for infants whose birth mother's 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).

## Scenario 4: CS Unlikely

Any neonate with normal physical exam and nontreponemal titer equal to or less than fourfold of the maternal titer at delivery and both of the following are true:

- Birth mother's treatment was adequate for pregnancy
- Birth mother's nontreponemal titer remained low and stable (i.e., serofast) before and during pregnancy and at delivery

### Recommended Evaluation:

- No evaluation is recommended

### Recommended Regimens:

- No treatment is required

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

\*Any neonate with reactive nontreponemal tests should be followed serologically to ensure it returns to negative.

## Exceptions and Special Circumstances to Consider for Treatment

- Neonate's nontreponemal test is nonreactive, and provider determines the birth mother's risk for untreated syphilis is low, treatment of neonate with a single IM dose of benzathine penicillin G 50,000 units/kg body weight for possible incubating syphilis can be considered without further evaluation.
- Neonates with birth mothers that had untreated early syphilis at time of delivery are at increased risk for CS, and the 10-day course of penicillin G should be considered regardless of neonate's nontreponemal test and physical evaluation, even when follow-up is certain.
- Neonates born to pregnant patients that had prenatal care and adequate treatment for their stage, but the nontreponemal titer has not fallen fourfold and reinfection is possible, can be treated with **benzathine penicillin G 50,000 units/kg of body weight/dose IM in a single dose.**

# Test Your Knowledge: Case Study #1

A 39-year-old pregnant patient with a history of adequately treated syphilis from a previous state has the following nontreponemal titer results:

RPR 1:2 collected on 09/27

RPR 1:2 collected on 11/30

At delivery, the child presents with no abnormalities.

What actions should be taken?

- A. Draw an RPR with reflex to titer and a treponemal test.
- B. Draw an RPR with reflex to titer, a treponemal test, and do a CSF VDRL, Protein, and WBC, as well as radiographs and CBC w/ differential. Start child on 50,000 units benzathine pen G/kg x 1 dose.
- C. Draw an RPR with reflex to titer. Start child on 50,000 units aq. crystalline pen G/kg q12 hours x 7 days, then q8 x 3 days.

# Test Your Knowledge: Case Study #1 Response

A 39-year-old pregnant patient with a history of adequately treated syphilis from a previous state has the following nontreponemal titer results:

RPR 1:2 collected on 09/27

RPR 1:2 collected on 11/30

At delivery, the child presents with no abnormalities.

What actions should be taken?

**A. Draw an RPR with reflex to titer and a treponemal test.**

*The likelihood of infection is low, so no treatment is required, but quantitative titers can be used to compare to maternal titers and for further follow-up of neonate.*

~~B. Draw an RPR with reflex to titer, a treponemal test, and do a CSF VDRL, Protein, and WBC, as well as radiographs and CBC w/ differential. Start child on 50,000 units benzathine pen G/kg x 1 dose.~~

~~C. Draw an RPR with reflex to titer. Start child on 50,000 units aq. crystalline pen G/kg q12 hours x 7 days, then q8 x 3 days.~~

# Test Your Knowledge: Case Study #2

A 29-year-old female is incarcerated and pregnant. Patient states she received no prenatal care and is now 35 weeks gestation. The RPR comes back 1:4. Treponemal AB is positive. Patient denies syphilis history and no treatment is given due to an emergency delivery three days later. Neonate's RPR is nonreactive, and child appears normal with no signs or symptoms of CS.

What is your plan?

- A. No action is necessary.
- B. Draw an RPR with reflex to titer, a treponemal test, and start child on 50,000 units benzathine penicillin G/kg x 1 dose.
- C. Draw an RPR with reflex to titer, a treponemal test, and do a CSF VDRL, Protein, and WBC, as well as radiographs and CBC w/ differential. Start child on 50,000 units aqueous crystalline penicillin G/kg q12 hours x 7 days, then q8 hours for last 3 days.
- D. Draw an RPR with reflex to titer, a treponemal test, and start child on 50,000 units aqueous crystalline penicillin G/kg q12 hours x 7 days, then q8 hours for last 3 days.

# Test Your Knowledge: Case Study #2 Response

A 29-year-old female is incarcerated and pregnant. Patient states she received no prenatal care and is now 35 weeks gestation. The RPR comes back 1:4. Treponemal AB is positive. Patient denies syphilis history and no treatment is given, due to an emergency delivery three days later. Neonate's RPR is nonreactive, and child appears normal with no signs or symptoms of CS.

What is your plan?

- A. ~~No action is necessary.~~
- B. ~~Draw an RPR with reflex to titer, a treponemal test, and start child on 50,000 units benzathine penicillin G/kg x 1 dose.~~
- C. **Draw an RPR with reflex to titer, a treponemal test, and do a CSF VDRL, Protein, and WBC, as well as radiographs and CBC w/ differential. Start child on 50,000 units aqueous crystalline penicillin G/kg q12 hours x 7 days, then q8 hours for last 3 days.**

*Scenario 2, Possible CS: Due to maternal criteria, the neonate should be treated and evaluated regardless of negative test results and evaluation at birth.*

- D. ~~Draw an RPR with reflex to titer, a treponemal test, and start child on 50,000 units aqueous crystalline penicillin G/kg q12 hours x 7 days, then q8 hours for last 3 days.~~

National Network of STD Clinical Prevention Training Centers  
Consultation Network

[www.stdccn.org/render/Public](http://www.stdccn.org/render/Public)

Centers for Disease Control and Prevention's STI Treatment Guidelines

[www.cdc.gov/std/treatment-guidelines/congenital-syphilis.htm](http://www.cdc.gov/std/treatment-guidelines/congenital-syphilis.htm)

[www.cdc.gov/std/treatment-guidelines/syphilis-pregnancy.htm](http://www.cdc.gov/std/treatment-guidelines/syphilis-pregnancy.htm)



# Contact

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