# Congenital Syphilis

## Investigative Guidelines

**August 2023**

## 1. DISEASE REPORTING

### 1.1 Purpose of Reporting and Surveillance

1. Identify cases of syphilis in pregnancy and prevent vertical transmission
2. Ensure adequate treatment and follow-up for pregnant people with syphilis and the infant
3. Ensure appropriate management, including screening and presumptive treatment, of sexual contacts of pregnant people with syphilis
4. Describe the epidemiology of congenital syphilis in Oregon

### 1.2 Laboratory and Physician Reporting Requirements

1. Licensed laboratories must report all positive test results indicating syphilis infection to the Local Public Health Authority within one working day (OAR 333-018-0000; 333-018-0015)[1]
2. Clinicians must report lab-confirmed and clinically suspect cases of syphilis to the Local Public Health Authority within one working day (OAR 333-018-0000; 333-018-0015)[1]
   - Oregon Revised Statute (ORS) 433.017 requires individuals attending a pregnant patient to collect or order the collection of a blood specimen for submission to a licensed laboratory to test for syphilis and selected other infections, unless the pregnant patient declines testing (OAR 333-019-0036)[2,3]
   - Oregon Health Authority recommends that all pregnant people be tested for syphilis three times: 1) at the first prenatal visit or presentation to care, 2) at 28 weeks' gestation, and 3) at delivery
3. Health care providers, health care facilities, and licensed laboratories shall cooperate with public health authorities in the investigation and control of syphilis infections (OAR 333-019-0002)[3]

### 1.3 Local Public Health Authority Reporting and Follow-up Responsibilities

1. LPHA must begin follow-up case investigation within two working days of receiving the initial provider or laboratory report
2. LPHA must report all congenital syphilis cases (including syphilitic stillbirths) to the OHA STD Program through the Oregon Public Health Epidemiology User System (Orpheus) by the end of the calendar week of initial provider or laboratory report (OAR 333-018-0020)[1]

3. LPHA must conduct case investigations and manage sexual contacts by following procedures outlined in these Investigative Guidelines (ORS 433.006, OAR 333-019-0000)[2,3]

## 2. THE DISEASE AND ITS EPIDEMIOLOGY

### 2.1 Etiologic Agent

The etiologic agent in syphilis is Treponema pallidum subspecies pallidum, a spirochete (corkscrew-shaped) bacterium.

Of all the subspecies of T. pallidum, only T. pallidum subsp. pallidum is transmitted routinely by sexual contact. The other T. pallidum subspecies are transmitted non-sexually (e.g., yaws, pinta).

### 2.2 Description of Illness

- **Early Congenital Syphilis (infant or child <2 years old):** Manifestations can include rhinitis (“snuffles”), long bone abnormalities, severe anemia, enlarged liver and spleen, jaundice, meningitis, or skin rashes
  - Infants with congenital syphilis may not have any symptoms at birth but can develop serious problems without treatment
- **Late Congenital Syphilis (child ≥2 years old):** Manifestations can include saddle nose, tibial thickening (“saber shins”), joint swelling (“Clutton joints”), perforation of hard palate, abnormal tooth development (“Hutchinson teeth” or “mulberry molars”), corneal inflammation, or brain and nerve problems causing blindness and deafness
- **Syphilitic Stillbirth:** Fetal death that occurs after a 20-week gestation or in which the fetus weighs >500 g and the birthing person had untreated or inadequately treated syphilis at delivery
  - Inadequate treatment consists of any nonpenicillin therapy; penicillin therapy initiated <30 days before delivery; incomplete therapy or dosing intervals outside of 6-9 days for treatment of late/unknown duration syphilis

### 2.3 Reservoirs

Humans

### 2.4 Modes of Transmission

Vertical transmission results in fetal infection:

- Occurs primarily via transplacental passage of *T. pallidum*
- Can occur during any stage of syphilis
- Can also occur on contact with genital syphilis lesions at the time of delivery

### 2.5 Incubation Period

Symptoms of congenital syphilis may not appear until several weeks or months after birth and, in some cases, may take years to appear. Early congenital syphilis typically manifests within the first 3 months of life. In late congenital syphilis, symptoms do not usually become apparent until two to five years of age.

### 2.6 Period of Communicability

Congenital syphilis risk is related to the syphilis stage during pregnancy, with the highest risk occurring during the primary and secondary stages:

- Untreated primary or secondary syphilis in pregnancy results in a 25% risk of stillbirth, a 14% risk of neonatal death, a 41% risk of a live infant with congenital syphilis, and a 20% chance of a non-infected infant
- Untreated late syphilis in pregnancy results in a 12% risk of stillbirth, a 9% risk of neonatal death, a 2% risk of giving birth to an infant with congenital syphilis, and a 77% chance of a non-infected infant[4]

## 3. CASE DEFINITIONS—FOR PUBLIC HEALTH STAFF

Public health staff determine whether the congenital syphilis surveillance case definition is met. Clinicians consult appropriate guidelines and use clinical judgement in evaluating and treating infants of people with syphilis in pregnancy. The CDC clinical scenarios (§4) do not perfectly align with the CDC congenital syphilis surveillance case definition.

### 3.1 Congenital Syphilis

See the CDC 2018 Syphilis Surveillance Case Definition page for further information on congenital syphilis case criteria and diagnosis.[5]

The Congenital Syphilis Case Classification Flow Chart (see Appendix A) is useful in determining whether the congenital syphilis surveillance case definition is met.

**Since RPR testing is the most common form of nontreponemal testing, the terms "nontreponemal serologic testing" and "RPR" are used interchangeably throughout these guidelines. The nontreponemal test performed on the infant should be the same type of nontreponemal test performed on the birthing person.**

#### 3.1.1 Confirmed Congenital Syphilis

Confirmed through demonstration of *T. pallidum* in fetus/infant by:

- Darkfield microscopy of lesions, body fluids, or neonatal nasal discharge

***OR***

- PCR of lesions, neonatal nasal discharge, placenta, umbilical cord, or autopsy material

***OR***

- Immunohistochemistry or special stains (e.g., silver staining) of specimens from lesions, placenta, umbilical cord, or autopsy material

### 3.1.2 Presumptive Congenital Syphilis (must meet maternal and/or infant criteria)

1. **Maternal Criteria:** Birthing parent had untreated or inadequately treated syphilis at delivery regardless of signs in the infant
   - Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated ≥30 days before delivery

***OR***

2. **Infant Criteria:** Infant with a reactive RPR **AND** any one of the following:
   - Any evidence of congenital syphilis on physical examination
     - Infant or child <2 years old: hepatosplenomegaly, rash, condyloma lata, snuffles, jaundice caused by liver dysfunction (e.g., cholestatic jaundice, direct hyperbilirubinemia, conjugated hyperbilirubinemia, or nonviral hepatitis), pseudoparalysis, anemia, or edema
     - Child ≥2 years old: interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson teeth, saddle nose, skin fissures, or Clutton joints
   - Any evidence of congenital syphilis on X-rays of long bones (*X-rays only recommended in CDC clinical scenarios 1 and 2*; see §4.2.1)
   - Evidence of congenital syphilis on a non-traumatic lumbar puncture/cerebrospinal fluid (CSF) exam (*CSF exam only recommended in CDC clinical scenarios 1 and 2; see §4.2.1*):
     - A reactive CSF VDRL test
     - Elevated CSF leukocyte (white blood cell, or WBC) count **or** protein (without other cause). CDC-suggested parameters for abnormal CSF values:
       - ≤30 days of life, a CSF WBC count >15 WBC/mm3 or a CSF protein >120 mg/dl
       - >30 days of life, a CSF WBC count >5 WBC/mm3 or a CSF protein >40 mg/dl, even if CSF VDRL is nonreactive.

## 3.2 Syphilitic Stillbirth

Fetal death that occurs after a 20-week gestation or in which the fetus weighs >500 g and the birthing person had untreated or inadequately treated syphilis at delivery

- Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated ≥30 days before delivery

## 4. CLINICAL MANAGEMENT—FOR MEDICAL PROVIDERS

The information in this section is adapted from the CDC 2021 STI Treatment Guidelines, which outline infant evaluation and treatment based on specific clinical scenarios.[6]

When a baby is born to a person with syphilis, the priority is to determine which clinical scenario applies. Clinicians consult appropriate guidelines and use clinical judgement in evaluating and treating infants of people with syphilis in pregnancy. Public health staff determine whether the congenital syphilis surveillance case definition is met (§3.2). The CDC clinical scenarios do not align with the CDC congenital syphilis surveillance case definition.

Serologic RPR testing should be performed on the infant's serum. Umbilical cord blood can become contaminated with maternal blood and yield a false-positive result and Wharton's jelly within the umbilical cord can yield a false-negative result.

Treponemal testing on the infant's serum is not recommended because it is difficult to interpret, as passively transferred maternal antibodies can persist for >15 months.

### 4.1 Management of Infants Aged <1 Month

Infants exposed to syphilis in utero should be examined for signs of congenital syphilis. Pathologic examination of the placenta or umbilical cord using specific staining (e.g., silver) or a *T. pallidum* PCR test should be considered, including in cases of stillbirth.

Diagnosis of congenital syphilis can be difficult. Maternal nontreponemal and treponemal antibodies can be transferred through the placenta to the fetus, complicating the interpretation of reactive serologic tests for infants. Treatment decisions frequently must be made based on identification of maternal syphilis; adequacy of maternal treatment; clinical, laboratory, or radiographic evidence of syphilis in the infant; and comparison of maternal (at delivery) and infant titers.

#### 4.1.1 Infant Evaluation and Treatment: if maternal reactive RPR and treponemal tests in pregnancy and reactive RPR at delivery (including for cases diagnosed at delivery)

The OHA/AETC Congenital Syphilis Evaluation and Treatment Pocket Guide (see Appendix B) is a helpful flowchart for determining which clinical scenario below applies if the birthing person had reactive RPR and treponemal tests in pregnancy and a reactive RPR at delivery (including for cases diagnosed at delivery).

***Scenario 1: Confirmed Proven or Highly Likely Congenital Syphilis***

Infant with:

- Abnormal physical exam consistent with congenital syphilis **OR**
- RPR titer that is fourfold or greater higher than the maternal titer at delivery **OR**
- Positive dark-field 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, white blood cell count, and protein
- Complete blood count (CBC) and differential and platelet count
- Long-bone X-rays
- Other tests as clinically indicated (e.g., chest X-ray, liver function tests, ophthalmologic exam)

**Recommended Treatment:**

- Aqueous crystalline penicillin G 100,000–150,000 units/kg body weight/day, administered as 50,000 units/kg body weight/dose by IV every 12 hours during the first 7 days of life and every 8 hours thereafter for a total of 10 days

***Scenario 2: Possible Congenital Syphilis***

Infant with a normal physical exam **AND** an RPR titer ≤fourfold of the maternal titer at delivery **AND** one of the following:

- Inadequate or no maternal treatment or no documentation of treatment
- Maternal treatment with non-penicillin G regimen
- Maternal treatment was **initiated** <30 days before delivery

**Recommended Evaluation:**

- CSF analysis for VDRL, white blood cell count, and protein
- Complete blood count (CBC) and differential and platelet count
- Long-bone X-rays

**Recommended Treatment:**

- Aqueous crystalline penicillin G 100,000–150,000 units/kg body weight/day, administered as 50,000 units/kg body weight/dose by IV every 12 hours during the first 7 days of life and every 8 hours thereafter for a total of 10 days *if any part of the evaluation is abnormal or not performed, the CSF is grossly contaminated, or follow-up as described in §4.2.3 is uncertain.*

***OR***

- Benzathine penicillin G 50,000 units/kg body weight/dose IM in a single dose *if all the recommended evaluation is performed, all results are available and normal, and follow-up as described in §4.2.3 is certain.*

**Additional Considerations:**

Infants born to birthing people with untreated early syphilis at the time of delivery may not have a reactive RPR and may have a normal clinical and laboratory evaluation. In this setting, the infant may have incubating or very early syphilis that is not yet clinically apparent. Therefore, even if follow-up as described in §4.3.2 is certain, infants should be treated with the 10-day regimen.

***Scenario 3: Congenital Syphilis Less Likely***

Infant with a normal physical exam **AND** an RPR titer ≤fourfold of the maternal titer at delivery **AND** both of the following are true:

- Birthing person was treated during pregnancy, treatment was appropriate for the syphilis stage, and the treatment regimen was initiated ≥30 days before delivery
- There is no evidence of maternal reinfection (i.e., no symptoms and titer has not increased fourfold or more)

**Recommended Evaluation:** None

**Recommended Treatment:**
- Benzathine penicillin G 50,000 units/kg body weight/dose IM in a single dose
- If follow-up is certain and maternal RPR titers decreased at least fourfold after therapy for early syphilis or remained stable for low-titer, latent syphilis (e.g., RPR<1:4), close RPR follow-up every 2-3 months for 6 months can be pursued instead of treatment.

***Scenario 4: Congenital Syphilis Unlikely***

Infant with a normal physical exam and an RPR titer ≤fourfold of the maternal titer at delivery **AND** both of the following are true:
- Maternal treatment was adequate before pregnancy
- Maternal RPR titers remained low and stable before and during pregnancy and at delivery

**Recommended Evaluation:** None

**Recommended Treatment:**
- No treatment required
- Benzathine penicillin G 50,000 units/kg body weight as a single IM injection should be considered if follow-up is uncertain and the infant has a reactive RPR

### 4.1.2 Infant Evaluation and Treatment: if maternal reactive treponemal tests and a nonreactive RPR

1. **Reactive maternal treponemal tests with a nonreactive RPR during pregnancy:**
   - Congenital syphilis is highly unlikely for infants born to people with a nonreactive RPR after adequate treatment for syphilis during pregnancy or documentation of adequate treatment before pregnancy (with no evidence of reinfection)
   - If the maternal RPR remains nonreactive at delivery and the infant has a normal physical examination and nonreactive RPR, manage like *Scenario 4: Congenital Syphilis Unlikely* scenario above. Benzathine penicillin G 50,000 units/kg body weight as a single IM injection might be considered if syphilis exposure is possible within 1 month before delivery and follow-up is uncertain.
2. **One reactive maternal treponemal test (e.g., EIA reactive, RPR nonreactive, TP-PA nonreactive) during pregnancy:**
   - Congenital syphilis is unlikely for infants born to people screened with the reverse sequence algorithm with an isolated reactive maternal treponemal test

- If the infant has a normal physical examination and the risk for maternal syphilis is low, no evaluation and treatment are recommended for the infant
- If maternal syphilis exposure is possible or unknown, repeat testing within 1 month is recommended to evaluate for early infection

3. **Reactive maternal treponemal test at delivery and no previous syphilis history or testing:**
   - Confirmatory testing is needed
   - If late or no prenatal care, the infant should be evaluated and treated with a 10-day course of penicillin as recommended in *Scenario 1: Confirmed Proven or Highly Likely Congenital Syphilis* above unless/until maternal syphilis is ruled out

### 4.1.3 Infant Follow-Up

- All infants with a reactive RPR at birth should receive thorough follow-up examinations and RPR testing every 2–3 months until the test becomes nonreactive*. Treponemal tests should not be used to evaluate infant infection status or treatment response*—these results are qualitative and passive transfer of maternal treponemal antibodies might persist for >15 months.
  - Treated infants who have persistent RPR titers by age 6–12 months should be reevaluated through CSF examination and managed in consultation with an expert. Retreatment with a 10-day course of a penicillin G regimen might be indicated.
  - For infants who were not treated because congenital syphilis was considered less likely or unlikely, RPR 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 antibodies
    - If the RPR is nonreactive at age 6 months, no further evaluation or treatment is needed
    - If the RPR is still reactive at age 6 months, the infant is likely infected and should be treated
- Infants with a negative RPR at birth born to people with a reactive RPR at delivery should be retested at age 3 months to rule out incubating congenital syphilis
- Infants whose initial CSF evaluations are abnormal do not need repeat lumbar puncture unless they exhibit persistent RPR titers at age 6–12 months. Persistent RPR titers and CSF abnormalities should be managed in consultation with an expert.

## 4.2 Management of Infants and Children Aged ≥1 Month

- Infants and children aged ≥1 month with reactive RPR and/or treponemal tests for syphilis should be examined thoroughly and have maternal serology and records reviewed to assess whether they have congenital or acquired syphilis
  - In the case of extremely early or incubating syphilis at the time of delivery, all maternal serologic tests might have been negative

  - Any infant or child at risk for congenital syphilis should receive a full evaluation and testing for HIV infection
- International adoptee, immigrant, or refugee children from countries where treponemal infections (e.g., yaws or pinta) are endemic might have reactive RPR and treponemal tests, which cannot distinguish between syphilis and other subspecies of *T. pallidum*. These children might also have syphilis and should be evaluated for congenital syphilis.

**Recommended Evaluation**:
- CSF analysis for VDRL, white blood cell count, and protein
- Complete blood count (CBC) and differential and platelet count
- Other tests as clinically indicated (e.g., chest X-ray, liver function tests, ophthalmologic exam)

**Recommended Treatment:**
- Aqueous crystalline penicillin G 200,000–300,000 units/kg body weight by IV, administered as 50,000 units/kg body weight every 4–6 hours for 10 days
- If there are no clinical manifestations of congenital syphilis and the evaluation is normal, treatment with up to 3 weekly doses of benzathine penicillin G 50,000 units/kg body weight IM can be considered
- These treatment regimens should also be adequate for children who might have other treponemal infections

**Follow-up:**
- Thorough follow-up examinations and RPR testing of infants/children treated for congenital syphilis after the first 30 days of life should be performed every 3 months until the test becomes nonreactive or the titer has decreased fourfold. *Treponemal tests should not be used to evaluate infant infection status or treatment response*—these results are qualitative and passive transfer of maternal treponemal antibodies might persist for >15 months.
- The titer response after therapy might be slower than for infants aged <1 month
- If titers increase at any point for >2 weeks or do not decrease fourfold after 12–18 months, the infant/child should be evaluated (e.g., CSF examination), treated with a 10-day course of parenteral penicillin G, and managed in consultation with an expert.
- Infants/children whose initial CSF evaluations are abnormal do not need repeat lumbar puncture unless their RPR titers do not decrease fourfold after 12–18 months. After 18 months of follow-up, abnormal CSF results that persist and cannot be attributed to other ongoing illness indicate that retreatment is needed for possible neurosyphilis and should be managed in consultation with an expert.

## 5. MANAGING SPECIAL SITUATIONS

### 5.1 Infants Placed in Department of Human Services (DHS) Custody

When an infant is classified as a CS case and/or has a reactive RPR at birth, and is placed in DHS custody:

- The county investigating the CS case should attempt to obtain information about where in Oregon the child will be residing and contact information for the child's pediatrician if known
- The county investigating the CS case should then give the county where the child is residing access to the infant's Orpheus case record to enable any necessary follow-up

## GLOSSARY

**CSF:** Cerebrospinal fluid. CSF testing can indicate whether there is central nervous system involvement in a syphilis infection.

**CBC:** Complete Blood Count. A complete blood count is a set of tests that provide information about the cells in a person's blood. The CBC indicates the counts of white blood cells, red blood cells, and platelets, and the hemoglobin and hematocrit.

**Early syphilis:** Any of the stages that occur in the first 12 months of infection: primary, secondary, and early non-primary non-secondary syphilis.

**IM:** Intramuscular. An IM injection delivers medication, such as benzathine penicillin G for syphilis, into a muscle.

**PCR:** Polymerase chain reaction test is a laboratory technique for rapidly producing (amplifying) many copies of a specific segment of genetic material, e.g., *T. pallidum* DNA in syphilis.

**RPR:** Rapid plasma reagin test is a nontreponemal serologic (blood) test. Unlike treponemal tests, the RPR measures antibodies that are not specific for *T. pallidum* bacteria and may be reactive due to conditions other than syphilis, including pregnancy.

**Treponemal test:** Treponemal tests measure antibodies directed against *T. pallidum* bacteria. Treponemal serologic (blood) tests include enzyme immunoassays (EIAs) and chemiluminescence immunoassays (CIAs), *T. pallidum* particle agglutination (TP-PA), and fluorescent treponemal antibody absorption (FTA-ABS) tests. These qualitative tests usually remain reactive for life, regardless of treatment.

**VDRL:** Venereal Disease Research Laboratory test is a nontreponemal test that can be done on blood and CSF. Mostly used in CSF testing in congenital syphilis and neurosyphilis evaluations. The RPR is the more common nontreponemal serologic (blood) test in Oregon.

## REFERENCES

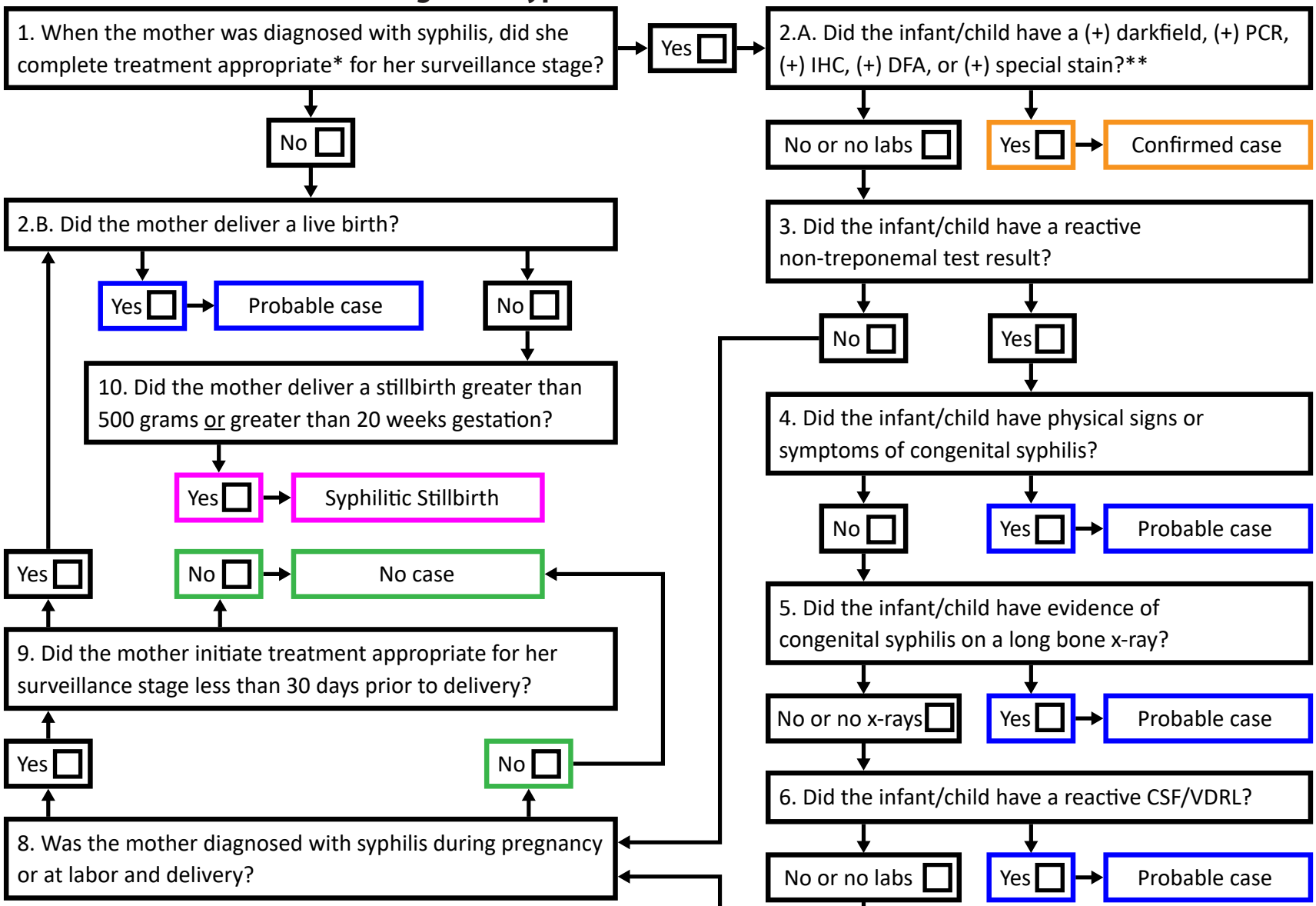

1. Oregon Administrative Rules. Oregon Health Authority Chapter 333 Public Health Division, Division 18 Disease Reporting. https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=292908
2. Oregon Revised Statutes. Chapter 433 Disease and Condition Control. https://www.oregonlegislature.gov/bills_laws/ors/ors433.html
3. Oregon Administrative Rules. Oregon Health Authority Public Health Division Chapter 333 Division 19 Investigation and Control of Diseases: General Powers and Responsibilities. https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=292879
4. Ingraham NR. The value of penicillin alone in the prevention and treatment of congenital syphilis. Acta Dermato Veneriologica. 1951;31:60–88.
5. CDC National Notifiable Diseases Surveillance System (NNDSS) Syphilis (*Treponema pallidum*) 2018 Case Definition. https://ndc.services.cdc.gov/case-definitions/syphilis-2018/
6. CDC Sexually Transmitted Infections Treatment Guidelines, 2021. https://www.cdc.gov/std/treatment-guidelines/default.htm


## UPDATE LOG

July 2023. First draft. (Jillian Garai, Yuritzy Gonzalez Pena, Timothy Menza)

# Appendix A

# Congenital Syphilis Case Classification Flow Chart




* appropriate treatment is defined as completion of a therapy regimen as outlined in the current CDC treatment guidelines at the time of diagnosis or in the event of two dilution titer rise. Special consideration for treatment regimens for pregnant women can be found here.

** regardless of mother's treatment, if the answer to 2A is "Yes," the congenital syphilis case is confirmed.

# CDC Congenital Syphilis Case Definition

## Considerations when following this flow chart:

- If an infant has a reactive darkfield, polymerase chain reaction (PCR), immunohistochemistry (IHC), direct fluorescent antibodies (DFA), or special stain test that is reactive for *Treponema pallidum* then regardless of mother's treatment history or infant's serological findings this will be a **confirmed case.**
- If mother did not complete treatment appropriate to her surveillance stage of syphilis (verify surveillance stage upon congenital syphilis case report) **OR** initiated treatment less than 30 days prior to delivery and had a live birth- the infant will be classified as a **probable case.**
- For a **probable case** to occur based on clinical manifestations an infant must have a reactive non-treponemal test **AND**
  - ◊ Positive CSF VDRL **OR**
  - ◊ Elevated CSF WBC (without other cause): Elevated CSF WBC is defined as greater than 15 WBC/$mm^3$ for the first 30 days of life and greater than 5 WBC/$mm^3$ after the first 30 days of life **OR**
  - ◊ Elevated CSF protein (without other cause): Elevated CSF protein defined as greater than 120 mg/dl for the first 30 days of life and greater 40 mg/dl for after the first 30 days of life **OR**
  - ◊ Evidence of congenital syphilis on a long bone x-ray (bowing of the long bones) **OR**
  - ◊ Any one of the following clinical manifestations outlined on the flow chart (without other cause)
    - ♦ Common physical signs and symptoms of congenital syphilis in infants are:
      - ∗ Hepatosplenomegaly (enlarged liver and spleen)
      - ∗ Rash
      - ∗ condyloma lata
      - ∗ Snuffles (nasal discharge)
      - ∗ Jaundice (yellowing of the tissues)
      - ∗ Pseudoparalysis of the extremities
      - ∗ Edema (tissue swelling from excess fluid)
      - ∗ Nerve deafness
    - ♦ Common physical signs and symptoms of congenital syphilis in an older child are:
      - ∗ Ocular issues (cataracts, keratitis)
      - ∗ Nerve deafness
      - ∗ Dental issues (mulberry molars, Hutchinson teeth)
      - ∗ Facial and skin abnormalities (frontal bossing, saddle nose, rhagades)
      - ∗ Limb and extremities abnormalities (anterior bowing of the shins, Clutton joints)
- If a fetal demise occurred at greater than 500 grams **OR** roughly 20 weeks gestation or greater **AND** if mother did not complete treatment appropriate to her surveillance stage of syphilis (verify surveillance stage upon congenital syphilis case report) **OR** initiated treatment less than 30 days prior to delivery then the infant will be classified as a **congenital syphilis stillbirth.**

Additional Considerations: If mother is a documented biological false positive during the current pregnancy and a NR treponemal test is obtained from labor and delivery, no case report is needed. If mother has never met case criteria at the time of delivery, no case report is needed.

# Appendix B

# CONGENITAL SYPHILIS (CS)

## Evaluation and treatment of infants (<30 days old) exposed to syphilis in utero*

**Start**

**INFANTS AND BIRTHING PARENT (e.g., mother) SHOULD HAVE SERUM RPR TITER DRAWN AT DELIVERY**

### Infant and Maternal Criteria

**Infant Criteria:**
- CS findings on physical exam
- Infant titer ≥fourfold higher than mother's titer
- + darkfield or PCR of placenta, cord, lesions, or body fluid
- + silver stain of placenta or cord

No to all

**Maternal Criteria:**
- Not treated
- Inadequately treated§
- Treatment undocumented
- Treated with a non-penicillin G regimen
- Initiated treatment <30 days before delivery

No to all

**Additional Maternal Criteria:**
- Adequately treated with penicillin G regimen appropriate for stage, initiated ≥30 days before delivery

*AND*

- No concern for reinfection or treatment failure

Yes to any

***Scenario 1: Proven or Highly Probable CS***

Yes to any

***Scenario 2: Possible CS ||***

Yes to both

***Scenario 3: Less Likely CS***

### Infant Evaluation

- **CSF analysis†** VDRL, cell count, and protein
- **Complete blood count (CBC),** differential, and platelet count
- **Long-bone radiographs**
- **Tests as clinically indicated by signs on physical exam**

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

**No additional infant evaluation**

**Review Maternal Titers & Stage:**
- ≥4 fold decrease in titer after treatment for early syphilis

*OR*

- Stable titer for low-titer, latent syphilis (RPR < 1:4)

Any abnormalities, results not available, *OR* follow-up¶ uncertain

No abnormalities *AND* follow-up¶ certain

No to both *OR* follow-up¶ uncertain

Yes to either *AND* follow-up¶ certain

### Infant Treatment

**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

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

**No treatment indicated**
with close serologic follow-up of infant every 2-3 months for 6 months

* Scenario 4: CS Unlikely is not shown. This scenario covers infants with normal physical exam and RPR titer ≤fourfold of the maternal titer at delivery, and the mother was adequately treated prior to becoming pregnant and sustained RPR titers ≤1:4 throughout pregnancy.

† CSF test results obtained during the neonatal period can be difficult to interpret; normal values differ by gestational age.

‡ Alternative: Procaine penicillin G 50,000 units/kg/dose IM in a single daily dose for 10 days

§ Adequate treatment for syphilis in a pregnant person refers to the appropriate penicillin regimen recommended by the CDC initiated at least 30 days prior to delivery.

|| Evaluation is not necessary if a 10-day course of parenteral therapy is administered, although such evaluations might be useful. If the neonate's nontreponemal test is nonreactive and the mother's risk for untreated syphilis is low, a single IM dose of benzathine penicillin G (BPG) can be considered without evaluation.

¶ All neonates with reactive nontreponemal tests should receive careful follow-up examinations and serologic testing (i.e., a nontreponemal test) every 2–3 months until the test becomes nonreactive. Neonates with a negative nontreponemal test at birth whose mothers were seroreactive at delivery should be retested at 3 months to rule out serologically negative incubating congenital syphilis at the time of birth.

FOR MORE INFORMATION ABOUT SCENARIO 4 MANAGEMENT, TREATMENT OF SYPHILIS IN PREGNANCY, NEONATAL CSF INTERPRETATION, AND CS INFANT FOLLOW-UP, PLEASE REFER TO THE CDC 2021 STI TREATMENT GUIDELINES.

Oregon Health Authority

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END HIV