Congenital Syphilis: Treatment and Prevention

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Part 3 of a Comprehensive 4 Part Series on Syphilis
4/20/2021
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The following planners of this activity have disclosed no relevant personal or financial relationships with any commercial interests pertaining to this activity:

Marguerite Urban MD; Daniela DiMarco, MD, MPH; Melinda Godfrey, NP, MBA; Oksana Babiy, BS; Monica Barbosu, MD, PhD; Tamara Eis, MS, RN-BC

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The following planner(s) of this activity have disclosed relevant personal or financial relationships with commercial interests pertaining to this activity:

NONE.

No commercial funding was received to support this activity.
SPEAKER

DISCLOSURES

NONE
Objectives

1. Discuss syphilis history, microbiology & recent epidemiology
2. Identify the clinical picture and treatment recommendations of congenital syphilis
3. Review the screening recommendations for syphilis in pregnancy
Sexually Transmitted Diseases Awareness Week

STD Awareness Week

Choose a Campaign • Plan Activities • Spread Awareness

April 11-17, 2021
Sexually Transmitted Diseases Awareness Week

- **Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2019. Atlanta: U.S. Department of Health and Human Services; 2021.**

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**The State of STDs in the United States, 2019**

- **1.8 million** cases of Chlamydia, 19% increase since 2015
- **616,392** cases of Gonorrhea, 56% increase since 2015
- **129,813** cases of Syphilis, 74% increase since 2015
- **1,870** cases of Syphilis among newborns, 279% increase since 2015

STDs increased for the 6th year, reaching a new all-time high.

Anyone who has sex could get an STD, but some groups are more affected:

- Young people aged 15-24
- Gay & bisexual men
- Pregnant people
- Racial & ethnic minority groups

Learn more at: www.cdc.gov/std/
Sexually Transmitted Diseases Awareness Week


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Sexually Transmitted Diseases Awareness Week

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19% increase since 2015

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- Young people aged 15-24
- Gay & bisexual men
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- Racial & ethnic minority groups

LEARN MORE AT: www.cdc.gov/std/
The National Plan to Eliminate Syphilis from the United States

October 1999
Division of STD Prevention
National Center for HIV, STD, and TB Prevention
Centers for Disease Control and Prevention

As we approach the end of the 20th century, the United States is faced with a unique opportunity to eliminate syphilis within its borders. Syphilis is easy to detect and cure, given adequate access to and utilization of care. Nationally, it is at the lowest rate ever recorded and it is confined to a very limited number of geographic areas, primarily in the southern United States. Where syphilis does persist in the U.S., it disproportionately burdens African Americans living in poverty. Syphilis elimination is not only feasible, but also can have far-reaching public health implications by removing its devastating consequences—increased likelihood of HIV transmission and spontaneous abortions, stillbirths, and multi-system disorders caused by congenital syphilis acquired from mothers with syphilis.

https://www.cdc.gov/stopsyphilis/exec.htm
Syphilis is Rising

![Graph showing the rise of syphilis rates over time.](image)

Syphilis is Rising

Syphilis is Rising

Syphilis Cases Are Not Distributed Equally

Syphilis Cases Are Not Distributed Equally

Syphilis Cases Are Not Distributed Equally

Female and Congenital Cases Are Rising

Why Do We Care?

Transplacental transmission

- 9th to 10th week of gestation
- Any stage of disease
- Fetal abnormalities worse after 20 weeks gestation

Adverse outcomes

- Congenital infection
- Miscarriage
- Stillbirth*
- Pre-term birth
- Impaired fetal growth
- Neonatal mortality

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Why Do We Care?

Transplacental transmission

- 9th to 10th week of gestation
- Any stage of disease
- Fetal abnormalities worse after 20 weeks gestation

Increased Risk of Congenital Infection

- Early-stage syphilis
- Maternal infection late in pregnancy
- Failure to adequately test and treat maternal infection

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Maternal and Congenital Syphilis

1. Identify syphilis in the mother
2. Deterninate if maternal treatment was adequate
3. Look for the presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Compare maternal and neonatal non-treponemal serologic titers
Meet Jen!

- 34-year-old bisexual female pregnant with her first child
- Her partner of 10 years is a 36-year-old bisexual man
- They are in a committed open relationship, and both have same sex partners
- She presents for prenatal care at ~10 weeks gestation
Meet Eve!

- 29-year-old female pregnant with her first child
- The baby's father was a “fling” and does not intend to be involved
- She presents for prenatal care at ~12 weeks gestation
Meet Alex

• 24-year-old female pregnant with her first child
• Pregnant with her high-school sweetheart
• Neither of them has had any other sexual partners
Who Should Be Screened for Syphilis?
# General Screening for Syphilis

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men who have sex with men</td>
<td>At least annually if sexually active, and every 3-6 months based if increased risk*</td>
</tr>
<tr>
<td>Patients taking PrEP</td>
<td>At initiation and every 3-6 months based if increased risk*</td>
</tr>
<tr>
<td>Persons living with HIV</td>
<td>At diagnosis and at least annually if sexually active, and every 3-6 months if increased risk*</td>
</tr>
</tbody>
</table>
| Non-pregnant Women (Cis-gender) and Non-MSM Men | **No national recommendation for routine screening**  
  • Screening at least annually is recommended in sexually active persons if increased risk* |
| Pregnant Women                    | **First prenatal encounter plus third trimester (28 weeks) and at delivery if increased risk or in a community with increased prevalence** |

* * *
Who Gets Screened for Syphilis?

- HIV Ab/Ag – negative
- 3 site gonorrhea/chlamydia NAAT negative
- RPR – reactive
  - RPR titer: 1:1

- HIV Ab/Ag – negative
- 3 site gonorrhea/chlamydia NAAT negative
- RPR – reactive
  - RPR titer: 1:8

- HIV Ab/Ag – negative
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  - RPR titer: 1:1
Diagnosing Syphilis in Pregnancy

1. **Identify syphilis in the mother**
2. Determine if maternal treatment was adequate
3. Look for the presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Compare maternal and neonatal non-treponemal serologic titers

- Non-treponemal (quantitative)
  - RPR (Rapid Plasma Reagin)
  - VDRL (Venereal Disease Research Lab)

- Treponemal (qualitative)
  - FTA-ABS (Fluorescent Treponemal Antibody Absorption)
  - TPPA (T. Pallidum Particle Agglutination Assay)
  - EIA (Enzyme Immunoassay to T. Pallidum)
Syphilis – Traditional Algorithm

Nontreponemal Test (RPR or VDRL)

- Reactive
- Nonreactive

Treponemal Test (FTA-ABS, TPPA, EIA)

- Reactive
- Nonreactive

Evidence of Syphilis Infection

- Likely False Positive

No serologic evidence of Syphilis

Evidence of Syphilis Infection:
- Current infection
- Prior treated infection

Other Work-up

**Fetal U/S**
- Ultrasound to look for congenital syphilis when syphilis is diagnosed during the second half of pregnancy
- Non-specific findings
  - Hepatomegaly
  - Placentomegaly
  - Anemia
  - Polyhydramnios
  - Ascites

**Pathology**
- Placenta
- Umbilical cord
Alex’s Course

• Labs notable for:
  – RPR – reactive
  • RPR titer: 1:1
Alex’s Course

• Labs notable for:
  – RPR – reactive
    • RPR titer: 1:1
  – TPA – negative

False positive
  – More common during pregnancy

1. Identify syphilis in the mother
2. **Determinate if maternal treatment was adequate**
3. Look for the presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Compare maternal and neonatal non-treponemal serologic titers
Syphilis Stages

- Incubating Infection [9-90 days]
- Exposure
- Primary
- Secondary
- Early Latent
- Late Latent
- Early Neurosyphilis
- Early Ocular or Otic Syphilis
- ~ 6 months
- 12 months
- Usually 1 or more decades after acquisition

Possible recurrence to secondary stage if untreated

Tertiary (Cardiovascular/Gummatous) and/or
Late Neurosyphilis and/or
Late Ocular/Otic Syphilis

Syphilis Stages

Syphilis Stages

- Incubating Infection [9-90 days]
- Exposure
- Primary
- Secondary
- Early Latent
- Late Latent
- Early Neurosyphilis
- Early Ocular or Otic Syphilis
- Local
- Disseminated
- Possible recurrence to secondary stage if untreated
- Tertiary (Cardiovascular/ Gummatous) and/or Late Neurosyphilis and/or Late Ocular/Otic Syphilis
- Usually 1 or more decades after acquisition

## Treating Syphilis in Pregnancy

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<th>Stage</th>
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“Pregnant women who have a history of penicillin allergy should be desensitized and treated with penicillin”

**Treating Syphilis in Pregnancy**

**Additional Therapy?**

- "For women who have primary, secondary, or early latent syphilis, a second dose of benzathine penicillin 2.4 million units IM can be administered 1 week after the initial dose"

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Treating Syphilis in Pregnancy

Additional Therapy?

- "For women who have primary, secondary, or early latent syphilis, a second dose of benzathine penicillin 2.4 million units IM can be administered 1 week after the initial dose"

Why?

- Limited efficacy data
- PK/PD data
- No randomized control trial showing benefit

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Eve’s Course

- Labs notable for:
  - Positive RPR
    - RPR titer 1:8
    - TPA - positive
  - Asymptomatic
- Never tested for syphilis previously
- Received Penicillin G IM weekly x 3 weeks
1. Identify syphilis in the mother

2. **Determinate if maternal treatment was adequate**

3. Look for the presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate

4. Compare maternal and neonatal non-treponemal serologic titers

- Symptoms at time of diagnosis
- History of prior testing
- Number and timing of doses given
- Chances of reinfection
Understanding Maternal and Congenital Syphilis

1. Identify syphilis in the mother
2. **Determinate if maternal treatment was adequate**
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### Adequate Treatment

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<th>HIV INFECTED</th>
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<td>Follow up Serologies</td>
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<td>Primary and Secondary</td>
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<tr>
<td>6 months</td>
<td>3 months</td>
<td>6 months</td>
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<tr>
<td>12 months</td>
<td>9 months</td>
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</tr>
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<td>24 months</td>
<td>24 months</td>
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</tr>
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<td>Early Latent, Late Latent, and Latent Syphilis of Unknown Duration</td>
<td></td>
<td></td>
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<tr>
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Jen’s Course

- Labs notable for:
  - RPR – reactive
    - RPR titer 1:1
    - TPA – positive

- Outside records obtained and Jen was treated one year ago for a titer of 1:64 with 3 shots of penicillin G each 7 days apart.
1. Identify syphilis in the mother
2. **Determinate if maternal treatment was adequate**
3. Look for the presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Compare maternal and neonatal non-treponemal serologic titers

**Treatment Failure**

- **Primary and Secondary**
  - Persistence or recurrence of signs and symptoms
  - A sustained (more than 2 weeks) $\geq 2x$ dilution rise in titer following initiation of treatment
  - Failure of nontreponemal titer to decrease 2 dilutions by 6–12 months after treatment

- **Latent**
  - Development of signs and symptoms
  - A sustained (more than 2 weeks) $\geq 2x$ dilution rise in titer following initiation of treatment
  - If initial titer $\geq 1:32$, failure of the titer to decrease by $\geq 2$ dilutions by 12–24 months after treatment
Syphilis – Interpreting Titers

1:2048
1: 1024
1:512
1: 256
1:128
1: 64
1:32
1: 16
1:8
1: 4
1:2
1: 1
Nonreactive
2 dilution change = 4 x increase or decrease in titers
1:32
1:16
1:8
1:4
1:2
1:1
Nonreactive

1 dilution change = 2 x increase or decrease in titers

1:2048
1:1024
1:512
1:256
1:128
1:64
1:32
1:16
1:8
1:4
1:2
1:1
Nonreactive

Jen’s Course

• Labs notable for:
  – RPR – reactive
    • RPR titer 1:1
    • TPA – positive

• Outside records obtained and Jen was treated one year ago for a titer of 1:64 with 3 shots of penicillin G each 7 days apart

• No further treatment offered
Jen’s Course

- She returned at 32 weeks
- She was asymptomatic however repeat labs were notable for
  - RPR – reactive
    - RPR titer 1:16
- She was treated with Pen G 2.4 million units IM x 1 for early latent syphilis
Congenital Syphilis

- “No newborn infant should be discharged from the hospital without determination of the mother’s serologic status for syphilis”
Congenital Syphilis

Congenital Syphilis

Evaluating For Congenital Syphilis

Evaluation

1. **Identification of syphilis in the mother**
2. **Adequacy of maternal treatment**
3. Presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers
Evaluating For Congenital Syphilis

Evaluation
1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. **Presence of clinical**, laboratory, or radiographic evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers

Clinical Evidence of Early Congenital Syphilis
- Hepatosplenomegaly
- **Syphilitic rhinitis** ("snuffles")
- Lymphadenopathy
- Pneumonia
- Pseudoparalysis
- Edema
- **Rash (maculopapular, vesicular, condylomata lata)**
- Osteochondritis
Clinical Evidence of Early Congenital Syphilis

“Snuffles”

Typical Rash

Clinical Evidence of Early Congenital Syphilis

Hepatomegaly and Jaundice

X-ray abnormality

https://www.cdc.gov/ncbddd/birthdefects/surveillancemanual/chapters/chapter-5/chapter5-2.html
Manifestations of Congenital Syphilis

Adverse Pregnancy Outcomes
- Stillbirth
- Prematurity
- Small for gestational age
- Nonimmune hydrops (e.g., ascites, pleural, or pericardial effusion, skin edema)

Nose and Throat
- Rhinitis/"Snuffles"—thick or bloody nasal discharge
- Laryngitis with hoarseness or aphonic cry

Mucocutaneous
- Mucous eruption
  - Dusky pink or copper-colored lesions, often with a fine silvery scale
  - Usually involves the back, perineum, extremities, palms, and soles; spares the anterior trunk
- Pemphigus syphiliticus
  - Bullous, crusting, or desquamatory eruption
  - Often prominent on palma and soles

Central Nervous System
- Acute meningitis and hydrocephalus with meningismus, bulging fontanelles, or vomiting
- Cerebral infection
- Chronic meningovascular disease
- Hypopituitarism
- Ocular abnormalities (e.g., uveitis, chorioretinitis, glaucoma)
- Cranial nerve palsy

Skeletal
- Most infants with skeletal involvement are asymptomatic.
- Epiphysitis (usually of the radius, femur, humerus, and fibula)
- Metaphyseal osteochondritis
- Proximal tibial metaphyseal demineralization and destruction
- Diaphyseal periostitis
- Osteitis with alternating linear translucency and radiodensity ("colley stick" appearance on x-ray)
- Dactylitis (involving metacarpals, metatarsals, and proximal phalanges)
- Pseudoparalysis (due to painful bony lesions or fractures)

Other
- Paronychia
- Alopecia (especially of eyebrows)
- Mucous patches which can evolve into hemorrhagic fissures
  - Seen at the nares, lips, tongue, palate, anus, and perineum
- Condyloa lata (perianal or perianal)

Hematologic
- Anemia
- Autoimmune hemolysis
- Thrombocytopenia

Gastro-intestinal
- Hepatomegaly
- Jaundice
- Pancreatitis
- Ileitis
Symptoms of Congenital Syphilis

- Long bone changes
- Snuffles
- Condyloma lata
- Syphilitic skin rash
- Pseudoparalysis
- Hepatosplenomegaly
- Edema
- Jaundice or Hepatitis
- Reactive CSF-VDRL
- Elevated CSF WBC or protein
- Evidence of direct detection of *T. Pallidum*
Evaluating For Congenital Syphilis

**Evaluation**

1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. **Presence of** clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers

**Lab**

- Anemia
- Thrombocytopenia
- Leukopenia
- Leukocytosis
- CSF Abnormalities
  - Elevated WBC
  - Elevated protein
- Reactive CSF VDRL

---

Evaluating For Congenital Syphilis

**Evaluation**

1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. **Presence of** clinical, laboratory, or **radiographic** evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers

**Radiographic**

- Periostitis
  - Irregular periosteal thickening
- Metaphyseal serration (“Wegner sign”)
- Demineralization and destruction of the upper medial tibia (“Wimberger sign”)
Evaluating For Congenital Syphilis

Evaluation

1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. Presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers

   • Neonatal serum
   • Not
     – Cord blood
Evaluating For Congenital Syphilis

**Evaluation**

1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. Presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. **Comparison of maternal and neonatal non-treponemal serologic titers**

**Infant titer ≥4 fold higher than mother’s titer**

<table>
<thead>
<tr>
<th>Titer</th>
<th>Mother</th>
<th>Neonate</th>
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<tbody>
<tr>
<td>1:2048</td>
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2 dilution change = 4 x increase or decrease in titers
1 dilution change = 2 x increase or decrease in titers
What Work-Up Will the Babies Need

- Treated with PCN IM x 1 at 28 weeks
- Baby born at 34 weeks via C/S due to fetal distress
- Exam normal

- Treated with PCN IM x 3 at 12 weeks
- Re-tested at 28 weeks and RPR titer 1:1
- Baby born at 38 weeks via NSVD

- Not treated
- Baby born at 40 weeks via C/S for failure to progress
Put It All Together

Evaluation

1. Identification of syphilis in the mother
2. Adequacy of maternal treatment
3. Presence of clinical, laboratory, or radiographic evidence of syphilis in the neonate
4. Comparison of maternal and neonatal non-treponemal serologic titers

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely
4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Proven or Highly Probable Criteria

- A physical examination that is consistent with congenital syphilis
  - OR
- Serum quantitative nontreponemal serologic titer >= 4x the maternal titer
  - OR
- Evidence of direct detection of T. Pallidum

4 Scenarios

Proven or Probable

Possible

Less Likely

Unlikely

Proven or Highly Probable Evaluation

• CSF analysis
  – Cell count
  – Protein
  – VDRL

• Complete blood count (CBC) and differential

• Other tests as clinically indicated
  – Long-bone radiographs
  – Chest radiograph
  – Liver-function tests
  – Neuroimaging
  – Ophthalmologic examination
  – Auditory brain stem response

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Proven or Probable Treatment

- Acqueous crystalline penicillin G 50,000 units/kg/dose IV
  - Every 12 hours during the first 7 days of life
  - Every 8 hours thereafter
  - Total of 10 days

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

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Put It All Together

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Possible Criteria

- Normal physical exam
- Serum quantitative nontreponemal serologic titer $\leq 4x$ the maternal titer
  - AND one of the following
    - Mother was not treated
    - Mother inadequately treated (including nonpenicillin G regiment)
    - Mother has no documentation of having received treatment
    - Mother received recommended treatment $\leq 4$ weeks before delivery

4 Scenarios

Proven or Probable

Possible

Less Likely

Unlikely

Possible Evaluation

- CSF analysis
  - Cell count
  - Protein
  - VDRL
- Complete blood count (CBC) and differential
- Long-bone radiographs

4 Scenarios

Proven or Probable

Possible

Less Likely

Unlikely

Possible Treatment

- Aqueous crystalline penicillin G 50,000 units/kg/dose IV
  - Every 12 hours during the first 7 days of life
  - Every 8 hours thereafter
  - Total of 10 days

OR

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

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10 Day Of Treatment

- Work-up abnormal
- Work-up uninterpretable
  - CSF contaminated with blood
- Work-up not performed
- Uncertain follow-up

Single Dose Treatment

- Evaluation completely normal
Meet Jen’s Baby!

- Jen’s baby was born at 34 weeks gestation via c-section for fetal distress
- Required only stimulation with Apgar's 7 and 9
- Baby is appropriate for gestational age
- **RPR positive**
  - RPR titer: 1:2
  - (Mom’s titer was 1:8)
- Baby received 10 days of IV penicillin therapy after a 48 hour rule-out of ampicillin and gentamicin
Put It All Together

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Less Likely Criteria

- Normal physical exam
- Serum quantitative nontreponemal serologic titer $\leq 4x$ the maternal titer
  - AND ALL of the following
- Mother was treated appropriately during pregnancy
- Treatment was $>4$ weeks before delivery
- Mother has no evidence of reinfection or relapse

Source:
Put It All Together

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Less Likely Evaluation

- No evaluation is recommended

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Less Likely Treatment

- Benzathine Penicillin G 50,000 units/kg/dose IM in a single dose
- No treatment with close follow-up

Meet Eve’s Baby!

- Eve’s baby was born at 38 weeks gestation via NSVD
- Required minimal stimulation with Apgar’s 9 and 9
- Baby is appropriate for gestational age
- **RPR positive**
  - RPR titer: 1:1
- Baby received Benzathine Penicillin G 50,000 units/kg/dose IM in a single dose
Put It All Together

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Unlikely Criteria

- Normal physical exam
- Serum quantitative nontreponemal serologic titer <= 4x the maternal titer
  - AND BOTH of the following
- Mother’s treatment was adequate before pregnancy
- Mother’s nontreponemal serologic titer remained low and stable during pregnancy and delivery

Put It All Together

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

Unlikely Evaluation

- No evaluation is recommended

---

**Put It All Together**

**4 Scenarios**

- **Proven or Probable**
- **Possible**
- **Less Likely**
- **Unlikely**

**Unlikely Treatment**

- No treatment is recommended

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Follow-up

Neonates With Positive Non-Treponemal Test

• Repeat every 3 months

• In patients not treated at birth
  – Should be non-reactive by 6 months
  – If reactive, consider treatment

• In patients treated at birth
  – Should be non-reactive by 12 months
  – If reactive consider LP and 10 day course of IV penicillin
<table>
<thead>
<tr>
<th>Neonates With Positive Non-Treponemal Test</th>
<th>Neonates With a Negative Non-Treponemal Test</th>
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</thead>
<tbody>
<tr>
<td>• Repeat every 3 months</td>
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<td>course of IV penicillin</td>
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</tbody>
</table>
Follow-up

Neonates With Abnormal CSF

- Repeat LP every 6 months until normal
- Persistently positive CSF VDRL may require retreatment
Late Congenital Syphilis (>30 days)

4 Scenarios

Proven or Probable

Possible

Late (>30 d)

Less Likely

Unlikely

>30 days Criteria

- Reactive serologic testing for syphilis
- Review of maternal records indicates that congenital syphilis is possible

Late Congenital Syphilis (>30 days)

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

>30 days Evaluation

- CSF analysis
  - Cell count
  - Protein
  - VDRL
- Complete blood count (CBC) and differential
- Other tests as clinically indicated
  - Long-bone radiographs
  - Chest radiograph
  - Liver-function tests
  - Neuroimaging
  - Ophthalmologic examination
  - Auditory brain stem response

Late Congenital Syphilis (>30 days)

4 Scenarios

- Proven or Probable
- Possible
- Less Likely
- Unlikely

>30 days Treatment

- Aqueous crystalline penicillin G 50,000 units/kg/dose IV every 4-6 hours for 10 days
- If evaluation normal
  - Benzathine penicillin G 50,000 units/Kg IM weekly x 3 doses

Late Congenital Syphilis

- Facial features
  - Frontal bossing
  - Saddle nose
  - Short maxilla
  - Protuberant mandible
- Oropharyngeal features
  - Hypoplastic, notched, widely spaced permanent teeth
  - Perforation of hard palate
- Skeletal
  - Bowing of shins
  - Enlargement of the sternoclavicular portion of the clavicle
- Fissures around the mouth
- Gummas on skin or mucous membranes
- Cranial nerve palsies
- Sensorineural hearing loss
- Intellectual disability
Late Congenital Syphilis

- Facial features
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- Oropharyngeal features
  - Hypoplastic, notched, widely spaced permanent teeth
  - Perforation of the hard palate
- Skeletal
  - Bowing of shins
  - Enlargement of the sternoclavicular portion of the clavicle
  - Fissures around the mouth
- Systemic
  - Gummas on skin or mucous membranes
  - Cranial nerve palsies
  - Sensorineural hearing loss
  - Intellectual disability

Late manifestations can be prevented by treatment of early infection!
Put It All Together

- Proven or Probable
- Possible
- Late (>30 d)
- Less Likely
- Unlikely
Want to know more about STDs? There’s an app for that…

STD Treatment Guidelines Apps

STD Tx Guidelines

STD Clinical Toolbox

Available on iTunes & Google Play

Available on iTunes
Syphilis Monograph

- Developed by the New York City Department of Health and Mental Hygiene Bureau of Sexually Transmitted Infections and the New York City STD Prevention Training Center.
- Serves as a source of clinical guidance in the diagnosis and management of syphilis.
- Critical to prevent the spread of syphilis, particularly in the fight against congenital syphilis.
- To download a copy please visit:
CONGENITAL SYphilIS (CS)
Evaluation and treatment of infants (<30 days old) born to women with syphilis during pregnancy

Start

Infant and Maternal Criteria:
- CS findings on physical exam
- Infant: >4 fold higher than mother’s titer
- P. d Jackets or PCR of lesion/body fluid

Maternal Criteria:
- Not treated
- Inadequately treated
- Treatment undocumented
- Treated with a non-benzathine penicillin G regimen
- Received treatment <4 weeks before delivery

No to all

Scenario 1: Possible CS

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.

No additional infant evaluation

Review Maternal Titers & Stage:
- 3rd fold decrease in titer other treatment for early syphilis OR
- Stable titer for low-titer, late syphilis (RPR < 1:4 or VDRL < 1:2)

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

Scenario 2: Possible CS

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

No additional infant evaluation

Review Maternal Titers & Stage:
- 3rd fold decrease in titer other treatment for early syphilis OR
- Stable titer for low-titer, late syphilis (RPR < 1:4 or VDRL < 1:2)

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

Scenario 3: Less Likely CS

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

No additional infant evaluation

Review Maternal Titers & Stage:
- 3rd fold decrease in titer other treatment for early syphilis OR
- Stable titer for low-titer, late syphilis (RPR < 1:4 or VDRL < 1:2)

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

Infant Treatment

Aqueous crystalline penicillin G: 100,000-150,000 units/kg/dose, 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: 25,000 units/kg/dose IM in a single dose

Yes to both

Follow-up in uncertain

Yes to either

Follow-up in uncertain

Yes to both

Follow-up in uncertain

Yes to either

Follow-up in uncertain

Yes to both

Follow-up in uncertain

Yes to either

Follow-up in uncertain

Yes to both

Follow-up in uncertain

Yes to either

Follow-up in uncertain

Yes to both

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Yes to either

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Yes to both

Follow-up in uncertain

Yes to either

Follow-up in uncertain

Yes to both

Follow-up in uncertain

Yes to either
Questions?

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