Congenital Syphilis: Common But Not So Much

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Objectives

- Describe the scope of the syphilis epidemic in the United States
- Develop a high index of suspicion for congenital syphilis in infants presenting with classical symptoms
- Recognize the importance of early diagnosis and treatment of congenital syphilis

Disclosures

- I have no financial interests or relationships to disclose.

Misconceptions about Congenital Syphilis

- It is a disease of the past.
- The outcome of pregnancy is determined by the time of gestational infection.
- Screening pregnant mothers once for syphilis is sufficient.
- A negative RPR in the mother effectively rules out syphilis in a newborn.

Scope of the Problem

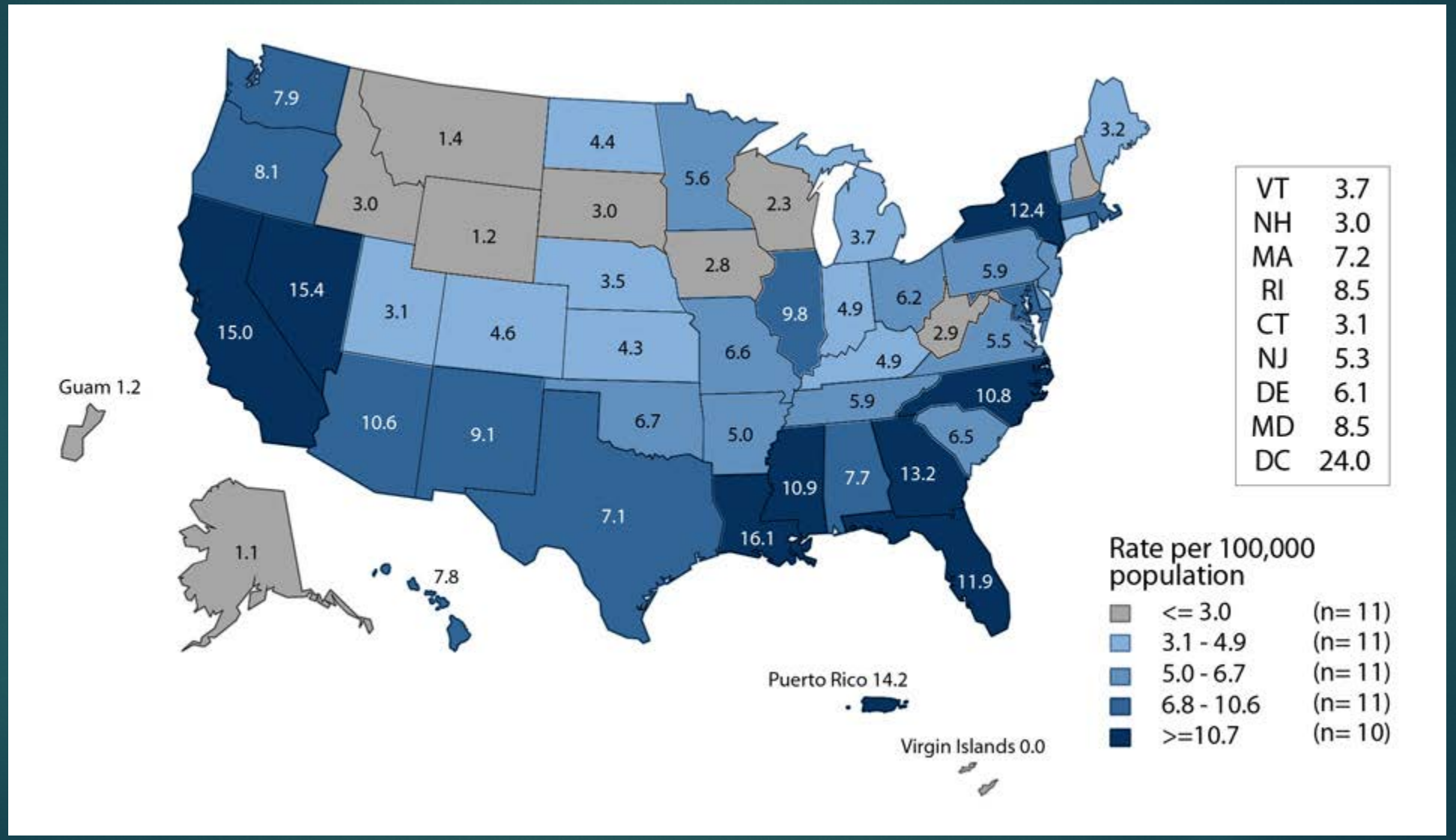
- In the United States:
  - Number of cases is rising
  - 16 per 100,000 live births reported in 2016
  - 27.6% increase since 2015

- In Louisiana:
  - Ranked 1st in the US Highest rate of reported cases in the country from 2012-2016
  - 74.4 per 100,000 live births reported in 2016 (48 cases total)
  - Nearly 5 times the national rate
  - 11% decrease since 2015
  - In 2017, increased again to 59 cases total

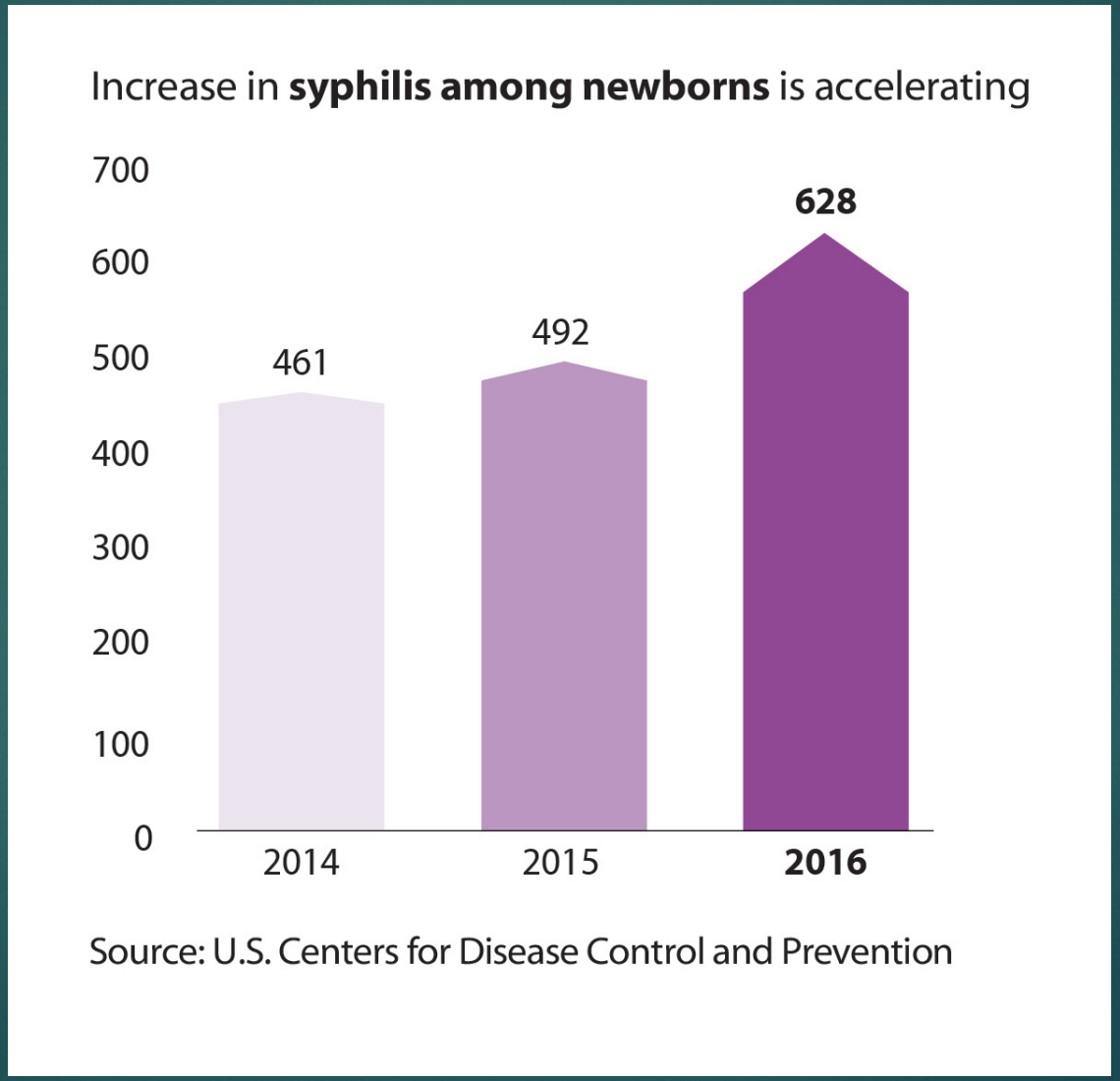
Congenital Syphilis in Louisiana

- **59%** occurred in 3 regions:
  - 23% in **Baton Rouge**
  - 19% in **Monroe**
  - 17% in **Shreveport**
- **90%** of mothers were black
- **19%** of mothers did not receive prenatal care
- **10%** of mothers who did receive prenatal care did not receive timely prenatal care
- **17%** of mothers who did receive timely prenatal care did not have a timely syphilis screening

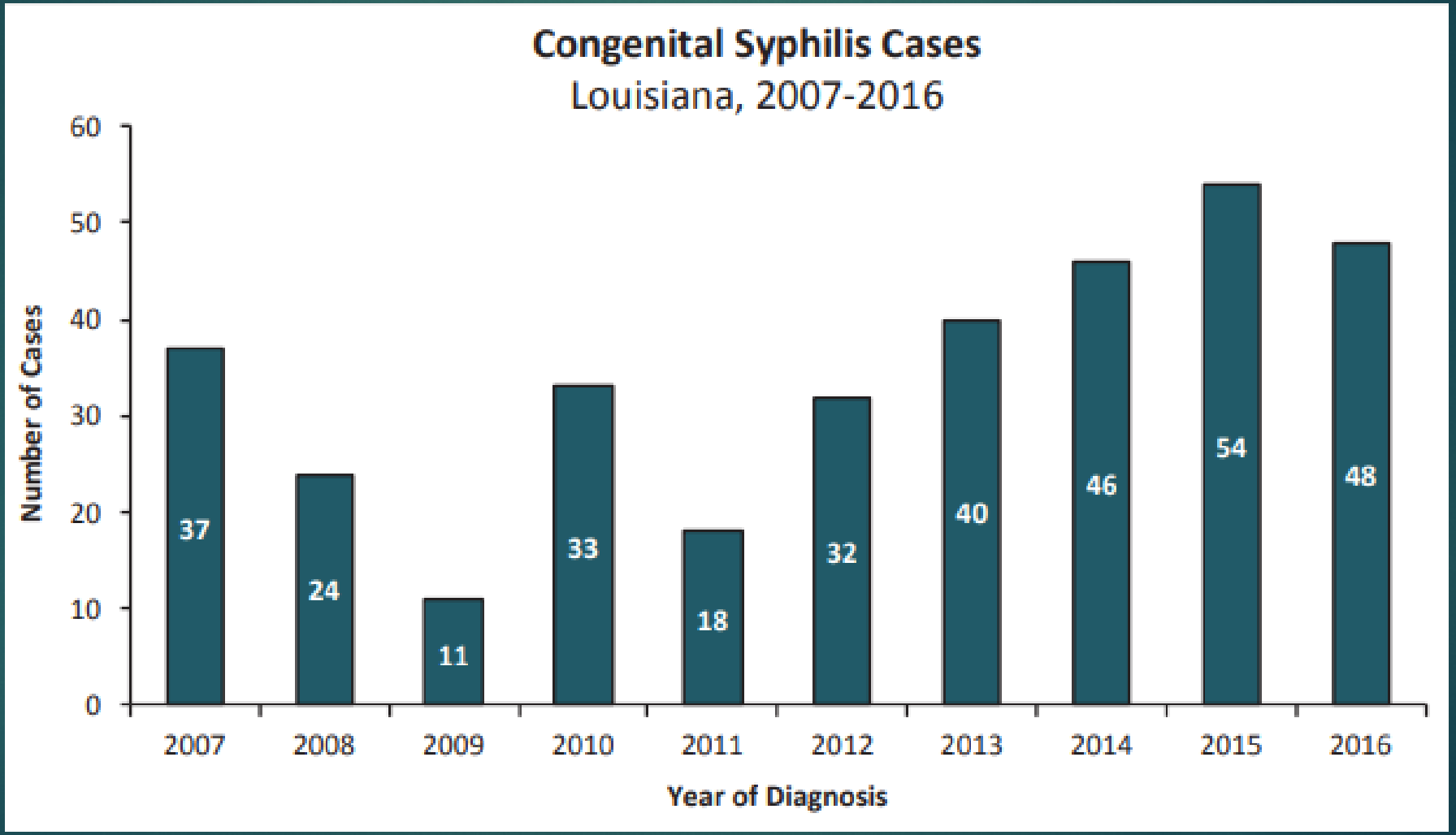
Primary and Second Syphilis



Congenital Syphilis



Congenital Syphilis



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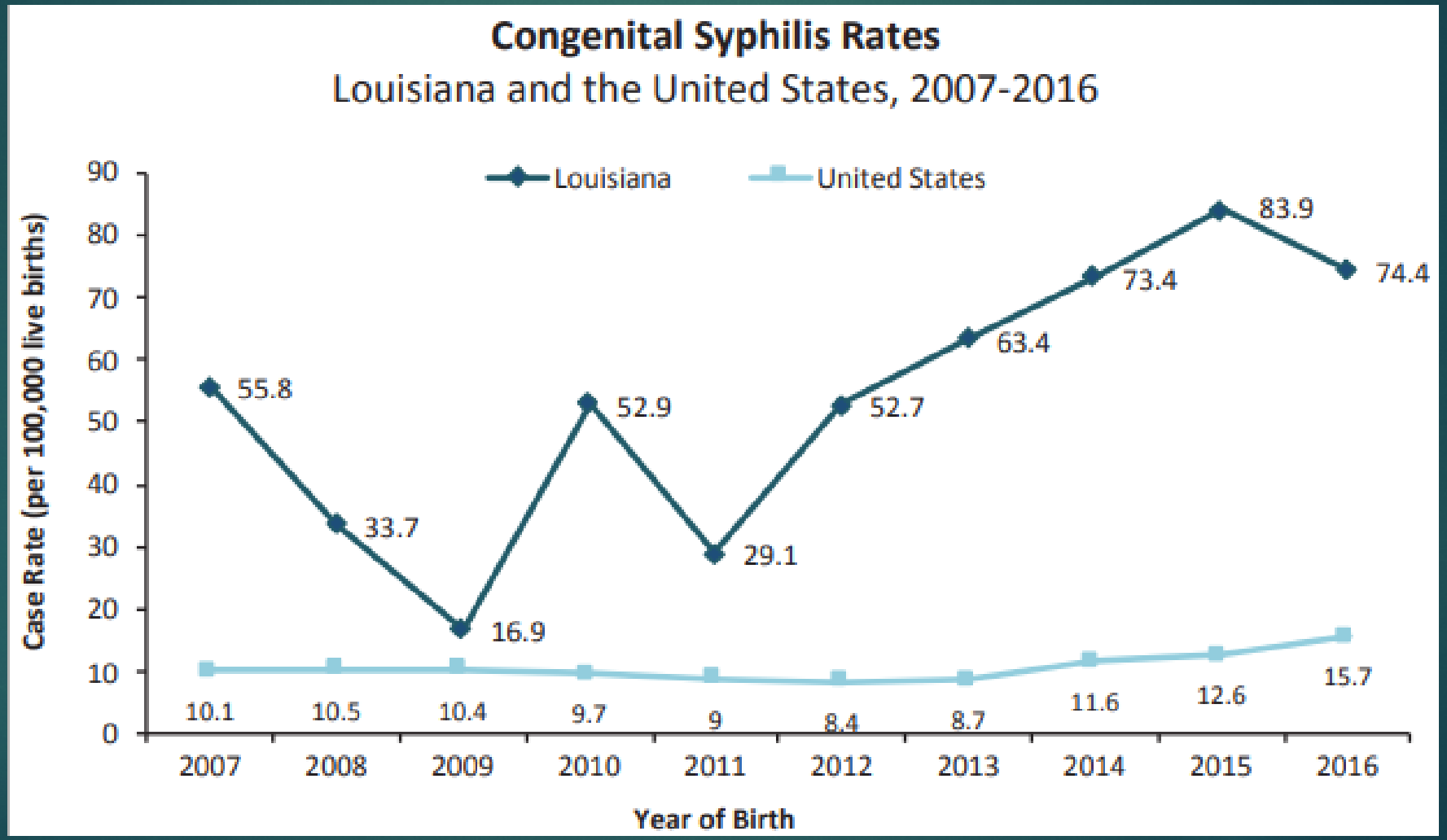
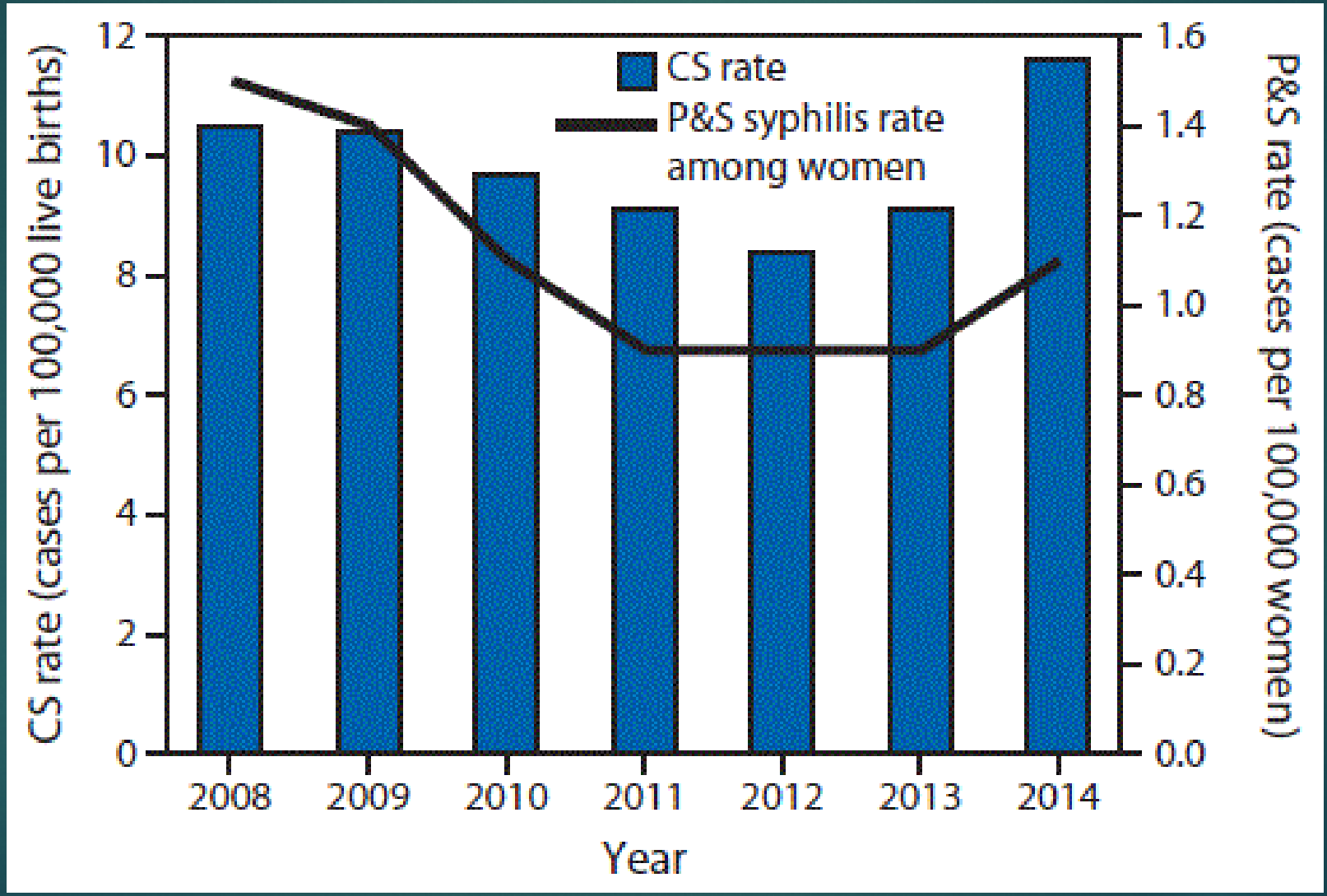


Congenital Syphilis



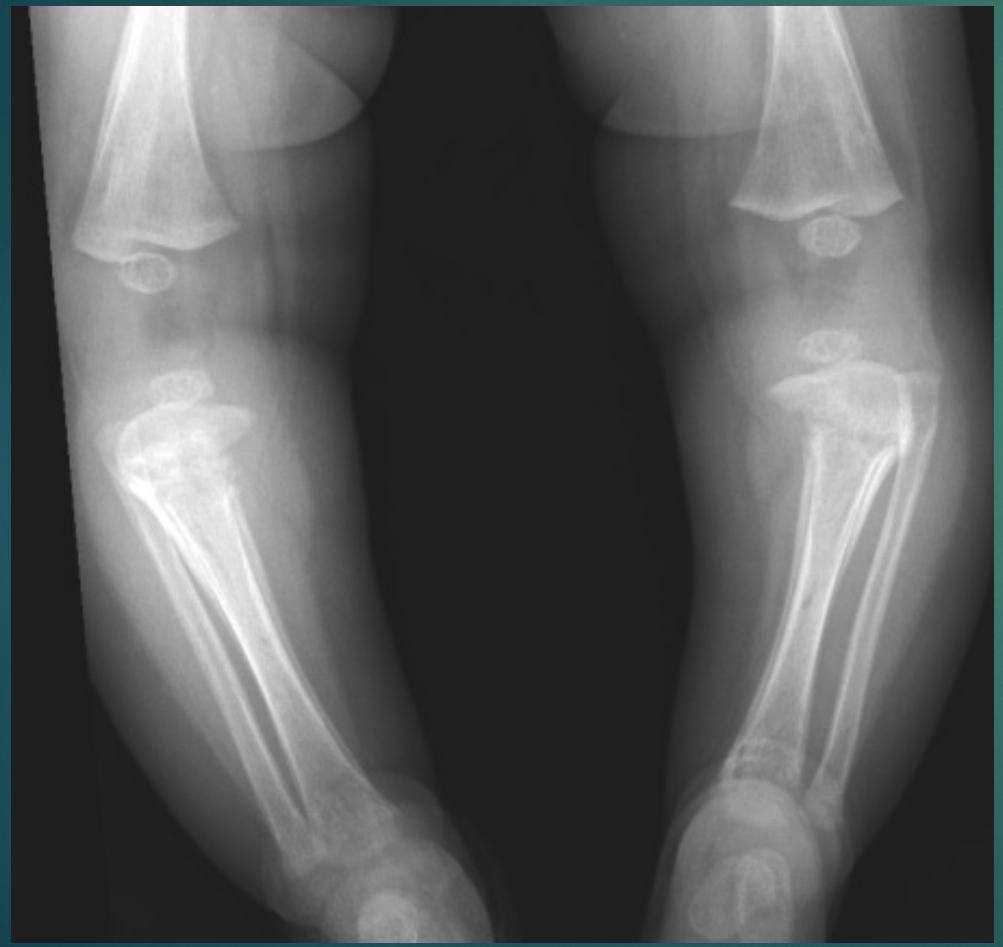
Clinical Manifestations

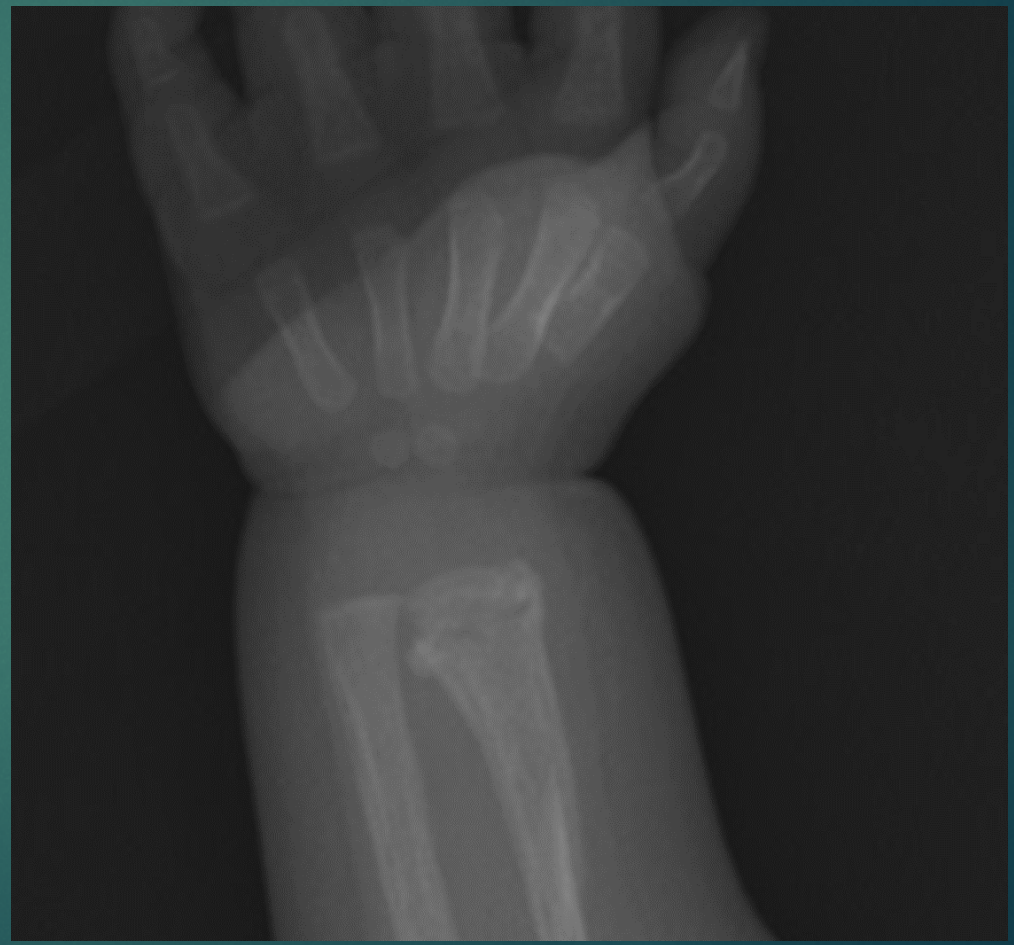
- Still birth
- Hydrops fetalis
- Preterm birth
- Hepatosplenomegaly
- “Snuffles”
- Lymphadenopathy
- Mucocutaneous lesions
- Pneumonia
- Osteochondritis
- Pseudoparalysis
- Rash
- Edema
- Hemolytic anemia
- Thrombocytopenia
- Asymptomatic

Late Findings

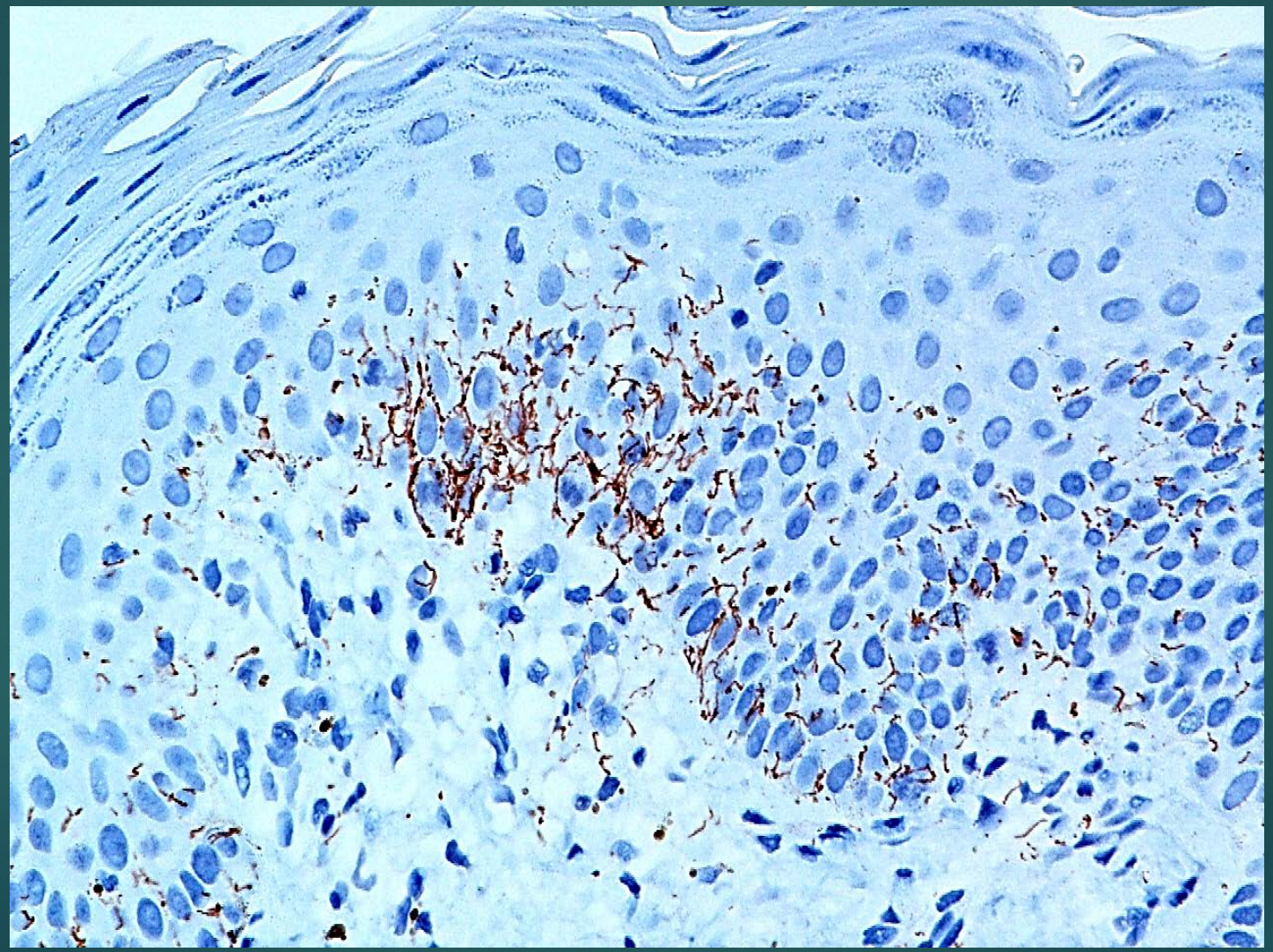
- Hutchinson triad:
  - Interstitial keratitis
  - VIII cranial nerve deafness
  - Hutchinson teeth
- Anterior bowing of the shins
- Frontal bossing
- Mulberry molars
- Saddle nose
- Rhagades (perioral fissures)
- Clutton joints (symmetric, painless swelling of the knees)

Skeletal Changes





Skin Biopsy



Evaluation

- Dependent on:
  - Identification of maternal syphilis
  - Adequacy of maternal therapy
  - Maternal serologic response to therapy
  - Comparison of maternal and infant serologic titers
  - Finding’s on infant’s physical exam

Evaluation

- May include:
  - CBC
  - CMP (interests in LFTs)
  - CSF studies
  - CSF-VDRL
  - Long-bone and chest radiography
  - Ophthalmologic evaluation
  - Testing for HIV and other STIs

Evaluation

- When do you need to obtain CSF?
  - Abnormal physical findings consistent with syphilis
  - Born to mothers with no or inadequate treatment
  - Infants whose mothers received therapy <4 weeks prior to delivery

Treatment

- CSF negative:
  - Aqueous crystalline penicillin G 200,000-300,00 U/kg/day, = 50,000 U/kg every 4-6 hours for 10 days
  - Hospitalization is often indicated to ensure that the infant receives the full course of treatment
- CSF positive:
  - IV aqueous crystalline penicillin G dose 200,000-300,00 U/kg/day for 10-14 days
  - +/- IM penicillin G benzathine 50,000 U/kg/dose for up to 3 single weekly doses
  - If allergic, consider desensitization and management with allergy specialist

Newborns and Infants

- Reactive serologic tests for syphilis or born to mother who were seroactive at delivery:
  - Follow-up during regularly scheduled well-child care visits at 2, 4, 6, and 12 months of age
- Repeat serologic nontreponemal tests every 2-3 months until:
  - Non-reactive
  - Titer has decreased at least fourfold
- Nontreponemal antibody titers should:
  - Decrease by 3 months of age
  - Nonreactive by 6 months of age

Newborns and Infants

- If increasing titers or persistent stable titers 6-12 months after initial treatment:
  - Re-evaluated including a CSF examination
  - Treat again with 10-day course of parenteral penicillin G
- If the nontreponemal test is reactive at 18 months of age:
  - Re-evaluated fully
  - Treat with standard therapy

Newborns and Infants

- Congenital neurosyphilis:
  - Treated infants with initially positive results of CSF-VDRL or abnormal CSF cell counts and/or protein concentration:
    - Repeat clinical evaluation and CXF examination at 6 month intervals
    - Until CSF examination is normal
  - Reactive CSF-VDRL test or abnormal CSF indices at 6 month intervals:
    - Retreat
    - Consider neuroimaging

CDC Call to Action

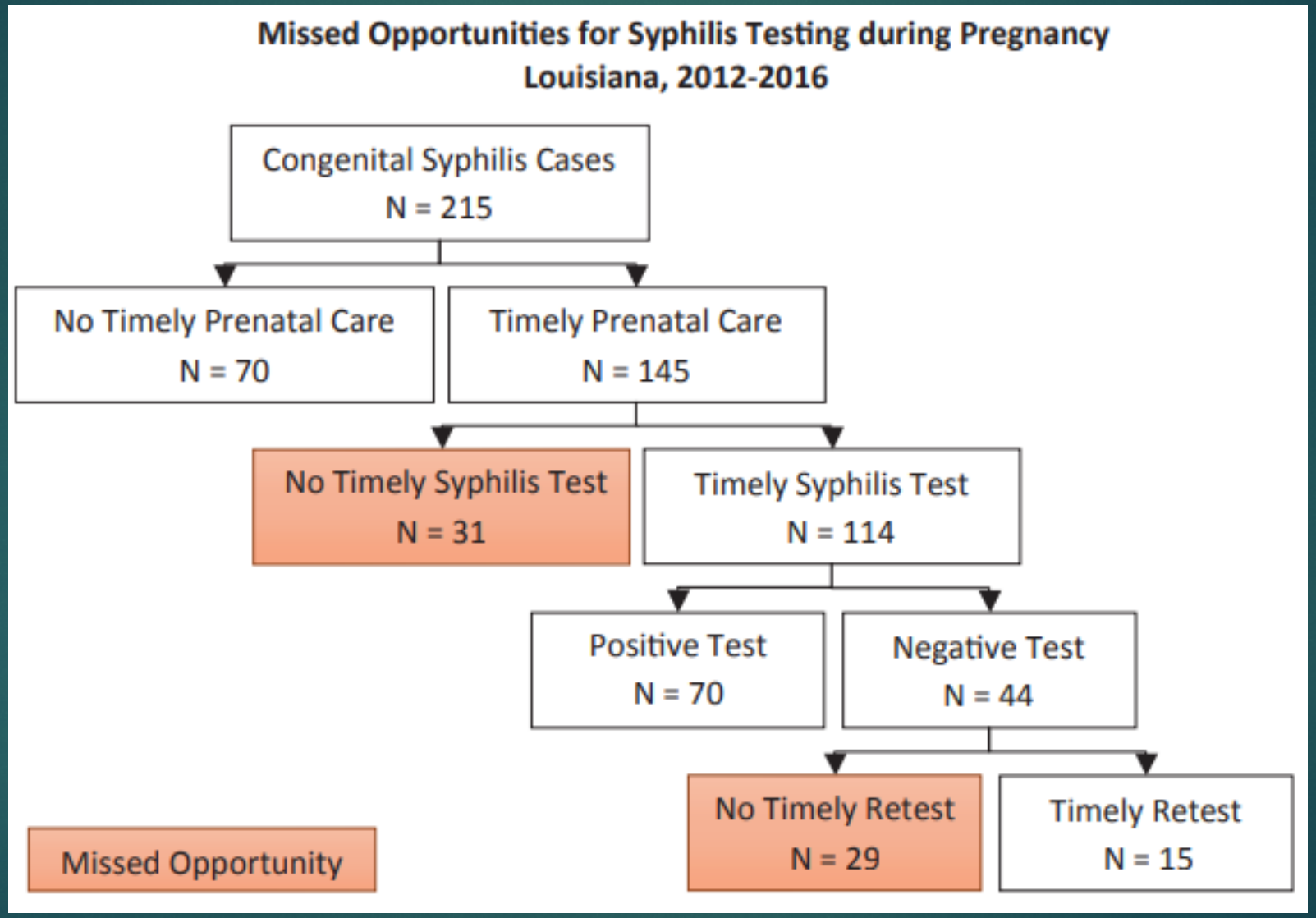
Let's Work Together to Stem the Tide of Rising Syphilis in the United States

World Health Organization

- All pregnant women should be screened:
  - The first antenatal visit in the first trimester
  - Late pregnancy
  - Initial use of non-treponemal screening test (RPR or VDRL)
  - If positive then do a confirmatory treponemal test (TPHA, TPPA, FTA-ABS)

Pregnant Mothers

- Early antenatal care for all women
- Universal syphilis screening at first prenatal visit
- Same-day treatment if indicated
  - Treatment ranges from 1-3 doses of benzathine penicillin
  - Initiated at least 30 days prior to delivery
- High risk: Repeat screening a the beginning of the third trimester and at delivery
- Treatment of all sexual partners of infected women
- Test all women who deliver a stillborn infant


Missed Opportunities for Syphilis Testing during Pregnancy
Louisiana, 2012-2016
Congenital Syphilis Cases
N = 215
No Timely Prenatal Care
N = 70
Timely Prenatal Care
N = 145
No Timely Syphilis Test
N = 31
Timely Syphilis Test
N = 114
Positive Test
N = 70
Negative Test
N = 44
No Timely Retest
N = 29
Timely Retest
N = 15
Missed Opportunity

Newborns and Infants

- Make sure the mother has been tested for syphilis at least once during pregnancy and prior delivery
- Make sure the mother has been adequately treated
- Be vigilant when evaluating patient with fever and signs/symptoms consistent with congenital syphilis
- Report all cases to the local of state health department
- Appropriate treatment and follow up based on CDC guidelines

Conclusions

- Diagnosis of congenital syphilis in infants and treatment are considerably more difficult than that in infected pregnant women.
- Prevention of congenital syphilis by universal screening of pregnant women and treatment, if indicated, is far preferable.
- Timely third trimester syphilis testing is essential for preventing cases in which syphilis infection or seroconversion occurs later in pregnancy.

References

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Questions?